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US NAVY CARRIER AIR GROUPS PACIFIC 1941-45

RENÉ FRANCILLON



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US NAVY CARRIER AIR GROUPS **PACIFIC 1941-45**

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US Navy Carrier Air Groups 1941-45

FIRST SORTIES

In the early, and still peaceful, hours of Sunday 7 December 1941 the eight carriers of the United States Navy were spread from the Atlantic to the mid-Pacific. Four fast carriers and the Navy's first escort carrier—the USS *Long Island*, AVG-1 (Aircraft Escort Vessel-1), later reclassified as ACV-1 (Auxiliary Aircraft Carrier-1) and finally as CVE-1 (Escort Aircraft Carrier-1)—were assigned to the Atlantic Fleet. In the mid-Pacific were the USS *Enterprise* (CV-6) and USS *Lexington* (CV-2); the *Enterprise* was some 200 miles west of Oahu and was steaming towards Pearl Harbor after flying off on 4 December the 12 Grumman F4F-3s of VMF-211 sent to provide air defence for Wake Island, whilst the *Lexington* was 420 miles south-east of Midway on its way to deliver the 18 Vought SB2U-3s of VMSB-231 dispatched to strengthen the garrison of that island. A third carrier, the USS *Saratoga* (CV-3), was assigned to the Pacific Fleet but was in San Diego to pick up the 18 Brewster F2A-3s of VMF-221 which were intended to reinforce VMF-211 on Wake Island.

All together the three air groups of the Pacific Fleet embarked 47 fighters (19 F2A-3s and 28 F4F-3/-3As), 111 SBD-2/-3 dive bombers and 42 TBD-1 torpedo bombers. Meanwhile, the Pearl Harbor Striking Force of the Japanese Rengo Kantai (Combined Fleet) was fast approaching the Hawaiian Islands on its way to carry out Admiral Isoroku Yamamoto's plan to strike a decisive blow at the US Pacific Fleet and thus prevent it from interfering with the main Japanese objectives: the conquest of tin- and rubber-rich Malaya, and of the Dutch East Indies and their oil fields. The six Japanese carriers (*Akagi*, *Kaga*, *Soryu*, *Hiryu*, *Shokaku* and *Zuikaku*) embarked 135 A6M2 fighters, 135 D3A1 dive bombers and 144 B5N2 torpedo bombers, which gave them a decisive advantage both quantitatively

and qualitatively. In the event however, they were not to engage US carrier-borne aircraft for yet another five months. The fact that no carriers were in Pearl Harbor that December morning was a great blow to Japanese plans and paramount in sowing the seeds of her defeat.

The US Navy Air Group

At the onset of the war, carrier air groups (CVGs) were comprised of one Fighting (VF), one Bombing (VB), one Scouting (VS) and one Torpedo (VT) squadron with aircraft complement as described on page 38. They were not yet numbered and were named after the carrier to which they were normally assigned (e.g. *Enterprise* Air Group made up of VF-6, VB-6, VS-6 and VT-6).

As the number of air groups expanded rapidly and as veteran air groups had to be replaced aboard the carriers by fresh units, the air groups became known by their numbers (e.g. Air Group Ten, CVG-10, made up of VF-10, VB-10, VS-10 and VT-10, was aboard the USS *Enterprise* in October 1942 at the time of the Battle of Santa Cruz).

The composition of these air groups changed as war conditions dictated with the total number of aircraft in each group increasing steadily, notably by the strengthening of their VF squadrons. Noteworthy also is the fact that, from early 1943, VS squadrons were no longer embarked whilst in early 1945, VBF (Fighter Bomber) squadrons were added to many air groups.

Due to space limitations, only the operations of air groups embarked aboard fast carriers (CVs and CVLs) of the Pacific Fleet are covered in this volume.

Still unaware of the impending strike against Pearl Harbor, which had begun at 06.00hrs when 45 A6M2s, 54 D3A1s and 90 B5N2s of the First Attack Force had been launched from the six Japanese carriers, the *Enterprise* flew off two Dauntlesses at 06.15, one of which was flown by Cdr. H. L. Young, the *Enterprise* air group commander. The aircraft carried officers of Vice Admiral William F. Halsey's staff and were followed 22 minutes later



1. Douglas TBD-1 Devastators of VT-3 from the USS *Saratoga* in 1941. These aircraft are finished in the non-specular light grey overall specified for carrier-based aircraft during the 30 December 1940–12 October 1941 period.

by an additional 16 Dauntlesses from VB-6 and VS-6. The first two SBDs arrived over Ewa airfield in the midst of the Japanese attack and, in spite of being intercepted by A6M2s and shot at by ships in the harbour, managed to land on Ford Island. Less fortunate were five Dauntlesses from the second group, which were quickly shot down, the first being that piloted by Lt. (jg) Manuel Gonzalez and coded 6-B-3, 'Six-Baker-Three', indicating that it was aircraft number 3 of Bombing Squadron Six. The Navy carrier air groups had been blooded.

Reaction to the Pearl Harbor attack by the Navy air groups in the area was swift; *Enterprise* flew a number of sorties to seek out the Japanese fleet and *Lexington* abandoned its plan to fly off to Midway the VMSB-231 aircraft then aboard and flew instead search sorties in an attempt to locate Nagumo's ships. None of these sorties proved successful and at the end of the first day of the war the *Enterprise* Air

Group had lost three more F4F-3s to the Pearl Harbor defences when they returned to Ford Island for a night landing. In the ensuing days some success was achieved by the *Enterprise* Air Group, whose Dauntlesses located and sank the Japanese submarine I-170 on 10 December.

The next operation by carrier groups was the abortive attempt to relieve the besieged garrison of Wake Island; the *Saratoga*, supported by the *Lexington*, had reached a point some 425 miles from Wake when on 23 December, they were recalled to Pearl Harbor as the island's garrison had been overwhelmed. As the year ended the Pacific Fleet was about to be reinforced by the transfer of the USS *Yorktown* (CV-5) from the Atlantic Fleet and Admiral Chester W. Nimitz, the new Pacific Fleet commander, was preparing plans for the US carriers' first offensive operations.

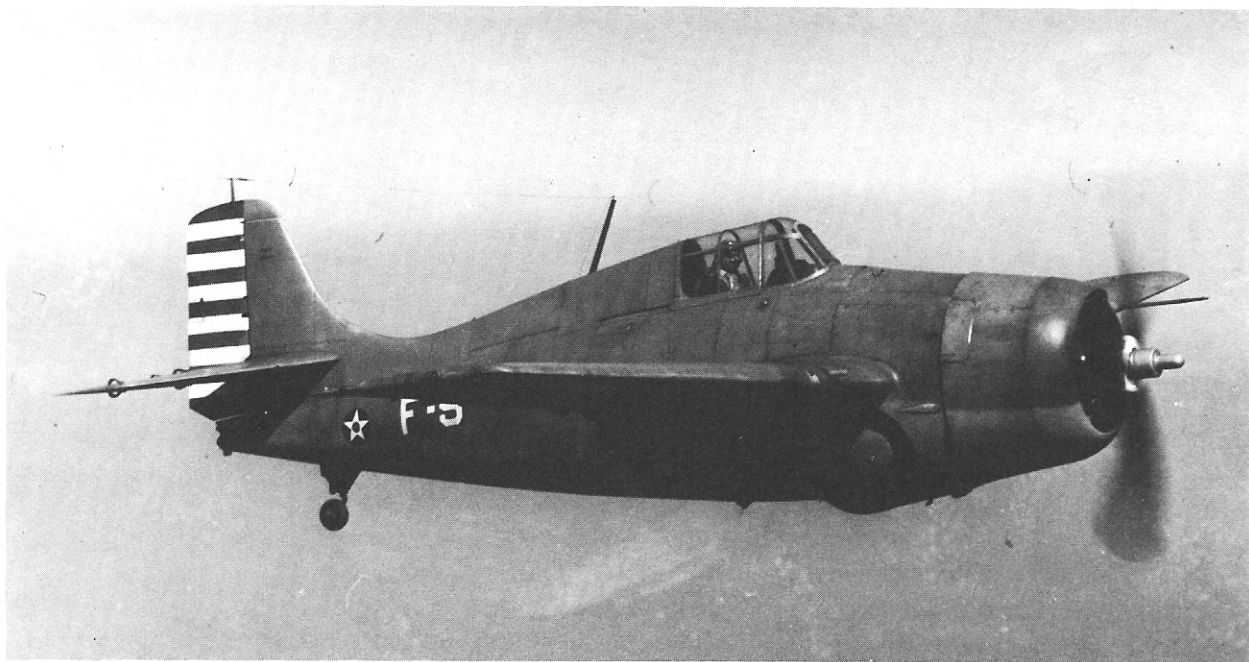
At the end of the first week of 1942, Nimitz's Pacific Fleet comprised only four carrier air groups and was thus at a substantial numerical disadvantage as the Imperial Japanese Navy then had ten carriers embarking seasoned air groups. This situation was further aggravated on 11 January

when the *Saratoga* took a torpedo hit from the Japanese submarine I-16 and had to be returned to the US West Coast for repair and refit (she rejoined the fleet after completing trials in mid-May 1942). With its three remaining carriers the Pacific Fleet was stretched, tasked as it was with escorting troops and supply convoys to the south-west Pacific area, protecting the Midway–Johnston–Hawaii defensive triangle and mounting offensive sorties against Japanese bases. This was accomplished as follows: *Yorktown* and her air group departed San Diego on 7 January and first escorted a convoy to Samoa prior to sailing towards the Gilbert and Marshall Islands. On 1 February her air group launched 11 TBD-1s and 17 SBD-3s against Jaluit and nine SBD-3s against Makin. Seven aircraft were lost to weather and AA fire and the bombers inflicted negligible damage on ground and naval installations. An F4F-3 of VF-5 shot down a Japanese four-engined flying boat to obtain the carrier fighters' first victory of the war. The *Enterprise*, which had sailed out of Pearl Harbor on 12 January, also protected the Samoa convoy and on 1 February her air group attacked airfields, shipping and ground targets in the Marshall Islands (Wotje, Roi and Maleolap). A total of 11 F4F-3, 46

SBD-3 and 9 TBD-1 offensive sorties were flown: seven Dauntlesses were lost to defending A5M4s but the SBDs claimed four enemy fighters. *Enterprise* was then attacked by seven G4M1 land-based bombers which were all shot down by fighters and AA, with the last G4M1 attempting to crash on the carrier but succeeding only in clipping the tail of an SBD-3. The ship returned to Pearl Harbor on 6 February and sortied again eight days later to launch attacks against Wake Island (24 February) and Marcus Island (4 March).

Lexington sailed from Pearl Harbor on 31 January and, after escorting a convoy to Fiji, steamed towards the Solomon Islands. Spotted before she came in range to strike the Japanese base at Rabaul, the carrier was forced to turn back but was attacked by 18 G4M1 land-based bombers. In the ensuing air battle, Lt. Edward H. (Butch) O'Hare became the first Navy ace by shooting down five of the bombers; other VF-2 pilots destroyed a further 11 G4M1s. The *Lexington* then joined the *Yorktown* to mount the first two-carrier strike, by 18 Wildcats,

2. Grumman F4F-3 Wildcat from VF-2 early in 1942. The aircraft displays the reduced size national insignia and white classification letter and individual number on the rear fuselage.



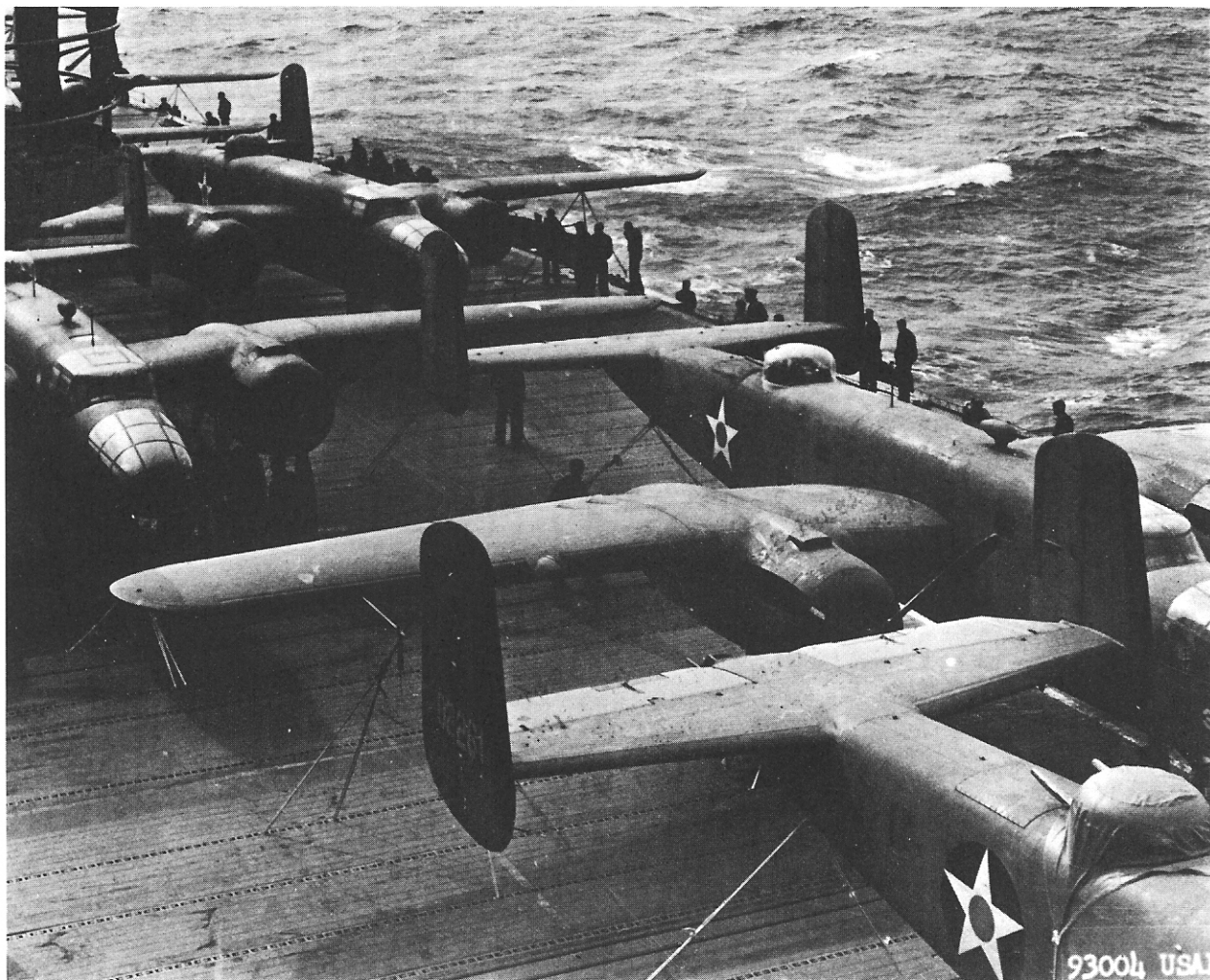
60 Dauntlesses and 25 Devastators, launched from the Gulf of Papua on 10 March. Flying over the Owen Stanley mountains, these aircraft struck the Japanese forces which had landed at Lae and Salamaua on the north-west shore of Papua. Bombing results were disappointing, the 21in torpedoes of the TBDs proving particularly unreliable, but the only aircraft lost was an SBD while the Wildcats destroyed two Japanese floatplanes. Six days later the two carriers parted company, the *Lexington* returning to Pearl Harbor whilst the

3. Deck hands of the USS *Enterprise* taking a sandwich break on the day of Doolittle's raid on Tokyo, 18 April 1942. The aircraft in the background are Grumman F4F-4 Wildcats, as identified by their six-gun armament, from Fighting Squadron Six.

Yorktown proceeded to Noumea and Tongatabu to put in some additional training for her aircrew. At Espiritu Santo on 1 May the *Lexington* and *Yorktown* again joined forces to intercept a Japanese naval force bound for Port Moresby. The first carrier battle was about to commence.

The temporary loss of the *Saratoga* was offset by the assignment of the newest American fast carrier, the USS *Hornet* (CV-8) with her air group made up of 18 Wildcats, 32 Dauntlesses and 15 Devastators. However, when *Hornet* sailed out of San Francisco on 2 April to join *Enterprise* just across the International Date Line on the 13th, her air group was tightly packed below to make room on the flight deck for 16 highly unusual 'carrier' aircraft—North American B-25B Mitchell bombers. Under the





command of Lt. Col. Jimmy Doolittle, the USAAF aircraft had been taken on board to mount the first strike against the Japanese homeland. On 18 April after being spotted by a line of Japanese picket boats, Adm. Halsey's Task Force 16 had to launch the B-25s much further out than had been planned. Consequently, Doolittle and his crew took off at 08.20hrs whilst the *Hornet* was some 625 miles east off the coast of Japan, a fact that added to the element of surprise, as this launch point was much beyond the known range of carrier-borne aircraft. An hour later the last B-25 was airborne and the formation set course for the Japanese capital. Although their bombs caused only slight physical damage, the Mitchell raid subsequently forced the Japanese to retain a disproportionate number of fighters to

4. Six of Doolittle's B-25s on the deck of the *Hornet*. One is having its engines run up, a task that had to be performed regularly during the 16 days the Mitchells spent on deck. Nearest the camera is 40-2261.

provide air defence of the homeland. After the attack, 15 B-25s proceeded eastward to China, whilst the remaining aircraft landed on Soviet territory.

Immediately after launching the Doolittle raiders, Task Force 16 reversed course and the *Hornet* began spotting her own aircraft to assist the *Enterprise* Air Group in flying CAP (combat air patrol) and anti-submarine sorties. On 25 April, TF 16 entered Pearl Harbor. Five days later, she put to sea again to bring the 12 Wildcats of VMF-215 to Espiritu Santo and, according to plan, help TF 17 (*Yorktown*, *Lexington*,

five heavy cruisers and 13 destroyers) stop the Japanese advance toward Australia. Unfortunately, TF 16 did not reach TF 17 in time and the latter was left alone to battle with the Japanese carriers in the Coral Sea.

