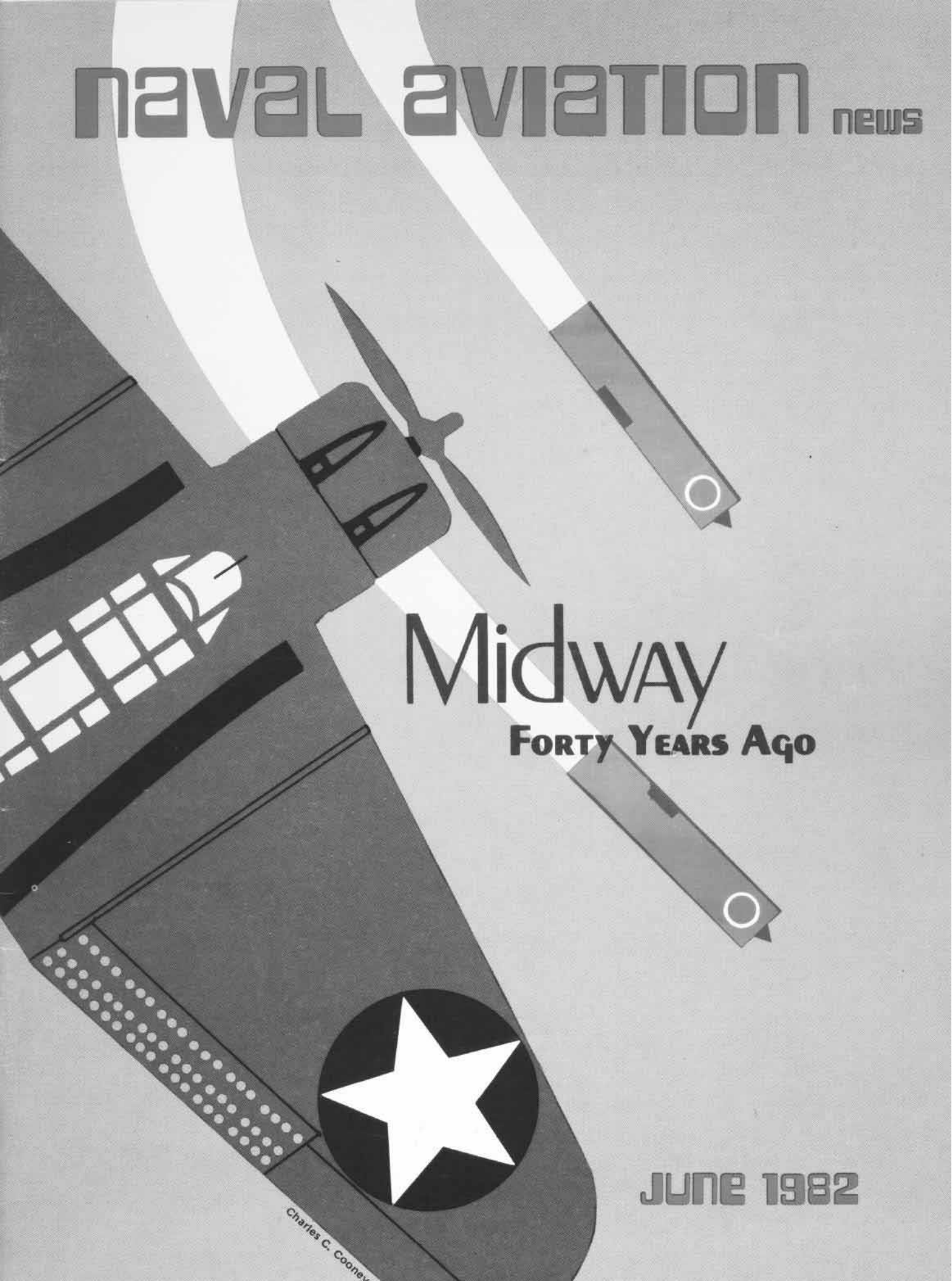
NAVAL AVIATION NEWS

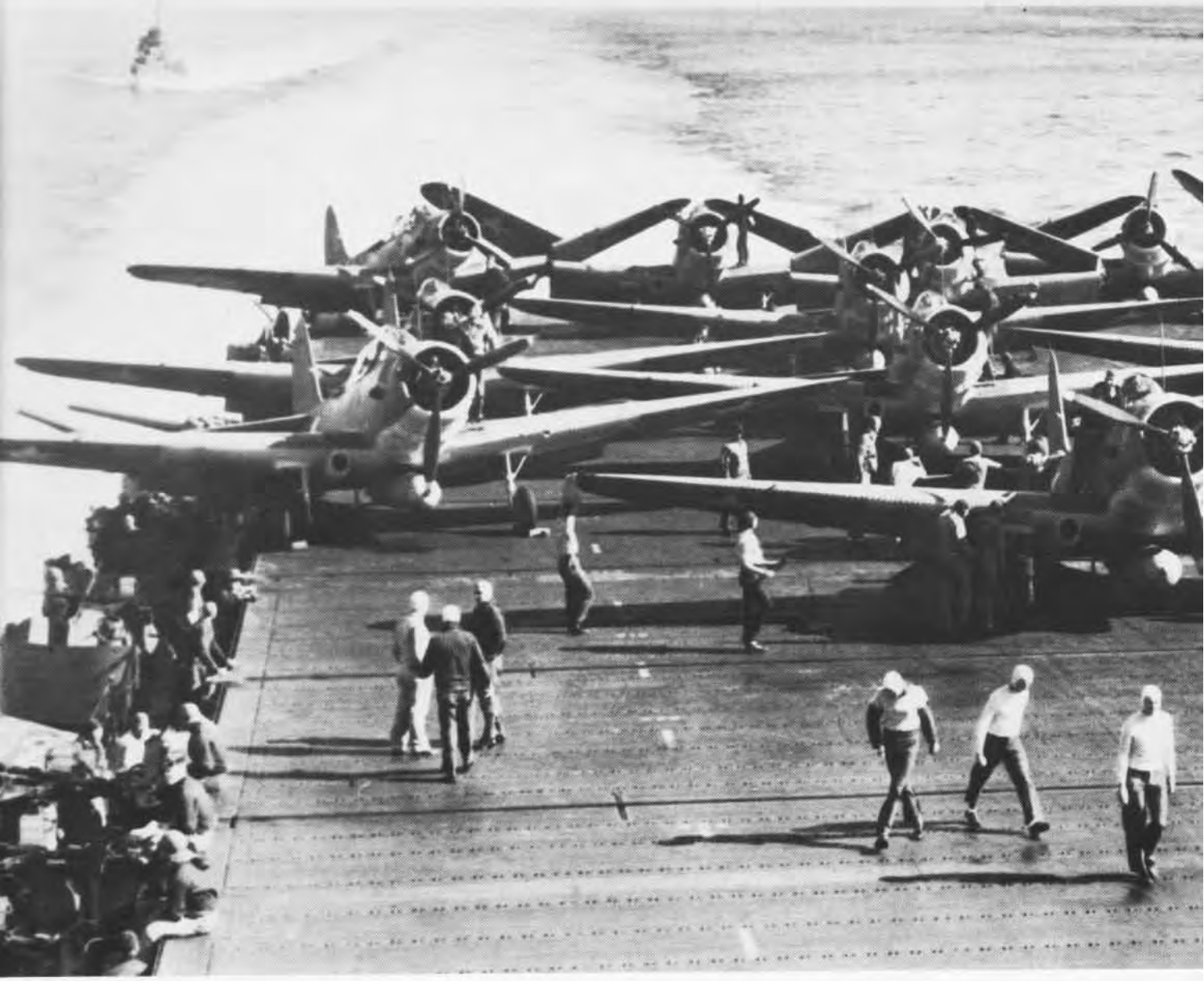


Midway

Forty Years Ago

JUNE 1982

VT-6 preparing to launch at the beginning of the Battle of Midway on 4 June 1942. Lt.Cdr. Eugene Lindsey's Devastator is in the center of the flight deck with the port wing partially unfolded.



NAVAL AVIATION NEWS

Sixty-Fourth Year of Publication

Vice Admiral W. L. McDonald Deputy Chief of Naval Operations (Air Warfare)
Vice Admiral E. R. Seymour Commander, Naval Air Systems Command

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This month's cover, by NANews' Art Director Mr. Charles Cooney, is a poster-art rendering of a Douglas SBD *Dauntless* on a bombing mission during the Battle of Midway. The *Dauntless* was responsible for sinking all four Japanese carriers during that epic battle which was the turning point of World War II in the Pacific.

Features

Departments

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STATE OF THE ART

Heli-Stat

Piasecki Aircraft Corporation.

The first of the Heli-Stat's four helicopters is raised into position onto its interconnecting structure. The 340-foot helium-filled blimp makes the total vehicle nearly weightless.

The Piasecki Heli-Stat, a revolutionary aerial crane under construction at the Naval Air Engineering Center, Lakehurst, N.J., has entered its final assembly stage leading to ground tests this spring. It is scheduled for delivery to the U.S. Forest Service later this year.

The giant aircraft is the first heavy lifter to combine the buoyancy of an airship and the power of four helicopters into a single vehicle. It is designed to lift transport cargoes of up to 24 tons — 50 percent more payload than possible by existing heavy-lift U.S. rotary wing aircraft. It can also carry international standard freight containers (8 feet by 8 feet by 40 feet) attached to the underbelly of its center body.

The Heli-Stat's nonrigid buoyant envelope has been pressure tested and holds one million cubic feet of helium, subassemblies of the interconnecting structure have been built up, and the four helos are being modified for installation.

The original patent on the balloon/helicopter concept was granted to Frank Piasecki, president of Piasecki Aircraft Corporation, in 1961. The Heli-Stat received federal funding from the U.S. Department of Agriculture in 1980 through a contract with the Navy.

F-14 TV Camera Set System

Northrop Corporation has been awarded a $12.5 million contract by the Naval Air Systems Command for continued production of an electro-optical system that permits F-14 fighter pilots to make combat decisions earlier than previously possible.

The closed-circuit television system, designated TCS, is mounted beneath the

nose of the *Tomcat* and, when in operation, finds and locks on to distant targets and displays them on monitors for the pilot and flight officer. Pilots can then make accurate combat decisions from greater distances than before because they can find and identify targets beyond the range of the unaided eye. TCS also gives the crew the ability to perform long-range surveillance and reconnaissance.

The contract is for 36 TCS sets plus two spares. Earlier this year, Northrop was awarded a $3 million contract to initiate production of the system. Deliveries will start late next year.

SH-2Fs Delivered

Kaman Aerospace Corporation has begun the delivery to the Navy of 10 more SH-2F helicopters converted from SH-2Ds. The contract for these conversions is a continuation of the program completed between 1973 and 1975 in which a total of 88 SH-2Fs were delivered to meet the initial light airborne multi-purpose system (LAMPS) requirements.

Kaman is now under contract to put the SH-2F into production, with 18 on order. These will be the first new-production examples of the Kaman helicopter built since the company completed delivery of 190 HU2K-1 *Seasprites* in the sixties.

TH-57 Trainer Contract Awarded

The Department of the Navy has awarded Bell Helicopter Textron a $35,720,400 contract for 55 TH-57 military helicopter advanced instrument trainers. Deliveries of the units are scheduled to commence in October 1982 and be completed by June 1983. This is a follow-on to a contract awarded in May 1981 for seven of the trainers, and it will be administered by the Naval Air Systems Command, Washington, D.C.

A military version of Bell's five-place *JetRanger III*, the new TH-57s will be equipped with dual controls, dual instruments and autopilot. The aircraft will be used for helicopter pilot training at NAS Whiting Field, Fla.

The Navy has been operating the first version of the TH-57 since October 1968, when it acquired the initial helicopter from a 40-unit order. Thirty-six of these aircraft are still flying training missions today.

Fly-by-Night Helicopters

With today's helicopters flying and maneuvering very close to the earth at night, the pilot must be able to view the ground and other obstacles in addition to his cockpit instruments. For this he needs some type of image enhancement device. A solution to the problem is image intensifier night vision goggles (NVG). But flying a helicopter close to the ground while wearing the goggles is not a simple task. A primary concern is the current red cockpit lighting scheme which requires the NVG user to manually readjust the goggles when changing his view from outside to inside the cockpit.

Currently, the Naval Air Test Center, Naval Air Development Center and Naval Air Systems Command are developing a glass filter, shared aperture kit to alleviate problems with cockpit lighting and manual refocus. The glass filters are 5mm thick and cut into various sizes as dictated by associated mounting brackets. A complete set of blue and blue-green filters is included in the kit to cover utility and caution/warning lights, and to replace secondary floodlights. Blue filters are provided to cover yellow, green and white lights; blue-green

filters are used to cover red lights.

The Naval Air Development Center will provide shared aperture devices for the kit. The devices consist of sharp-cut red glass 3mm thick and 22mm in diameter. The center of each filter has a 1.5mm aperture hole. When the aperture device is mounted to the end of the NVG objective lens housing, it provides a large long-pass (long wave length transmission) aperture for normal out-of-cockpit viewing (with goggles focused at infinity) and a small shared aperture (with a large depth-of-field) for direct viewing of a blue-lighted cockpit without refocusing.

The kit concept will provide the Navy/Marine Corps with a simple, low-cost solution to some of the problems encountered by helicopter pilots while wearing night vision goggles, and will also provide the helicopter pilot with increased confidence and safety levels.

Flatley Awards

A CH-46 hovers during vertrep operations on board Okinawa.

The 1981 Admiral Flatley Memorial Awards have been presented to West Coast-based *Coral Sea* (CV-43) and *Okinawa* (LPH-3), with *Midway* (CV-41) as runner-up. Representing the East Coast as a runner-up is *Saipan* (LHA-2).

Presented each year by Rockwell International, in honor of the late Vice Admiral James H. Flatley, Jr., the awards recognize superior operational readiness, an outstanding safety record, and significant contributions in the field of aviation safety during the previous calendar year.

Joint Tactical Information Distribution System

International Telephone and Telegraph Corporation and Hughes Aircraft Company, have jointly been awarded an $87-million contract to begin full-scale development of communications terminals for the Navy's joint tactical information distribution system (JTIDS). The terminals will be used in surface ships, and large and small airplanes.

JTIDS provides communications through voice and high-capacity data channels that are encrypted and jam-resistant. The program calls for fabrication of about 50 JTIDS terminals to be tested by the Navy. The equipment will be fully compatible with the Navy tactical data system and interoperable with existing and planned JTIDS terminals operated by the United States and NATO.

Awarded by the Naval Electronic Systems Command, the contract is the largest ever funded by the Navy for development of tactical communications equipment. Eventual Navy procurement of JTIDS terminals is expected to exceed $1 billion.

Battle Es

The 1981 Battle Es, awarded for combat readiness, efficiency and excellence, have been presented to the following units.

ComNavAirLant: USS *Eisenhower*, for the third consecutive time; VAW-121, for the third consecutive time; VS-22 and HM-16 for the second consecutive time; VAs 35 and 46; VF-41; VP-44; HS-5; and HSL-32. VXN-8 won in the special mission category and HC-6 earned top honors in the support mission.

ComNavAirPac: USS *Midway*; VFs 2 and 21; VAs 22 and 95; VAQ-130; VAW-114; VP-46; VS-33; HS-4; HC-3; and HSL-35, for the second consecutive time.

After a grueling 18-month competition, Capt. Robert S. Owens, Midway's skipper, smiles and gives a sigh of satisfication as he paints the "Big E" on the carrier's bridge wing.

PH3 S. Colagiovanni

Blue Angels Recruiting

The *Blue Angels* have openings for three demonstration pilots, a Marine Corps C-130 pilot, a naval flight officer, a maintenance officer and a flight surgeon, for their 1983 team. Selections will be made in September 1982, but interested officers are encouraged to submit their applications as soon as possible.

