

# Organization of Naval Aviation in World War II

*Generally, management of the many is the same as management of the few. It is a matter of organization. – Sun Tzu (China, 4th Century BC)*

*Set thine house in order. – The Bible: 2 Kings, 20:1*

The Naval Aviation establishment which ended WW II was a far cry from the one which entered it. Seagoing aviation had to expand manyfold to meet the innumerable needs of round-the-world total maritime war. The organization that proved itself suited to the needs of the prewar service was quickly outgrown, and the war years brought a continuous process of change and adjustment.

Through the twenties and thirties, the prewar Navy was organized on a task basis. Where we now have Atlantic and Pacific fleets, we then had what was called the United States Fleet, roughly analogous to Japan's Combined Fleet. Based on the tactical concepts of the day, the United States Fleet was divided into a Pacific-based Battle Force and a Scouting Force, stationed in the Atlantic until 1932 and then shifted to join the Battle Force in the Pacific. Battleships, destroyers, and some cruisers formed the Battle Force. The Scouting Force consisted primarily of cruisers, one of whose primary roles was fleet reconnaissance. During this period, the makeup and use of these forces varied with the time. Aircraft carriers were assigned to the Battle Force, though *Lexington* (CV-2) served with the Scouting Force for a short while in the early 1930s.

In 1938, as world tensions grew at the time of the Munich Conference, an Atlantic Squadron was created. In the fall of 1940, this became the Patrol Force, reflecting its most important

By John C. Reilly, Jr.

task: the Neutrality Patrol, established by President Roosevelt to keep hostile forces out of the Western Hemisphere. In February 1941, the Patrol Force became the Atlantic Fleet; at the same time, the United States Fleet was rechristened the Pacific Fleet. During 1940-41, the carriers, long concentrated in the Pacific with the Battle Force, were divided between Atlantic and Pacific.

A typical carrier air group, as it was called, of the 1930s included a fighting (VF), bombing (VB), scouting (VS), and torpedo (VT) squadron, nominally 72 combat planes in all. As always, there were the usual exceptions. *Wasp* (CV-7), smaller than her contemporaries, got two VF and two VS squadrons; not until early 1942 did she get a torpedo squadron to replace one of her VF squadrons.

Through the prewar years, in training evolutions and in the annual Fleet Problems – large-scale strategic and tactical war games played over thousands of square miles of ocean for a month or more – carrier aviation practiced air strikes as well as fleet scouting and air defense. American doctrine placed responsibility for fleet reconnaissance on the carrier VS squadrons. Radar did not even begin to join the fleet until 1941, and satel-

In 1940, Adm. J. O. Richardson commanded a fleet whose principal weapon was the heavy gun, with the airplane as its accessory. The next few years would change this radically.



Aircraft carriers and gunships, supported by under way replenishment groups, formed devastating concentrations of mobile firepower. Carrier task groups, operating a powerful new generation of naval aircraft, were both spearhead and shield of the Allied advance across the Pacific.



lites were decades in the future. Surface and aerial scouting still depended on the Mark I Eyeball; into the early campaigns of WW II, the principal task of VS units was visual reconnaissance. Scouting squadrons, like their VB counterparts, flew dive-bombers; once action began, VS and VB squadrons joined in strike missions. This gave a typical prewar or early-wartime carrier an air group with three attack aircraft to each fighter.

When we entered WW II, a typical carrier air wing still consisted of VF, VS, VB, and VT squadrons. Air wings, and their squadrons, were neatly numbered to correspond to their carrier. Thus, *Yorktown* (CV-5) had Air Group 5, consisting of VF-5, VB-5, and so on. This rather quickly broke down as air units were assigned and rotated and also, apparently, for security reasons.