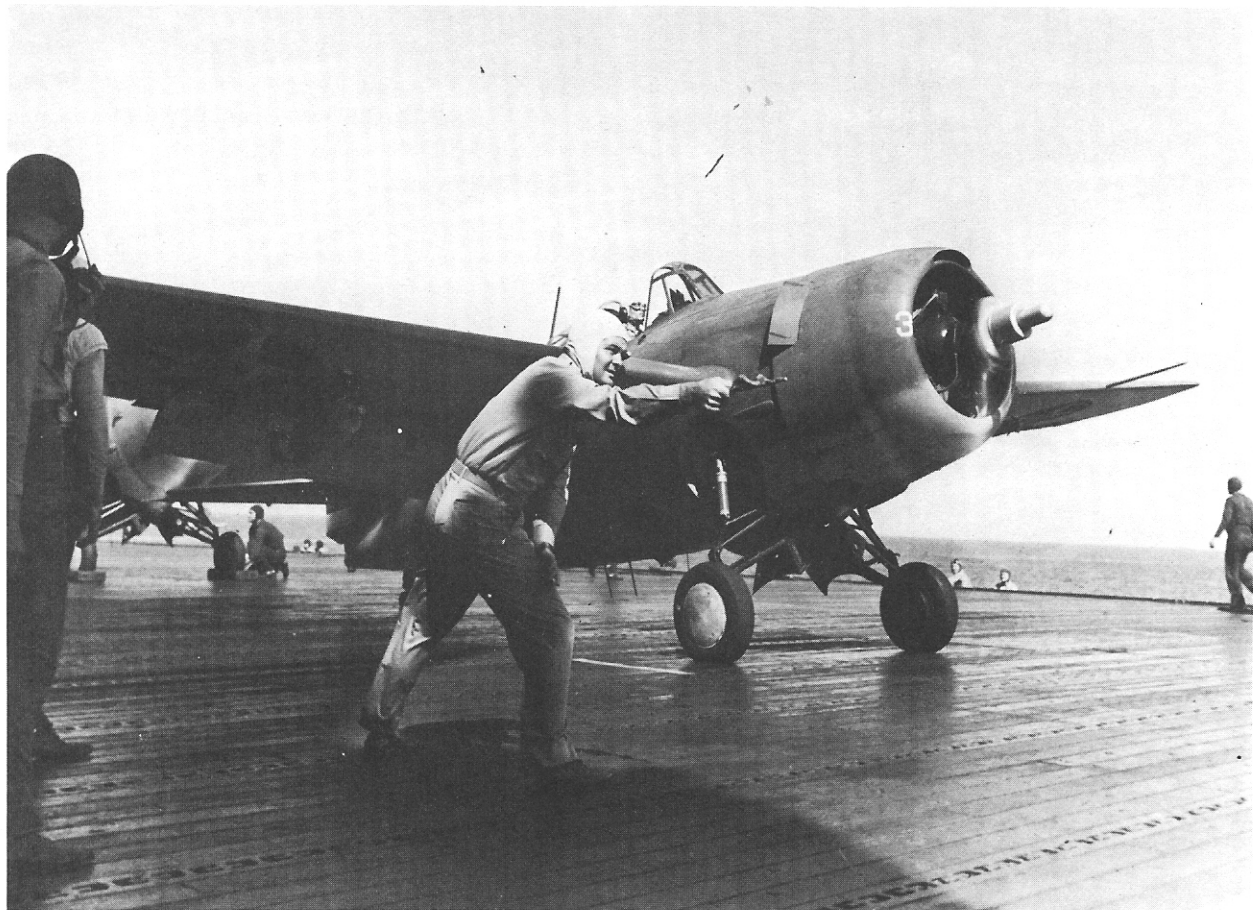
CORAL SEA AND MIDWAY

Facing the *Yorktown*, aboard which VF-5 had been replaced by VF-42, and *Lexington*, with a combined air strength of 42 Wildcats, 74 Dauntlesses and 25 Devastators, were the *Shokaku* and *Zuikaku*, which formed part of the Japanese Striking Force, and the *Shoho*, attached to the Covering Force. Together the three Japanese carriers embarked 54 A6M2s, 42 D3A1s and 51 B5N2s to give roughly equal air strength to both sides. The Japanese ships had sortied to support the 'MO' operation, an amphibious assault on Port Moresby which was intended to secure the whole of New Guinea/Papua. Operations began on 3 May with a small landing on Tulagi where the Japanese immediately set up a seaplane base. The next day the *Yorktown* air group intervened and in three strikes flew 102 sorties during which several vessels were sunk, supplies burnt and five flying-boats destroyed at the cost of one SBD and two F4Fs. The Japanese fleet, which had been fuelling out of range, quickly moved to intercept the US carriers and on the morning of 6 May, the adversaries found each other. First to strike were 12 Devastators, 28 Dauntlesses and ten Wildcats of the *Lexington* which located the *Shoho* and her escort but failed to damage the Japanese carrier; 15 minutes later ten Devastators, 23 Dauntlesses and eight Wildcats of the *Yorktown* reached the *Shoho*. The Japanese carrier went down in ten minutes after being hit by no fewer than 13 bombs, seven torpedoes and one Dauntless damaged by AA fire. The first success against an enemy carrier had been achieved at the very low cost of three aircraft. Meanwhile, aircraft of the *Shokaku* and *Zuikaku* found the oiler USS *Neosho* and her escorting destroyer, the *Sims*. The latter was sunk whilst the *Neosho* survived for a further five days

until she had to be scuttled. Another search by aircraft of the two Japanese carriers failed to locate *Yorktown* and *Lexington* and was intercepted: nine Japanese bombers were shot down for the loss of two Wildcats. Thus, at the end of the first day, Task Force 17 had gained a decisive advantage.

The following dawn saw both fleets launching search missions to locate and destroy each other's carriers. Again the Americans were first by a matter of minutes, and 12 Wildcats, 48 Dauntlesses and 21 Devastators of the two air groups fell on the *Shokaku* and the *Zuikaku*. Unfortunately, the torpedoes carried by the TBDs were slow and short-ranged and were easily avoided by the Japanese carriers. The only damage inflicted was caused by SBD bombs, *Yorktown* aircraft hitting the *Shokaku* twice and *Lexington* aircraft once. Unable to launch aircraft, *Shokaku* was forced to retire. She had, however, already launched a strike and these aircraft together with those from the *Zuikaku*, found Task Force 17. Benefiting from the fact that the American CAP was in the process of being recovered, the Japanese aircraft had a fairly clear run in, in spite of the gallant efforts of a group of SBDs which were returning to their carriers and jumped the Japanese torpedo bombers. During the attack the *Yorktown* was hit by a bomb but was able to continue air operations. Less fortunate was the *Lexington* which took two torpedoes and two light bombs and, after fires became uncontrollable, had to be abandoned and scuttled.

The Battle of the Coral Sea thus ended in a tactical draw, both sides having lost a carrier. Strategically, however, it was an American victory as the air groups of the *Yorktown* and *Lexington* had forced the Japanese to abandon their planned landing at Port Moresby. Furthermore, they had inflicted serious damage on the *Shokaku*, which was out of action until the end of August 1942. Worse, the action had deprived the Imperial Navy of its experienced air crews, a loss from which it never fully recovered. On the debit side, the Pacific Fleet had to record the loss of an aircraft carrier, a class of vessel which would be in critically short supply for another year. In view of this fact, repairs to *Yorktown* were completed in record time at Pearl Harbor, and on 31



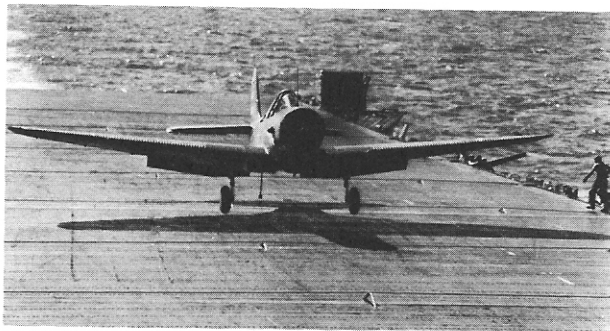
May she was able to put out to sea to join *Enterprise* and *Hornet* for the decisive Battle of Midway. The US Navy had also learned an important lesson regarding fighter strength on carriers and consequently, the VF squadron of each air group had been increased by 50 per cent of pre-war strength by substituting folding-wing F4F-4s for fixed-wing F4F-3s.

In his planning for the Midway operation, Adm. Yamamoto had intended to divert the American forces by mounting a diversionary attack on the Aleutians and was thus confident that his carrier groups would have complete air superiority. The US Navy, however, had broken the Japanese radio code and on 2 June Task Forces 16 (*Enterprise* and *Hornet*) and 17 (*Yorktown*) were ready for action, deployed to a point some 325 miles north-east of Midway. Both *Enterprise* and *Hornet* carried their original air groups whilst the *Yorktown* embarked a

5. Carrying a 100lb bomb beneath its starboard wing, this F4F-3 of VF-6 is seen in early 1942 receiving the take-off sign from the *Enterprise* deck officer.

new group made up of the veteran VF-3, VB-3 and VT-3 squadrons of the *Saratoga* and its own VS-5. Together, the three air groups had 79 F4F-4s, 111 SBD-2/-3s and 42 TBD-1s. In addition, the USN, USMC and USAAF had a total of 119 aircraft on Midway Island including 28 fighters, 40 single-engined dive and torpedo bombers, four twin-engined bombers, 17 B-17Es and 30 PBY flying-boats. Facing them were 120 A6M2s (including 36 intended for the planned Japanese garrison of Midway), 84 D3A1s and 93 B5N2s of the four carriers constituting the Japanese Striking Force.

First sighted by a PBY flying-boat early on 4 June, almost 21 hours after the transport convoy had been detected, the aircraft launched from the



6. Although obsolete, the TBD-1 Devastator remained an important component of US Navy Air Groups in the first six months of the war. During the Battle of the Coral Sea, TBD-1s contributed to the sinking of the Japanese carrier *Shoho* by scoring seven torpedo hits.

carriers of the Japanese Striking Force struck at Midway at 06.30hrs, after A6M2s had disposed of half of the Marine fighters which attempted to break the attack. Meanwhile, six Midway-based Grumman TBF-1s (making their combat debut) and four Martin B-26s made the first attack against the Japanese carriers but failed to score a hit after losing five and two aircraft respectively. A later high-altitude bombing attack by B-17Es was equally unsuccessful. Next to go after the Japanese fleet were the *Enterprise* and *Hornet* air groups which launched 68 SBDs, 29 TBDs and 20 F4Fs for what was intended to be a textbook attack with the dive bombers diverting the anti-aircraft fire and the fighters engaging the enemy fighters whilst the lumbering torpedo bombers were making their straight and level runs at wave-top height. Unfortunately, having been observed by a Japanese floatplane while they were launching, and thus having lost the element of surprise, the US carrier aircraft were forced to proceed in separate groups. They became further separated in the search for the fast moving targets which had changed course since being sighted by the PBV. The resulting uncoordinated attacks proved costly in aircraft and crews but were ultimately to yield complete victory.

Failing to find the Japanese carriers, the ten F4Fs of VF-8 and two SBDs of VB-8 and VS-8 were forced down at sea by lack of fuel; 13 SBDs of these two squadrons had to land at Midway to refuel whilst

their remaining 20 aircraft barely made it back to the *Hornet*. Consequently, even before firing a shot, the US air groups had lost the use of 45 aircraft out of the 117 which had been launched. Meanwhile, after recovering aircraft which had been on a search mission, the third air group, that embarked aboard the *Yorktown*, launched its strike group of 17 SBDs, 12 TBDs and six F4Fs.

Flown as two-seaters to save weight and fuel for a torpedo strike beyond their normal combat radius, the 15 TBD-1s of VT-8, commanded by Lt. Cdr. John Waldron, found the Japanese carriers at 09.30hrs. In their now famous attack, Waldron and his men gallantly threw themselves in to the attack but, operating without the planned assistance of the dive bombers and fighters, all 15 Devastators were quickly shot down by Zeros and AA fire. The only man to survive was Ensign George Gay, a TBD pilot, who was picked up by a PBV some 30 hours later. No torpedo hits had been scored. Next to attack, under similar defenceless conditions, were the 14 TBD-1s of VT-6 which lost all but four of its aircraft. Again, none of the torpedoes hit. The 12 Devastators of VT-3, in spite of being escorted by six F4F-4s of VF-3, met with the same lack of success; none of the torpedo bombers survived and one Wildcat was also lost. With all the torpedo bombers expended and no fighters remaining in the area to protect them, the *Dauntlesses* appeared to have little chance to affect the outcome of the battle. Luck, and the sacrifice of the TBD crews, however, turned a probable defeat into a stunning victory.

The luck which befell the SBDs stemmed from Vice Admiral Nagumo's vacillation at a critical moment. When the commander of his first strike on Midway had reported by radio that a second attack on the island would be necessary. Nagumo hesitated. The decks of his carriers were loaded with torpedoes and armour-piercing bombs in anticipation of an attack against the US carriers—should he reload with bombs for use against ground targets? Not having received information on the whereabouts of the American fleet, Nagumo finally ordered the bombers to be re-armed. Then the sighting report of one of his floatplanes reached him. He countermanded his order and as the



bombers were in the process of having their weapon loads changed, the SBDs appeared overhead. Furthermore, for the American dive bomber pilots it was the chance of a lifetime, especially as the slaughter of VT-8, VT-6 and VT-3 had taken all the Japanese fighters' fuel and ammunition and Nagumo's fleet was also in the process of recovering its CAP. The Japanese carriers lay naked to attack, loaded with fully fuelled and bombed strike aircraft, with extra bombs and torpedoes littering their decks and only a few fighters remained overhead to protect them.

First to fall on these desirable targets were 30 SBDs of VB-6 and VS-6, led by Cdr. Wade McClusky, and 17 SBDs of VB-3, led by Lt. Cdr. Max Leslie. In less than four minutes, 39 500-lb and 1,000-lb bombs were dropped on the three carriers (the fourth, the *Hiryu*, was further away and was temporarily protected by a rain squall). *Soryu* was

7. An SBD-3 being manhandled to a parking spot on the port side of the USS Enterprise. To maximize space on deck, the tailwheel was pushed into the grooved rail projecting outboard, and the aircraft was secured with its tail and aft fuselage protruding over the water. This *Dauntless* has two landing assistance stripes on the fin which indicated that the landing angle was correct if the top stripe and the section between was visible, but too low if both stripes were visible.

hit three times and sank eight hours and 45 minutes later; *Kaga* took four hits and went down nine hours after being struck, and *Akagi*, which had been hit twice, had to be scuttled at dawn the next day. For the price of 18 aircraft and their crews, the three SBD squadrons had completely reversed the situation.

The Battle of Midway, however, was not yet over as the undetected *Hiryu* had launched its own strike which crippled the USS *Yorktown*, the ship being sunk two days later by a Japanese submarine. Prior

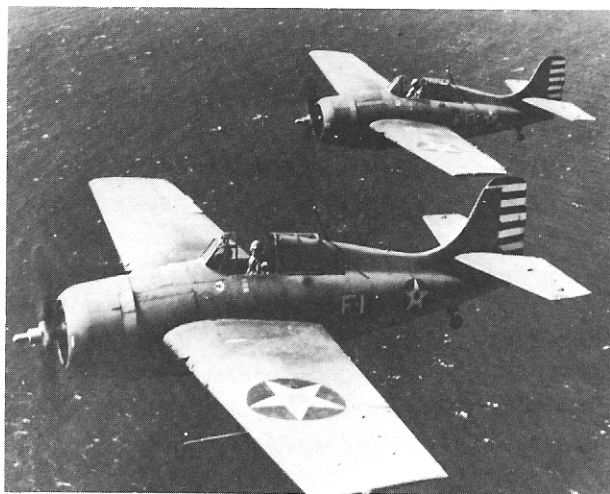
to her final demise 14 of *Yorktown's* SBDs, which had been recovered by the *Enterprise*, joined ten Dauntlesses of CV-6 in completing the US victory during the afternoon of 4 June. Finding the *Hiryu*, the SBDs scored four hits on the last carrier of the Japanese Striking Force. At 05.10 on 5 June, *Hiryu* had to be scuttled. Less than 20 hours since VT-8's initial attack, the Japanese had lost four carriers, one heavy cruiser and 253 aircraft, and had suffered their first defeat. To achieve this turning point in the Pacific war had cost the US one carrier, one destroyer and 150 aircraft.

THE SOLOMONS

'Watchtower', the amphibious operation to stop the Japanese advance towards Fiji and to secure the vital sea lanes between the United States, New Zealand and Australia, began before dawn on 7 August under the cover of 99 F4F-4s, 103 SBD-3s and 41 TBF-1s of the three air groups embarked aboard the carriers of Task Force 61. Whilst the aircraft of *Enterprise* initially provided search and defence sorties, those of *Wasp* and *Saratoga* undertook to attack Japanese facilities on Tulagi and Guadalcanal to assist the Marine landings on these islands. In the process, the air crews of the *Wasp* which were making their combat debut in the Pacific after serving in the Atlantic and Mediterranean, distinguished themselves by destroying seven four-engined flying-boats and nine single-engined floatplanes at their Tulagi moorings to wipe out the local Japanese air units. However, in the afternoon of the same day, Rabaul-based Japanese aircraft mounted an attack on the transport vessels off Guadalcanal. Further raids took place on the 8th and succeeded in sinking one transport and one destroyer. During the two day air

battle, the CAPs of the US carriers, supplemented by SBDs and AA fire from the fleet, claimed the destruction of 31 bombers and two fighters at the cost of 16 F4F-4s and two SBD-3s. No hits were scored on the US carriers but the risk of operating them within striking distance of land-based Japanese aircraft forced Task Force 61 to retire in the early evening of 8 August. Deprived of air cover, the US and Australian fleets suffered the loss of four cruisers in an engagement off Savo Island that night.

Vice Adm. Fletcher's decision to withdraw the carriers had been made to keep them available to meet the anticipated counter-attack by the Japanese fleet. This materialized two weeks later, when the first major Japanese reinforcement convoy was sent under powerful fleet escort, which included the carriers *Shokaku*, *Zuikaku* and *Ryujo* with a total of 168 aircraft. When this convoy, but not its escorting carriers, was spotted on 23 August, Fletcher immediately ordered *Saratoga* to send a strike against it whilst *Wasp* and her escort proceeded to the south to refuel out of range of Japanese land-based bombers. Unable to locate the enemy vessels, the *Saratoga* aircraft were forced to land at Henderson Field, the newly opened American airfield on Guadalcanal. They returned to their carrier on 24 August in time to take part, with *Enterprise* aircraft, in the Battle of the Eastern Solomons. This action, the third in less than four months to be fought solely by opposing fleet



8. A well-known photograph of two famous Navy fighter pilots: Lt. Cdr. J. S. Thach and Lt. Edward H. (Butch) O'Hare. Note the VF-3 'Felix the Cat' squadron insignia beneath the windshield, the victory markings, and the position and size of the national insignia. VF-3 became VF-6 in 1943 and retained the 'Felix' insignia.



9. Grumman F4F-3 Wildcat during operations in the Solomons in September 1942. Note that the national insignia on the port wing is distorted by a replacement panel. Markings changes tended to be applied to fighters before other fleet aircraft.

aircraft, lasted but one day and ended with no true naval decision. It began on the morning of 24 August when a PBV flying-boat spotted the *Ryujo*, which Nagumo had sent ahead of the convoy and his striking force, to serve as a bait for the USN carrier aircraft. However, Fletcher did not fall for this ruse and instead he had *Enterprise* launch a search mission of 23 bomb-carrying SBDs at 12.30. First finding the *Ryujo* and then the *Shokaku* and *Zuikaku*, the Dauntlesses had trouble in passing their sighting reports to Task Force 61 due to poor R/T conditions and their own attack failed.

A second strike of 30 SBDs and eight TBFs was launched at 14.15 by *Saratoga* with a third and final 26-aircraft strike (two and 12 SBDs, and five and seven TBFs, from *Saratoga* and *Enterprise* respectively) following at 16.45. Some 25 minutes before the launching of this last strike, *Saratoga's* aircraft had found their intended target and scored one torpedo and four bomb hits. *Ryujo* burned fiercely and, six hours later, became the sixth Japanese carrier to sink. The combined third strike was less successful as it failed to locate either of its assigned targets, the *Shokaku* and the *Zuikaku*. Two of its SBDs succeeded in damaging the seaplane carrier *Chitose*.

Meanwhile the Japanese fleet had not remained inactive; whilst *Ryujo* aircraft attacked Henderson Field, others were trying to locate the US carriers. In the process two flying-boats and two floatplanes were shot down by the American CAP after spotting and reporting the location of the US fleet. Acting upon this information, the *Shokaku* and the *Zuikaku* launched 41 aircraft which were detected by radar

some 51 miles before reaching the *Enterprise*; 53 F4F-4s of VF-6 and VF-5 were airborne at the time but poor R/T procedures deprived these aircraft of effective control. In the ensuing free-for-all fight which included a number of SBDs and TBFs returning from earlier strikes and anti-submarine patrols, the Japanese torpedo bombers were successfully driven back whilst a number of dive bombers and Zeros were also shot down. The top scoring pilot on the American side was W/M Donald Runyan, a non-commissioned officer of VF-6, who claimed four enemy aircraft destroyed and one damaged. Nonetheless, the Japanese dive bombers pressed their attack and hit the *Enterprise* three times between 17.11 and 17.15. Fortunately, a second Japanese strike of 30 aircraft approached within 58 miles of the damaged *Enterprise* but failed to locate her. Whilst Task Force 61 turned east to end the engagement, the gallant ship brought her fires under control. She then set course for Pearl Harbor for two months of repairs and refit.