An applicant for demonstration pilot must be a tactical jet pilot with 1,500 hours of flight time, a regular Navy or Marine Corps officer, and rolling to or on shore duty. A letter of application should be endorsed by the commanding officer and forwarded to the Navy Flight Demonstration Squadron with a copy to the Chief of Naval Air Training and the Commander Navy Military Personnel Command (NMPC-433A) or Commandant Marine Corps (Code AA) for Marines.

An officer interested in the position of maintenance officer must be a lieutenant or lieutenant commander 1520/633X.

A flight surgeon applicant must be a lieutenant or lieutenant commander 2100. Applications must be endorsed by the commanding officer and forwarded to the *Blue Angels*.

A Marine Corps officer interested in the position of C-130 pilot must be a first lieutenant or captain, aircraft commander or senior T2P. An application must be endorsed by the commanding officer and forwarded to the *Blue Angels* with a copy to the Commandant Marine Corps (Code MMOA-2).

Each letter of application should include the officer's experience and qualifications. Any further questions can be answered by contacting the *Blue Angels*, NAS Pensacola, FL 32508, autovon 922-2583/4/5 or commercial (904) 452-2583/4/5.

Isbell Trophy

The 1981 Captain Arnold Jay Isbell Trophy for excellence in air antisubmarine warfare has been won by VS-24, HS-3, HSL-32 and VP-8 in the Atlantic Fleet; and VS-29, HS-8, HSL-37 and VP-22 in the Pacific Fleet.

Sponsored by Lockheed-California Company, the award is named for the distinguished antisubmarine warfare commander under whose leadership planes and escort carriers operating in the Atlantic during WW II developed into a powerful combat force. Capt. Isbell was killed in action in 1945 in the Pacific theater while serving aboard USS *Franklin*.

The trophy was established in 1958 to motivate superior performance of ASW capabilities and to present tangible awards to those squadrons judged to be the best during each 12-month competitive cycle.

Grampaw Pettibone

Tailored Trouble

A senior aviator assigned to a highly demanding staff position was undergoing AV-8A *Harrier* training in a syllabus tailored to fit his experience level of 5,000 flight hours in tactical jet aircraft. The normal syllabus consisted of 14 dual sorties in the TAV-8A and seven in the single seat AV-8A. The abbreviated syllabus contained only four dual TAV-8A sorties and eight AV-8A sorties, and did not include helicopter familiarization training.

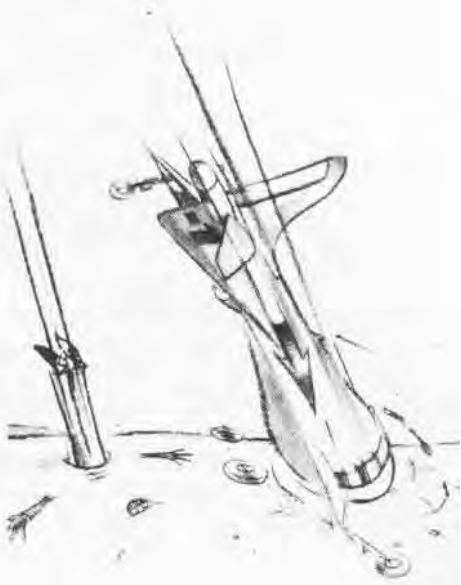
The pilot completed four dual TAV-8A sorties and four AV-8A sorties. Completing four conventional takeoffs and landings on his fifth AV-8A flight, the instructor pilot stationed on the runway directed the pilot to proceed to the hover pad for the briefed vertical takeoffs and landings, and continuous acceleration transition maneuvers. The maneuver called for a vertical takeoff headed into the wind, and then a turn and an acceleration in the desired direction of departure. The planned turn would be approximately 180 degrees. The pilot called for takeoff prior to reaching the pad and attempted to conduct the engine check with the nozzles at 10 degrees instead of zero degrees. The instructor called for a nozzles check and the pilot complied immediately.

The *Harrier* performed the briefed vertical takeoff into the wind, heading opposite to the direction of the intended acceleration. At approximately 30 feet AGL, the *Harrier* started the briefed right turn to head downwind. Instead of a normal turn, the pilot performed a turn to the right at three to four times the maximum rate of turn allowed by Natops. The *Harrier* rapidly completed a 360-degree turn and continued to turn right and climb while simultaneously picking up a rapid drift in the direction of takeoff. The turn rate slowed as the second 360-degree turn started and the drift rate continued to increase. After another 180 degrees of turn, the *Harrier's* yaw movement hesitated slightly and the aircraft appeared to stabilize at 200 feet AGL with the wings level, while flying backwards at approximately 40 knots. The rearward speed was well in excess of the Natops maximum. The *Harrier's* nose pitched up 20 degrees, stopped, and then abruptly pitched to 60 degrees nose up. At this point, the instructor called for the pilot to eject. The nose-high *Harrier* then rolled right to an inverted position and the nose fell to 45 degrees below the horizon. As the hapless *Harrier* fell inverted, the pilot initiated ejection with the lower handle and was ejected through the canopy into the ground from an altitude of 100 feet AGL. The aircraft impacted the ground inverted at 70 degrees nose down and 12 feet from the fatally injured pilot.

Grampaw Pettibone says,

Great balls of fire — what a needless waste!

This senior aviator was highly experienced in jet tactical aircraft but had no previous experience in the vertical takeoff regime. His modified syllabus did not include the normal helicopter familiarization training. He also had not received basic AV-8A systems operations, flight physiology, AV-8A ejection seat, or VSTOL aerodynamics lectures. Nor had he completed the required open or closed book Natops exams. He had received informal briefings by instructor pilots prior to his flight in the aircraft.



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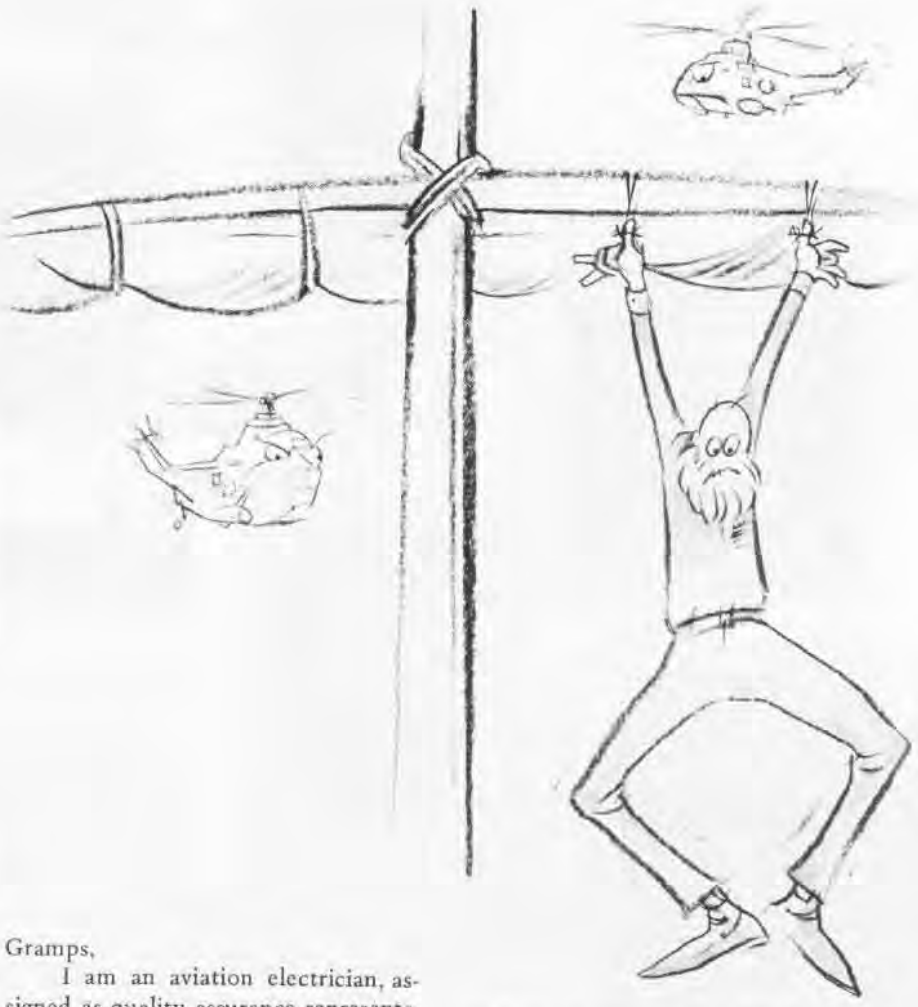


He should have had more respect for the interface – called training – between man and machine in today's aircraft. It's all too obvious that this aviator used his senior position, past experience and aggressive personality to bulldoze his way into a program for which he was ill prepared. He tailored himself right into the ground. I won't ask where the supervision was that could have prevented this. There doesn't appear to have been any.

From the mailbag:

Gramps received the following notes from the mailbag and wanted to share them with you folks. The two letters below are in response to an obviously wrong impression reflected in the November 1981 Gramps article on "The Uncollected Collective."

Dear Gramps,

Someone has certainly given you some bum dope. There is no mechanical connection between the barometric altitude (BarAlt) controller and the flight controls in the H-3. There is, however, a mechanical connection between the flight controls and the collective stick sensor and clutch assembly, located in the "broom closet" under the auxiliary servo. When the sensor assembly is removed, the link connecting it to the flight controls must also be removed or left dangling. The responsibility for removing the link is anybody's guess but, in my opinion, the person who removed the sensor assembly and left the link dangling should be the one dangling, preferably from the yard arm by his thumbs.

James Moore, ATC, USN(Ret.),
plus 21 H-3 years with
Sikorsky Aircraft
PMRF Barking Sands
Kekaha, HI 96752

Gramps,

I am an aviation electrician, assigned as quality assurance representative in Helicopter Anti-Submarine Squadron One. This correspondence is in reference to *Naval Aviation News'* November 1981 issue, Grampaw Pettibone article "The Uncollected Collective." The facts in this article are incorrect. It states that upon removal of the barometric altitude (BarAlt) controller the loose collective arm was not tagged nor mentioned in maintenance control. There was good cause for this as the aluminum feedback arm has nothing to do with, and is in no way connected or related to, the BarAlt controller. The BarAlt controller is located on the A/C deck under the pilot's right-hand console and has no mechanical connection to any flight control. The aluminum feedback control arm mentioned is connected to the collective stick sensor located at the bottom of the auxiliary servo package and is connected to collective flight controls. How the mechanical arm got disconnected should be the question here. The statement that you don't need a BarAlt controller to have an up aircraft is TRUE if you cap off the static line and it's other than IFR or night flight.

Very respectfully,
AE1 Michael R. Viladesau
HS-1 Quality Assurance
NAS Jacksonville, FL

Gramps stands corrected on the technicality of the physical connection (or lack of connection, in this case) between the BarAlt and the aluminum feedback arm.

The main point of the article was not so much what is connected but, more importantly, the impact of what was left unconnected and why. The plane captain was able to detect something amiss and, try as he did, he was unable to impress anyone in a position of responsibility to take the action necessary to prevent the near-mishap that resulted.

Both of you gentlemen are correct in your comments and your points are sincerely appreciated. Thanks, Gramps.

Wesley A. Wright

Joseph J. Rochefort

Thomas H. Dyer

The Unsung

Edwin T. Layton

Joseph Finnegan

By Clarke Van Vleet

Much of the credit for the victory at Midway goes to the few "unsung" men who effectively predicted the battle. Without their thoughtful efforts and precise estimates, the Americans would not have been prepared for it. These men were the experts of intelligence, particularly cryptanalysis, who called the correct shots — the time, the place and the strength of the Japanese thrust. They called them well enough in advance so that the Americans could prepare to repel the enemy. With excellent intelligence, far fewer forces, some terrific decisions and a few dashes of luck, the Americans were able to capitalize on good timing, surprise and mistakes made by the enemy to win one of history's greatest sea battles.

Commander Edwin Layton, Admiral Chester Nimitz' intelligence officer at Headquarters, Commander in Chief, Pacific (CinCPac), was one of the key players. He had an excellent understanding of the Japanese Navy's methods and concepts of operations. He had an outstanding knowledge of Japanese psychology and, in estimating the intentions of the Japanese, he was equaled only by one of his peers, Commander Joseph Rochefort. Nimitz is reported to have told Layton to think like a Japanese, for example, the chief of Japan's Naval General Staff, or "whoever else is calling the shots."

Rochefort headed the Combat Intelligence Unit at Pearl Harbor, where he was a first-rate radio traffic analyst and probably the best cryptanalyst the Navy had at the time. Like Layton, he was fluent in Japanese, including the peculiar idiomatic and ideogramic expressions used by the Japanese Navy. Both men had studied the language during concurrent three-year tours in Tokyo until 1932. At Pearl, they were back together again, supporting each other in close personal contact or by scrambler phone several times a day.

Rochefort's Combat Intelligence Unit was actually a cover name for Communications Intelligence Unit, thus satisfying the need for an overt designation without revealing the actual activity. Internally known as the Station Hypo, it was a branch of Op-20-G, the Communications Security Section of the Office of Naval Communications in Washington, D.C. Its primary mission was deciphering enemy coded radio communications through cryptanalysis.

The personnel were specifically engaged in cracking Japan's naval code which had been changed by the Japanese on December 4, three days before the attack on Pearl Harbor. From then until the Battle of Midway, Hypo worked furiously round the clock to unravel the new version of the five-digit naval cipher. Time was of the essence, because the Japanese were still on the move and CinCPac was faced with important and timely strategic decisions.

The burden of determining what the Japanese Navy would do during the coming critical months fell heavily on Layton, Rochefort and a veteran group of communications intelligence experts at Hypo. Among them were Lieutenant Commanders Thomas Dyer, Wesley Wright and Jack Holtwick, three of the Navy's top cryptanalysts; Thomas Huckings and John Williams, two of the best radio traffic analysts; and Joseph Finnegan and Marine Corps Major Alva Lasswell, a crack cryptographer-translator team.

By March 1942, after weeks of work spearheaded by Dyer and Wright, a small dent had been made in the new Japanese code, with a few of the five-digit meanings decrypted – if only 15 percent of any message could be read, it was considered good. When pieced together with other information such as ship traffic analysis, the enemy's deciphered weather code and fragments of other messages, much useful information could be obtained from the naval code.

By April, Layton had briefed Admiral Nimitz and predicted that Japan's next major naval move would be in the

Chorus

area of New Guinea, probably later that month. This prophetic information worried Nimitz as well as the Commander in Chief of the U.S. Fleet, Admiral Ernest King, in Washington because two of our carriers, *Enterprise* and *Hornet*, would be away completing a dangerous mission in north Pacific waters – the Doolittle raid on Tokyo. King contacted Rochefort directly for a detailed analysis of Japanese intentions. In a remarkable reply, Rochefort revealed, what his radio intelligence team had determined, that with the East Indies secure Japan had completed operations in the Indian Ocean and intended not to attack Australia; also that a major move against eastern New Guinea would soon occur, followed by a large offensive involving the Japanese combined fleet in the central Pacific, sometime in the summer.

Continued radio intercepts and fragments of decoded messages pointed more and more to an intended Japanese thrust around eastern New Guinea. The work of Finnegan and Lasswell had convinced Rochefort that a new designator "MO" in coded messages meant Port Moresby. Radio traffic analysis and other information indicated a buildup of ships around Rabaul and that an enemy task force with two carriers was headed for the Coral Sea. Finnegan is reported to have discovered a third carrier involved, probably a new one named *Ryukaku*, which later, however, turned out to be the new *Shoho*.

The Battle of the Coral Sea ensued May 4-8 with our forces ready and, although *Lexington* was lost and *Yorktown* badly damaged, *Shoho* was sunk and the enemy carrier *Shokaku* crippled, with the MO covering force and MO occupation force turned back, thus saving Port Moresby from invasion. The credibility of radio intelligence had been confirmed. Nimitz's faith in the Layton-Hypo team was justified.