Air groups evolved as the war progressed in a continuing process of

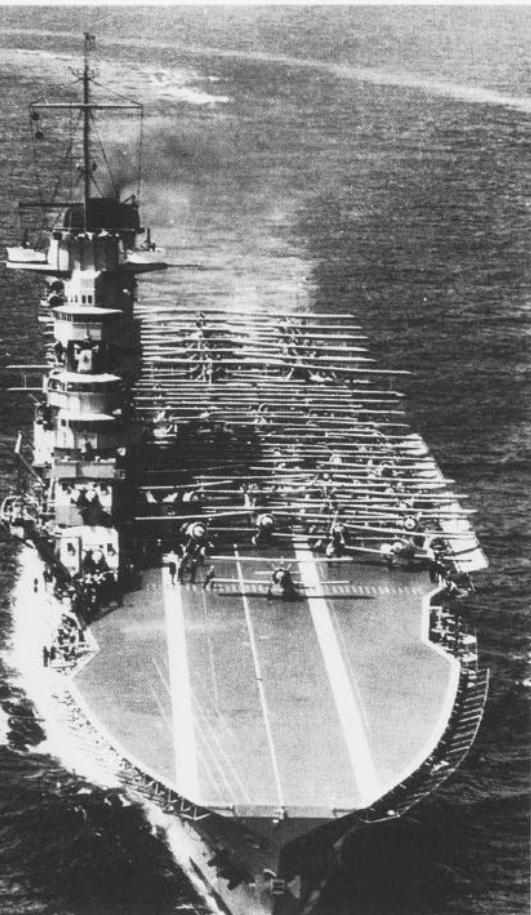
adaptation to changing targets and circumstances. Choices had to be made among aircraft and weapons. This was not a search for the elusive ideal, but simply a determined effort to see that "if not the optimum, at least a satisfactory combination would be placed over the right target at the right time" (Desmond P. Wilson, Jr., *Evolution of the Attack Aircraft Carrier: A Case Study in Technology and Strategy*, Dissertation, M.I.T., 1986). Opportunities for attacks on major Japanese ships became increasingly rare, and operations against land targets took up more of the strike function. On the other hand, the threat of air attack, always present, took on a new dimension during the final year of war as kamikazes became a major menace to the fleet.

Scouting squadrons disappeared as surface and airborne radar took over the search and detection mission; by

the Gilberts operation, late in 1943, a typical air group included 36-plane VF and VB squadrons and an 18-plane VT squadron. To meet the urgent early-war need for carriers, nine *Cleveland*-class light cruisers were completed as *Independence*-class small carriers (CVL). Though considerably smaller than their *Essex*-class contemporaries, they were true "fast carriers" and operated with the carrier striking force during the Pacific offensives of 1943-45.

The carrier striking force was organized into task groups, each made up of several flattops with their screen of gunships. During the Gilberts operation, three task groups of Task Force 50 each included two CVs and a CVL; a reserve task group had the old *Saratoga* and a CVL. By 1945, a task group of Task Force 58 could have as many as three CVs and a pair of CVLs. An early CVL air group included

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Saratoga (CV-3) in the early 1930s.  
Prewar carrier air groups were heavily weighted with what we would call strike aircraft.

while radically maneuvering under attack. Admiral Frank Jack Fletcher, on the other hand, thought that the aggregate offensive and defensive capabilities of carriers operating together outweighed those of ships working singly.

By 1943, radar, introduced as the United States entered the war, had been disseminated throughout the fleet. This had a critical impact on fleet operations. Ships could now maneuver in numbers, even at night or in foul weather. As radar had helped the Royal Air Force to turn the tide during the Battle of Britain, so it now gave a vital edge to fleet air defense. Approaching hostiles could be detected at long ranges, and defending fighters could be effectively directed. Fire control radar and the proximity fuze increased the deadlines of screening ships' antiaircraft fire. All this helped to make multicarrier task organization possible. As constituted during the Pacific offensives from the Gilberts to the shores of Japan, the carrier task force was able to combine firepower, mobility, and defensive capability to a degree that even the world's first "cruise missile" offensive – massed kamikaze attacks off Okinawa – could not defeat.