In spite of the temporary loss of the *Enterprise*, the US air groups had emerged victorious; they had lost 17 aircraft and six crews, but had sunk an enemy carrier and destroyed 70 aircraft. But, by the effective deployment of submarines in the confined sea lanes of the Solomons, the Japanese more than



10. The Grumman TBF-1 Avenger made its combat debut during the Battle of Midway flown by six crews of Torpedo Squadron Eight (VT-8) operating temporarily from Midway Island.



11. Douglas SBD-4 in landing configuration, with gear and perforated flaps down but hook still raised, approaching the USS Lexington (CV-16) on 23 April 1943. An interesting point here is that the red centre to the national insignia appears to have been applied in the wrong place.

evened out this score. On 31 August *Saratoga* was damaged by a torpedo and was forced to return to Pearl Harbor for repairs, whilst on 15 September *Wasp* took three torpedoes and was sunk. For a few precious weeks the *Hornet* was the Pacific Fleet's only operational carrier, at a time when the Japanese Navy had seven fleet carriers and three escort carriers.

Luckily, the Japanese did not exploit this situation and the next carrier operation found the *Enterprise* back alongside *Hornet* with 169 aircraft to take on *Shokaku*, *Zuikaku*, *Zuiho* and *Junyo* and their 207 aircraft. These forces clashed when a Japanese combined operation attempted to throw

the Marines off Guadalcanal. The plan was for the Japanese Army to mount an offensive aimed at capturing Henderson Field after Nagumo's four carriers had safely escorted a troop convoy to the island. For the Pacific Fleet, the ensuing Battle of Santa Cruz had an inauspicious start as an afternoon strike on 25 October from *Hornet* failed to find part of the Japanese fleet which had been located by a PBY earlier in the day. Thus, instead of being able to mount a full-scale attack to cripple the enemy carriers, Rear Adm. Kinkaid was forced, on 26 October, to split his numerically inferior forces and to have *Enterprise* launch a 16-strong SBD search mission. Fanning out in pairs to cover a wide search area, the Dauntlesses first located a group of battleships and cruisers at 07.17. Then, at 07.50, two of the SBDs sighted the *Shokaku* and *Zuikaku*—which had just launched their own strikes. Intercepted by Zeros the SBDs could only report the

location of the Japanese carriers without being able to bomb them. About 40 minutes later, two other Dauntlesses from the *Enterprise* search group found the *Zuiho* and each scored a hit. Damage to her deck rendered *Zuiho* unable to recover aircraft and the search SBDs also claimed five Zeros without loss to themselves.

From this point on the battle became confused, with opposing aircraft criss-crossing the water expanse separating the two fleets. It is, perhaps, best summarized by looking separately at the offensive and defensive operations of the *Enterprise* and *Hornet* air groups. Upon receiving the SBD sighting reports, the two US carriers launched their main strikes in three groups totalling 23 F4Fs, 27 SBDs and 22 TBFs. Being unco-ordinated, the activities of these three waves lost much of their effectiveness and resulted only in damage to the *Shokaku*—which received three to six bomb hits from VB-8 and VS-8

and had her deck put out of action—and on the cruiser *Chikuma*. Task Force 16 was unable to launch further strikes as, in the meantime, *Hornet* had been fatally crippled and *Enterprise* damaged.

Throughout the day the Japanese carriers launched several strikes which scored heavily on the US carriers. In spite of having already sent 23 aircraft to escort the strike aircraft, the two fighter squadrons—*Hornet*'s experienced VF-72, which had been previously embarked aboard the *Wasp*, and *Enterprise*'s VF-10, which was a new unit led by combat veterans—still had 38 F4F-4s on CAP to meet the first Japanese attack.

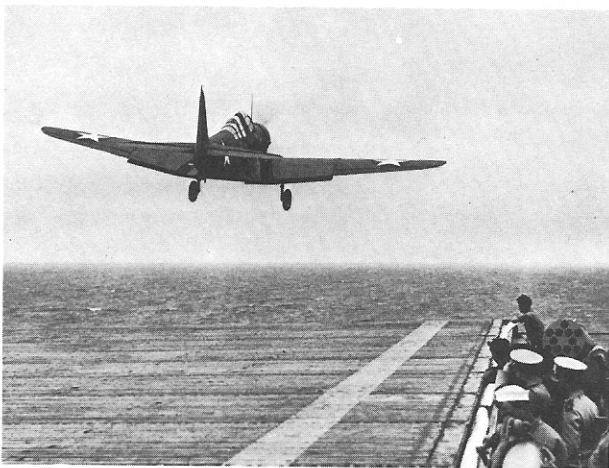
12. A 1,000lb bomb being secured to the swinging bomb cradle beneath the fuselage of a Douglas Dauntless. Details of this cradle, the main undercarriage and the bomb rack beneath the port wing of this aircraft are noteworthy, as is the wooden deck, which was standard for all wartime US carriers.



However, the gallant efforts of their pilots including Lt. Vejtasa of VF-10 and Ensign Wrenn of VF-72, who became aces by downing seven and five aircraft respectively, were rendered less effective by poor radio communications and inexperienced radar direction. Consequently, between 10.10 and 10.21, *Hornet* was hit by four bombs, two torpedoes and two Japanese aircraft which crashed into her, causing extensive fires. Additional Japanese strikes during the remainder of the day resulted in *Enterprise* receiving two bomb hits which left her number 2 aircraft lift sticking in the down position so that she could no longer effectively conduct air operations. *Hornet* took one more torpedo and two bombs and had to be abandoned. Before sinking at 01.35 on 27 October, she still needed nine torpedoes and 400 rounds of 5in ammunition from US destroyers and four torpedoes from Japanese destroyers.

At the end of the day both sides were exhausted; Task Force 16 had lost 74 aircraft and was left with only one damaged carrier, whilst the Japanese still had two undamaged carriers and two in need of major repairs in the area. Most serious from the Japanese point of view however, was the loss of some 90 aircraft with most of their experienced crews, a setback from which it would never fully recover. On the other hand the Pacific Fleet was

13. A TBD-1 Devastator being launched on a search mission. The canopy over the front and centre cockpits was left in the open position to facilitate crew evacuation in the event of an unsuccessful take-off.



soon to receive strong reinforcement in the form of new carriers, better aircraft and well-trained air groups—for the US Navy, the defensive phase of the Pacific war was over.

NEW WEAPONS

As the Pacific war entered its second year, the US Navy was still critically short of aircraft carriers, the class of ship which had clearly dominated the first year of operations. There was, however, light at the end of the tunnel as large numbers of new carriers and aircraft were about to enter service and a mass training programme was on the verge of providing the officers, aircrews and sailors to man these new weapons.

On 28 April 1941, the keel of the USS *Essex* (CV-9), the first of a new class of 27,100-ton fleet carrier, was laid. Except for *Lexington* and *Saratoga*, the *Essex* was larger than all other previous US carriers. Capable of a speed of 32.7 knots and of operating up to 110 aircraft, the *Essex*-class carriers were to become the prime striking element of the wartime US Navy and some remained in service for 30 years. The *Essex* was commissioned in December 1942 and joined the Pacific Fleet in June 1943.

Of 22 *Essex*-class carriers completed between 1942 and 1945, 16 (*Essex*, CV-9; *Yorktown*, CV-10; *Intrepid*, CV-11; *Hornet*, CV-12; *Franklin*, CV-13; *Ticonderoga*, CV-14; *Randolph*, CV-15; *Lexington*, CV-16; *Bunker Hill*, CV-17; *Wasp*, CV-18; *Hancock*, CV-19; *Bennington*, CV-20; *Boxer*, CV-21; *Bon Homme Richard*, CV-31; *Antietam*, CV-36; and *Shangri La*, CV-38) saw service in the Pacific or were about to join the Pacific Fleet at war's end.

Whilst the *Essex* programme was under way, the US Navy realized the urgent need to supplement these large carriers not only with escort carriers, obtained by converting merchant vessels, but also with additional fast carriers. To speed this latter programme, it was decided to modify nine light cruisers of the *Cleveland*-class during construction by fitting them with a flight deck, hangars and other



14. Lt. Cdr. J. S. Thach of Fighting Squadron Three. This officer devised an effective combat tactic which enabled the Wildcat to do better than holding its own against the faster and more manoeuvrable Zero-Sen.

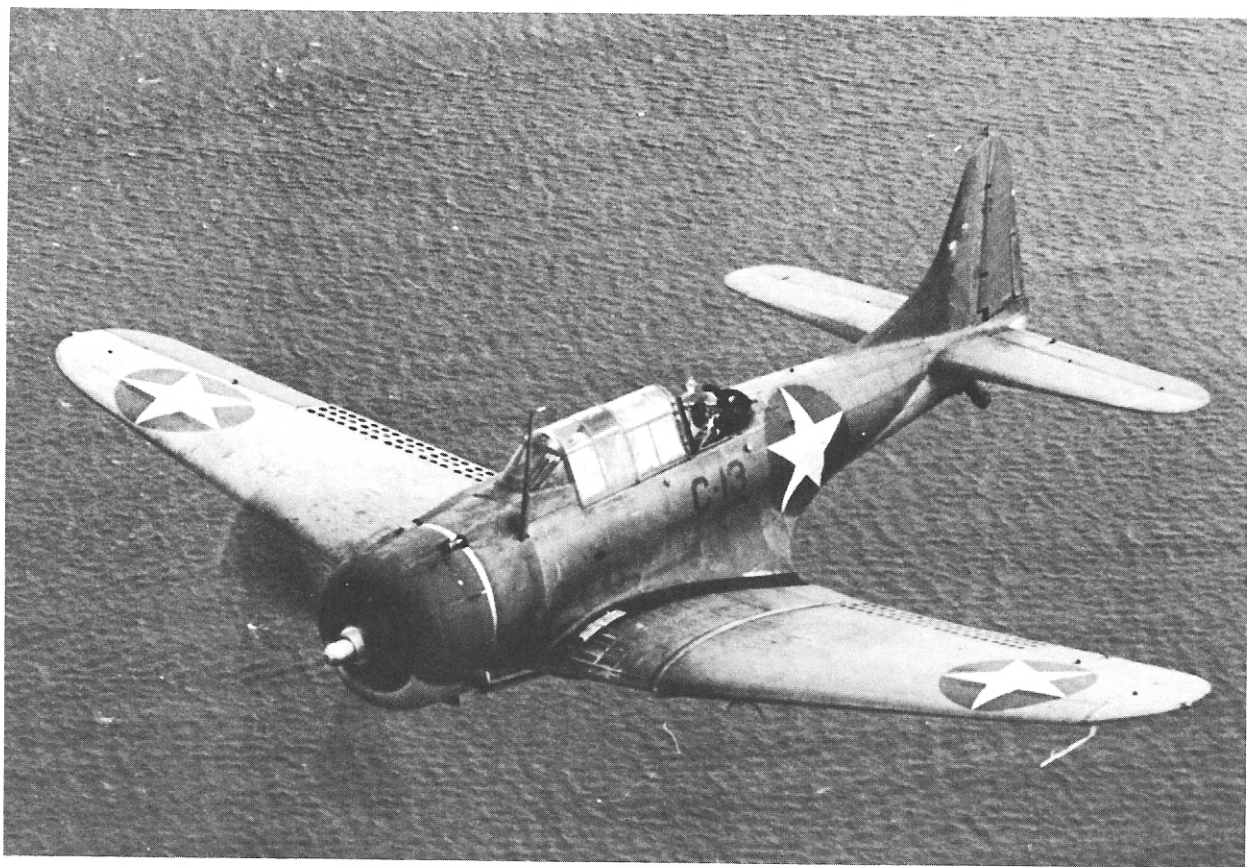
aircraft-related facilities, thus turning them into fast, light carriers (CVLs) capable of a speed of 31.6 knots and of operating up to 45 aircraft. The first CVL, the USS *Independence* (CVL-22) was commissioned in January 1943 and joined the Pacific Fleet in July, at the same time as its sister ships, the *Princeton* (CVL-23) and *Belleau Wood* (CVL-24). The six other carriers in this class (*Cowpens*, *Monterey*, *Langley*, *Cabot*, *Bataan* and *San Jacinto*, respectively CVL-25 to CVL-30) also served with the Pacific Fleet during the war.

During 1942 the obsolete Douglas TBD-1 Devastator torpedo bomber had begun to be replaced by the Grumman Avenger which equipped all the air groups operating until the end of the war from the veteran *Saratoga* and *Enterprise*, to the new CVs and CVLs. To replace the Douglas SBD Dauntless dive bomber, which had proved highly successful but was considered obsolescent, the Navy relied on the new Curtiss SB2C Helldiver, which made its long-delayed combat debut in October 1943 and, from the second half of 1944, equipped all the bombing squadrons operating with the air groups assigned to CVs. In the carrier-borne fighter class,

the US Navy had anticipated replacing the obsolescent Grumman F4F Wildcat with the very fast Vought F4U Corsair. However, the F4U initially proved quite difficult to operate from carriers and the Pacific Fleet had to rely on the Wildcat's stablemate to re-equip its VF squadrons. The choice of the F6F Hellcat was a fortunate one as although it was not as fast as the Corsair or some Allied and German land-based fighters, it was faster than most Japanese aircraft it was called upon to engage. More importantly, the Hellcat was an extremely rugged aircraft, with good armament and good endurance, and could easily be flown by the large numbers of new pilots joining the fleet.

To man these new aircraft, the US Navy had set up an impressive training programme which achieved excellent results. Compared with his Japanese counterpart, the average US airman joining the Pacific Fleet had from three to five times more flight hours before being assigned to a combat unit. Furthermore, the new air groups being formed and the older air groups being reorganized enjoyed a nucleus of combat veterans, who had survived—unlike many crews of the Japanese Navy—the first year of the Pacific war. The combination of new and superior aircraft, better crew training, experienced leaders and improved communications/controls techniques soon resulted in the new air groups (now consisting of VB, VT and enlarged VF squadrons aboard the CVs, and VF and VT squadrons aboard the CVLs) achieving complete air superiority and high kill-to-loss ratios.

To provide its new air groups with needed combat experience, develop operating procedures for task groups made up of three to five fast carriers, and keep up the pressure against Japan, the Pacific Fleet began a series of carrier strikes against Japanese-held islands in September 1943, and supported the conquest of islands in the Gilbert and Marshall archipelagoes. So although the second year of the Pacific war is considered by many to have been a relatively quiet period, for the carrier



15. Douglas SBD-5 bearing the code C-13 and apparently part of a composite squadron embarked aboard the USS Monterey early in 1944.

force it was anything but, as the following brief chronology of major carrier operations shows:

1 September 1943: The air groups aboard the three new carriers, *Essex*, *Yorktown* and *Independence* struck Marcus Island in the western Pacific. During this successful raid the F6F-3s of VF-9 made the Hellcat's combat debut.

18–19 September 1943: Strikes against Tarawa and Makin in the Gilbert Islands were flown by the air groups of the *Lexington*, *Princeton* and *Belleau Wood*.

5–6 October 1943: For the first time in the war more than three US carriers (*Essex*, *Yorktown*, *Lexington*, *Independence*, *Belleau Wood* and *Cowpens*) operated together when their air groups attacked the major Japanese naval base at Truk in the Caroline Islands.

October–November 1943: During a two-week period 11 CVs and CVLs organized in four task groups (TG50.1 through TG50.4; see Appendix for carriers and air groups assignment) struck Jaluit and Mili in the Marshall Islands (TG50.1), Makin in the Gilberts (TG50.2) and Rabaul (first by TG50.3, then by TG50.4, and finally by TG50.3 and TG50.4 together) and supported the landings on Bougainville in the Solomons (TG50.4). In the process, the Helldiver entered combat operations when SB2C-1s of VB-17 aboard the *Bunker Hill* bombed Rabaul. During the 11 November strike against Rabaul land-based F4U-1s also operated temporarily from the deck of the *Essex* and *Bunker Hill* to make the Corsair's debut in US carrier operations. Large numbers of Japanese aircraft were destroyed in the air and on the ground during these operations.

November 1943: Immediately after completing the above operations, Task Force 50 with six CVs, five CVLs and eight CVEs supported the Marine landings



on Tarawa and Makin in the Gilbert Islands. While developing night fighting operations with radar-equipped TBFs and guiding F6F-3 day fighters to within visual sighting distance, Lt. Cdr. O'Hare, the Congressional Medal of Honor winner who had become an ace by destroying five G4M1s in February 1942, was lost during the night of 26 November.

December 1943–January 1944: Strikes were flown by six air groups against Roi and Kwajalein in the Marshalls, and by the air groups of the *Bunker Hill* and *Monterey* against Nauru in the Gilberts and Kavieng (which was hit three times in ten days). The fast carriers then supported the landings on Kwajalein and Majuro in late January 1944.

16. A formation of Avengers photographed from a Dauntless. The aircraft are finished in the non-specular blue grey (upper surfaces)/light grey (under surfaces) camouflage adopted on 13 October 1941 and bear the type of national insignia specified on 4 September 1943.

17–18 February 1944: Whilst air groups assigned to TG58.4 struck Eniwetok, the nine air groups aboard the other carriers of Task Force 58 mounted a major strike against the Japanese stronghold at Truk. Considerable damages were inflicted on the Japanese bases and nearby shipping but Hellcat night fighters failed to stop a night attack by Kate torpedo bombers which succeeded in damaging the *Intrepid* with a torpedo hit on the carrier's rudder. During the same night, radar-equipped Avengers of Air Group Ten (*Enterprise*) flew the first night carrier attack of the Pacific war.

30 March 1944: In yet another strike against a Japanese stronghold, 11 air groups bombed and strafed the Palaus.

April 1944: After operating with Task Force 58, the veteran USS *Saratoga* was detached to join the British Eastern Fleet for strikes against Sumatra and Java.