The large volume of radio traffic during the Coral Sea battle further helped in deciphering the stubborn naval code, with nearly a third of it solved by early May. Cryptanalysis continued to indicate that the Japanese were planning something big in connection with the central Pacific. Forces were building up in the mid-Pacific Marianas. Rochefort and his assistants also began to note increasing references in messages to a new designator "AF." Piecing this together with fragments of other information, they surmised it meant Midway. References to the Aleutians also began cropping up. In mid-May, a Japanese operation order was intercepted and largely decrypted, which detailed the order of battle, including four enemy carriers, for the assault on "AF" with a diversionary thrust in the north Pacific. The time and direction of the main assault was, however, hidden in special ciphers.

Nimitz had accepted the Layton/Rochefort analyses and planned accordingly, reinforcing Midway and assigning forces to counter both the invasion of "AF" and the probable lesser threat to the Aleutians. But other high authorities, including some in Washington, were still skeptical, suspecting the messages could be plants and the "AF" could mean Oahu or somewhere on the west coast of the United States. Even a ruse played on the Japanese to confirm "AF" as Midway had not convinced some of them. A scheme had been hatched among the Hypo men and Layton to have the command at Midway send a fake message that the island's fresh water distillation plant had broken down. Shortly thereafter, Hypo decrypted a Japanese message stating that "AF" was having fresh water troubles. This trick was merely further confirmation of the estimate Layton and Rochefort held all along. Nimitz had already bet on it.

Finnegan plunged furiously into an attempt to discover the direction of the carrier attack on Midway. Scouring and analyzing all sources, he finally came up with the expected bearing – it would come from the northwest. Wright tackled the elusive time-date cipher and after exhaustive work, named June 3 as the time of the Japanese stab at the Aleutians and June 4 as the day the carriers would strike Midway.

This latter finding came just in time for two reasons. Rochefort was scheduled to brief Nimitz the next day, May 24, and the Japanese again changed their code, precluding any further detailed information for some time to come until the new code would be unraveled. In effect, the door for Hypo had been slammed shut, but not before enough information had been obtained for Admiral Nimitz to position Task Force 16 with *Enterprise* and *Hornet*; and Task Force 17 with *Yorktown*, whose Coral Sea battle damage repairs had been hastily jury-rigged – to meet the enemy and turn him back at Midway. Mitsuo Fuchida and Masatake Okumiya, both former officers of the Imperial Japanese Navy, closely associated with the battle itself, state in their book *Midway, The Battle That Doomed Japan* (U.S. Naval Institute) that ". . .it is beyond the slightest possibility of doubt that the advance discovery of the Japanese plan to attack was the foremost single and immediate cause of Japan's defeat."

(Much information for this article was obtained from Double-Edged Secrets by W. J. Holmes and also from Nimitz by E. B. Potter, both published by the U.S. Naval Institute. Photos from Double-Edged Secrets, courtesy of U.S. Naval Institute.)

Night Torpedo Attack

by Capt. Dick Knott

The Japanese had no inkling that the Americans had broken their code and were lying in wait. For them, the time had come to deal a final crushing blow to the remnants of U.S. seapower in the Pacific and they fully expected to be successful. Admiral Isoroku Yamamoto's armada sallied forth from Japan and the Marianas during the last days of May 1942. Altogether it was an impressive array of naval might, numbering close to 200 vessels and including 8 aircraft carriers, 11 battleships, and a variety of other combatants, transports, and support ships. Almost one-quarter of this force, including two light carriers, was dispatched to the north for the Aleutian operation. The remainder of the fleet was earmarked for the showdown at Midway. Admiral Nobutake Kondo, Commander in Chief of the Japanese Second Fleet, was to join transports and other supporting units from Guam and Saipan and approach Midway from the southwest. Meanwhile, the carrier striking force under Admiral Nagumo was to fall upon the island outpost from the northwest. The Commander in Chief of the combined fleet, Admiral Yamamoto, in the super-battleship *Yamato*, followed some distance behind the striking force with the main body.

The Americans for their part could muster no battleships and only three aircraft carriers to defend Midway. One of the carriers, *Yorktown*, which had been damaged at the Battle of the Coral Sea, had only three days in dry dock where temporary repairs were hastily made to enable her to participate in the historic struggle. On the plus side, however, they had the advantage of land-based aircraft which could seek out the approaching fleet at more than twice the range of enemy carrier-based planes. But most important of all was the fact that the Americans had broken the Japanese code and knew they were coming.

The American force was positioned to the northeast of Midway because it was believed that the Japanese approach would be from the northwest. It was to be an ambush and Rear Admiral P. N. L. Bellinger, who commanded land-based patrol aircraft in the area, had put together an ambitious search plan for his PBYs to locate the enemy ships early in the game. He calculated that the Japanese would try to repeat their performance at Pearl Harbor and that their carriers would attempt to arrive within launching distance of Midway in the early-morning hours. His plan, therefore, called for deployment of 24 PBYs to operate from the tiny island base, each plane covering a sector eight degrees in width and 700 miles long. This provided coverage in an arc stretching more than 180 degrees clockwise from south to north. With luck they would detect the enemy a day before the attack. On May 30, he put his plan into operation.

Bellinger, of course, was well aware of the vulnerability of his *Catalinas* to fighter attack and advised Admiral Chester A. Nimitz, Commander in Chief of the U.S. Pacific Fleet, that they should not be used in a daylight offensive role. But he pointed out that they might be loaded with torpedoes and employed effectively as attack aircraft at night. It was no easy undertaking, to be sure, and Pat Bellinger knew that what he was suggesting was guts ball. A night aerial torpedo attack against a real enemy had never been attempted before by the U.S. Navy. But this was a battle that could well decide the course of the war in the Pacific. If the *Catalinas* could make any kind of a meaningful contribution it was worth a try.

On the morning of June 3, Ensign Jack Reid and his PBY had arrived at the outermost limit of their search sector. Instead of turning, however, he elected to continue

This article is adapted from the book Black Cat Raiders of WW II *and is published here with the permission of the Nautical and Aviation Publishing Co. of America, Annapolis, Md.*

on just a bit further. It was well he did because a few minutes later the *Catalina* came upon a formation of enemy ships bound for Midway. What he had discovered was part of the occupation force, but the young plane commander mistook it for the striking force and radioed back to base that they had located the "main body."

That afternoon four amphibious-type PBY-5As were flown in from Pearl Harbor to try their luck. None of the pilots knew what was happening at Midway nor were they told about the task that lay before them. Lieutenant Junior Grade Charlie Hibberd, plane commander of 24-P-12, remembers his arrival on Eastern Island, one of the two tiny sandbar islands of the Midway Atoll. Eastern Island is the smaller of the two land masses at Midway with most of its area taken up by runways. The other is Sand Island, which served as a seaplane base. Since the four *Catalinas* in question were amphibians, it was more convenient to load and service them at Eastern Island. "It was not until we reached Midway," he recalls, "that we realized something important was going on." The island was "a veritable beehive of activity." No sooner had the planes taxied into their parking spaces than ordnancemen began hanging live torpedoes under the wings. For the plane crews, who had already been in the air for 10 hours, this was certainly an unexpected development. As the pilots climbed down to the ground they were hustled away to a briefing where their curiosity was quickly satisfied.

They were told that an enemy force, steaming in two columns, had been located that morning to the west of Midway at a distance of about 700 miles. There were cruisers, destroyers, transports, and an aircraft carrier in the formation, the briefing officer said. He gave it to them bluntly. They were going to launch four PBYs "on a volunteer basis," he said. Lieutenant W. L. "Red" Richards would lead the flight in Hibberd's aircraft. "The other volunteers," he said with a grim smile, "will be Mr. Propst, Mr. Davis and that little Ensign in the back there," nodding at Ensign Alan Rothenberg. "That was the first we realized," Rothenberg says, "what was in store for us." Then they went back to the aircraft, arriving just in time to see the ordnance crews finish their work.

Each of the *Cats* had been loaded with a 2,200-pound Mark XIII, Mod 1 aircraft-launched torpedo. These weapons had entered service in 1938 but had not been adequately tested and evaluated prior to the Pearl Harbor attack. At the time of the Battle of Midway there had still been little opportunity to use the Mark XIII under actual combat conditions.

It later became clear that the basic problem with the weapon was one of transition from an air to a water environment. It was difficult to control the drop angle and, consequently, the water entry and the sensitive inner mechanisms which regulated the performance of the torpedo were often thrown askew by the jarring impact. To be effective, the Mark XIII had to be dropped from an altitude of no more than 60 feet at a speed which made the delivery aircraft an easy target for antiaircraft gunners or fighters. In wartime, this type of approach was not conducive to longevity. Even when these limitations were strictly observed, the Mark XIII displayed tendencies to swerve to the left or run at the wrong depth. But in the spring of 1942, the Mark XIII was the only air-launched torpedo available.

Charlie Hibberd remembers having had some previous experience with dummy torpedoes and he knew how to operate the torpedo "gunsight." This somewhat primitive device, officially known as a torpedo director, was mounted on the center line of the aircraft just above the instrument panel. There it could be used by either the pilot or the copilot, depending upon the perspective from which the target vessel was approached. Target angles off the port side of the aircraft could best be sighted by the copilot, while the pilot had the optimum view for aiming points on the starboard side. The sight used inputs of torpedo speed (33.5 knots), distance to the target at the time of drop and estimated target speed. These values were set into the instrument and the target ship was then held fixed in the sight until the drop point was reached and the pilot released the torpedo. The weapon was dropped electrically from the cockpit by means of a firing key, but there were also two manual-release handles, one on each side for the weapons mounted under the wing.

The flight departed Midway at about 2115. With Richards and Hibberd at the controls, 24-P-12 showed its formation and tail lights so the others who were flying in a darkened condition would have a reference point on which to position themselves. Lieutenant Junior Grade D. C. "Doug" Davis in 24-P-7 joined up in loose formation while Ensign G. D. "Dagwood" Propst in 24-P-11 followed somewhat further behind. Al Rothenberg, the junior plane commander in the formation, had difficulty getting off in 51-P-5. The boarding ladder had jammed in its mounts outside the aircraft and could not be disengaged. Concerned lest he be left behind, Rothenberg ordered a crewman to break the fittings. By the time 51-P-5 got airborne, the other three aircraft were out of sight. Because only the lead plane was showing lights and all were exercising radio silence, Richards was not immediately aware that he was one aircraft short. Rothenberg and his crew proceeded independently to intercept the approaching enemy force.

The pilots had been told to expect contact with the Japanese about 500 miles out. It would be several hours before they reached this position, and considerably longer since the task force had last been sighted. If the enemy had altered course or changed speed, the *Catalinas* might well be obliged to conduct a fuel-consuming search. When and if the enemy was found, the low-level attack at high power settings would mean increased fuel consumption as would the getaway phase, especially if they were pursued by

fighters. Accordingly, all the planes leaned out shortly after takeoff to save as much precious avgas as possible.

It was a beautiful moonlit night. Billowy white cumulus clouds were scattered throughout the area, with bases at 1,000 feet and rising to 3,000 or more in places. The *Cats* cruised on top, occasionally penetrating the upper portions of the clouds. At about midnight, the radar operator on 24-P-12 reported a lone ship off to port. It could have been an enemy picket but it could just as well have been a friendly merchant. Whatever the case, the *Cats* were after bigger game and Richards elected to hold his course. A little over an hour later, at 0115, radar reported "about 10 ships" again off to port at 10 to 12 miles. As they turned toward the ships, Hibberd spotted them visually. There they were, just as advertised, steaming in two neat columns toward Midway.

Richards took over the controls and led the planes gingerly around to the down-moon side of the enemy fleet. There were only two aircraft now, Propst having become separated from the group in the darkness and Rothenberg still trailing some distance behind. As the *Cats* circled for the attack, they eased slowly down toward the surface of the water with engines throttled back and all lights extinguished. The enemy ships continued to steam as before, completely unaware of approaching aircraft. Richards selected the last ship in the northernmost column as his intended victim. At that distance he could not identify its type but it presented a larger silhouette than the others and he hoped it might possibly be a carrier. At this point he turned the controls over to Hibberd.

The run-in to the target was made from slightly abaft the port beam. Hibberd was now skimming over the surface at a speed just over 100 knots. Recalling this memorable event he says: "In practice it's one thing. If you miss you try again. But I did not come all this way to miss with the only torpedo I had. So I kept resetting the sight, all the time charging in closer. I guess I must have reset as quickly as possible about four times before I finally decided that I was close enough to get a hit." There was no enemy fire. The Japanese had been taken completely by surprise.

As they approached the 800-yard mark Richards barked, "Drop the damned thing. . . ." Hibberd hit the firing key and the weapon left the aircraft. "As I pulled the plane up and over what turned out to be a big transport ship, we could see men start to rush around on deck and in a few moments my rear gunner let out a whoop that there was a big flash. 'We got a hit,' he said. I have always wondered whether that was actually true. . . ." Hibberd knew the reputation of the Mark XIII torpedo and suspected that, at night, gunfire might easily be mistaken for a hit.

Davis, who was not far behind, had now begun his run but was dissatisfied with the lineup. Like Hibberd, he was acutely aware that he had only one shot, so he broke off his attack and retired to the north, climbing back up to about 2,000 feet. In a few minutes, he had set up another gliding approach on the target vessel's port beam. This time the run was complicated when the ship began an evasive turn to starboard, presenting the PBY with a stern aspect. Davis decided not to break off the attack but to bore in as close as possible before he dropped his weapon. At 200 yards he released his torpedo, added full power, and pulled up sharply over the stern of the enemy vessel. As he did so,

Admiral Isoroku Yamamoto. His power forces converged on Midway for a decisive naval showdown. (U.S. Navy)

his quarry and all the other ships in the vicinity opened fire on him. Davis' port waist gunner strafed the deck of the target vessel as they went by but there was no indication that the torpedo had scored a hit.

At about this time Dagwood Propst, who had been separated from the flight some time earlier, came upon the scene. Chief Aviation Pilot Benny Smathers flew copilot in the right seat. Making a wide spiral turn, Propst chose a large ship near the end of one column and set up his run on the vessel's port quarter. With frequent glances at the altimeter, he eased the big plane closer and closer to the water to get a good water-entry angle on the cranky Mark XIII. The ship made no evasive maneuvers.

As the *Catalina* pulled up after torpedo release, enemy antiaircraft guns opened up on the dim form that flashed by in the night. Some shot at the noise of the engines now straining at full power. It was like fighting blindfolded. Propst feinted to the right and then began a tight left turn. Smathers observed a large detonation and they knew they had scored a hit. The victim was the Japanese transport *Akebono Maru*, which limped home from the battle with a gaping hole in the bow and 23 men killed.

As the aircraft was making its withdrawal, it was attacked by a single aircraft, probably a floatplane fighter which had been hurriedly launched from one of the ships. Propst made for cloud cover and did not encounter the fighter again.

Al Rothenberg had not been as fortunate as Propst. Upon reaching the area where the enemy task force ought to be, he searched until he had just enough fuel to make it back to Midway. Then, reluctantly, he headed for home. No rendezvous was attempted following the attack and all four

planes proceeded independently, arriving in the vicinity of Midway just after sunup. As they approached the atoll, they were greeted with a broadcast by Midway Radio. "AIR RAID MIDWAY," it blared—"MIDWAY IS NOW UNDERGOING AIR RAID." There was no prudent choice but to make for Lisianski Island, a prearranged alternate about 250 miles down the Hawaiian chain to the southeast. Aside from the fact that most of the past 24 hours had been spent in the air, the necessity to divert was not an unsurmountable problem. All four aircraft still had enough reserve fuel to cope with just such an eventuality. But when they arrived at Lisianski, they found themselves in a weather front 80 to 100 miles wide, which obscured the island and made a safe landing impossible. Now, there was a question as to whether they had enough fuel to reach Laysan Island, more than 100 miles further on down the chain. Again, there was not much choice. Dagwood Propst was the only one who did not have to concern himself with that problem. His fuel had run out and he set his *Cat* down in the open sea not far from Lisianski. There, he and his crew bobbed about until they were rescued three days later by a *Cat* from VP-23. The plane, which had been damaged upon landing, was sunk by gunfire.