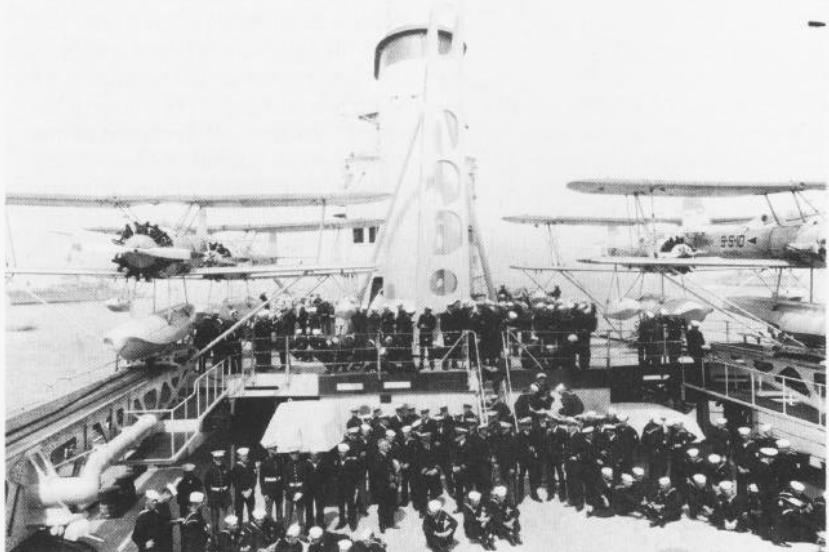
two smaller fighter squadrons and a composite squadron of *Avengers*; by 1945, it typically had one VF squadron and a small torpedo squadron.

One problem that received much attention was the organization of the carrier force itself. Through 1942, carrier task organization was discussed at length. Should carriers operate singly or in company? As so often happens, battle experience elicited conflicting interpretations. At Coral Sea, for instance, *Lexington* and *Yorktown* operated together at first to coordinate their air operations and antiaircraft defense. When Japanese air attack began, however, the ships with their screens separated. At Midway, the three American carriers operated as two task forces. Admiral Ernest King felt that carriers should operate individually, each with its own screen. Some argued, with the Japanese experience at Midway in mind, that multicarrier forces presented vulnerable targets. Visual contact was sometimes difficult to maintain, and collisions were a threat at night or

"Jeep carriers," escort aircraft carriers built on freighter hulls, began to appear as the war went on. *Long Island* (CVE-1) was commissioned in 1941. A few more followed in 1942; by 1943, they were joining the fleet in numbers. The "baby flattops" could not handle a conventional air group, nor had they any reason to; their mission was antisubmarine warfare and, in the Pacific, close air support of amphibious landings. Where a fleet carrier might operate 90 fighters, dive-bombers, and torpedo bombers, a CVE would have a "composite" (VC) squadron made up of fighters and torpedo bombers. Though the small carriers did have torpedoes in their magazines, just in case..., the "torpeckers" were included in the VC squadrons primarily for their ability to carry loads of bombs and rockets for use against submarines or shore targets. Four *Sangamon*-class CVEs, converted from fleet oilers, were bigger than the others of their type. They were the only CVEs to have miniature air groups, made up of a small VF squadron and a VC squadron of TBF/TBM *Avengers* and dive-bombers.

Wartime experience showed that air superiority over target areas was es-

**Cruiser Pensacola (CA-24)** carries a four-plane section of VS-9. Each battleship or cruiser division had its squadron of catapult floatplanes used for spotting gunfire; cruiser airplanes also did fleet scouting. Catapult aviation was a significant part of the air Navy between the world wars.





Aircraft radar let carrier fighters, like these Hellcats, operate against night-flying Japanese attackers.

sential for successful strikes. This led to changes in the aircraft mix in carrier air groups, giving fighter aircraft more emphasis. Newer fighters – the F6F *Hellcat* and F4U *Corsair* – unlike earlier VFs, could carry 500 or 1,000-pound bombs and the new air-to-ground rockets, so this did not meaningfully degrade the carriers' attack capability. Fighters were used as fighter-bombers to hit surface targets, and their new role was recognized by creation of VBF – bomber-fighter – squadrons. During 1945, the suicide plane became the principal threat to the fleet, and the fighter combat air patrol was recognized as the fleet's essential first line of defense.

Gunfire spotting had long been a primary mission of battleship and cruiser floatplane units. American catapult planes did not have the power and speed of their German and Japanese contemporaries, and planners worried about their chances to survive and perform their mission in situations where heavy opposition was

Much of the air Navy flew from land bases, directed by the fleet air wings. Patrol bomber crews such as this one had a worthy share in clearing U-boats from the Atlantic.

expected. During the Normandy landings, Navy spotter pilots flew *Spitfire* Mk VB fighters borrowed from the British; the expedient worked well. The pilots liked the fighter's performance and ability to defend itself.