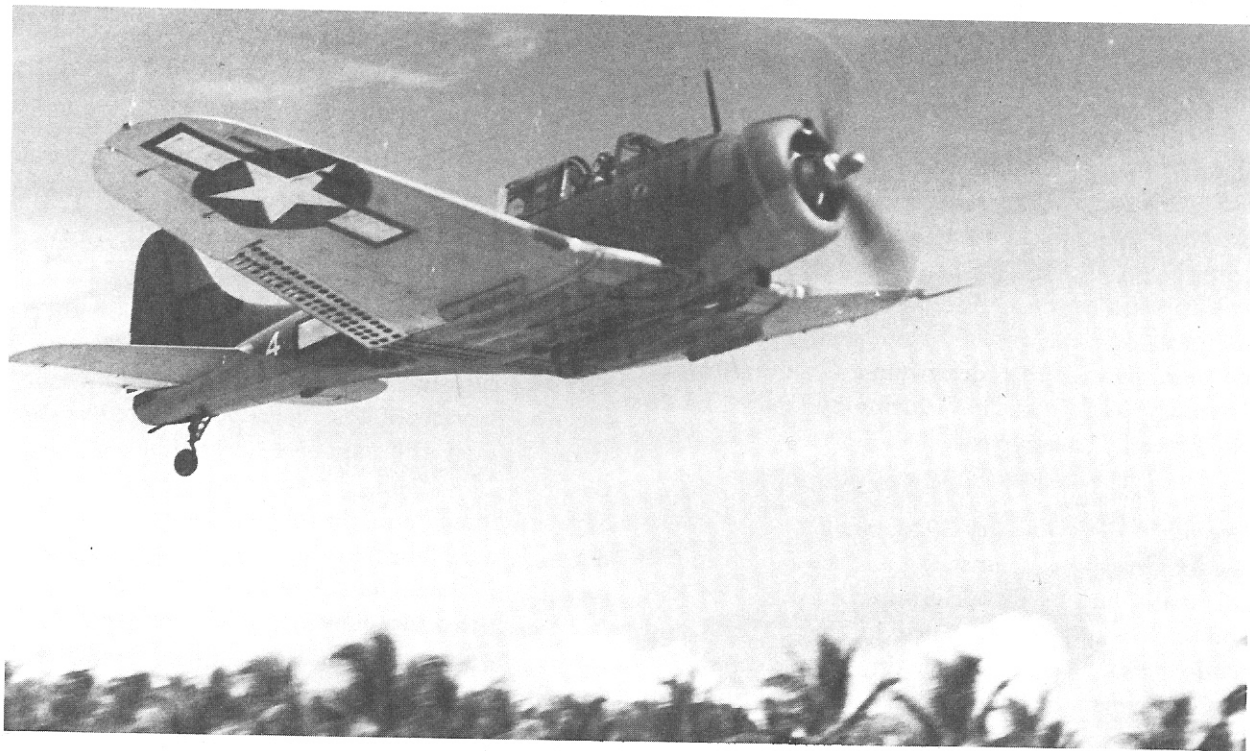
THE PHILIPPINE SEA

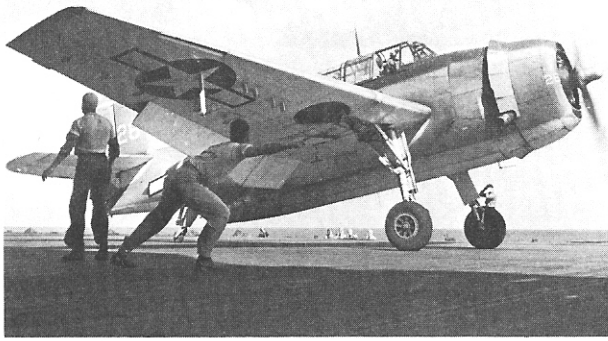
After conducting additional strikes against New Guinea, Marcus and Wake during April and May 1944, the air groups aboard the carriers of Task Force 58 were ready to take part in Operation 'Forager', the capture of Saipan, Guam and Tinian in the Marianas Islands. For this operation, primarily intended to provide bases from which B-29 Superfortresses could conduct an intensive strategic

17. Douglas SBD-3 from VS-64, carrying a 500lb bomb beneath its fuselage, on take-off from Segi Point, New Georgia, in December 1943.

bombing campaign against the Japanese mainland, the 15 carriers of TF58 embarked a total of 896 aircraft organized into four Task Groups (for details see Appendix). They were supplemented by seven CVEs embarking 169 aircraft to provide close support for the assault troops, two CVEs carrying replacement aircraft, and two CVEs ferrying 73 USAAF P-47 fighters. In addition, they were supported by a vast fleet of battleships, cruisers, destroyers and fleet support vessels whilst submarines of the Pacific Fleet were deployed to shadow and attack the Japanese fleet.

The Imperial Navy had anticipated the American move and on 13 June the First Mobile Fleet, comprised of five large carriers and four light carriers with a total of 435 aircraft, departed its anchorage at Tawi Tawi, Borneo, to engage Task Force 58 in the largest carrier action: the First Battle of the Philippine Sea. In addition to his carrier-borne aircraft, Vice Adm. Ozawa depended on the support of some 540 aircraft based in the Marianas and other Japanese-held islands. He also intended to take advantage of the superior range of his carrier aircraft, to strike whilst still beyond the range of





18. Eastern TBM-1C Avenger about to be launched from the deck of the USS Franklin (CV-13) in March 1944.

Vice Adm. Mitscher's air groups. Finally, as his fleet was sailing from the south-west into the wind, his carriers were going to be able to launch and recover aircraft without changing course, whereas the American carriers would have to reverse course to do so. Unfortunately for Adm. Ozawa, the inexperience of most of his air crews, the aggressiveness of US submarines, the effectiveness of initial US carrier strikes against Japanese air bases, the daring of Adm. Mitscher, and the superb performance of the Hellcats and their pilots, deprived him of a chance to succeed.

Kept well informed by submarines of the whereabouts of the First Mobile Fleet, which had been seen leaving Tawi Tawi on 13 June and entering the Philippine Sea two days later, Adm. Mitscher took advantage of the days preceding the arrival of the Japanese fleet to strike Japanese island bases and shipping prior to getting ready to engage Ozawa's carriers. The air groups of Task Force 58 struck Guam, Saipan and Tinian between 11 and 14 June, and Iwo and Chichi Jima on 15 and 16 June. In the process they destroyed great numbers of Japanese aircraft in the air and on the ground, thus depriving the Japanese of effective support by land-based aircraft and placing the First Mobile Fleet at an almost one to two disadvantage in terms of aircraft. This numerical US advantage was soon turned into complete air superiority as the Hellcats wreaked wholesale destruction on Japanese carrier- and land-based aircraft. So complete was the Hellcat's success that, in the words of Lt. Cdr. Paul Buie, CO of VF-16,

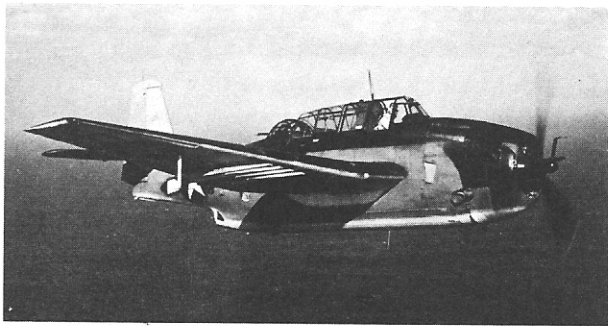
the First Battle of the Philippine Sea is better remembered as the 'Marianas Turkey Shoot'.

In the morning of 19 June, as the two fleets were closing the gap separating them, both launched search missions. The First Mobile Fleet obtained the initial contact and, beginning at 08.30, flew off two waves of 69 and 109 aircraft respectively. Since 05.30 TF58 had been under isolated attack by Guam-based aircraft but these were easily disposed of by Hellcats which claimed 35 for the loss of one of their own. This success was repeated against the two waves of Japanese carrier-borne aircraft. The first of these was detected by radar at 10.00 when 150 miles away, thus enabling TF58 to launch all available fighters whilst dispatching its bombers to attack Guam; 42 of the Japanese attackers were destroyed for the loss of one Hellcat. The second

THE PHILIPPINE SEA

The Philippine Sea action provided six of the 40 Hellcat aces-in-a-day on 19 June alone, including Cdr. David McCampbell (7 kills on that day) and Lt. Alex Vraciu (6 kills to add to his previous 12 victories and become the top-scoring USN pilot at the time). Whilst Hellcats had scored earlier (their first victory had been obtained by Lt. Richard Loesch of VF-6 on 1 September 1943) and continued to score until VJ-Day (the F6Fs were credited with 4,947 of the 6,510 kills by US carrier aircraft and achieved a better than 19-to-1 kill-loss ratio), they gained most of their fame during the First Battle of the Philippine Sea. All top-scoring Navy carrier aces were Hellcat pilots, the five most successful being: David McCampbell (34 victories), Cecil Harris (24), Gene Valencia (23), Alex Vraciu and Pat Fleming (19 each).

wave was equally dealt with and lost all but 15 aircraft to CAP fighters and anti-aircraft fire. The only results achieved by the Japanese were single hits on the battleships *South Dakota* and *Indiana* as well as a few near misses which killed or wounded some sailors. Admiral Ozawa's carriers had launched two more strikes (47 aircraft at 10.00, and 82 aircraft at 11.00) but some of these failed to find the US fleet and were destroyed by TF58 whilst they attempted to land on Guam. The remaining aircraft from the third and fourth Japanese strikes suffered more losses to CAP and AA fire, and failed to score a hit. By 15.00 the First Mobile Fleet had lost some 275



19. Grumman TBF-1 with 0-50in gun on the starboard side of the engine cowling and launching rails for eight rockets beneath the wings.

20. Curtiss SB2C-1C Helldivers of VB-2 on the aft deck of the USS Hornet on 15 February 1944. A heavy swell probably caused the visible rudder damage to aircraft 2, 27, 21 and 18 and a chewed-up elevator lies on the deck in the foreground.



aircraft without achieving success and was now on the defensive.

The submarines *Albacore* and *Cavalla* scored the first US naval successes of the battle when they respectively hit the carrier *Taiho* with one torpedo at 09.10, and the carrier *Shokaku* with three torpedoes at 12.20. Both carriers sank. Eager to emulate the submariners, and in spite of the fact that the Japanese fleet was at maximum striking range, the aviators of TF58 had their chance the next day when Adm. Mitscher decided to launch a 216-aircraft strike beginning at 16.21. Reaching the First Mobile Fleet at dusk, the TF58 aircraft sank the carrier *Hiyo* with two torpedoes and two oilers with bombs whilst damaging the carriers *Junyo* (two bombs), *Zuikaku* (at least one bomb) and *Chiyoda* (one bomb). The fighter pilots and bomber gunners also claimed some 65 enemy aircraft. Adm. Ozawa

was thus left with only three undamaged carriers and about three dozen aircraft and chose to withdraw. Only 20 US aircraft were lost in the actual attack and the long flight back (followed by night deck landings) was made famous by Adm. Mitscher's decision to light the carriers in spite of the potential danger of attack by Japanese submarines. An additional 80 aircraft ran out of fuel and were ditched or were destroyed in crash landings. The total toll, however, was only 49 aviators dead or missing.

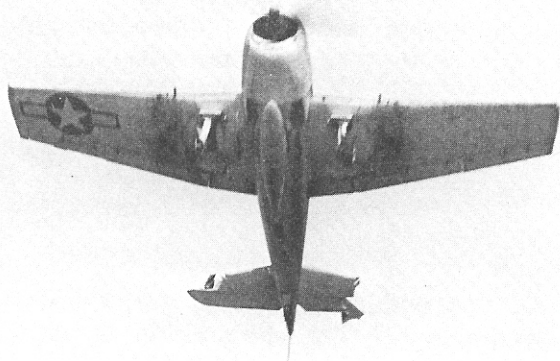
After their victory in the First Battle of the Philippine Sea had made possible the successful invasion of the Marianas, the US air groups continued to strike Japanese-held islands. Task Force 58 (with Adm. Spruance in overall command and Adm. Mitscher in command of the carriers) remained in being until August 1944 when Adm. Halsey replaced Adm. Spruance and TF58 became TF38. In preparation for the invasion of the Philippines, which was then scheduled to commence with landings on Mindanao on 15 November, TF38 flew strikes against the Philippines, beginning on Mindanao on 9 September and progressively sweeping northward to end off Luzon

on 22 September. So successful were these strikes—more than 1,000 Japanese aircraft and 150 ocean-going ships were claimed to have been destroyed—that Adm. Halsey convinced Gen. MacArthur and the Allied command to move the schedule forward. Meanwhile, on 15 September, TG38.3 and TG38.4, detached from the main body of Task Force 38, supported the landings on Morotai, off New Guinea, and on Angaur Island, in the Palaus.

For the invasion of the Philippines, beginning on 17 October with landings on Leyte, the United States disposed of TF38 with nine CVs, eight CVLs, 1,074 aircraft and supporting ships, and an invasion fleet supported by TG77.4 with 18 CVEs embarking some 500 aircraft. On 12 and 13 October the TF38 air groups flew intensive strikes against Formosa to prevent Japanese aircraft based there from interfering with the invasion forces. Although these strikes resulted in the destruction of about 600 enemy

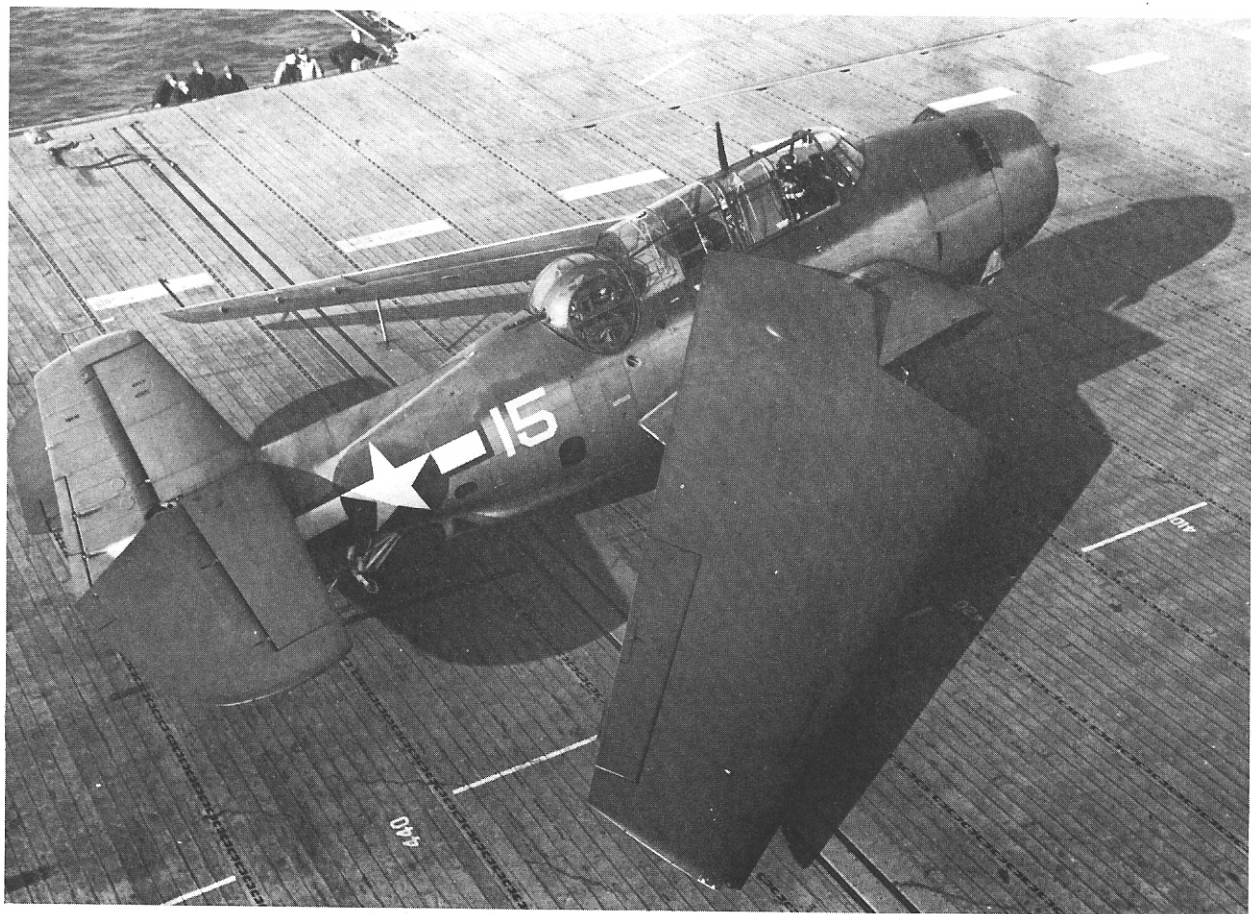
21. A Grumman F6F-3 from Fighting Squadron Two (VF-2) on 28 April 1944. Camouflaged in the non-specular sea blue/intermediate blue/insignia white scheme specified on 1 February 1943, this aircraft bears on its fin the white dot identifying the aircraft of Air Group Two (CVG-2) embarked aboard the USS Hornet (CV-12).





22. F6F-3 Hellcat from VF-15 damaged during the raid on Marcus Island on 20 May 1944. With gear, flaps and hook lowered, but retaining its ventral drop tank, the aircraft is about to land on its carrier, the USS Essex.

23. Grumman TBF-1C Avenger BuNo 47671 deploying its wing whilst taxiing past the deck edge elevator of the USS Hornet on New Year's Day 1944.



aircraft, Japanese aircraft were able to penetrate the fighter screen and to damage two cruisers with torpedoes and the carrier *Franklin* with one bomb. TF38 then moved to a position east of Luzon to intercept the First Mobile Fleet, which had left Japan on 20 October with one CV, three CVLs, 116 aircraft and supporting ships, whilst TG77.4 provided air support for the US invasion fleet operating off Leyte and Samar.

To oppose the taking of the Philippines, the Imperial Navy implemented its 'Sho No. 1' (Victory 1) plan. This plan called for the First Mobile Fleet to act as a decoy to lure TF38 from the invasion fleet, while a major surface vessel force, supported by Philippine-based aircraft reinforced by the Second Air Fleet which had transferred from Formosa with 450 aircraft, engaged and destroyed the US invasion fleet. The action on 24–26 October resulting from the engagement between the Japanese surface vessel

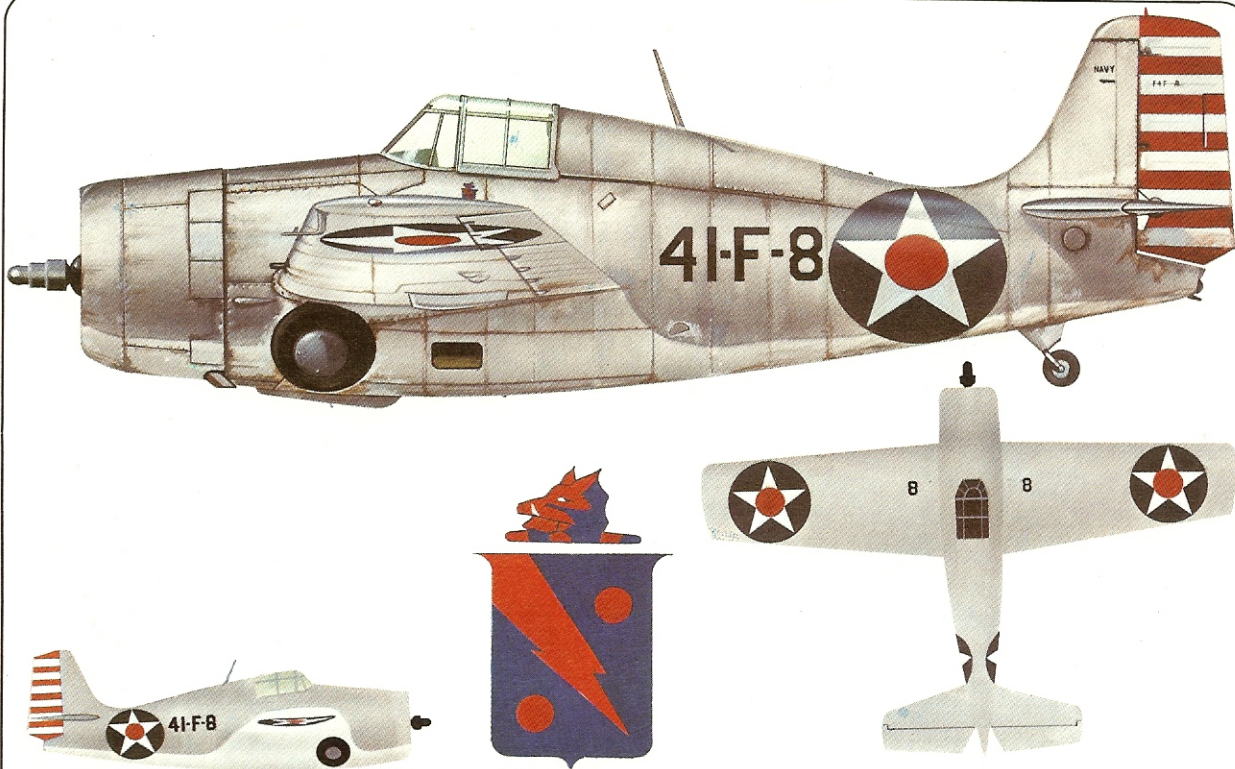
force and the US invasion fleet falls outside the scope of this history of fast carrier air groups. Suffice to say that the gallantry of the USN surface vessels and their crews, and of the aviators from TG77.4 foiled the Japanese plan, in spite of heavy losses.