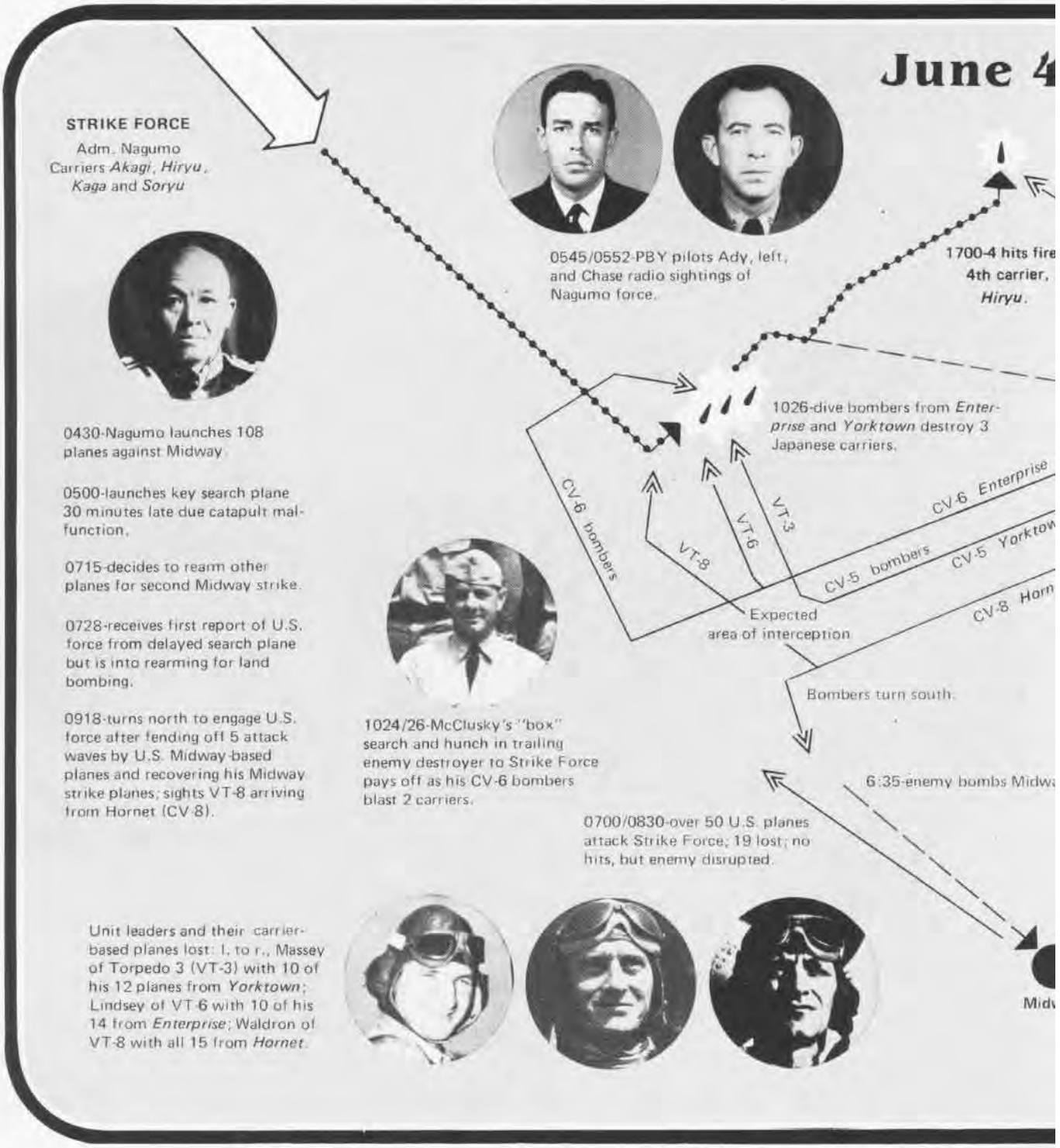
Doug Davis and his crew made Laysan at 1000 with somewhere between 10 to 20 gallons of fuel in the tanks. Richards and Hibberd landed 45 minutes later, while Rothenberg arrived at 1105, also with a critically low fuel state. Behind them, the clash that has been called the turning point of the war in the Pacific was just beginning to unfold.

The contribution made by the four *Catalinas* in this historic battle was not very significant in terms of damage inflicted on the enemy. But this night torpedo attack, the first of its kind attempted by the U.S. Navy, illustrated the feasibility of the concept and suggested a new and more aggressive role for the much maligned PBYs. Rear Admiral Raymond A. Spruance, Commander of Task Force 16 and hero of the Battle of Midway, noted the historical significance of the event in his endorsement of Richard's report. He also pointed out that "The initial contact, and subsequent success of the attack, were in large measure made possible by the radar installation. Night torpedo attack, employing radar, represents one of the few profitable offensive uses of our patrol seaplanes."

Pilots who flew on the night torpedo mission at Midway. Left to right: Davis, Rothenberg, Richards and Propst.

Men and Minutes at Midway

By Clarke Van Vleet



"Time is everything; five minutes makes the difference between victory and defeat," Lord Nelson said.

At the Battle of Midway it was two minutes.

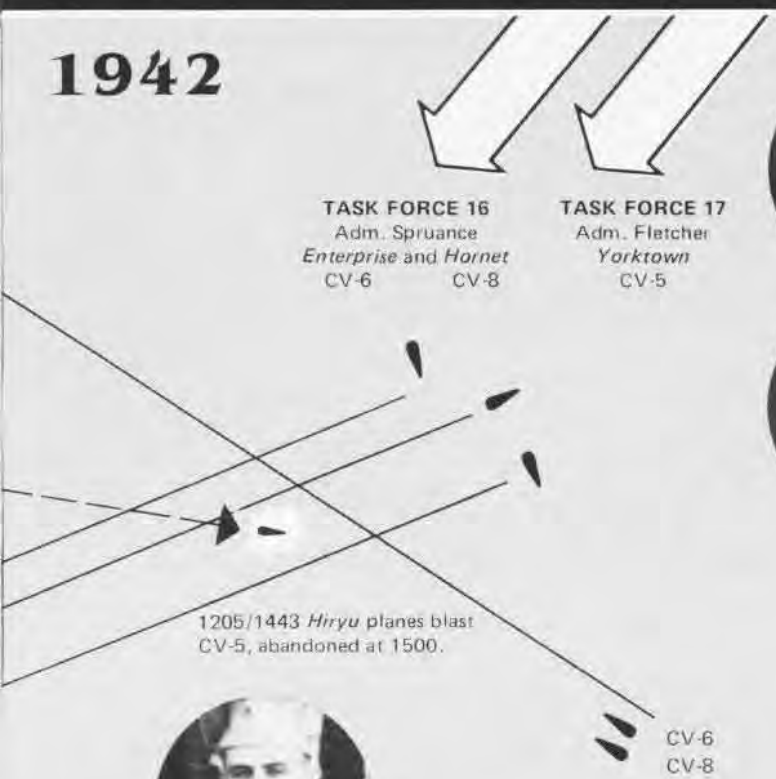
Between 10:24 and 10:26 the morning of June 4, 1942, the Americans won that great battle which was the turning point of the Pacific war. In those two minutes, three out of four Japanese aircraft carriers attacking Midway Island were wiped out by two separate flights of U.S. Navy dive bombers. Coming from different directions the flights, by coincidence, simultaneously sighted the enemy and attacked. The Japanese never recovered from the defeat.

Timing – some calculated, some coincidental, some dependent on the function of mechanical devices – played a prominent part in the battle.

"Victory. . .often goes to the side which is quicker to act boldly and decisively to meet unforeseen developments, and to grasp fleeting opportunities," wrote Mitsu Fuchida and Masatake Okumiya in Midway, The Battle That Doomed Japan.

Many Americans acted boldly and decisively at Midway. The timing of their acts, whether planned or unintentional, had a profound effect on the outcome.

1942



0603-Spruance, with 0552 PBY report, closes distance and times 0705 launch to catch Nagumo's Midway strike planes back on deck refueling and rearming.

0838-Fletcher, awaiting more info on enemy, begins partial launch, retaining a protective/search force.

1530-Gallaher, left, and Shumway lead CV-5/6 bombers off CV-6 to destroy *Hiryu*.

1025-unplanned but, at same time as McClusky, Leslie in bombless plane dives his CV-5 bombers to fire 3rd carrier.

Pearl Harbor hull expert Pfingstag made *Yorktown* ready for battle in 48 hours with quick repairs, a job normally requiring weeks.

Unit leaders and their Midway-based planes lost: l. to r., Fieberling of VT-8 Midway detachment with 5 of his 6 downed; Parks of VMF-221 with 15 of his 25; and Henderson of VMSB-241 with 12 of 27 lost.

The Midway-based PBY *Catalina* flying boats were out early on June 4, 1942, looking northwest of the island for a strike force of Japanese carriers which was to launch attacks against the American outpost that very morning. Ensign Jack Reid's *Cat* had already spotted elements of the enemy's Midway invasion occupation force, the day before, coming in from the southwest. Now it was imperative to find the carriers which were to come in from the northwest to plaster the island and soften it up for an invasion by 5,000 Japanese troops.

This was according to intelligence provided to Admiral Chester Nimitz, Commander in Chief, Pacific (CinCPac). (See accompanying article, "The Unsung Chorus.") On receiving the intelligence reports, the admiral had beefed up Midway's defenses as best he could. He positioned Admiral Raymond Spruance's Task Force 16 with the aircraft carriers *Enterprise* and *Hornet*, along with Admiral Jack Fletcher's Task Force 17 with the recently repaired *Yorktown*, northeast of the island to counter Admiral Chuichi Nagumo's four carriers, *Akagi*, *Hiryu*, *Kaga* and *Soryu*.

The odds were against Admiral Nimitz...

The odds were against Admiral Nimitz. Admiral Isoroku Yamamoto's combined fleet for the whole operation – the carrier strike, the Midway invasion/occupation, the diversionary Northern/Aleutian and the backup main forces – consisted of eight carriers to the Americans' three, 11 battleships to the U.S. Navy's none and 23 cruisers to the Americans' 13.

For the Midway phase of the operation, the enemy had 293 aircraft of all types on its six carriers. The U.S. had 227 on her three flattops, with another 52 attack, 26 fighter and 30 search-type land-based planes at Midway. As for combat experience of pilots and design of aircraft, the advantage lay with the Japanese. *Hornet's* air group was new and lacked previous battle experience; *Yorktown's* air group had never operated as a unit.

Yorktown was not even completely shipshape. She had limped, badly battle-damaged, into Pearl Harbor on May 27 from her Coral Sea engagement, and Admiral Nimitz had told the Pearl navy yard, "We must have this ship back in three days." From then until May 29, workmen did an around-the-clock job to jury-rig her into fighting condition. Hull expert Lieutenant Commander Herbert Pfingstag had the patch job completed in 48 hours and *Yorktown* headed for the line.

Some 200 miles northwest of Midway the fateful morning of the 4th, PBY pilots Lieutenants Howard Ady and William Chase of Patrol Squadron 23 (VP-23, today's VP-10) spotted and reported the locations of elements of Nagumo's carrier force. At 5:30, "A carrier. . . ." At 5:34, "Enemy carriers. . . ." At 5:45 in plain English, "Many planes heading Midway. . ." (Nagumo's strike aircraft). At 5:52, again in the clear, "Two carriers and main body ships. . . ." The plain English reports in the clear were particularly vital as they alerted Midway and the U.S. carrier task forces without the delays of decoding.

As Nagumo's 108 strike planes roared closer toward Midway, they were picked up 93 miles out at 5:53 by the island's radar. Vectored out to intercept them, Major Floyd Parks' Marine VMF-221 fighter squadron, a mix of 25 antique *Buffaloes* and *Wildcats*, was no match for the agile *Zeros* which shot down 15, including the squadron commander. Of the 10 that returned, only two were still in condition to fly combat.

As the Japanese completed their bombing, the five waves of U.S. planes, which had taken off earlier from Midway, approached Nagumo's carriers. They were met by swarms of enemy fighters and antiaircraft fire. Beginning shortly after 7:00, Lieutenant Langdon Fieberling and five of his six Navy torpedo-carrying *Avengers* were shot down; two out of four torpedo-dropping Army *Marauders* were next knocked out; 15 Army *Flying Forts* unsuccessfully bombed from 20,000 feet; and Marine Major Lofton Henderson (for whom the field at Guadalcanal was later named), commanding VMSB-241, was lost, along with 12 planes from his two waves of 16 *Dauntlesses* and 11 vintage *Vindicators*, the last to attack at about 8:30. Not a hit was scored. Evasive maneuvering and fending against these attacks, however, caused Nagumo's once compact carrier formation to be delayed and disrupted. Shortly after 8:30, he began recovering his Midway strike planes.

Nagumo had become prey to time and circumstance...

During these attacks, Nagumo had become prey to time and circumstance. About 7:00, he had received by radio a recommendation from his returning Midway strike leader, "Need for a second attack." Having heard no reports of a U.S. force in the area from his search planes, at 7:15 he ordered his standby planes disarmed of their antiship armaments and rearmed with land bombs for a second strike on Midway.

But at 7:28, the search plane assigned to reconnoiter the very area in which Task Forces 16 and 17 were located reported: "Ten ships, apparently enemy. . . ." While there was no mention of U.S. carriers, this first contact report of a U.S. force in the area was 30 minutes later than might have occurred had the search plane for this key sector not been originally delayed in launching by a malfunctioning catapult.

Nagumo decided at 7:45 to suspend the rearming and prepare for a possible attack on the U.S. fleet units. By this time, most of the torpedo planes on *Akagi* and *Kaga* were already lined up on the flight decks armed with land bombs and *Zeros* were airborne on combat patrol, fighting off attacks by the Midway-based planes. Not until 8:20 did a report from the search plane come in, sighting ". . .what appears to be aircraft carrier. . . ." To confirm this vague report, a high-speed reconnaissance plane was launched at 8:30 and, while it located all three U.S. carriers, its radio failed to work and no timely information came through.

Although Admiral Tamon Yamaguchi aboard *Hiryu* recommended ". . .launch attack force immediately" and strike with what was ready and available, Nagumo opted to complete unloading the land bombs, reload again with antiship armaments and recover his Midway strike and combat air patrol aircraft. The last of these operations was completed at 9:18 when he turned north.

These time-consuming developments caused him to become "a victim of the mechanics of carrier operations," according to the Naval War College analysis on the subject. Also, in the haste to reload a second time with antiship armaments, the unloaded land bombs were not placed in their magazines, but haphazardly piled about, to become exposed ammunition dumps. Moreover, only 10 minutes later, while rearming and new launch preparations were progressing, the first of three U.S. carrier torpedo squadrons arrived to attack with obsolete TBD *Devastators*.

That morning, the Americans had been making some crucial command decisions of their own. With the 5:52 PBY report in hand, Admiral Spruance took a calculated risk to launch all planes at maximum range to effect surprise and perhaps catch the enemy's Midway strike planes back on deck refueling and rearming. The aircraft launched from *Enterprise* and *Hornet* at 7:05, with only the 5:52 position report to go on because communications with Midway, whose land-based planes had tracked Nagumo almost to his turning point, had failed. Admiral Fletcher aboard *Yorktown* decided to wait for more definitive information on the enemy and ordered only a partial launch at 8:38.

Since the Japanese carriers had changed course and were therefore not at the expected area of interception, *Hornet's* bombers turned south toward Midway, vainly searching for the enemy. *Hornet's* VT-8 torpedo squadron, however, spotted the carriers to the north and was the first U.S. carrier unit to swing in on attack at 9:28. Intermittently, for the next 50 minutes, Nagumo's carriers were under siege by torpedo squadrons VT-8 from *Hornet*, VT-6 from *Enterprise* and, later, *Yorktown's* VT-3, which commenced attacking at 10:16. They scored no hits and most of the planes were cut down by Japanese *Zeros* and antiaircraft fire. All three squadron commanders, John Waldron, Eugene Lindsey and Lance Massey, respectively, were shot down, with 35 out of 41 torpedo planes destroyed. Sixty-eight pilots and airmen lost their lives. By then, the unscathed Nagumo force had beaten off eight U.S. attack waves, shooting down 54 U.S. planes.