By 1944, an "observation-fighting" squadron, VOF-1, was ready for service. The pilots went through fighter training, then learned spotting from the Army at Fort Sill, Lawton, Okla., before going to Casco Bay, Maine, for final training with naval gunfire ships. They

saw their first combat in southern France, flying F6Fs from the escort carrier *Tulagi*. Word of their capabilities got to the Pacific Fleet's amphibious commander, Admiral "Kelly" Turner, who asked for the new squadron's services in the offensives planned for 1945. *Hellcats* were now replaced by a mix of FM-2 *Wildcats* and TBM *Avengers*. The unit was rechristened a "composite observation" squadron, VOC-1, and supported the landings at Lingayen Gulf, Iwo Jima, and Okinawa.

Airborne radar was introduced early in WW II. The first radars were surface search sets used by land-based patrol bombers to hunt submarines. From the early Pacific campaigns, the Japanese had made good use of land-based planes for night attacks on our naval forces. Carrier-based *Avengers* later got radar and used it to guide fighters to make night intercepts. Before the war ended, improved radars were fitted to fighters, and night-fighter (VF(N)) squadrons went to sea in the carriers *Independence* and *Enterprise*.

Then as now, patrol (VP) squadrons formed a major part of the naval air establishment. Through the interwar years, patrol aviation meant flying boats – large multiengined seaplanes for long-range search and bombing missions from coastal bases. In 1935, patrol "wings" appeared, but these were not so much air commands as simply a means of referring to two or more VP squadrons operating in the



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same general area. Two years later, VP wings were numbered and given their own command and organizational standing.

By 1939, a typical patrol wing had two to five squadrons of flying boats, with its own wing utility unit of planes. Like destroyer flotillas and submarine squadrons of their time, the wings also had command of assigned seaplane tenders. Patrol wings were first thought of as a form of coast defense, searching out and reporting threats to American territory. Others felt that the seaplane could play a combat role and that patrol planes should be used in conjunction with the fleet. During 1937, the patrol wings were assigned to the fleet's scouting force, and became – at least theoretically – a mobile force to work with the forces afloat though, in practice, they continued much as before.

In 1940, the Atlantic-based patrol wings were assigned to the new Patrol Force. When the Atlantic and Pacific fleets were created, in 1941, Atlantic VP aviation became Patrol Wings, Atlantic Fleet (PatWingsLant). Its Pacific counterpart remained part of what was now the Scouting Force, Pacific Fleet, until 1942 when it became PatWings-Pac.

Wartime development of patrol aviation focused on developing an organization that would allow a vastly increased force to operate, virtually worldwide, as effectively as possible on its own or with other forces. Experience in the North Atlantic, even before the Japanese bombed Pearl Harbor, showed that patrol planes could be operated most efficiently as consolidated commands. This led to a reorganization in mid-1942. Where squadrons had previously been permanently assigned to wings, and wings had been thought of as potentially mobile formations, the wings now became stationary commands assigned to specific areas. The squadrons were assigned and reassigned to wings as the situation demanded. Each wing had a headquarters squadron (HedRon), which pooled ground personnel and handled most of the administrative and support



*The carrier task force could take care of itself...*



*...and launch concentrated attacks...*



*...at targets at sea and on land alike.*

tasks for the operating squadrons. Each HedRon had detachments, called patrol aircraft service units, to support squadrons at outlying bases. Similar outfits, called carrier aircraft service units and scout-observation service units, provided services ashore to carrier squadrons and floatplane units from battleships or cruisers.

World War II introduced landplanes to the VP establishment. Since land and seaplanes shared the same basic missions, they shared the same organization. Sea frontiers, the naval commands set up to defend our coastal areas, operated inshore patrol squadrons, variously designated as VS, VP, or VB squadrons. As airships came into service for antisubmarine patrol duty, they were organized into ZP squadrons. In the fall of 1942, these coastal patrol units came under the administrative control of the patrol wings, though the sea frontiers retained operational command. On November 1, 1942, patrol wings were redesignated fleet air wings, to be made up of all aircraft needed to perform land-based aviation missions in their respective areas. As in the surface forces, air groups – aviation task groups – were formed to carry out specific operations.