As Ozawa hoped, Adm. Halsey fell for the Japanese ruse and TF38 sailed northward to engage the First Mobile Fleet in what became known as the Second Battle of the Philippine Sea. This move, which seriously jeopardized the safety of the invasion fleet, resulted in three days (24–26 October) of intensive activity for the air groups aboard the CVs and CVLs. It began in the morning of 24 October when land-based Japanese aircraft concentrated their attacks on TG38.3. In spite of the sterling performance of the Hellcat pilots, notably Cdr. McCampbell who, during an engagement lasting more than one hour, shot down at least nine Zeros, some Japanese aircraft got through the CAP and the CVL *Princeton* took two bomb hits at 10.10. Fires started by these bombs could not be controlled and at 15.23, *Princeton* blew up and sank to become the fifth and last US fast carrier to be lost during the war. The next loss was Japanese, as aircraft from TG38.2 and TG38.4 hit the surface vessel force and sank the super-battleship *Musashi* with 19 torpedoes and 11 bombs and also damaged three other battleships, one heavy cruiser and one destroyer. During the day Japanese carrier-borne aircraft also attacked TG38.3 but failed to score a hit.

The next day, in the last carriers versus carriers battle of the war, TF38 air groups flew six strikes against the First Mobile Fleet to sink the carriers *Zuikaku*, *Zuiho* and *Chitose*, as well as one destroyer. They also crippled the carrier *Chiyoda* which was finished off the next day by US cruisers and destroyers. For all practical purposes and intents, the Imperial Japanese Navy had ceased to exist as a major force. It only remained for the carrier air groups to annihilate the Japanese air forces, support more amphibious operations, and bring the war to the Japanese homeland. In so doing, they were called to face a new form of enemy operations: kamikaze suicide attacks.

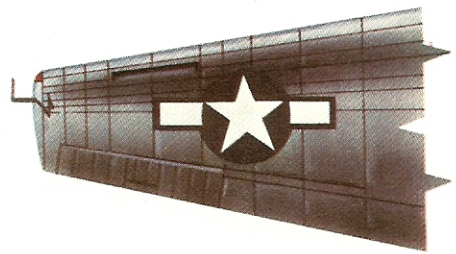
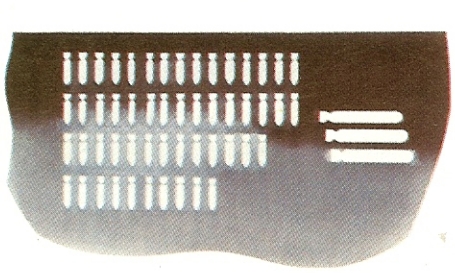
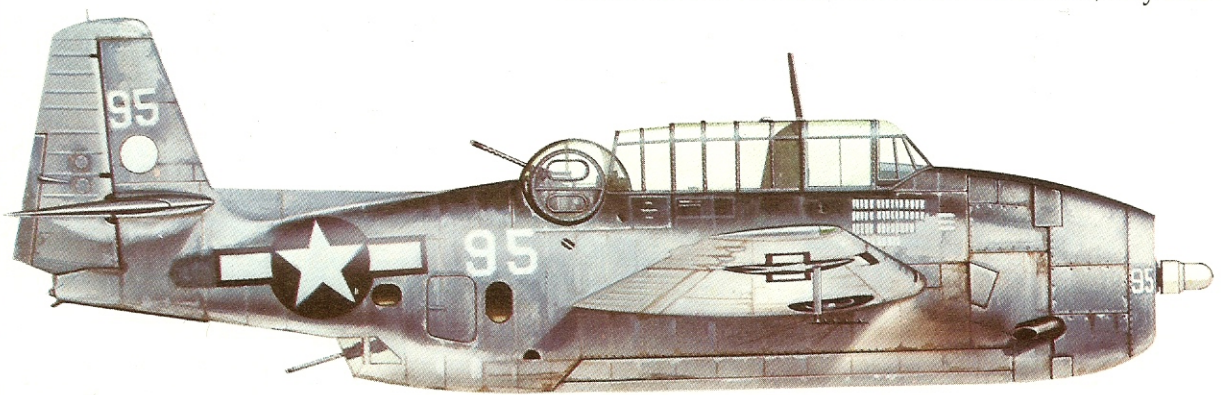
Lieutenant Junior Grade in flying clothing of Avenger radio operator, June 1944. This is taken from the well-known colour photo of Lt. (jg) Andrew Vanderwall, who flew from the USS *Princeton*: the decorated flying helmet was to distinguish him from his twin brother, the gunner in the same aircrew. Light khaki AN-S-31 flying suit; conventional inflatable life jacket; .45 automatic in a shoulder rig with cartridge belt; and survival knife in canvas sheath sewn to leg.

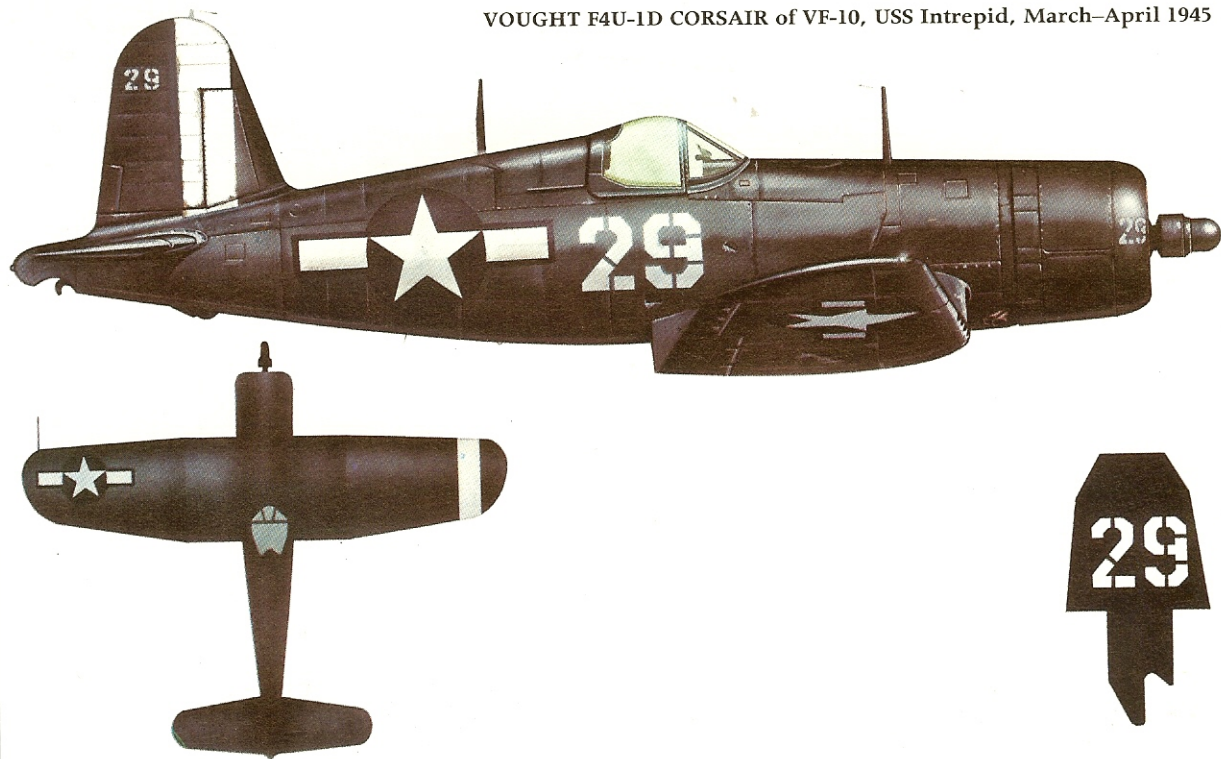




GRUMMAN F4F-4 WILDCAT of VF-41, early 1942

GRUMMAN TBF-1C AVENGER of VT-2, USS Hornet, July 1944



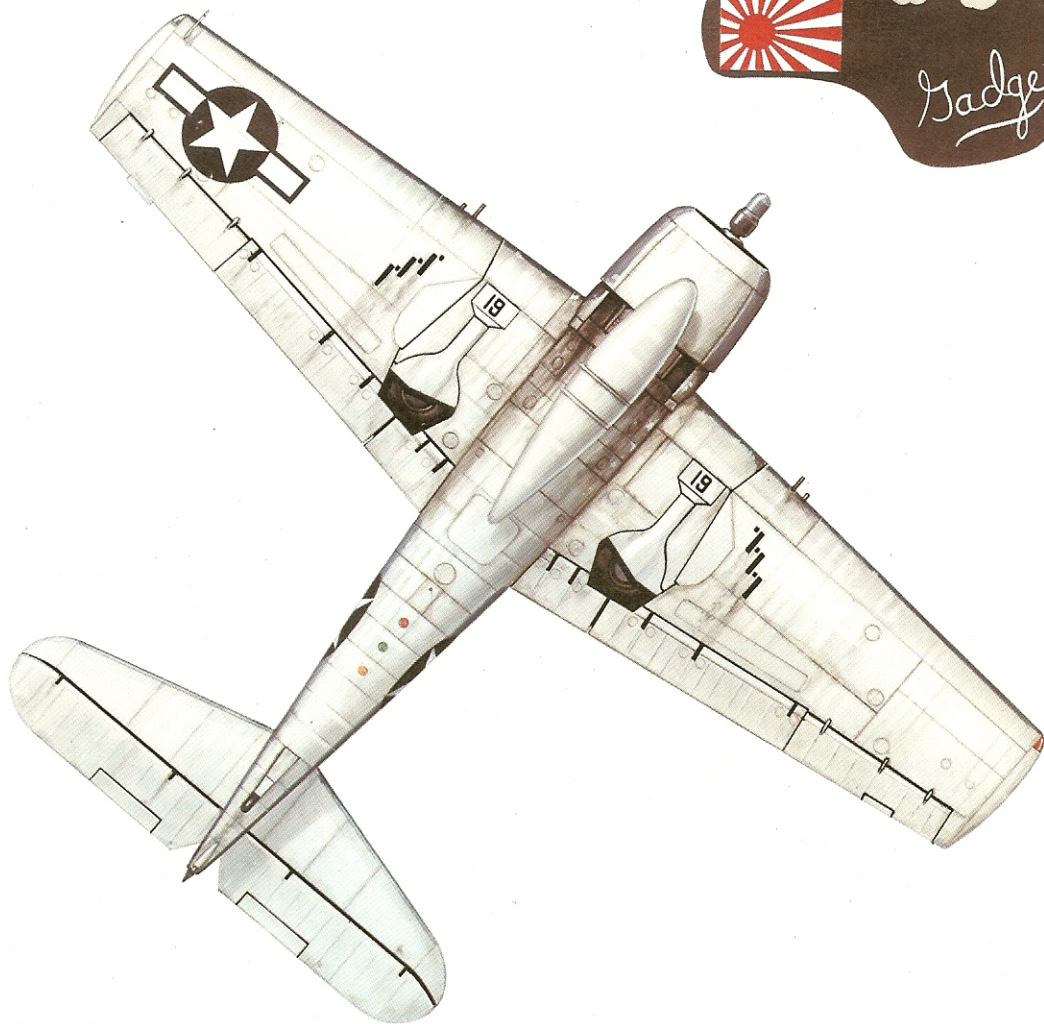
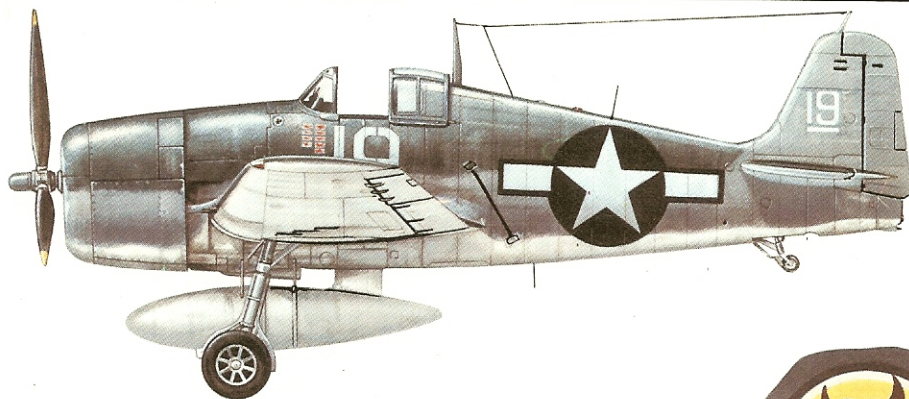


OPPOSITE TOP: Grumman F4F-4 Wildcat of Fighting Squadron Forty-One (VF-41), the Red Rippers. Aircraft '8' exhibits the colour scheme in use from 5 January 1942 to May 1942, which stipulated that national insignia appear in six, rather than four, positions as previously (October 41 to January 42) and in maximum possible size. The rudder shows the red and white stripes (usually 13 in total) which remained in use during that period. The squadron insignia appeared on both sides of the fuselage, but the individual aircraft number, in 4in high digits, only on the upper surfaces of the wings. Other aircraft in this camouflage scheme carried their number on the forward rim of the engine cowling and the wing leading edges. The officially specified colour shades were non-specular Blue Grey on the upper surfaces and non-specular Light Grey below. The propeller hub and dome were left in natural metal finish on this aircraft.

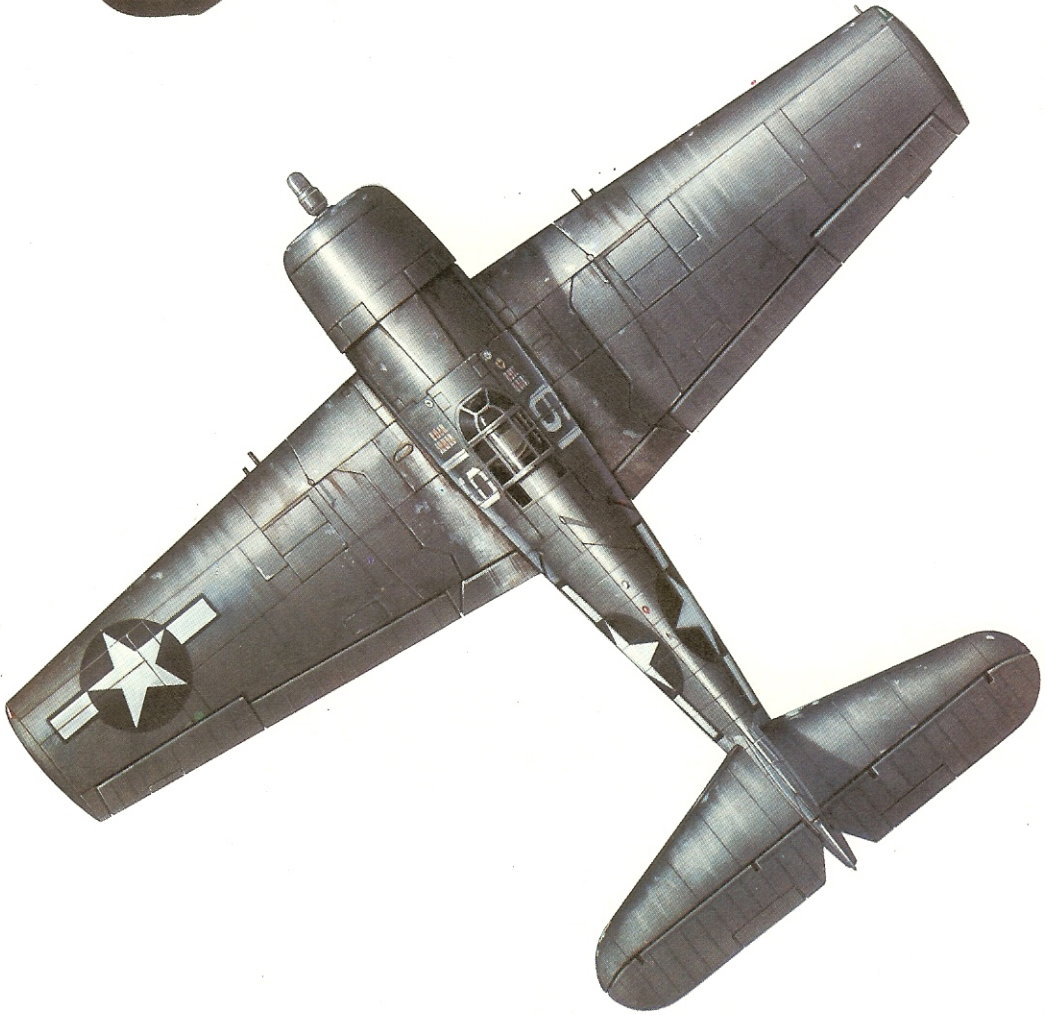
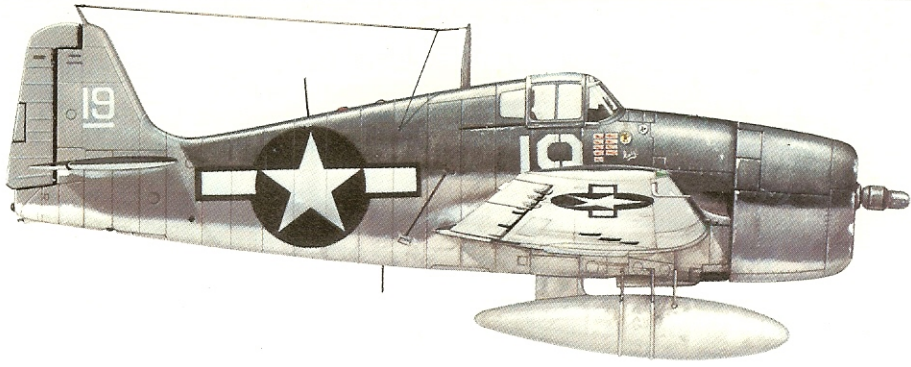
OPPOSITE BOTTOM: Grumman TBF-1C Avenger, BuNo 283655 of Torpedo Bombing Squadron Two (VT-2) aboard the USS Hornet, July 1944. The aircraft carries the tri-colour camouflage scheme introduced on 1 February 1943—Semi-gloss Sea Blue, Intermediate Blue and Insignia White. Intermediate Blue was also applied to all under surfaces of the wings which could be viewed from above when folded.

The official orders for this scheme included the note that the effect of shadows cast by horizontal surfaces should be counteracted by lightening the colours in the areas where such shadows normally fell. This particular Avenger is unusual in that it carries a full record of bombing and torpedo missions, which was relatively rare practice in the US Navy, as combat successes were usually credited to the squadron or air group as a whole rather than to individual pilots and crews. The white spot on the fin denoted the parent carrier in accordance with a basic identification system introduced in 1943, albeit unofficially.

ABOVE: Vought F4U-1D Corsair of Fighting Ten (VF-10) aboard USS Intrepid, March–April 1945. Glossy Sea Blue overall was adopted for Navy fighters delivered from the factories from 22 March 1944 and extended to all fleet aircraft on 7 October 1944. These directives apparently applied only to new aircraft and many air groups operated a mix of aircraft in the overall blue and tri-colour scheme until the end of the war. The 18in wide white bars on this Corsair identified the Intrepid during the period; aircraft numbers were invariably repeated on the forward-facing undercarriage doors of Corsairs to provide ready identification on a crowded deck.