In the meantime, Commander Wade McClusky, leading his *Enterprise* dive bombers, was making some decisions which the War College analysis terms "the most important decisions made by an airborne tactical commander in the Battle of Midway." Reaching the expected interception point at 9:20, he elected to extend his flight into a "box" search by continuing on his heading for another 35 miles and then turning north. While on this northward leg of the flight, he noted a Japanese destroyer heading northeast. He decided to follow it, reasoning that perhaps it was a trailing member of the strike force trying to catch up with Nagumo's carriers. His hunch proved correct and by 10:24 his *Dauntless* bombers, coming in from the southwest, were diving on two of the enemy's carriers, setting both of them ablaze.

Meanwhile, *Yorktown's* bombers, led by Commander Max Leslie, were following VT-3 in from the southeast. The bomb on the commander's plane had released prematurely as a result of an electrical failure five minutes after departing *Yorktown*, but he chose to stay with his squadron and lead it in. "I started my dive from 14,500 feet at 10:25, followed by the squadron diving out of the sun from southeast to northeast," the commander recalled. His planes scored several direct hits, transforming into an inferno another of Nagumo's carriers.

The Naval War College analysis points out "that the *Yorktown* dive-bombing squadron took departure from its carrier about one hour and twenty minutes after the *Enterprise* dive-bombing squadron. Yet by a strange coincidence both squadrons sighted the enemy at the same time and made simultaneous attacks on different targets of the same formation, although the presence of each was unknown to the other."

Lord Nelson's comment proved to be exact...

Just before both bombing attacks, which occurred within two minutes of each other, the Japanese had completed their launching preparations and had expected their attack planes to be airborne within five minutes. In their case, however, Lord Nelson's comment proved to be exact. Also, prior to the attacks, the Japanese antiaircraft guns and fighter defenses had been concentrating on the low-flying U.S. torpedo planes, leaving the in-coming, high-flying bombers virtually unopposed in their dives. In effect, the martyrdom of the Navy torpedomen contributed to the triumph of the Navy bombardiers.

The fourth carrier, *Hiryu*, was several miles north of the three doomed flattops and remained untouched. She got word of *Yorktown's* position and Admiral Yamaguchi sent out his attack groups, which hit the American carrier at noon and again at 2:43 p.m., crippling her to such an extent that she had to be abandoned by 3:00.

Two minutes after *Yorktown* was hit the second time, one of her scouting pilots, Lieutenant Samuel Adams, sighted and reported *Hiryu's* position at 2:45. Ordered out to attack the surviving enemy carrier at 3:30 was a group of 24 bombers from *Enterprise*, led by Lieutenant Earl Gallaher. The group included Lieutenant Dave Shumway heading 14 *Yorktown* bombers which had taken refuge aboard *Enterprise* in the nick of time when their carrier had come under attack by *Hiryu's* planes. At 5:00, the *Yorktown* flyers got their revenge, for they were among those who made four direct hits on *Hiryu*, destroying the enemy's fourth carrier. Ten hours later, Admiral Yamamoto cancelled the Midway operation and retired, defeated in the now memorable victory scored by the officers and men of U.S. Naval Aviation on June 4, 1942. It was the turn of the tide, for never again did the Japanese gain the offensive in the Pacific theater.

George Gay's Fisheye View of Midway

It was a grim unequal duel. The meager forces of Rear Admiral Frank Jack Fletcher and Rear Admiral Raymond A. Spruance, 25 combatant ships in all, sortied from Pearl Harbor in the closing days of May 1942 to do battle with a vastly superior Japanese Armada flushed with victory and anxious to eliminate the remnants of the American Fleet from the Pacific. The clash that ensued was one of the great naval battles of history.

One young American Naval Aviator not only participated in the fight but watched the spectacular struggle from a unique vantage point. This is the incredible story told by George Gay, retired Trans-World Airlines captain in an interview printed in NANews in April 1977:

NANews: Captain Gay, you were a 25-year-old ensign in 1942, assigned to Torpedo Squadron Eight aboard the aircraft carrier Hornet. Like you, many of the pilots in the air group were young and inexperienced. Did you feel adequately prepared for combat?

Gay: That's a little difficult to answer. There was no base line to use for comparison. None of us had been in combat–we didn't know what a *Zero* could do. We had to take Lieutenant Commander Waldron's word for it that we were ready. Actually he kept us so busy that there wasn't much time to think about it. We knew we were going to do our best and that was all there was to it.

[Lt.Cdr. John C. Waldron was the commanding officer of Torpedo Squadron Eight. He was colorful and hard-driving and drilled his crews unmercifully in every aspect of their trade.]

Your aircraft was the Douglas Devastator TBD-1. How well suited was it for the job you had to do?

Well, I guess in its day it had been a pretty good airplane. It was certainly better than some of those big old cumbersome biplanes that the British were still using. But it was not a modern aircraft by any means and it was slow. Lt.Cdr. Waldron had scrounged around and gotten us some armor-plated bucket seats and twin mount 30-caliber machine guns for our gunners.

The Devastator had neither of these as standard equipment?

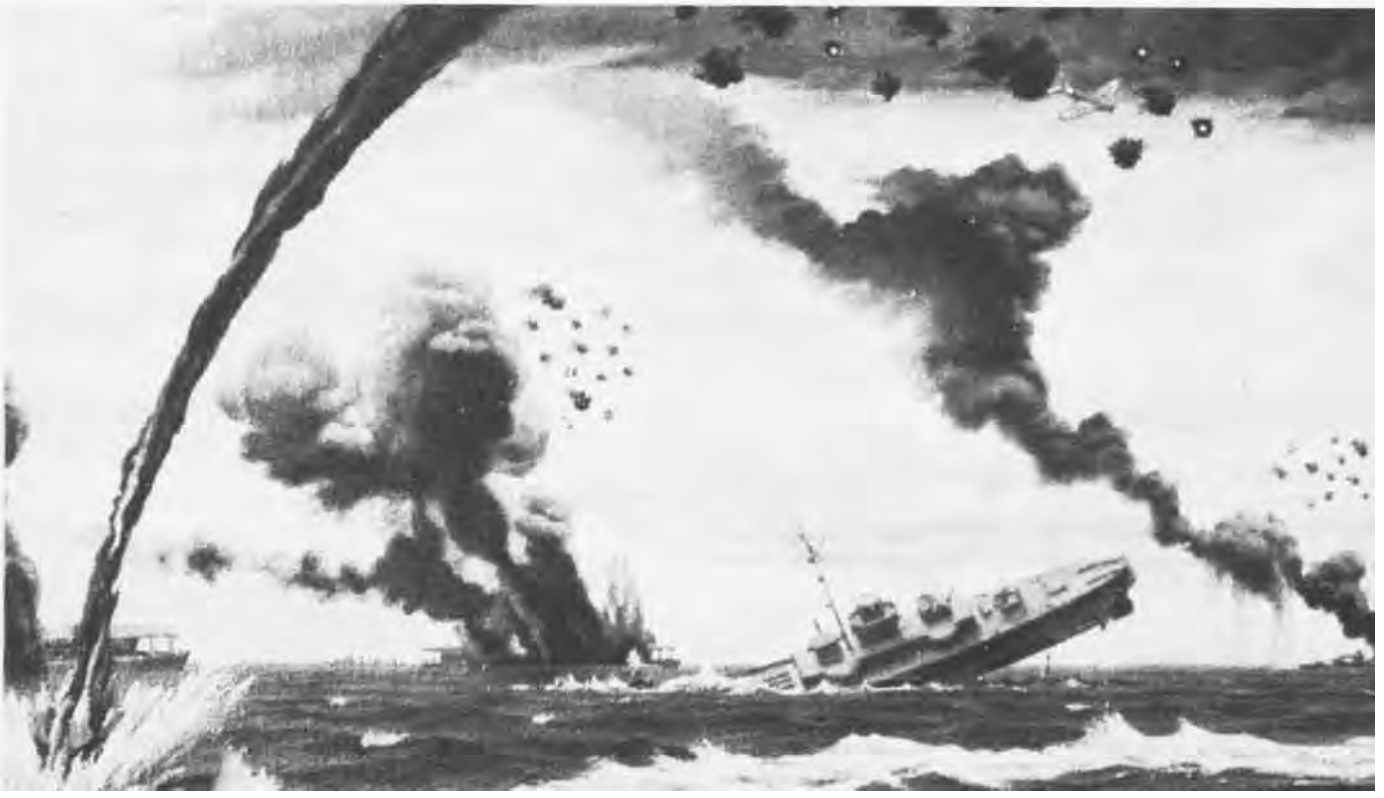
That's correct. We tried every way we knew to get that airplane into as good a combat condition as we could.

I imagine they were pretty vulnerable to attack by Japanese Zeros.

Yes, but even the TBFs [Grumman *Avengers*] which came along later were vulnerable. When you're down on the water low, at that speed, it's difficult to maneuver.

So, no matter what kind of aircraft was used, it was the nature of the torpedo bombing mission which made you vulnerable to both fighter attack and antiaircraft fire?

I would say yes. Of course we'll never see this kind of warfare again. I always felt that it might have been better to damage those capital ships and then use torpedo bombers to finish them off.



It's my understanding that the TBD-1 could carry either bombs or a torpedo. How was it used for bombing?

[*laughter*] It was supposed to have a high-altitude bombing capability. We had that old Norden bombsight in it but you couldn't get that aircraft up to 12,000 feet with a hydraulic jack. We had practiced some high-altitude bombing with water-filled bombs, but we realized right off the bat that that kind of bombing was not going to be effective against naval vessels.

So at Midway the TB-1s used torpedoes only?

Absolutely!

How about the reliability of the torpedoes? How close did you have to get to the target to have a reasonable chance of getting a hit?

It was all speculation. We built plywood fins and attached them to the back to give them a better chance to reach the target.

How much practice had you had working with torpedoes prior to Midway?

The day I took off with that torpedo [at Midway], I had never seen it done before, much less done it myself — that is, take a torpedo off a carrier. We didn't have any dummies to practice with.

What was the procedure for getting one to the target?

We were supposed to get down to approximately 80 feet off the water. We had to slow down to 80 knots, and we were not supposed to be more than 1,000 yards from the target when we released. That put you right on the bull's-eye.

How about the other aircraft in the air group--the fighters and the dive bombers? How did they stack up against the enemy?

The F4F [Grumman *Wildcat*] had 50-caliber guns, self-sealing tanks and armor plating and it worked out pretty well. The SBD [Douglas *Dauntless*] was the newest and best we had in dive bombers but most of the pilots in our air group had never flown the airplane prior to Midway, much less pushed it over into a dive.

How did that happen?

After we left Norfolk, we sailed down the coast, through the Panama Canal and up to San Diego where the dive-bomber pilots traded in their old biplanes for SBDs. We then proceeded to San Francisco where we picked up Doolittle's people and took them across the Pacific for their raid on Tokyo. From there we went tearing down toward the Coral Sea but were unable to get there in time for that battle. We hadn't been able to fly while Doolittle's B-25s were on the flight deck and, after they left, there was no time for practice except for a few scouting missions. I went out on a four-hour submarine patrol with depth charges and a full crew, and came back and landed aboard the carrier. Waldron came out, slapped me on the back and said, "Two more of those and you're qualified." That was the first time I had ever landed aboard a carrier. The dive-bomber pilots had it worse because they were new to their airplanes as well.

Considering the inexperience of most of the pilots and the nature of the equipment you flew, how would you characterize the confidence level among the pilots in your squadron before the battle?

Well, I don't know — there's something about American youth that makes them want to try even when the odds are pretty high against them. We had trained hard, Waldron instilled confidence in us and we just felt we could do the job.

Artist's conception by Griffith Coale.

This was really a crucial battle. Had you been defeated at Midway, there would have been no naval forces in the Pacific capable of repelling Japanese attacks on Hawaii or even on the West Coast of the United States. Was this something you thought about in those hours before the battle?

Waldron had explained what we were up against, so we knew how serious this was and we knew that if it went the wrong way, it would be pretty bad for the United States.

What was your first significant contact with the enemy?

On June 3, a PBY spotted a Japanese force to the southwest of Miday and reported, "Main body." Well, that turned out to be the invasion forces.

Did you launch a strike against these ships?

No, we were looking for the striking force with the carriers and were expecting them from the northwest. Based on what we knew about their operation, it didn't make sense for them to be coming in from the southwest. Intelligence had been very accurate and had even predicted the diversionary attack on the Aleutians, so we held off for more information. As it turned out, the striking force we were looking for did come in from the northwest and we went after it the following day.

Was anything done about the invasion force on the 3rd?

Yes. The Army sent out some B-17s and during the night PBYs went out and made torpedo attacks on those ships.

[Incredible as it may seem, four PBY *Catalinas* were sent to attack the Japanese invasion force on the night of June 3. Three of the PBYs found the transports and surprised the Japanese with a night torpedo attack.]

But that was a preliminary to the main battle. When did you get into the fight?

On June 4, a PBY searching to the northwest spotted planes from the Japanese striking force and reported, "Many planes heading Midway," and it gave the range and bearing. Now this meant something to us. They had launched their planes to attack Midway and that meant the ships had to be close enough for their aircraft to get back. It gave us a rough idea of where they were and, by golly, they were right where we figured they ought to be.

So you took off on the basis of that information and headed for the enemy?

Yes. The fighters and dive bombers took off first. They formed up and went out at altitude. Some Torpedo Eight aircraft were on the hangar deck, so by the time we got off we were about 18 minutes behind the others. We went out low so as to be in good position to attack when we arrived. Waldron thought he knew exactly where the Japanese were and laid out a course which was different from the rest of the air group. I was the squadron navigation officer. Waldron asked me to bring up the rear and track him on the way out so that, if anything happened to him, I could lead the squadron back. That's how I happened to be "tail-end Charlie."

While the rest of the air group was looking for the Japanese, the skipper took us right to them, so instead of arriving late we were about six or eight minutes ahead of everyone else.

The Japanese combat air patrol was waiting for us at altitude – about 75 *Zeros*. Since we were the first to get there, we sucked them all down. Why they *all* came down with the experience they had, I don't know. I guess it was overconfidence and it was a fatal mistake because, when our dive bombers showed up a few minutes later, they had no opposition.

Can you describe Torpedo Eight's run-in to the target?

Yes. When we got there, a cruiser was putting out a smoke screen. We thought we were late and that the fight had already begun, so we tightened up the formation and headed in. The next thing we knew, there were *Zeros* swarming all over us. They

Ltjg. George Gay Circa 1943

started knocking off our planes just like that! [Snapping his fingers several time in rapid succession]. I saw them all go in the water except one. We were wiped out on the way in. I was the only one who got in close enough to make an attack.

[Waldron had briefed his pilots beforehand. "If there is only one plane left to make a final run-in, I want that man to go in and get a hit." George Gay was now that last man.]

The *Zeros* didn't follow me into the antiaircraft fire. They didn't bother me again until I got out on the other side.

On your run-in, did you get hit by antiaircraft fire at any time?

I imagine that the plane was hit by some of the small stuff but nothing big enough to bother me.

And you got your torpedo off all right?

Everything was just like we had been shown on the blackboard, except that when I pushed the electrical release, it didn't work. I had to use the emergency pull.

Some accounts say that you scored a hit on the Japanese carrier Kaga. Have you ever been able to confirm that?

No. I have never been able to get

George Gay August 1979

any verification on that. I really don't know. It's very difficult to go back years later and try to find someone from the other side who can remember a particular enemy plane at a particular moment in the heat of battle.

After you dropped your torpedo, did you continue directly toward the ship?

Yes. I didn't want to turn and give them the whole underside of the aircraft to shoot at, so I just bore-sighted the ship. I came in as straight as I could because that was the smallest target I could present.