On September 1, 1942, Naval Air Forces, Pacific Fleet (AirPac), had been established to serve as a policy and advisory command; at the beginning of 1943, a similar command was created in the Atlantic. These acted as type commanders for all fleet air activities, ship and shore-based, to bring them into closer coordination and develop their overall potential. AirLant and AirPac continued to provide support and coordination to air forces operating from England and North Africa to the southwest Pacific through V-J Day. When the war ended in Europe, eight fleet air wings were operating in the Atlantic area, with nine in the Pacific; between them, they commanded 91 VP squadrons. Atlantic strength dropped quickly; in the Pacific, though the pace of war remained intense, air wing strength remained constant and squadron strength even went down slightly as the theater of war contracted around the Japanese home islands. By V-J Day, just over one-third of the Navy's VP squadrons were flying seaplanes. The rest were equipped with landplanes, a trend that would continue through the postwar years, although some flying boats were still in the fleet as late as the Vietnam era.

Wartime aviation experience – and,

hence, organization – did not follow the original expectations of prewar thinkers. Geography, technology, and military situations often dictated new and untried courses. Many of the details of wartime command structures may not serve the precise needs of the future. But the attitudes behind them – flexibility, openness to new concepts, and readiness to adapt to changing circumstances – served the Navy well from the Neutrality Patrol to Tokyo Bay. They will be just as essential in the years to come. ■

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In the next issue: Aviation Ordnance.

## 50 Years Ago — WW II

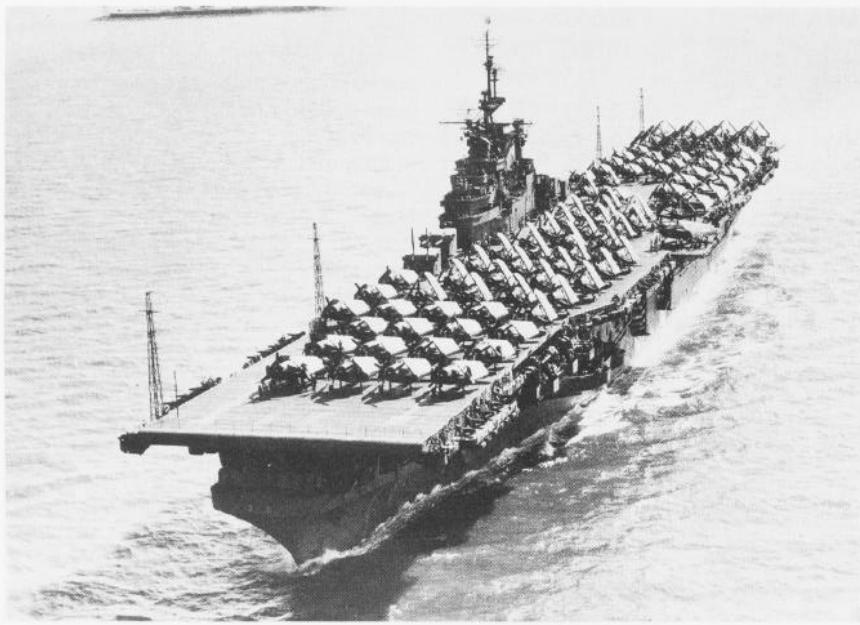
May 15: The seaplane tender *A bemarle* arrived at Argentia, Newfoundland, to establish a base for Patrol Wing, Support Force operations and to prepare for the imminent arrival of VP-52, the first squadron to fly patrols over the North Atlantic convoy routes.

May 27: The president proclaimed that an unlimited national emergency confronted the country, requiring that its military, naval, air, and civilian defenses be placed on readiness to repel all acts or threats of aggression directed toward any part of the Western Hemisphere. He announced that the Atlantic Neutrality Patrol was extended and that Pacific Fleet units were transferred to the Atlantic. The German battleship *Bismarck* was sunk by the British navy in the North Atlantic.

June 2: USS *Long Island*, the first U.S. Navy escort carrier, was commissioned at Newport News, Va., Cdr. D. B. Duncan commanding. Originally designated AVG-1, *Long Island* was a flush-deck carrier converted in 67 working days from the cargo ship *Mormacmail*.

June 6: Naval Air Station, Balboa, Canal Zone, established.

June 15: Naval Air Station, Kodiak, Alaska, established.



Boxer (CV-21) with her 1945-model air group. Most of the flight deck is taken up by the Hellcats and Corsairs of her two 36-plane VF squadrons. Smaller squadrons of Avengers and Helldivers are spotted astern. A typical late-war task group – 3 CVs and 2 CVLs – could put nearly 400 planes into the air, carrying over 214 tons of bombs and 2,000 five-inch rockets, to strike targets at ranges of 250 miles or more.