GRUMMAN F6F-3 HELLCAT of VF-6, USS Intrepid, December 1943–February 1944



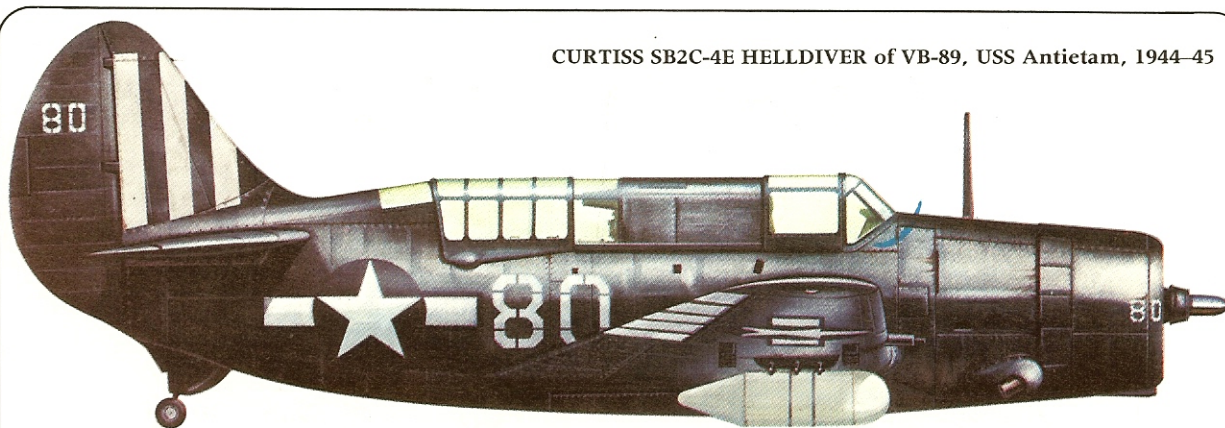
PAGES 28–29: Grumman F6F-3 Hellcat, BuNo 40467 of Fighting Six (VF-6) December 1943–February 1944. The aircraft exhibits the tri-colour camouflage scheme and has its individual number underlined in white to indicate an aircraft of Intrepid during the period. Again relatively unusual in carrying a personal as well as a unit insignia, the aircraft has the kill markings of Lt. (jg) Alex Vraciu accompanying it on both sides of the fuselage. Use of the squadron insignia was widespread, in the size and location shown, throughout wartime US Navy units. VF-6 acquired this particular Hellcat as a replacement on 17 December 1943. It was assigned to Lt. Vraciu, who gained seven of his total of 19 victories while flying it from the Intrepid between January and February 1944. The fuselage of the aircraft is believed to be in existence today, as after transfer to the Naval Training Command in late July 1944, it became an instructional airframe. Its remaining parts were purchased by Earl Reinert for museum display in Illinois in the 1960s.

BELOW: Curtiss SB2C-4E Helldiver of Bombing Eighty-Nine (VB-89) aboard USS Antietam, 1944–45. Typical of the late-war standardized colour scheme of US Navy aircraft, this machine carries the white bar markings denoting the Antietam on the wings and tail. Five bars appeared on the aileron upper and lower surfaces on both wings and the white-painted wing radome housed APS-4 search radar.

OPPOSITE TOP: A. Insignia of VF-16, USS Lexington 1944. B. Insignia of VF-31, the Flying Meataxers. Various styles appeared on the unit's Hellcats, the axe always pointing forward. C. Insignia of VF-1 'Top Hatters'. D. The unmistakable insignia of VF-10—the Grim Reapers. E. Adaptation of VF-27's insignia in the form of a decal. Apparently badly manufactured, it often blew off in flight and was only in use for a short period. F. Insignia of VF-17, the Jolly Rogers, universally applied to the unit's F4U Corsairs.

OPPOSITE BOTTOM: (Left) The main fixed armament of US aircraft carriers was the 40mm AA cannon in quad mountings, the gun being a development of the Swedish Bofors 40mm weapon. The increasing need for AA protection can be seen by quoting the armament of the Essex-class carrier Yorktown: when commissioned in April 1943, she carried eight quad 40mm mounts, but by the end of 1944, this figure had risen to 17. Even so, the heavier weight of fire was not always enough to destroy an aircraft, especially a kamikaze. (Right) A derivative of the Swedish Oerlikon gun, the 20mm MK 4 AA cannon was the last line of defence for the carriers. Usually ineffective against aircraft, it was claimed by cynics that the 'twenties' proved most useful in warning personnel below decks that a kamikaze was about to hit. Yorktown mounted 61 20mm guns by late 1944.

CURTISS SB2C-4E HELLDIVER of VB-89, USS Antietam, 1944–45



ANA colours



AN606
Semi Gloss
Sea Blue



AN608
Intermediate
Blue



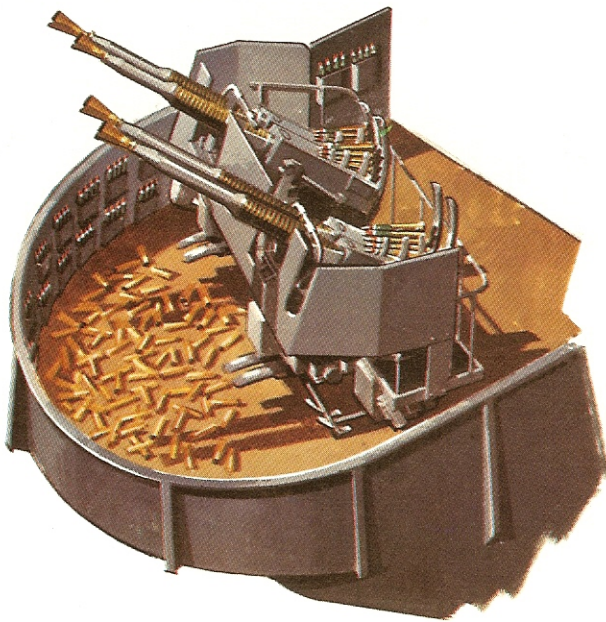
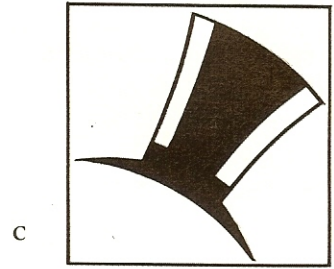
AN605
Insignia Blue



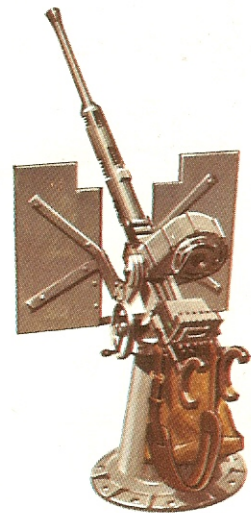
AN602
Light Grey



AN619
Insignia Red



Quad mounted 40mm anti-aircraft cannon



20mm MK 4 AA cannon



Flight deck Landing Signals Officer, signalling an incoming pilot to 'cut engine and land' in the last seconds of the approach. The 'batmen' wore various brightly coloured outfits, and carried bats strung with bunting, for high visibility. Colours of helmets and sweaters distinguished the various aircraft handling parties, emergency crews, etc.

40mm anti-aircraft gunner in combat clothing, 1944. This seaman wears a steel helmet (photos show some olive drab, some navy grey) stencilled 'G' for gunner, over a flash mask. His life jacket is a bulky, kapok-filled type, and is worn over standard working denim shirt and slacks, with laced leather shoes. He carries a clip of 40mm shells.



The first kamikaze attack against the US fleet was made on 25 October by a land-based Zero fighter which struck the *Santee*, one of the CVEs of TG77.4 operating off Leyte, at 07.45. Four more CVEs were hit by kamikazes on 25–26 October and one of them, the *St. Lo*, was sunk. From then on the threat of kamikazes forced the Pacific Fleet to revise the composition of the fast carrier air groups. Thus, the complement of VF squadrons aboard CVs—which had progressively been increased from 18 aircraft in late 1941 to 36 fighters and 4 night fighters in 1944—was nominally kept at 36 aircraft but these squadrons were supplemented by 36-aircraft fighter bomber squadrons (VBFs) flying Hellcats or Corsairs. The addition of these new squadrons was made possible by reducing the complement of VB and VT squadrons from 30 to 15 aircraft, and from 18 to 15 aircraft, respectively. These changes reflected not only the need for more fighters to protect the carriers against suicide strikes, but dissatisfaction with the Helldiver's performance and the ability of the fighters to undertake scouting missions and operate with bombs and rockets in support of ground forces.

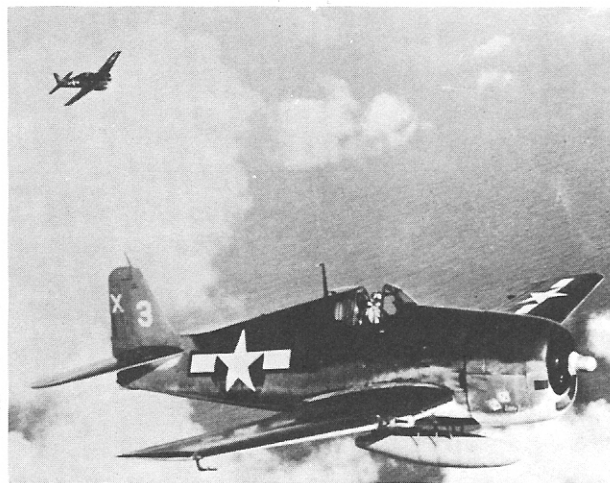
To equip some of the VF and VBF squadrons the Corsair was finally cleared for regular operations aboard CVs beginning in December 1944. In addition, the Marines began operating from fast carriers when some of their Corsair-equipped VMF squadrons were embarked aboard CVs as insufficient numbers of VBF squadrons had yet been formed. Finally, following development of night fighting tactics and the use of small numbers of radar-equipped fighters and torpedo bombers aboard most of the fast carriers, specialized night air groups were formed, CVG(N)-41 operating aboard the *Independence* whilst CVG(N)-90 embarked on the *Enterprise*.

After its victory in the Second Battle of the Philippine Sea, TF38 continued to operate in the area until the end of October. It was then that it suffered its first damage from kamikaze attacks; both the *Franklin* and *Belleau Wood* were hit on the 30th of that month. After three days at the Ulithi anchorage, three of TF38's Task Groups again sortied to provide air support in the Philippines in

early November. This type of operation, flown wherever and whenever ground forces needed support (notably during the landings on Iwo Jima in February 1945, on Okinawa in March 1945 and with strikes against Formosa, Indo-China, the Ryukyus and Japan), kept the fast carrier force active until VJ-Day. In the process, eight carriers (*Ticonderoga*, 21 January; *Saratoga*, 19 February; *Randolph*, 11 March; *Intrepid*, 18 March and 16 April; *San Jacinto*, 6 April; *Hancock*, 7 April; *Enterprise*, 11 April and 14 May; and *Bunker Hill*, 11 May) were damaged by kamikazes. So serious was the damage to *Enterprise* and *Bunker Hill* that they were not returned to service by war's end. Likewise, the *Franklin* was out of the war after being severely damaged by bombs on 19 March. The score, however, was not one sided, as the air groups took a heavy toll of kamikazes and conventional-attacking aircraft, effectively supported the fleet and the ground troops, and continued hunting the Japanese fleet, their biggest success of the period coming on 7 April when bombs and torpedoes sunk the super-battleship *Yamato*.

Mention should be made of the activities of TF58 (as TF38 had been renumbered in February 1945) off

24. A section of Grumman F6F-3 Hellcats from VF-51. As part of Air Group 51 embarked aboard the USS *San Jacinto* (CVL-30) this squadron took part in the first Battle of the Philippine Sea. The machine in the foreground displays a rare personal marking, a pair of dice and the name 'Little Joe'.



Japan, which began on 16 February with an initial strike against Tokyo. These operations included fighter sweeps, bombings of military/industrial targets, and the systematic destruction of the remnants of the Imperial Navy which were hunted in all major anchorages. On 14 August 1945 TF38 (yet another change in number had taken place in May 1945) launched two more strikes against Tokyo. The first completed its task but the second was called back to the carriers. The Japanese had

25. Douglas SBD-5 of VB-16 (Air Group Sixteen, USS Lexington) on patrol off Saipan at dusk, 15 June 1944, at the time when the Dauntless was about to be phased out from the complement of fast carriers.

surrendered and the war was over.

From three air groups with 200 aircraft in December 1941, the Pacific Fleet had grown into a major air force capable of operating more than 2,000 aircraft (for Operation 'Majestic', the planned amphibious assault on Kyushu which was scheduled for 1 November 1945, Task Forces 38, 55 and 58 were to operate 19 CVs, eight CVLs and 16 CVEs). During the war its aircraft had been solely responsible for the destruction of 6,510 Japanese aircraft and for the sinking of ten carriers, five battleships, 24 cruisers, 26 destroyers and seven submarines, and the shared sinking of eight other warships. Quite an achievement, indeed!



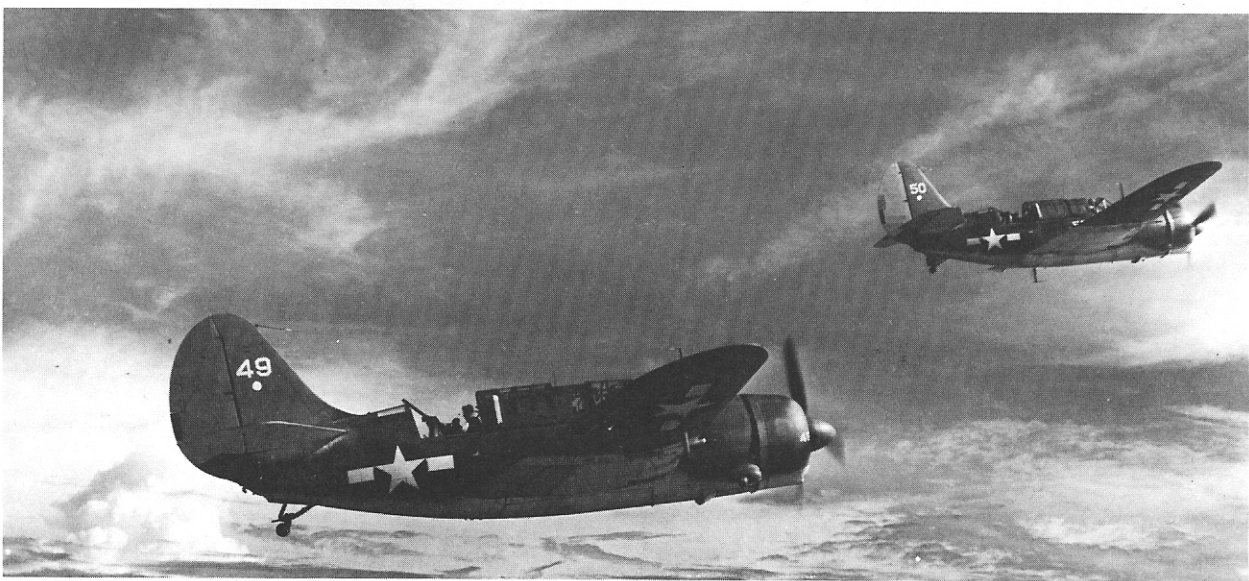
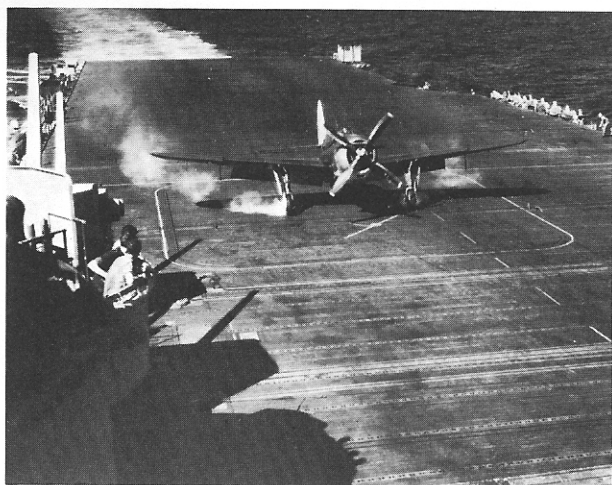


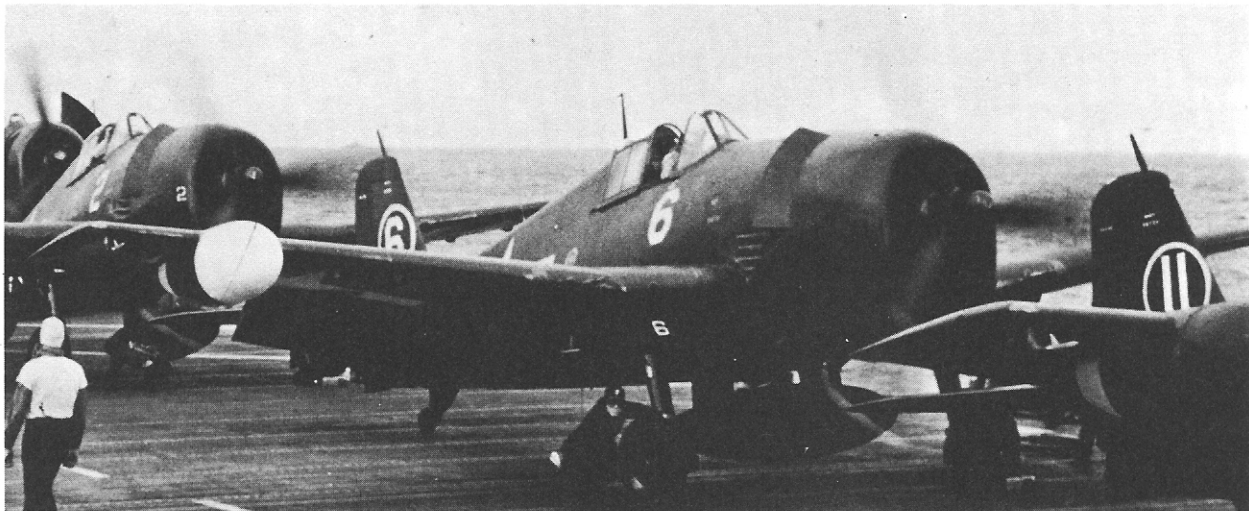
26. Eastern TBM-1C from Torpedo Squadron Two (Air Group Two aboard the USS Hornet). During the carrier battle off the Marianas on 20 June 1944, Avengers scored numerous hits with bombs and torpedoes against the ships of Vice Adm. Ozawa's First Mobile Fleet.

27. A damaged SB2C-3 Helldiver from VB-15 making a heavy landing on the USS Essex during operations off the Philippines on 29 October 1944. With smoking wheel brakes and tyres, the aircraft is on the aft elevator and still rolling towards the crash barrier.

28. The successor of the Devastator was the Grumman Avenger. This Eastern-built TBM-1C from VT-28, operating from the USS Monterey (CVL-26), is seen flying over the invasion fleet off Saipan in June 1944.

29. Air Group Two: SB2C-1Cs from VB-2 during the First Battle of the Philippine Sea. The gunners are ready for action with the rear canopy slid forward and twin 0.30in machine guns out of their storage compartment.