But you were not hit by antiaircraft fire?

I don't consciously remember feeling any kind of a jolt that I thought was serious. I was shot down on the other side of the antiaircraft screen by a *Zero*. They all jumped on me when I got out on the other side.

Did you lose control of the aircraft at that time?

They knocked out my rudder and my ailerons. A 20-millimeter cannon took out my left rudder pedal, knocked a hole in the firewall and set the engine on fire. I still had the elevator to hold the nose up. I cut the switch, and tried to slow it down and belly it in as best I could. But, with no ailerons or rudder, I couldn't pick up the right wing, so it hit first and cartwheeled the plane in. I had the canopy open but it slammed shut when the nose hit the water. I could not get it open and that's when I got scared. I thought I was going to drown. So I just busted it open.

I tried to help my gunner. He had been hit and I believed he was dead but I had to try anyway. But it went down too fast. When I reached the surface, there was my life raft which had floated clear of the aircraft.

What was the scene as you saw it from your vantage point in the water? You must have had a very good view of the battle.

Winston Churchill called it a fish-eye view. I was right in the middle of the whole thing. When those three Japanese carriers lost headway, they were just downwind of me. Their screen was steaming all around me. I didn't want them to spot me so I hid under a seat cushion that had floated free of the airplane. They thought it was just debris.

So you were able to watch our planes hit those carriers and see them go dead in the water — and they were afire?

Burning like you wouldn't believe. They were like blowtorches — just roaring! You know those carriers were open-ended and the fire was just streaming out of them.

[These were *Akagi*, *Kaga* and *Soryu*. *Hiryu*, the fourth carrier of the Japanese striking force, was able to launch its dive bombers and torpedo planes, which attacked *Yorktown* and set her afire. Later, *Hiryu* was also disabled by American planes and was finally sunk by a torpedo from a Japanese destroyer when it was determined she could not be saved.]

What was the extent of your wounds?

I had a bullet hole in my left arm, a piece of shrapnel in my left hand, and my left leg was fairly badly burned. I lost somewhere in the neighborhood of a pound an hour while I was in the water, from dehydration, blood loss and high adrenalin flow. I was in pretty bad shape by the time they hauled me into the hospital in Pearl Harbor.

How long were you actually in the water?

About 30 hours. When the Japanese left, I was able to partially inflate my raft and that helped some.

How did you come to be picked up?

A PBY-5A came out looking for the remnants of the Japanese Fleet on the 5th. The pilot spotted me and flew on by. After he had completed his mission later that afternoon, he came back to pick me up. He radioed to Midway for a PT boat to get me but it would have taken about three days to reach me. The pilot, "Pappy" Cole, put it to his crew. He said, "I want to land and pick this guy up but I want to put it to a vote." So they voted and all said "Yes." The first thing they yelled as they taxied up was "Have you seen any *Zeros* today?" I answered, "No." They said, "Good, let's get the hell out of here." I said, "Let's go," and they just jerked me out of that raft and went.

After they picked you up, they took you to Midway?

Yes. Of course, there were no medical facilities left — they had been all bombed out. I spent the night there and the next morning they flew me to Pearl Harbor.

[George Gay's entire flight was lost at Midway — 15 aircraft and their crews. In all, the Americans lost more than 300 men, 150 planes, a destroyer and the aircraft carrier *Yorktown*, but the Battle of Midway had been won. The Japanese Fleet turned and retreated toward Japan. Their losses included more than 2,500 men, 332 aircraft, a heavy cruiser and four aircraft carriers. It was a staggering blow and the beginning of the end for Japan.]

With Earnest at Midway

By Commander Howard Wheeler

There was an uneasy calm about the day, the weather and the situation. They knew the Japanese were out there bearing down on the tiny island of Midway. What they did not know was their precise number, location or exactly when they would strike. It was a game of waiting for somebody to make the first move.

The men of Torpedo Squadron Eight (VT-8) aboard USS *Hornet* cruising north of Midway on the morning of June 4, 1942, waited with their Douglas TBD-1 *Devastators* and somewhat anxiously reviewed the tactics they would surely use later after the launch. Thirty men in 15 aircraft would soon take off to engage the enemy. Only one man, Ensign George Gay, would return alive. (See "Fisheye View of Midway," page 18.)

On Midway Island, a different drama was unfolding involving six TBF *Avengers* that were also a part of VT-8. They were the shore detachment that had been flown to Midway a couple of days earlier from Hawaii to back up their squadron on *Hornet*. On that morning they were busily preparing their aircraft for combat, which included loading a torpedo in the belly of each TBF and servicing the .30 and .50-caliber machine guns. The new *Avenger* had never before been used in combat. It would soon be put to the test.

The men of the VT-8 Det were under the leadership of Lieutenant H. H. Larsen, USNR. As was the case with their aircraft, none of the crews had ever been to Midway nor had they ever seen combat.

At 0600, the order to scramble was given and Midway immediately began buzzing with activity. One crew hurried to their waiting aircraft and quickly taxied her out for takeoff. The pilot was Ensign Albert K. Earnest, USNR, the Radioman was Harry H. Ferrier and the Turret Gunner was Seaman First Jay Manning.

"At the time, I was a very junior pilot with only 400 hours," Earnest recalled recently.

Immediately after taking off, he joined with the others of the six-plane flight and headed out on a course of 320 degrees true at 160 knots. He remembers being puzzled, though, because they were briefed to rendezvous with a Marine dive bomber flight but, he says, "We just headed out instead!"

It wasn't long after joining up that they passed a few Japanese planes heading for Midway. Shortly thereafter, they encountered the Japanese fleet of 21 ships and four carriers. It was an impressive sight from their 4,000-foot vantage point.

Things started happening fast after that — too fast. *Zeros* jumped them almost immediately. On the second pass they hit Manning, killing him instantly. The only thing Earnest and Ferrier could do was to press on.

Soon Earnest discovered that the *Zeros* had taken more than his trusted gunner — they also had shot out his elevator control cables. He recalled later, "My elevators were useless and we started down." At about 300 feet, he kicked rudder and somehow maneuvered the crippled aircraft into position to launch his torpedo at a Japanese ship. "We didn't hit anything," he says, "and it wasn't a very good drop, but at least we got rid of that thing."

Courtesy of Glenn Illustrators, Keller, Texas.

Shot up after the mission, Ensign Earnest's tenacious Avenger, 8-T-1, is the only aircraft of VT-8 to survive the Battle of Midway.

Tony Waddel painting of Ensign Albert Earnest's disabled Avenger after dropping his torpedo on June 4, 1942.

Ensign "Bert" Earnest (1) and Radioman Harry H. Ferrier before launching into the Battle of Midway.

Ditching seemed inevitable after that. "We sort of stood by to hit the water" Earnest remembers. "And then, just before we were going to hit, my hand rolled the (elevator) trim tab back and she jumped up into the air. The only reason I thought of doing that was because I always did it just before landing. It was a habit developed in flight training while I was learning to fly with the *Avenger's* stiff flight controls." He suddenly remembered that the trim tab cables were separate from the elevator lines and this enabled him to fly the *Avenger* out of the holocaust on the tabs. "I discovered I had control of it again," he says, "but then had to get away from a couple of *Zeros* who wouldn't leave me alone. They finally did, but only after they filled my aircraft full of lead."

Thinking he was home-free, Earnest discovered that his electric compass was out. This was serious because his *Avenger* did not have a standby wet compass, and the Japanese fleet was between him and Midway. To find his way home was one thing, but he would have to navigate around the enemy to get there. "I navigated back using the sun," he says, "while ducking in and out of the clouds. At some point my instincts told me that I must be somewhere near Midway, so I dropped below the clouds and saw the smoke hanging over the islands. My gunner was dead and my radioman, Harry Ferrier, was unconscious because a bullet had grazed his forehead and passed through his cap. He came to later."

But Earnest's problems still weren't over. One of the landing gear would not come down and at that point he couldn't be sure that he had really dropped his torpedo. "Even though the crews on the runway tried to wave me off, I set it down anyway. It landed pretty good with one wheel," he says. One account of what happened after they landed says that none of the mechanics or the crash crew could figure out how the plane had stayed up, except that there were so many holes in it, maybe it had become lighter in the air.

Earnest and Ferrier emerged from the plane – the only survivors of the Midway-based detachment of Torpedo Squadron Eight

Ensign Earnest saw a lot more of the war in the Pacific. After Midway, he went aboard *Saratoga* until it was hit, after which, in his words, he went ashore and flew in and out of Guadalcanal for about two months until ". . .all the aircraft were gone." His next tour was on a jeep carrier during which he did a lot more flying. This time the only aircraft in the air were friendlies.

He continued his flying career with the Navy and retired as a captain 10 years ago, with 31 years of service. Reminiscing about the events 40 years ago this month, he says, "I am just grateful to be alive."

His WW II decorations include a Purple Heart, three Air Medals and three Navy Crosses.

This oil painting by R.G. Smith is reproduced here with the artist's permission as part of a continuing presentation of his work.

Doolittle Raiders Target Washington

Story and Photos by JOC Kirby Harrison

Lieutenant General James Doolittle today is a man whose 84 years rest lightly behind an erect stature and alert mind. It is 40 years since he and 80 other Army Air Corps pilots and crews took off from the deck of the carrier *Hornet* and brought the war in the Pacific home to Tokyo.

At Baltimore-Washington International Airport, on April 14, Doolittle appeared very much at ease as he moved to greet the crews of four rebuilt B-25 aircraft, similar to the 16 medium bombers he and his crews had flown three wars ago. The visit of the aging but still able aircraft was sponsored by the Washington-area National Aviation Club and included a commemorative flight over the nation's capital, passing over the Capitol building, by the Washington Monument and circling Arlington Cemetery.

Lt.Gen. Doolittle lingered over the inspection of each B-25 crew, noting the authentic Army Air Corps WW II vintage uniforms some had acquired, and signed autographs on everything from old photographs to copies of books about the historic raid on Tokyo.

The bombing of Tokyo by Doolittle's Raiders is recorded by historians as a master stroke of aviation genius. Not so much for its effect on the general Japanese populace, from whom the event was concealed as much as possible, but for the effect on the Japanese military who had been convinced of the homeland's invulnerability and for the positive influence it had on American morale.

"We did little actual damage," Doolittle recalled, adding that "it did have the effect of giving the first good news of the war to the people back home."

When asked his reaction following the raid, Doolittle paused. "My first reaction," he said firmly, "was one of distress at losing so many men and so many aircraft."

Of the 80 men who flew on the mission, nine died. Four were drowned when they bailed out over water and a fifth did not survive the parachute descent. Of the eight men captured by the Japanese, three were executed and a fourth died in prison. None of the 16 aircraft were shot down, but only one landed safely. The others went down as they ran out of fuel attempting to continue on to China and safety.

As the four B-25s at Baltimore-Washington International coughed to life with a cloud of smoke, Doolittle stopped for a moment and turned to watch. The deep-throated rumble of the big radial engines contrasted with the rising whine of the modern commercial jets taxiing out for takeoff.

"Blowtorches!" exclaimed a B-25 crewman, spitting out the word like a bad taste and nodding toward a jet climbing steeply in the distance. "It just isn't the same," he said. And it isn't the same. There are only 49 now of the original 71 survivors of Doolittle's raid.

The man who had led them planned to be present at a reunion in St. Petersburg, Fla., April 17-18. When asked by the reporters to express his emotions on the subject, Doolittle demurred. When pressed further, he replied simply, "It had to be done. I was just doing the job. I'm not an emotional man."

Lieutenant General James Doolittle autographs books brought by crews of the B-25 bombers gathered to mark the anniversary of his historic raid on Tokyo in WW II. At left, the nose of one of the four B-25s which participated in the anniversary fly-by in the nation's capitol.

Planes and More Planes

The Naval Aviation Museum at Pensacola

By Roy A. Grossnick,
Assistant Historian

Roy Grossnick

A static display with dynamic characteristics, the RA-5C Vigilante.

History may seem a bit unexciting to some but to the visitors of the Naval Aviation Museum at Pensacola, the lore of Navy flyers and their incredible aircraft is told in a way that is not easily forgotten.

The museum has something for everyone: those who have been part of Naval Aviation; the young, aspiring aviators in training; the buffs; and the casual tourist seeking a glimpse into its heritage. The old timer strolls through the galleries which display memorabilia and aircraft that rekindle memories and bittersweet nostalgia about the planes he has flown and been associated with during his career. The flight students enjoy an exciting excursion into the past, are stimulated by the possibilities of the future and learn a great deal in the process. The buffs and other civilian visitors have a rare opportunity to see the real thing up close firsthand. At the museum they all enjoy the satisfaction that goes with seeing the actual aircraft, artifacts and other symbols of the Naval Aviation heritage.

Imagine for a moment that we are visitors walking through the museum. In the lobby the visitor first sees paintings of some of the pioneers of Naval Aviation. A few steps beyond is a panorama of aircraft showing the evolution of Naval Aviation from the early pusher flying boats to the supersonic aircraft of today. Displays at the center of the museum demonstrate how far Naval Aviation has traveled since its beginning. For example, hanging from the ceiling is a replica of the A-1 *Triad*, the Navy's first aircraft. In sharp contrast, beneath it is the command module which delivered an all-Navy crew to *Skylab*, the nation's first space orbiting station.

The static displays give visitors a close look at naval aircraft as they were when they were in the fleet. As one reads the stories which accompany the displays telling the part the aircraft played in Naval Aviation history — it all comes alive. Photo murals, models and written material combine to tell the story. There are also many specialized displays of ongoing technological advances. The evolution into the jet age, and nuclear and missile development, and finally into the space age is highlighted.

There are smaller galleries with special themes. The aircraft engine exhibit is not only an interesting display but also a training aid for aviation officer candidates at Pensacola's Naval Aviation Schools Command. At the museum they receive special classroom instruction. Engines displayed range from an early 1909 Wright to the Pratt and Whitney jet engine which powers the F-14 *Tomcat*. Many are cutaway models detailing functions and state of the art engineering designs.

The museum offers the would-be aviator a feel of what it is like to sit in a cockpit of yesteryear. Visitors are allowed to sit in a Link instrument training simulator with its array of dials and knobs in front of them. The trainer is especially popular with visiting school children.

Roy Grossnick

Que Sera Sera is the first aircraft to land at the South Pole. In October 1956 this C-47 Skytrain landed at the South Pole to set up navigational aids to assist the future delivery of materials and equipment for constructing a scientific observation station. This arrival marks the first time people had reached it since January 1912.

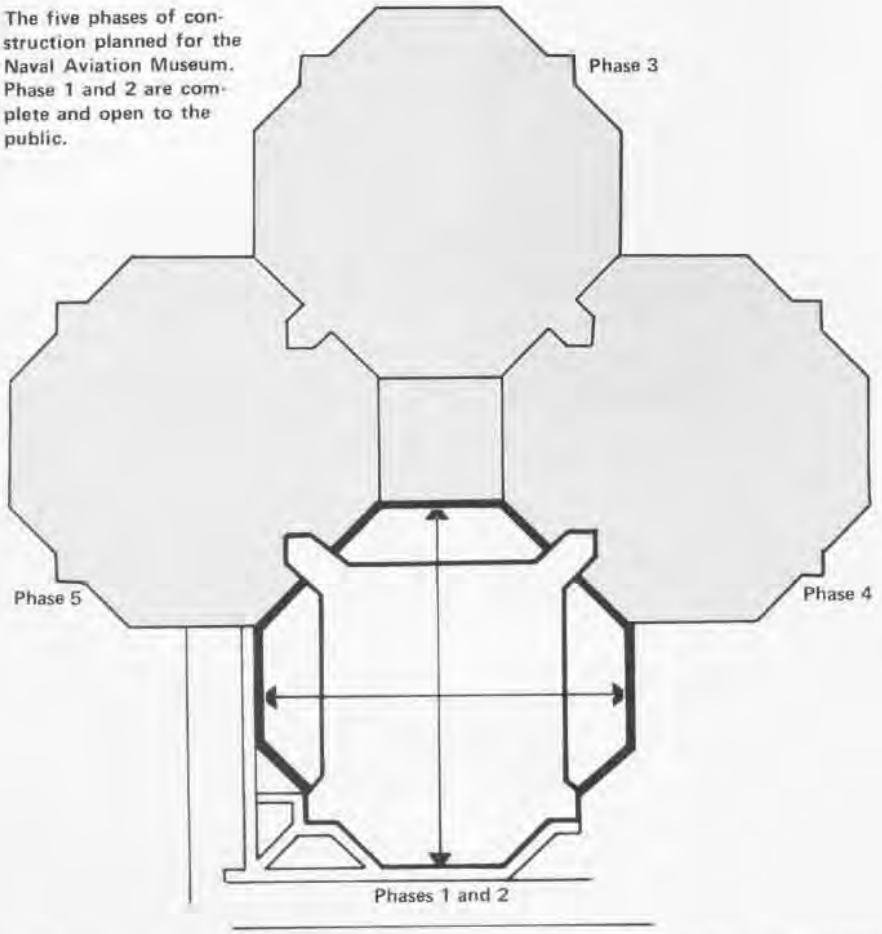
The aircraft carrier is a vital and fascinating part of the story of Naval Aviation and so the museum is presently completing a separate gallery covering 4,500 square feet featuring these mobile, floating landing fields. The evolution of the carrier is shown through large highly-detailed models, photographs and cutaway drawings.

The heritage of Naval Aviation can best be perpetuated through artifacts and visual presentations. The museum is a gallery of sorts of a wide variety of artistic media. Many paintings have been donated to the museum showing significant events, aircraft or people involved in the proud moments of Naval Aviation history. Many models have also been donated of the various types of planes flown in the Navy and are exact replicas of the aircraft right down to the correct paint scheme and squadron markings.

The Museum dedicated a Hall of Honor in October 1981 to commemorate the achievements and contributions of individuals to Naval Aviation. The first 12 men selected were pioneers in its development, and helped make aviation a vital element of the U.S. Navy: Patrick N. L. Bellinger • Floyd Bennett • Richard E. Byrd, Jr. • Godfrey deC. Chevalier • Alfred A. Cunningham • Glenn H. Curtiss • Theodore G. Ellyson • Eugene B. Ely

Roy Grossnick

The vista of Naval Aviation showing two of the four major aircraft clusters in the museum. The four aircraft in the background represent a good cross section of the early aircraft employed by the Navy while the foreground represents the modern period with three out of the four aircraft being jets.



The five phases of construction planned for the Naval Aviation Museum. Phase 1 and 2 are complete and open to the public.

The Naval Aviation Museum Association was established in December 1966 and incorporated as a non-profit organization under the laws of Florida with Admiral Arthur W. Radford, USN(Ret.), as chairman and Mr. Thomas Moore as its president.

The association opened its membership to anyone interested in Naval Aviation. Its objective remained unchanged – to promote Naval Aviation and fund a permanent building. Because of the size of the project and the large sums of money needed, a five-phase incremental construction program was developed, and by 1970 the association had collected enough money to begin the first phase. Ground-breaking ceremonies were held on November 27, 1972, and the first section of the museum opened its doors on April 13, 1975. That same year, the Naval Aviation Museum Association changed its name to Naval Aviation Museum Foundation.

• William A. Moffett • Albert C. Read • Holden C. Richardson • John H. Towers.

A bronze plaque commemorates the accomplishments of each honoree. As the years pass, additional names will be selected to join this elite group.

The museum has been able to expand the WW II gallery because of space acquired by the completion of phase two of the five-phase construction program. New photo displays have been added describing the events of WW II from Pearl Harbor to the signing of the treaty on board USS *Missouri*. Two more aircraft have been moved into the WW II gallery to supplement the display which covers the planes that flew in WW II, particularly in the Pacific.

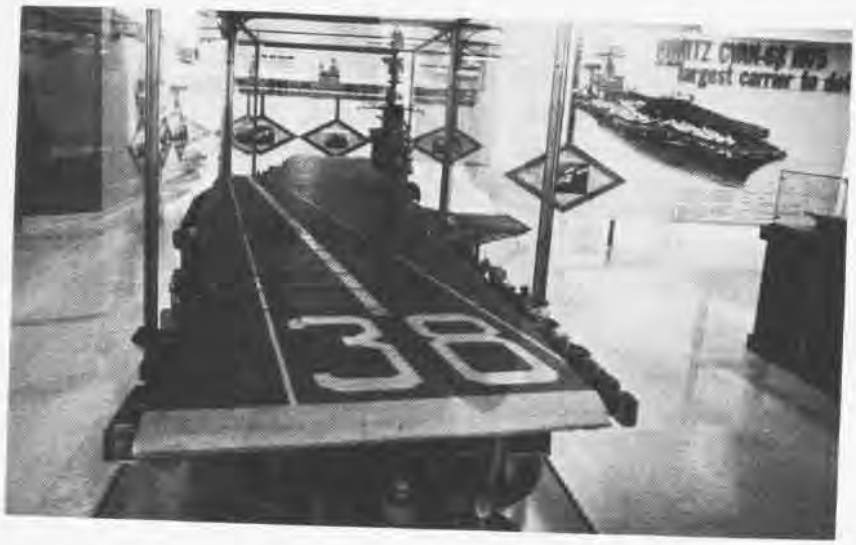
This year marks the 40th anniversary of the Battle of Midway, and the museum has on display several types of U.S. naval aircraft involved in this epic action: the PBY *Catalina*, J2F *Duck*, SBD *Dauntless* and TBM (TBF) *Avenger*. Six *Avengers* torpedo/bombers had been assigned to Midway Island as a detachment of the now famous Torpedo Squadron Eight. When these aircraft flew off Midway Island on June 4 they became the first operational TBFs to engage in combat. *Catalinas* and *Ducks* operated in patrol and surveillance of the Japanese fleets. It was the SBD *Dauntless* that added the finishing touches to the American efforts to repulse the Japanese advance by sinking all four Japanese carriers.

Behind the scenes in the museum, the staff consists of 15 personnel whose duties range from administration to the restoration and preservation of aircraft and artifacts. The museum is an active-duty shore activity within the Navy's chain-of-command structure, with Captain Grover Walker, USN(Ret.), as its director.

Joe Cason in the museum's Design Department is responsible for planning and preparing exhibits. When a layout for a particular exhibit has been completed and approved, the Production Department takes over its physical construction according to specifications. True craftsmen are found in the Exhibits, Graphic Arts and Restoration Divisions of the Production Department. They produce, restore or obtain the items needed for the displays. Mr. Murry Sharp is the only one permanently assigned to aircraft restoration. This position requires expertise as a woodworker, fabric worker, painter, engine and airframe mechanic, electrician, metal worker and even a toolmaker. Mr. Sharp fits the billet perfectly.

The museum has completely restored two aircraft: the OS2U *Kingfisher* and the JN-4 *Jenny*. A third aircraft, the TS-1, presently undergoing restoration, was the first plane specifically designed for carrier operations.

To preserve an aircraft for posterity, stopping corrosion and deterioration of the wood are very involved and important procedures. Before work begins, there is extensive research into the history of the aircraft including the use of original blueprints. Through many phone calls and personal connections, Mr. Sharp was able to locate a set of original prints for the TS-1 from the National Archives via the National Air and Space Museum in Washington, D.C., dating from the 1920s. With a history



Roy Grossnick

One of the super models on display in the Aircraft Carrier Gallery.

of an aircraft in hand, the task of restoring it to the original condition with proper color and markings is much easier.

In a small shop located in the rear, the real work of the museum takes place. Here, old and at times badly damaged aircraft are given new life. This is the restoration and preservation shop, as well as the production shop. The restoration process is much more involved than just preservation and cosmetic paint procedures. Both processes include cleaning and corrosion preventive measures; however, in the case of a complete restoration, the aircraft must be totally disassembled and stripped. During each step, the aircraft is photographed and copious records made to facilitate reassembly according to the methods employed when the aircraft was manufactured. If a part is missing, a search is made for a genuine replacement. If it cannot be found, the part is manufactured by Mr. Sharp. In some cases the necessary tools must also be made to make the part. After an aircraft is disassembled, the parts labeled and the whole process recorded, work begins on arresting metal corrosion and rot in all the wooden sections. Every metal piece, down to bolts and nails, is cleaned using chemicals, sanding, glass blasting or even hand scrubbing with steel or copper wool. The parts are then covered with various types of preservative paints and the aircraft is ready to be reassembled.

Working from the original prints, photographs, and written documentation taken during disassembly, the job begins. For aircraft that are fabric-

Aircraft on Display:

N-9
FF-1 Fifi
RR-5 Ford Tri-Motor
MF Boat
NC-4 Navy Curtiss
SNJ-5 Texan
OS2U Kingfisher
F6F-5 Hellcat
FG-1D (F4U) Corsair
F4D-1 Skyray
A-1H (AD-6) Skyraider
F11F-1 Tiger
PBY Catalina
J2F Duck
TBM (TBF) Avenger
PB2Y Coronado
R5D Skymaster (C-54)
R6D Liftmaster (C-118)
UF Albatross
SP-5B (P5M) Marlin
P2V-1 Neptune
A-3 Skywarrior
RA-5C Vigilante
CH-37 (HR2S-1)
C-131 (R4Y)
A-1 Triad
TH-57A Sea Ranger
SBD Dauntless
N3N-3 Yellow Peril
N2S Stearman
FM-2 (F4F) Wildcat
FJ-4 Fury
A4D-1 Skyhawk
Command Module Skylab I
SB2C Helldiver
EC-121 Constellation/Warning Star
SP-2H Neptune
R4D Skytrain/Skytrooper (C-47) (Que Sera)
JN-4 Jenny
F2H-2 (F2D) Banshee

Of the above, the NC-4 is probably the most famous. It was not only important in Naval Aviation history but significant in the history of world aviation. The NC-4 was the first aircraft to fly across the Atlantic Ocean — on May 27, 1919.

Besides the aircraft on display, the museum has a large number of aircraft in storage. They are either awaiting restoration or are being stored until the other three phases of the museum are completed. Some of the aircraft in storage are involved in a rotational display schedule, which permits the public to see as many aircraft as possible in the museum's collection.

Aircraft in Storage:

OE-1 Bird Dog
AF-2S Guardian
S-2E Tracker
E-1B Tracer
EA-1F Skyraider
AM-1 (BTM) Mauler
F3D-1 Skynight
A-4C Skyhawk
F8U Crusader
FJ-1 Fury
F9F-2 Panther
F9F-6 Cougar
F-4B Phantom II
T-34 Mentor
TF-9J Cougar
F8F Bearcat
F7F Tigercat
F2H-4 Banshee
QH-50 Dash
HUP (UH-25) Retriever
SNV Valiant
CH-19 (HRS-3) Chickasaw
T-34B Mentor
TH-13 Sioux
T-28C Trojan
T-2B (T2J-1) Buckeye
T-33 (TO/TV) Shooting Star
T-1A (T2V-1) Seastar
RC-45 (SNB) Kansan
OH-43 (HUK)
HO3S (S-51)
D-558 Skystreak
HRP-2 Flying Banana
HRP-2 (PV-17) Flying Banana
H-34 (HSS Seabat/HUS Seahorse)

covered, such as the TS-1, all the material must be sewn to the aircraft frame by hand and then doped with the necessary finishes according to the original manufacturer's specifications. It is then painted in the original color and markings of the unit it was assigned to during its active life with the Navy. When completed, the aircraft will conform as nearly as possible to its condition when flying with the Navy. The restoration work includes not only the airframe but the cockpit and engines as well. Most of the airframes are airworthy and all that would be required to make some of them ready for another round of flying is some minor work on the engines.

The length of the restoration process varies with each plane and the condition it is in. In the case of the TS-1, Mr. Sharp estimates that between 5,000 to 7,000 man-hours are needed to restore the aircraft. It is a job for a man with patience, dedication to fine workmanship and love of his work.

To continue the restoration process and production of exhibits, two more buildings are being erected behind the museum to expand working space. The additional space will help the production department to keep pace with museum requirements.

The museum has neither the personnel nor the funds to preserve and restore all the aircraft in its collection. Many of the planes have been cleaned, preserved and repainted for the museum with the help of different commands in Pensacola. This type of assistance is invaluable to the museum and permits more aircraft to be displayed.

Most of the aircraft in the museum's collection are acquired when they have completed their service life with the Navy or have become obsolete. Some are salvaged from the aircraft boneyard at Davis-Monthan Air Force Base in Arizona. Only one, the Curtiss MF Boat, was purchased. A few have been obtained through a trade arrangement with the civilian sector involving special arrangements. Much paperwork is necessary for this kind of arrangement and it is usually a long process. Several aircraft have been donated by individuals as gifts, which are accepted by the director of the museum for the Navy Department. The basis for determining whether an item is suitable for the museum's collection is its historical significance and how it will contribute to the Naval Aviation story.

Not only aircraft are welcomed but also parts and pieces of aircraft, engines and associated engine parts, aircraft models, instruments, ordnance, armament and air weapons, radios and electronic equipment, flight gear, navigation aids, landing and launching aids, and ship and squadron insignia. Any memorabilia such as photographs and photo albums, wing insignia, medals, uniforms, flight clothing and personal papers and correspondence (not involved with official government records) will be accepted by the museum if they are of historical significance to Naval Aviation.

Anyone or any organization desir-

Roy Grossnick

ing to contribute an item should contact the Director, Naval Aviation Museum, NAS Pensacola, Fla. 32508.

Plan a trip to the museum to see firsthand the story of Naval Aviation. Make it an adventure into the past as well as a guide to the future of Naval Aviation. The museum is open seven days a week from 9 a.m. to 5 p.m. and is closed only on Thanksgiving Day, Christmas Day and New Year's Day. Join the more than 200,000 annual visitors to the museum and see the importance of Naval Aviation in 20th century America.

Jim Curry

Jim Curry

These three photographs show the steps in the restoration of the JN-4 Jenny done by the museum. The final photo shows the Jenny on display in the Museum. One side and wing are covered with fabric while the other side was left uncovered to show the internal structure of the fuselage and wing.

Jim Curry

Roy Grossnick

Mr. Sharp at work restoring the museum's TS-1 aircraft.

The giant PB2Y Coronado overwhelms the museum's Restoration and Production Building in the background.

What's Up

Everybody loves an air show! Whether events include the *Blue Angels'* daring maneuvers in their A-4 *Skyhawks*, the skydiving skill of the Navy's Parachute Teams, East/West (*Chuting Stars/Leap Frogs*), or antics by the vintage aircraft from the Experimental Aircraft Association (EAA), audiences always thrill to the performing arts of the air.

For the pleasure and enlightenment of our readers, *Naval Aviation News* has compiled a listing of Navy, civilian and international aviation events planned for the 1982 season. This is not intended to be a complete list, and schedule changes may be made without notice.

Every Sun. May thru Oct. — Bealeton, Va., Flying Circus Aerodrome.