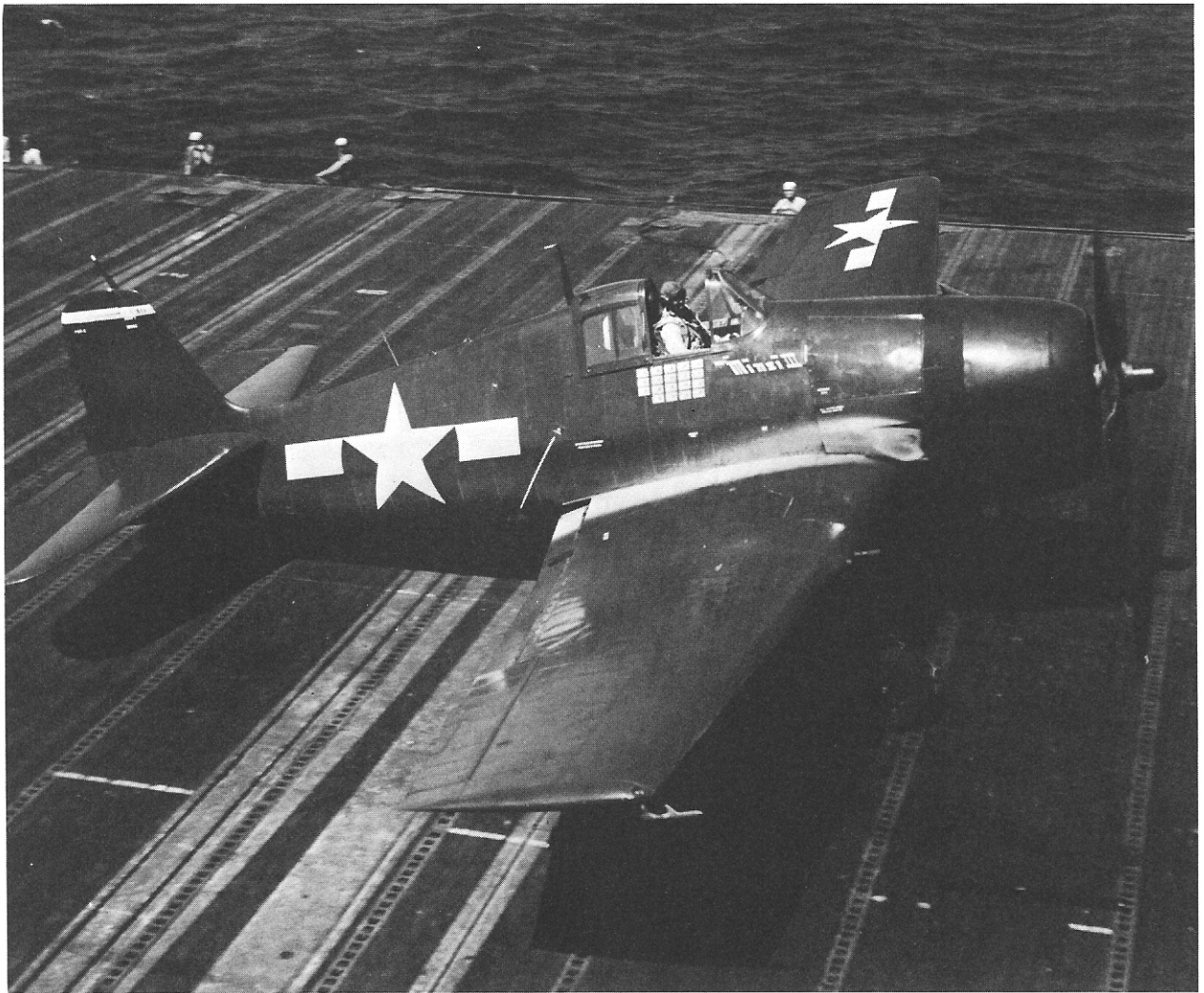
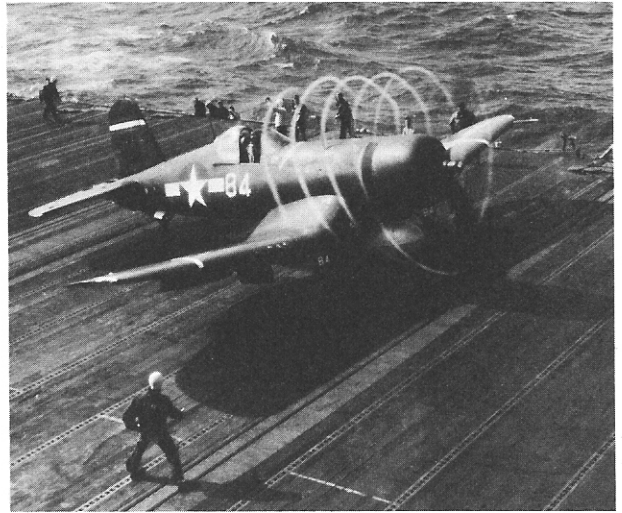


30. F6F-5N night fighters of VF(N)-41 queue for take off from the USS Independence off Okinawa, 14 October 1944.

31. The USS Essex (CV-9) on 20 May 1945. Aircraft from Air Group Eighty-Three (CVG-83) seen on her deck include Corsairs from VBF-83, Hellcats from VF-83, and Helldivers from VB-83.

32. Vought F4U-1D Corsair from VBF-83 aboard the Essex. Vortices are generated by the propeller tips in the damp air.

33. Commander David McCampbell, CO of Air Group Fifteen (CVG-15) in his F6F-5 on the Essex. The Hellcat, named 'Minsi III' displays 19 kill markings at this time, 13 September 1944, when McCampbell scored two and a half victories on a mission over the Visayas.



THE AIRCRAFT

In December 1941 the eight carriers of the US Navy embarked a total of 512 aircraft, including 164 fighters, 257 scout bombers, 69 torpedo bombers, 13 observation aircraft and nine advanced trainers which were distributed as shown in the accompanying chart.

Only the 297 Grumman F4Fs and Douglas SBDs were modern types whilst the 69 Douglas TBDs, due for early replacement by Grumman TBFs, were obsolescent. The remaining 146 machines were

either totally obsolete (Brewster F2As, NAF SBNs and Vought SB2Us) and played no significant role in the war, or were used aboard carriers only in a training capacity (Curtiss SOCs and North American SNJs).

The first three types mentioned above carried the brunt of operations during the first year of the war but were progressively supplemented, and eventually supplanted, by Grumman F6Fs, Vought F4Us, Curtiss SB2Cs and Grumman TBFs/Eastern TBMs.

	F2A	F4F	SBC	SBD	SBN	SB2U	TBD	SOC	SNJ
CV-2 <i>Lexington</i>	19 (VF-2)			16 (VB-2) 16 (VS-2)			12 (VT-2)		
CV-3 <i>Saratoga</i>		10 (VF-3)		21 (VB-3) 22 (VS-3)			12 (VT-3)		
CV-4 <i>Ranger</i>		19 (VF-5) 17 (VF-41)		10 (VS-41)		15 (VS-42)	3 (VT-4)		2 (VF-41)
CV-5 <i>Yorktown</i>		18 (VF-42)		19 (VB-5) 19 (VS-5)			14 (VT-5)		2 (VS-5)
CV-6 <i>Enterprise</i>		18 (VF-6)		18 (VB-6) 18 (VS-6)			18 (VT-6)		2 (VT-6)
CV-7 <i>Wasp</i>		18 (VF-71) 17 (VF-72)				2 (VF-72) 17 (VS-71) 18 (VS-72)			1 (VF-72)
CV-8 <i>Hornet</i>		21 (VF-8)	19 (VB-8) 20 (VS-8)		7 (VT-8)		8 (VT-8)		2 (VF-8)
AVG-1 <i>Long Island</i>		7 (VS-201)						13 (VS-201)	
	26	138	39	159	7	52	69	13	9

Characteristics and performance of major US carrier aircraft, 1941-45

	Grumman F4F-3	Grumman F6F-3	Vought F4U-1D	Douglas SBD-3	Curtiss SB2C-4	Douglas TBD-1	Grumman TBF-1C
Span, ft in (m)	38 0 (11·58)	42 10 (13·06)	41 0 (12·49)	41 6 (12·64)	49 9 (15·16)	50 0 (15·24)	54 2 (16·51)
Length, ft in (m)	28 9 (8·76)	33 7 (10·24)	33 4 (10·16)	32 8 (9·95)	36 8 (11·17)	35 0 (10·66)	40 0 (12·19)
Height, ft in (m)	11 10 (3·61)	13 1 (3·99)	16 1 (4·90)	13 7 (4·14)	13 2 (4·01)	15 1 (4·60)	16 5 (5·00)
Wing area, sq ft (sq m)	260 (24·154)	334 (31·028)	314 (29·171)	325 (30·192)	422 (39·204)	422 (39·204)	490 (45·521)
Empty weight, lb (kg)	5,342 (2,423)	9,101 (4,128)	8,695 (3,943)	6,345 (2,878)	10,547 (4,784)	6,182 (2,804)	10,555 (4,788)
Loaded weight, lb (kg)	7,002 (3,176)	12,441 (5,643)	12,039 (5,461)	9,407 (4,267)	14,189 (6,436)	9,862 (4,473)	16,412 (7,444)
Engine	R-1830-76	R-2800-10W	R-2800-8W	R-1820-52	R-2600-20	R-1830-64	R-2600-8
TO power, hp	1,200	2,000	2,250	1,000	1,900	900	1,700
Max speed, mph/ft (km/h/m)	330/21,100 (531/6,430)	375/17,300 (603/5,275)	425/20,000 (684/6,095)	250/16,000 (402/4,875)	295/16,700 (475/5,090)	206/8,000 (331/2,440)	257/12,000 (414/3,660)
Cruising speed, mph (km/h)	147 (237)	160 (257)	182 (293)	152 (245)	158 (254)	128 (206)	153 (246)
Climb rate, ft/min (m/min)	2,265/1 (690/1)	3,500/1 (1,067/1)	3,120/1 (951/1)	1,190/1 (363/1)	1,800/1 (549/1)	720/1 (219/1)	1,410/1 (430/1)
Service ceiling, ft (m)	37,500 (11,430)	37,300 (11,370)	36,900 (11,245)	27,100 (8,260)	29,100 (8,870)	19,700 (6,005)	21,400 (6,525)
Range with load, miles-lb (km-kg)	845-0 (1,360-0)	1,090-0 (1,755-0)	500-2,000 (805-907)	1,345-1,000 (2,165-454)	1,165-1,000 (1,875-454)	435-torpedo (700-torpedo)	1,105-torpedo (1,780-torpedo)
Fixed guns	4 × 0·50	6 × 0·50	6 × 0·50	2 × 0·50	2 × 20mm	1 × 0·50	2 × 0·50
Flexible guns	—	—	—	2 × 0·30	2 × 0·30	1 × 0·30	1 × 0·50 + 1 × 0·30
Bombload, lb (kg)	200 (91)	1,000 (454)	2,000 (907)	1,200 (544)	2,000 (907)	1,200 (544)	2,000 (907)

US carrier air groups in major operations, April 1942–August 1945

Operation	Date	Task force	Carrier	Air group	Squadrons and aircraft	
Tokyo raid	Apr 42	TF16	<i>Enterprise</i> (CV-6)	CVG-6	VF-6	27 F4F-3/-4
					VB-3	18 SBD-2/-3
					VB-6	18 SBD-2/-3
					VT-6	18 TBD-1
		TF16	<i>Hornet</i> (CV-8)	CVG-8	VF-8	18 F4F-4*
					VB-8	16 SBD-3*
					VS-8	16 SBD-3*
					VT-8	15 TBD-1*
					*Temporarily replaced by 16 B-25B Mitchells.	
					Total number of aircraft = 146	
Coral Sea	May 42	TF17	<i>Lexington</i> (CV-2)	CVG-2	VF-2	22 F4F-3
					VB-2	18 SBD-2/-3
					VS-2	18 SBD-2/-3
					VT-2	12 TBD-1
		TF17	<i>Yorktown</i> (CV-5)	CVG-5	VF-42	20 F4F-3
					VB-5	19 SBD-2/-3
					VS-5	19 SBD-2/-3
					VT-5	13 TBD-1
					Total number of aircraft = 141	
Midway	June 42	TF16	<i>Enterprise</i> (CV-6)	CVG-6	VF-6	27 F4F-4
					VB-6	19 SBD-2/-3
					VS-6	19 SBD-2/-3
					VT-6	14 TBD-1
		TF16	<i>Hornet</i> (CV-8)	CVG-8	VF-8	27 F4F-4
					VB-8	19 SBD-2/-3
					VS-8	18 SBD-2/-3
					VT-8	15 TBD-1
		TF17	<i>Yorktown</i> (CV-5)	CVG-3	VF-3	25 F4F-4
					VB-3	18 SBD-3
					VS-5	19 SBD-3
					VT-3	13 TBD-1
					Total number of aircraft = 233	
Guadalcanal	Aug 42	TF61	<i>Saratoga</i> (CV-3)	CVG-3	VF-5	34 F4F-4
					VB-3	19 SBD-3
					VS-3	18 SBD-3
					VT-8	16 TBF-1
		TF61	<i>Enterprise</i> (CV-6)	CVG-6	VF-6	36 F4F-4
					VB-6	18 SBD-3
					VS-5	18 SBD-3
					VT-3	15 TBF-1
		TF61	<i>Wasp</i> (CV-7)	CVG-7	VF-71	29 F4F-4
					VS-71	15 SBD-3
					VS-72	15 SBD-3
					VT-7	10 TBF-1
					Total number of aircraft = 243	

<i>Operation</i>	<i>Date</i>	<i>Task force</i>	<i>Carrier</i>	<i>Air group</i>	<i>Squadrons and aircraft</i>		
Santa Cruz	Oct 42	TF16	<i>Enterprise</i> (CV-6)	CVG-10	VF-10	34 F4F-4	
					VB-10	18 SBD-3	
					VS-10	18 SBD-3	
					VT-10	12 TBF-1	
		TF16	<i>Hornet</i> (CV-8)	CVG-8	VF-72	36 F4F-4	
					VB-8	18 SBD-3	
					VS-8	18 SBD-3	
					VT-6	15 TBF-1	
					Total number of aircraft = 169		
Gilberts	Nov 43	TG50.1	<i>Yorktown</i> (CV-10)	CVG-5	VF-5	36 F6F-3	
					VB-5	36 SBD-5	
					VT-5	18 TBF-1	
		TG50.1	<i>Lexington</i> (CV-16)	CVG-16	VF-16	36 F6F-3	
					VB-16	36 SBD-5	
					VT-16	18 TBF-1	
		TG50.1	<i>Cowpens</i> (CVL-25)	CVG-25	VF-6	12 F6F-3	
					VF-25	24 F6F-3	
					VC-25	10 TBF-1	
		TG50.2	<i>Enterprise</i> (CV-6)	CVG-6	VF-2	36 F6F-3	
					VB-6	36 SBD-5	
					VT-6	18 TBF-1	
		TG50.2	<i>Belleau Wood</i> (CVL-24)	CVG-24	VF-6	12 F6F-3	
			VF-24	26 F6F-3			
			VC-22B	9 TBF-1			
TG50.2	<i>Monterey</i> (CVL-26)	CVG-30	VF-30	24 F6F-3			
			VC-30	9 TBF-1			
TG50.3	<i>Essex</i> (CV-9)	CVG-9	VF-9	36 F6F-3			
			VB-9	36 SBD-5			
			VT-9	18 TBF-1			
TG50.3	<i>Bunker Hill</i> (CV-17)	CVG-17	VF-18	36 F6F-3			
			VB-17	32 SB2C-1			
TG50.3	<i>Independence</i> (CVL-22)	CVG-22	VF-6	12 F6F-3			
			VF-22	16 F6F-3			
			VC-22A	9 TBF-1			
TG50.4	<i>Saratoga</i> (CV-3)	CVG-12	VF-12	37 F6F-3			
			VB-12	24 SBD-5			
			VT-12	18 TBF-1			
TG50.4	<i>Princeton</i> (CVL-23)	CVG-23	VF-23	24 F6F-3			
			VT-23	9 TBF-1			
				Total number of aircraft = 703			
Truk	Feb 44	TG58.1	<i>Enterprise</i> (CV-6)	CVG-10	VF-10	32 F6F-3	
					VB-10	30 SBD-5	
					VT-10	16 TBF-1C	
					VF(N)-101	Det A	
						4 F4U-2	

<i>Operation</i>	<i>Date</i>	<i>Task force</i>	<i>Carrier</i>	<i>Air group</i>	<i>Squadrons and aircraft</i>	
		TG58.1	<i>Yorktown</i> (CV-10)	CVG-5	VF-5 VB-5 VT-5 VF(N)-76	36 F6F-3 36 SBD-5 18 TBF-1/-1C Det B 4 F6F-3N
		TG58.1	<i>Belleau Wood</i> (CVL-24)	CVG-24	VF-24 VT-24	22 F6F-3 8 TBF-1/-1C
		TG58.2	<i>Essex</i> (CV-9)	CVG-9	VF-9 VB-9 VT-9	35 F6F-3 34 SBD-5 19 TBF/TBM-1/-1C
		TG58.2	<i>Intrepid</i> (CV-11)	CVG-6	VF-6 VB-6 VT-6 VF(N)-101	37 F6F-3 36 SBD-5 19 TBF/TBM-1/-1C Det B 4 F4U-2
		TG58.2	<i>Cabot</i> (CVL-28)	CVG-31	VF-31 VT-31	24 F6F-3 8 TBM-1C
		TG58.3	<i>Bunker Hill</i> (CV-17)	CVG-17	VF-18 VB-17 VT-17 VF(N)-76	37 F6F-3 31 SB2C-1 20 TBF/TBM-1/-1C Det A 4 F6F-3N
		TG58.3	<i>Monterey</i> (CVL-26)	CVG-30	VF-30 VT-30	25 F6F-3 9 TBF-1C
		TG58.3	<i>Cowpens</i> (CVL-25)	CVG-25	VF-25 VT-25	22 F6F-3 9 TBF-1C
					Total number of aircraft = 579	
Marianas	June 44	TG58.1	<i>Hornet</i> (CV-12)	CVG-2	VF-2 VB-2 VT-2 VF(N)-76	36 F6F-3 33 SB2C-1C 18 TBF/TBM-1C Det B 4 F6F-3N
		TG58.1	<i>Yorktown</i> (CV-10)	CVG-1	VF-1 VB-1 VT-1 VF(N)-77	41 F6F-3 40 SB2C-1C 4 SBD-5 17 TBF/TBM-1C Det B 4 F6F-3N
		TG58.1	<i>Belleau Wood</i> (CVL-24)	CVG-24	VF-24 VT-24	26 F6F-3 9 TBF/TBM-1C
		TG58.1	<i>Bataan</i> (CVL-29)	CVG-50	VF-50 VT-50	24 F6F-3 9 TBM-1C
		TG58.2	<i>Bunker Hill</i> (CV-17)	CVG-8	VF-8 VB-8 VT-8 VF(N)-76	37 F6F-3 33 SB2C-1C 18 TBF/TBM-1C Det A 4 F6F-3N

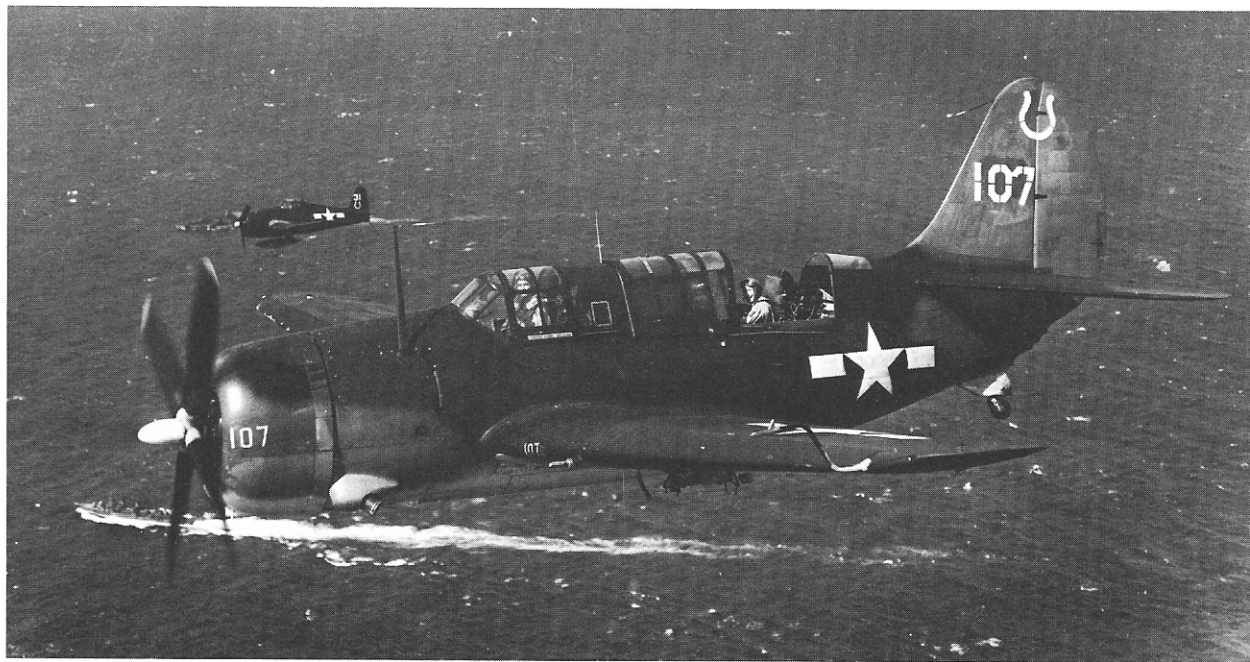
<i>Operation</i>	<i>Date</i>	<i>Task force</i>	<i>Carrier</i>	<i>Air group</i>	<i>Squadrons and aircraft</i>
		TG58.2	<i>Wasp</i> (CV-18)	CVG-14	VF-14 34 F6F-3 VB-14 32 SB2C-1C VT-14 18 TBF-1C/-1D VF(N)-77 Det C 4 F6F-3N
		TG58.2	<i>Monterey</i> (CVL-26)	CVG-28	VF-28 21 F6F-3 VT-28 8 TBM-1C
		TG58.2	<i>Cabot</i> (CVL-28)	CVG-31	VF-31 24 F6F-3 VT-31 9 TBF/TBM-1C
		TG58.3	<i>Enterprise</i> (CV-6)	CVG-10	VF-10 31 F6F-3 VB-10 21 SBD-5 VT-10 14 TBF/TBM-1C VF(N)-101 Det C 3 F4U-2
		TG58.3	<i>Lexington</i> (CV-16)	CVG-16	VF-16 37 F6F-3 VB-16 34 SBD-5 VT-16 18 TBF/TBM-1C VF(N)-76 Det C 4 F6F-3N
		TG58.3	<i>San Jacinto</i> (CVL-30)	CVG-51	VF-51 24 F6F-3 VT-51 8 TBM-1C/-1D
		TG58.3	<i>Princeton</i> (CVL-23)	CVG-27	VF-27 24 F6F-3 VT-27 9 TBM-1C
		TG58.4	<i>Essex</i> (CV-9)	CVG-15	VF-15 38 F6F-3 VB-15 36 SB2C-1C VT-15 20 TBF/TBM-1C VF(N)-77 Det A 4 F6F-3N
		TG58.4	<i>Langley</i> (CVL-27)	CVG-32	VF-32 23 F6F-3 VT-32 9 TBF/TBM-1C
		TG58.4	<i>Cowpens</i> (CVL-25)	CVG-25	VF-25 23 F6F-3 VT-25 9 TBF/TBM-1C Total number of aircraft = 896
<i>Leyte</i>	<i>Oct 44</i>	TG38.1	<i>Wasp</i> (CV-18)	CVG-14	VF-14 42 F6F-3/-3N/-5/-5N/-5P VB-14 25 SB2C-3 10 F6F-3/-5 VT-14 18 TBF/TBM-1C/-1D
		TG38.1	<i>Hornet</i> (CV-12)	CVG-11	VF-11 40 F6F-3/-3N/-5/-5N/-5P VB-11 25 SB2C-3 VT-11 18 TBF/TBM-1C
		TG38.1	<i>Monterey</i> (CVL-26)	CVG-28	VF-28 23 F6F-5/-5P VT-28 9 TBM-1C
		TG38.1	<i>Cowpens</i> (CVL-25)	CVG-22	VF-22 26 F6F-5/-5P VT-22 9 TBM-1C

<i>Operation</i>	<i>Date</i>	<i>Task force</i>	<i>Carrier</i>	<i>Air group</i>	<i>Squadrons and aircraft</i>	
		TG38.2	<i>Intrepid</i> (CV-11)	CVG-18	VF-18 VB-18 VT-18	43 F6F-3N/-5/-5P 28 SB2C-3 18 TBM-1C
		TG38.2	<i>Hancock</i> (CV-19)	CVG-7	VF-7 VB-7 VT-7	41 F6F-5/-5N 42 SB2C-3/-3E 18 TBM-1C
		TG38.2	<i>Bunker Hill</i> (CV-17)	CVG-8	VF-8 VB-8 VT-8	48 F6F-3/-3N/-5/-5N 24 SB2C-1C/SBF-1/SBW-1 19 TBM-1C/-1D
		TG38.2	<i>Cabot</i> (CVL-28)	CVG-29	VF-29 VT-29	21 F6F-3/-5 9 TBF/TBM-1C
		TG38.2	<i>Independence</i> (CVL-22)	CVG(N)-41	VF(N)-41 VT(N)-41	19 F6F-3/-5/-5N 8 TBM-1D
		TG38.3	<i>Essex</i> (CV-9)	CVG-15	VF-15 VB-15 VT-15	50 F6F-3/-3N/-5/-5N/-5P 25 SB3C-3 20 TBF/TBM-1C
		TG38.3	<i>Lexington</i> (CV-16)	CVG-19	VF-19 VB-19 VT-19	41 F6F-3/-3N/-5/-5N/-5P 30 SB2C-3 18 TBM-1C
		TG38.3	<i>Princeton</i> (CVL-23)	CVG-27	VF-27 VT-27	25 F6F-3/-5 9 TBM-1C
		TG38.3	<i>Langley</i> (CVL-27)	CVG-44	VF-44 VT-44	25 F6F-3/-5 9 TBM-1C
		TG38.4	<i>Franklin</i> (CV-13)	CVG-13	VF-13 VB-13 VT-13	38 F6F-3/-3N/-5/-5N/-5P 31 SB2C-3 18 TBM-1C
		TG38.4	<i>Enterprise</i> (CV-13)	CVG-20	VF-20 VB-20 VT-20	39 F6F-3N/-5 34 SB2C-3 19 TBM-1C
		TG38.4	<i>San Jacinto</i> (CVL-30)	CVG-51	VF-51 VT-51	19 F6F-3/-5 7 TBM-1C
		TG38.4	<i>Belleau Wood</i> (CVL-24)	CVG-21	VF-21 VT-21	25 F6F-5/-5P 9 TBM-1C
						Total number of aircraft = 1,074
Okinawa	Mar 45	TG58.1	<i>Hornet</i> (CV-12)	CVG-17	VF-17 VB-17 VT-17	71 F6F-5/-5N/-5P 15 SB2C-3/-4/SBW-1 15 TBM-3
		TG58.1	<i>Wasp</i> (CV-18)	CVG-86	VF-86 VBF-86 VB-86 VT-86	34 F6F-5/-5E/-5N/-5P 36 F4U-1D 15 SB3C-4 15 TBM-3

<i>Operation</i>	<i>Date</i>	<i>Task force</i>	<i>Carrier</i>	<i>Air group</i>	<i>Squadrons and aircraft</i>
		TG58.1	<i>Bennington</i> (CV-20)	CVG-82	VF-82 37 F6F-5/-5E/-5N/-5P VB-82 15 SB2C-4E VT-82 15 TBM-3 VMF-112 18 F4U-1D VMF-123 17 F4U-1D
		TG58.1	<i>Belleau Wood</i> (CVL-24)	CVG-30	VF-30 25 F6F-5/-5P VT-30 9 TBM-3/-3P
		TG58.1	<i>San Jacinto</i> (CVL-30)	CVG-45	VF-45 25 F6F-5/-5P VT-45 9 TBM-3
		TG58.2	<i>Enterprise</i> (CV-6)	CVG(N)-90	VF(N)-90 32 F6F-5E/-5N/-5P VT(N)-90 21 TBM-3D
		TG58.2	<i>Franklin</i> (CV-13)	CVG-5	VF-5 6 F6F-5N/-5P 32 F4U/FG-1D VB-5 15 SB2C-4E VT-5 15 TBM-3
		TG58.2	<i>Randolph</i> (CV-15)	CVG-12	VF-12 31 F6F-5/-5E/-5N/-5P VBF-12 24 F6F-5 VB-12 15 SB2C-4E VT-12 15 TBM-3
		TG58.3	<i>Essex</i> (CV-9)	CVG-83	VF-83 34 F6F-5/-5E/-5N/-5P VBF-83 36 F4U-1D VB-83 15 SB2C-4 VT-83 15 TBM-3
		TG58.3	<i>Bunker Hill</i> (CV-17)	CVG-84	VF-84 10 F6F-5N/-5P 27 F4U-1D VB-84 15 SB2C-4/-4E VT-84 15 TBM-3 VMF-221 18 F4U-1D VMF-451 18 F4U-1D
		TG58.3	<i>Hancock</i> (CV-19)	CVG-6	VF-6 36 F6F-5/-5E/-5N/-5P VBF-6 36 F6F-5 VB-6 12 SB2C/SBW-3/-3E/-4/-4E VT-6 10 TBM-3
		TG58.3	<i>Cabot</i> (CVL-28)	CVG-29	VF-29 25 F6F-5 VT-29 9 TBM-3

<i>Operation</i>	<i>Date</i>	<i>Task force</i>	<i>Carrier</i>	<i>Air group</i>	<i>Squadrons and aircraft</i>
		TG58.3	<i>Bataan</i> (CVL-29)	CVG-47	VF-47 24 F6F-5/-5P VT-47 12 TBM-3
		TG58.4	<i>Yorktown</i> (CV-10)	CVG-9	VF-9 45 F6F-5/-5E/-5N/-5P VBF-9 33 F6F-5 VB-9 15 SB2C-4 VT-9 7 TBM-3/-3P
		TG58.4	<i>Intrepid</i> (CV-11)	CVG-10	VF-10 6 F6F-5N/-5P 30 F4U/FG-1D VBF-10 36 F4U-1D VB-10 15 SB2C-4E VT-10 15 TBM-3
		TG58.4	<i>Langley</i> (CVL-27)	CVG-23	VF-23 25 F6F-3/-5/-5P VT-23 9 TBM-1C
		TG58.4	<i>Independence</i> (CVL-22)	CVG-46	VF-46 25 F6F-5/-5P VT-46 8 TBM-3 Total number of aircraft = 1,213

34. Air Group Seven: Curtiss SB2C-3E Helldiver from VB-7 escorted by an F6F-5 Hellcat from VF-7 whilst CVG-7 was embarked aboard the USS Hancock (CV-19) at the time of the second Battle of the Philippine Sea.



NOTES SUR LES PLANCHES EN COULEUR

Page 25 : Lieutenant Junior Grade mis en vêtements d'aviateur porté d'un radio Avenger, juin 1944. Détails sont pris d'une photo en couleur pendant la guerre montrant les jumeaux Vanderwall qui volèrent du USS Princeton. Le casque d'aviateur décoré servit de constater l'identification d'Andrew Vanderwall. Un gilet de sauvetage gonfable conventionnel est porté sur un kaki complet clair d'aviateur avec un automatique .45 dans accoutrement d'épaule avec ceinture cartouchière. Couteau à survie dans fourreau à jambe.

Page 26 dessus: F4F-4 Wildcat de VF-41, les Red Rippers montrés dans le plan coloré utilisés de janvier à mars 1942 avec la plus grande dimension possible des insignes nationaux. Insignes d'escadrille des deux côtés du fuselage et numéro individuel '8' répété seulement sur les hautes escadres comme illustré.

Page 26 dessous: TBF-1C Avenger de VT-2 à bord USS Hornet, juillet 1944, dans l'arrangement de peinture à trois nuances utilisés de février 1943—semi-lustre Bleu de Mer, Bleu Intermédiaire et Blanc des Insignes. Rare en portant un registre complet de ses missions de bombardements et de torpilles, l'avion tient le marquage sur la dérive utilisé d'avions embarqués dans le Hornet à cette époque.

Page 27 : F4U-1D Corsair de VF-10, USS Intrepid, mars—avril 1945, l'arrangement de peinture lustré de couleur Bleu de Mer adopté pour des avions de chasse de marine en mars 1944. Cette consigne s'appliqua premièrement aux nouveaux avions livrés des fabriques et fut étendue à tous avions de flotte en octobre. Les raies blanches identifièrent le ravitailleur et le numéro de l'avion sur les portières du train d'atterrissage fut une aide à l'identification sur pont.

Pages 28—29 : F6F-3 Hellcat de VF-6 à camouflage de trois nuances et les marquages dénotants USS Intrepid sur la fin de 1943 au début de '44. Portant des insignes personnels aussi bien que l'emblème de 'Felix the Cat' de 'Fighting Six' cet avion fut volé souvent de Lt. (jg) Alex Vraciu dans lequel il remporta sept victoires entre janvier et février 1943. Son dernier compte fut 19. L'avion survécut la guerre et on croit qu'il existe encore.

Page 30 : SB2C-4E Helldiver de VB-89 à bord USS Antietam 1944—45. Couleur totale de Bleu de Mer avec marquages d'identification de portes avions blancs et géométriques façonnées pour unification générale à l'égard d'avions de US Navy à la fin de la guerre. Les marquages sur les escadres qui sont illustrés ici se montrèrent sur les surfaces de l'haute et le bas aileron. Au-dessous d'avion sont illustrés les cinq couleurs ANA codifiées utilisé de la Marine de guerre pour les objets de camouflage total.

Page 31 dessus: Insignes d'escadrille d'avions de chasse: A. VF-16 USS Lexington 1944; B. VF-31, les Flying Meataxers; C. VF-1, les Top Hatters; D. VF-10, les Grim Reapers; E. VF-27, insignes en forme d'un 'decal'; F. VF-17, les Jolly Rogers.

Page 31 dessous: Un affûtage quadruple de mitrailleuses 40mm AA, l'armement normal établi de E.-U. portes-avions qui fut graduellement agrandi dans toute la guerre. Le USS

Yorktown par exemple tint originellement huit affûtages quadruples 40mm et tint 17 à la fin de 1944. (droit) Le dernier ressort de défense fut la mitrailleuse 20mm Mk 4 AA. Yorktown porta 61 de ces armes paraillles à la fin de 1944.

Page 32 gauche: Flight Deck Landing Signals Officer donnant des instructions au pilote entrant de 'couper le gaz et d'atterrir', une de plusieurs transmissions utilisées pour aider à atterrir sans accident des avions des portes-avions. Ces hommes qui tinrent les raquettes portèrent vêtements colorés avec éclat et ils utilisèrent raquettes de grande visibilité cordées avec étamine. Chandails colorés indiquèrent les services différents d'équipages des portes-avions.

Page 32 droit: Seaman/gunner 1944. Casque d'acier lequell fut quelques fois de couleur gris marine, porte une 'G' tracée au pochoir laquelle indiqua un canonier, porté sur masque-éclair. Gilet de sauvetage rempli de Kapok porté sur tenue de corvée ouvrable standard et pantalon. Il porta un chargeur de projectiles 40mm.

FARBTAFFELN

Seite 25 : Lieutenant Junior Grade, Juni 1944, auf Flugkleidung von einem Avenger-Bordfunker getragen bekleidet. Einzelheiten sind von einem Kriegzeitfarbbild genommen worden, dem die Vanderwall Zwillingbrüder illustriert, die von dem USS Princeton führten. Der zierte Flugehelm half man Andrew Vanderwall zu identifizieren. Eine übliche aufblasbare Schwimmweste wird über einem hellgraugelbe Fluganzug mit einem .45 Selbstladegewehr in Schultergehenk mit Patronen getragen. Lebensmesser in Beinscheide.

Seite 26 oben : F4F-4 Wildcat der VF-41, die Red Rippers in Farbentabelle illustriert, von Januar bis Mai 1942 mit denkbar Höchstgrösse Staatsabzeichen benutzt. Staffelsabzeichen auf beiden Seiten des Rumpfs und Einzelnummer '8' nur auf Obertragflächen wiedergesteckt, wie man illustriert hat.

Page 26 unten : TBF-1C Avenger der VT-2, Juli 1944 auf USS Hornet, von Februar 1943 in der drefarbigen Anstrichzusammenstellung benutzt—Halbglanz Meerblau, Mittelblau und Abzeichenweiss. Aussergewöhnlich weil es eine ganze Niederschrift seiner Bombenabwurf- und Torpedo-aufträge trug, das Luftfahrzeug besitzt das Hoheitsabzeichen auf der Kielflosse, das von den Luftfahrzeugen zu dieser Zeit auf dem Hornet verladen benutzt wurden.

Seite 27 : F4U-1D Corsair der VF-10, USS Intrepid, März—April 1945, in meerblauer Glanzanstrichzusammenstellung in März 1944 für Kriegsflottejagdflieger angenommen. Dieser Befehl wurde erst zu neuen Luftfahrzeugen angewendet, die von den Fabriken geliefert wurden und er wurde in Oktober zu allen Flotteluftfahrzeugen ausgebreitete. Die weisse Streifen identifizierten das Mutterschiff und die Nummer des Luftfahrzeugs auf den Fahrgestelltüren war ein Hilfsmittel Identifizierung auf Deck.

Seiten 28—29 : F6F-3 Hellcat VF-6 in drei Schützfärbungen und die Hoheitsabzeichen USS Intrepid von spät 1943 bis früh 1944

bezeichneten. Mit einer individuellen Abzeichen sowohl als auch das Sinnbild von 'Felix the Cat' der 'Fighting Six' wurde dieses Luftfahrzeug oft von Lt. (jg) Alex Vraciu geführt, in dem er zwischen Januar und Februar 1944 sieben Siege gewann. Seine Schlussrechnung war 19. Das Luftfahrzeug hielt durch das Krieg aus und man glaubt, dass es noch bestehe.

Seite 30: SB2C-4E Helldiver der VB-89 auf USS Antietam 1944-45. Gesamtmeerblau mit weissen geometrischen Decklandehoheitsabzeichen für allgemeine Vereinheitlichung Luftfahrzeuge der Ver. St. Kriegsflotte am Ende des Kriegs fabriziert. Die Hoheitsabzeichen auf den Tragflächen, die man hier illustriert hat, wurden auf beiden Ober- und Nieder-Querruderflächen gezeigt. Unter dem Luftfahrzeug wird die fünf grundlegende chiffrierte ANA Farben von dem Kriegsflotte für allgemeine Tarnungsabsichten benutzt und man hat auch die typische Art Schriftsschreibe illustriert.

Seite 31 oben: Abzeichen einer Jagdstaffel: A. VF-16, USS Lexington 1944; B. VF-31 die Flying Meataxers; C. VF-1, die Top Hatters; D. VF-10 die Grim Reapers; E. VF-27 Abzeichen in der Erscheinungsform eines 'Dekal'; F. VF-17 die Jolly Rogers.

Seite 31 unten: Eine vierfache Lafette 40mm AA Maschinen-
gewehre, die bestimmte Standardbewaffnung der Ver. St. Decklandeluftfahrzeuge, die allmählich durch den Krieg zugenommen wurde. Zum Beispiel, das USS Yorktown besass anfangs acht vierfache 40mm Lafetten und 17 am Ende 1944. (rechts) Die letzte Verteidigungslinie war sas 20mm Mk 4 Gewehr. Yorktown trug 61 solche Wagen in spät 1944.

Page 32 links: Flight Deck Landing Signals Officer sagt zu einem ankommenden Luftfahrzeug 'Setzen den Motor aus und landen', ein vieler Signale benutzt, um Decklandeluftfahrzeuge glücklich niederzuholen. Diese Männer, die Schläger benutzen, trugen Kleidungen von leuchtender Farbe und sie benutzten Schläger Hochsichtbarkeit mit Flaggentuch gespannt. Farbige Swaters bezeichneten die verschiedene Dienste Flugzeugmuttersschiffsbesatzungen.

Seite 32 rechts: Seaman/gunner 1944. Stahlhelm, der manchmal marinegrau war, trägt eine schablonierte 'G', die ein Artillerist bezeichnete, über Mündungsfeuermaske getragen. Schwimmweste mit den Haaren des Kapokbaumes ausgefüllt über Standardarbeitsdrillichanzug und lange weite Hosen getragen. Er trägt einen Patronenrahmen 40mm Granaten.

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