June

1-6	**Grenoble, France**, Air Show
4-6	**Dells, Wisc.**, Balloon Race
5	**Grissom AFB, Ind.**, Open House*

5-6	**Akron, Ohio**, Rubber City Air Show
5-6	**NAS New Orleans, La.**, *Blues/Chuting Stars*
5-6	**NAS Fallon, Nev.**, *Navy Balloon Team*
5-6	**London, Ontario**, Intl. Air Show*
5-6	**Jonesboro, Ark.**, Air Show
8-10	**Reading, Pa.**, Air Show
10-14	**Cannes, France**, Salon Intl. D'Aviation
11-13	**Newcastle-upon-Tyne**, Northumbria Intl. Air Rally
11-13	**Springfield, Ill.**, Ultralight Show
11-13	**Gimli, Manitoba**, Intl. Air Show*
12	**RAF Brize Norton, Oxford**, Open Day/Air Display
12	**RAF Halton. Bucks**, Air Show
12	**RNAY Fleetlands, Hants**, Open Day
12	**Wilmington, Del.**, *Chuting Stars*
12-13	**Detroit, Mich.**, *Blues*
12-13	**Buffalo, N.Y.**, *Navy Balloon Team*
12-13	**Kingman, Ariz.**, *Leap Frogs*
12-13	**Ypsilanti, Mich.**, Willow Run Air Show
13	**Duxford, Cambs**, Air Display
13	**Millville, N.J.**, Hot Air Balloon Show
13	**Redding, Calif.**, Air Show*
13	**Sampson State Park, N.Y.**, *Chuting Stars*
13	**Sansdown, Isle of Wight**, Moths & Fabric, Wood and Dope Aircraft Fly-In
15-19	**Munich, W. Germany**, Transport Munich
17-19	**Kingsport, Tenn.**, *Chuting Stars*
19	**Cheltenham, Glos.**, Natl. Helicopter Fair
19	**Ellsworth AFB, S.D.**, Open House*
19	**Minot AFB, N.D.**, Open House*
19	**Toms River, N.J.**, Antique/Homebuilt Fly-In
19	**RAF Honington, Suffolk**, Open Day/Air Display
19	**RAF Swanton Morley, Norfolk**, Open Day/Air Display
19-20	**Hamilton, Ontario**, Intl. Air Show*
19-20	**Indianapolis, Ind.**, Shrine Flying Fizz Air Show
19-20	**Lubbock, Texas**, *Navy Balloon Team*
19-20	**NAS Lemoore, Calif.**, *Blues/Leap Frogs*
20	**RAF Swinderby, Yorks**, Open Day/Air Display
20	**Sunderland, Usworth**, Air Show
20	**Weyers Cave, Va.**, Open House*
22-Jul 5	**Muskogee, Okla.**, Natl. Parachuting Championships
23	**Louisville, Ky.**, *Chuting Stars*
26	**Chanute AFB, Ill.**, *Chuting Stars*
26	**Beale AFB, Calif.**, *Blues*
26-27	**Ironwood, Mich.**, North Country Air Fair
26-27	**Joliet, Ill.**, *EAA/Navy Balloon Team*
26-27	**Bealeton, Va.**, Stearman East Coast Fly-In
26-27	**Calshot, England**, Air Spectacular*
26-27	**Truckee, Calif.**, Air Show
27	**Liverpool, Speke**, Air Show
27	**NWC China Lake, Calif.**, *Blues*
28-30	**NS Norfolk, Va.**, *Chuting Stars*
28-Jul 3	**Ephrata, Wash.**, Motorglider Competition
30	**Alberta, Canada**, *Leap Frogs*

July

1-6	**Chicago, Ill.**, *Chuting Stars*
3	**Griffiss AFB, N.Y.**, Open House*
3	**Malmstorm AFB, Mont.**, Open House*
3	**La Moure, N.D.**, Centennial Celebration*
3-4	**Cincinnati, Ohio**, Air Races and Show
3-5	**Orlando, Fla.**, *Blues*
3-6	**St. Louis, Mo.**, *Navy Balloon Team*
4	**Coronado, Calif.**, *Leap Frogs*
4	**Danville, Va.**, Air Show*
4	**Fort Dodge, Iowa**, Air Show
4	**Humberside**, Eastern Intl. Air Fair
4	**Pittsfield, Mass.**, Air Show*
9-11	**Tioga County, Pa.**, *Chuting Stars*
9-11	**Erie, Pa.**, Expo 82*
10	**RAF Assoc. S.W. Area, Devon**, Air Display
10-11	**Fort Collins, Colo.**, *Blues*
10-11	**Niagara Falls, N.Y.**, Air Show
10-11	**Sault Ste. Marie, Ontario**, Intl. Air Show
10-11	**Alliance, Ohio**, Taylorcraft Fly-In
11	**Offutt AFB, Neb.**, Open House*
11	**Pease AFB, N.H.**, Open House*
11	**Clarksburg, W.V.**, Air Show*
11-17	**Fort Collins, Colo.**, *Navy Balloon Team*
14	**K. I. Sawyer AFB, Mich.**, Open House*
16	**Loring AFB, Maine**, Open House*
16-18	**Orillia, Ontario**, EAA Fly-In
17	**Lee-on-Solent, Hants**, Air Day
17-18	**Bucyrus, Ohio**, Air Show
17-18	**Elmendorf AFB, Alaska**, *Blues*
17-18	**Everett, Wash.**, Intl. Air Fair*
17-18	**Idaho Falls, Idaho**, *Leap Frogs*
18	**Hurn, Bournemouth**, Air Pageant
20-29	**El Mirage, Calif.**, Natl. Standard-class Gliding Championships
22-25	**Dayton, Ohio**, *Blues/Chuting Stars/Navy Balloon Team*

on the air show circuit

22-25	**Stockbridge, Hants**, Intl. Military Helicopter and Equipment Exhibition
23-25	**Andover, Hants**, Army Air 82
24	**Chicago, Ill.**, Air/Water Show
24-28	**Tullahoma, Tenn.**, Intl. Rotorcraft Fly-In
25	**Bodmin Airfield, Cornwall**, Air Day
31	**NAS Miramar, Calif.**, *Blues/Navy Balloon Team/ Leap Frogs*
31	**Imperial Beach, Calif.**, *Leap Frogs*
31-Aug 7	**Oshkosh, Wisc.**, Intl. EAA/Seaplane Fly-In

August

1	**NAS Miramar, Calif.**, *Blues/Leap Frogs*
1	**Wurtsmith AFB, Mich.**, Open House*
1-7	**Indianola, Iowa**, Natl. Hot Air Balloon Championships
3	**RNAS Yeovilton, Somerset**, Intl. Air Day
3-12	**Caddo Mills, Texas**, Natl. Open-class Gliding Championships
6-8	**Jerome, Idaho**, Valley Flyers Air Show
6-8	**Shelton, Wash.**, EAA/Warbird Fly-In
7	**NAS Whidbey Island, Wash.**, *Blues*
7-8	**Redding, Calif.**, *Leap Frogs*
7-8	**Rhinelander, Wisc.**, Air Show*
7-8	**Greenville, S.C.**, Air Show*
8	**Seattle, Wash.**, *Blues*
8-14	**Grand Prairie, Alberta**, Canadian Balloon Championships
8-22	**Spitzerberg, Austria**, Aerobatic Championships
9-14	**Fond du Lac, Wisc.**, Intl. Aerobatic Championships
11	**RAF St. Mawgan, Cornwall**, Intl. Air Display
11-15	**St. Louis, Mo.**, Tuskeegee Airmen*
13-15	**Abbotsford, British Columbia**, Intl. Air Show
14-15	**Pasco, Wash.**, *Blues*
15	**RAF Assoc. Midlands Area, Warks**, Air Display
17	**Corvallis, Ore.**, Aero Expo 82
21	**Madera, Calif.**, *Leap Frogs*
21-22	**NAS Brunswick, Maine**, *Blues*
21-22	**Bealeton, Va.**, Balloon Festival
21-22	**Travis AFB, Calif.**, Open House*
21-22	**N. Kingston, R.I.**, Intl. Air Show*
26-31	**Luxembourg**, European Hot Air Balloon Championships
28	**Grand Forks AFB, N.D.**, Open House*
28	**Los Angeles, Calif.**, *Leap Frogs*
28	**Moorsele, Belgium**, Air Meet
28	**Newport News, Va.**, Air Show*
28-29	**Drummondville, Quebec**, Air Show*
28-29	**Grand Junction, Colo.**, *Blues*
28-29	**Nottingham Airport, Notts**, Air Show
28-29	**Sussex, N.J.**, Air Show
29-30	**Chelmsford, Essex**, Battle-Attack Air Show
30	**Stourbridge, W. Midlands**, Air Show

September

3-6	**Toronto, Ontario**, Intl. Air Show*
4	**RAF Leuchars, Fife**, Battle of Britain At Home Day
4	**RAF Finningley, Yorks**, Battle of Britain At Home Day
4	**RAF Sealand**, Open Day/Air Display
4-6	**Cleveland, Ohio**, *Blues*
4-6	**Flint, Mich.**, Exchange Club Air Show
5	**Duxford Airfield, Cambs**, Vintage Flying Day
5-12	**Farnborough, England**, Intl. Air Show
8-12	**Galesburg, Ill.**, Stearman Fly-In
10-12	**Greenville, Maine**, Intl. Seaplane Fly-In
11-12	**Nashville, Tenn.**, *Blues*
11-12	**Topeka, Kans.**, Air Show*
11-12	**Williamsport, Pa.**, Air Show*
17-19	**Reno, Nev.**, Air Races*
18	**San Diego, Calif.**, *Leap Frogs*
18	**NAS Patuxent River, Md.**, *Blues*
18	**RAF Abingdon, Oxford**, Battle of Britain At Home Day
18	**Whiteman AFB, Mo.**, Open House*
19	**Lynchburg, Va.**, *Blues*
22-26	**NAS Lemoore, Calif.**, *Leap Frogs*
25-26	**NAS Oceana, Va.**, *Blues*
25-26	**Shearwater, Nova Scotia**, Intl. Air Show*

October

1-3	**Lakeport, Calif.**, Seaplane Fly-In
2	**Kirtland AFB, N.M.**, Open House*
2-3	**Salinas, Calif.**, *Blues*
2-10	**Albuquerque, N.M.**, Intl. Balloon Fiesta, *Leap Frogs/ Navy Balloon Team*
4	**Albuquerque, N.M.**, Gas Balloon Race
7-10	**Harlingen, Texas**, Confederate AF AirSho 82
11-15	**Athens, Greece**, Defendery Expo 82
9	**Carlswell AFB, Texas**, Open House*
9-10	**Charleston, S.C.**, *Blues*
16-17	**NAS Point Mugu, Calif.**, *Blues/Leap Frogs*
23-24	**NAS Barbers Point, Hawaii**, *Blues*
23-24	**Norton AFB, Calif.**, Open House*
30-31	**MCAS Kaneohe Bay, Hawaii**, *Blues*

November

6-7	**Kissimmee, Fla.**, *Blues*
11	**Vandenberg AFB, Calif.**, Open House*
13-14	**NAS Pensacola, Fla.**, *Blues*
14	**March AFB, Calif.**, Open House*

*Air show sites which requested Naval Aviation support.

Photo by JOC Kirby Harrison

Vinson Lives

Story and Photos
by JOC Kirby Harrison

Vinson lives.

That's what the chief told a young sailor standing next to him as the order was passed to break the commissioning pennant and set the first watch aboard USS *Carl Vinson* (CVN-70), the Navy's newest aircraft carrier.

"Can you feel it?" he asked in a whisper as shots from the 19-gun salute vibrated through the 1,092-foot long vessel. "She's alive."

Nuclear-powered *Carl Vinson* came alive March 13 at the Newport News, Va., shipyard, a short distance from where the keel had been laid six years earlier. On the cavernous aircraft hangar deck, where more than 7,000 persons attended the commissioning formalities, speakers expressed both hope for peace and the need for defense.

Senator Sam Nunn, nephew of the man for whom the ship was named, read from a speech his late uncle had begun shortly after *Vinson* was launched March 15, two years ago.

"My nightly prayer to Almighty God is the hope that this ship may have a lifetime of peace," Vinson had remarked on tape. "But if ever called upon to meet the enemy, let her be embued with the spirit of John Paul Jones, and let the battle cry be 'We have just begun to fight.' "

Unlike those manning the rails in crackerjack uniforms, spaced evenly about the four-and-a-half acre flight deck, the Honorable Carl Vinson never wore Navy blue. Nonetheless many had considered him to *be* Navy, if not actually *in* the Navy. Dead at 97, just 10 months before the commissioning, Vinson devoted most of a lifetime and most of a 50-year

Backed by the emblem of the new carrier, Senator John Tower addresses commissioning ceremony guests. Molly Snead (left), who christened Vinson, was among those in the official party.

congressional career in support of a strong Navy. His efforts prior to WW II provided for a bill that resulted in millions of tons of new shipping and earned him the title, "Father of the two-ocean Navy." Throughout his career in Congress, "Uncle Carl" (as he was known to friends) led the fight to preserve the unity of the Navy, Marine Corps and Naval Aviation.

It was Georgia Congressman Carl Vinson who in 1940 argued for the expansion of Naval Aviation. And he backed up strong talk by pushing through bills to raise Naval Aviation strength to 10,000 planes, to allow for training of more pilots and establish 20 new naval air bases.

Naming a ship for a living person was a significant departure from tradition, but one considered by Navy officials appropriate.

As the red, white and blue bunting waved in a chilly spring wind and the sun ducked in and out of a sky that

Bunting waves in the wind as the national ensign is raised at Vinson's fantail for the first time.

Photo by JOC Kirby Harrison

Photo by Judi Baldwin, NNS&D Co.

The Honorable Carl Vinson doffs his hat during the launching of Vinson in March 1980.

Photo by JOC Kirby Harrison

With flags in hand, two young guests cheer the commissioning of the newest aircraft carrier.

Photo by JOC Kirby Harrison

Inside Vinson's hangar bays, guests at the commissioning numbered more than 7,000.

matched *Vinson's* gray hull, the voices of guest speakers at the commissioning echoed through the ship.

In delivering *Vinson* to the Navy, Newport News Shipbuilding president Edward Campbell expressed pride in the $1.3 billion ship, completed a month early and $24 million under contract. He described certain ships built at Newport News as "special," among them the carriers *Yorktown* of WW II fame and the passenger liner *United States*. "And today," he added, "we stand aboard still another. . .a ship destined for greatness. We're proud of her," he added, in turning *Vinson* over to her new skipper, Captain Richard Martin.

For Capt. Martin, command of *Vinson* is the high point of a naval career that began at the U.S. Naval Academy in 1959. A Vietnam veteran with three combat cruises, he has flown every operational model existing of the F-8 *Crusader* and was one of the first pilots to fly the F-14 *Tomcat*.

Taking command of the carrier, Capt. Martin was brief and to the point in his remarks. "We're ready to go where we are tasked to go," he said.

Among those at the commissioning was Secretary of the Navy John Lehman, Jr. Before the House Armed Services Committee a month earlier, Secretary Lehman had voiced in no uncertain terms his view of the role of national defense, contending that ". . .defense is the first and most vital of all social services, and has taken far more than its fair share of cuts over the past 15 years."

His words reflected the feelings of the late Carl Vinson, feelings engraved on the keelplate of USS *Carl Vinson*.

"No person representing the American people should ever place the defense of this nation below any other priority."

TOUCH AND GO

Coming and Going With the Carriers

The Navy welcomed the newest addition to the fleet with the commissioning on March 13 of the nuclear-powered aircraft carrier *Carl Vinson*. Her first trip as *USS Carl Vinson* (CVN-70) was from the shipyard to Norfolk Naval Station, less than 25 miles, with friends and families of the crew aboard. She is presently undergoing final training exercises and in early fall this year will begin the workup for her first deployment. *Vinson* is commanded by Captain Richard Martin, whose past carrier experience includes duty as a pilot aboard *Bon Homme Richard*, *Shangri-La* and *Enterprise*. (See story on *Vinson* commissioning and photographs.)

USS Carl Vinson during acceptance trials.

Forrestal may be 25 years older than *Vinson*, but the venerable carrier is back in operating form following a $25-million selected restricted availability (SRA) maintenance period. Over a four-month span in the Jacksonville Shipyards Incorporated facility, projects included repairing internal piping in fuel tanks, enclosing the fantail to increase storage space, relighting hangar bays one and three, overhaul of launch and recovery systems, and a major renovation of many berthing spaces.

Ranger left her home port of San Diego April 7, en route to the Western Pacific for her 14th deployment. On August 10, *Ranger's* crew will celebrate the ship's 25th year of service. Carrier Air Wing Two is embarked aboard *Ranger* with nine squadrons and more than 80 aircraft.

Looking Ahead With FLIR

Marine Observation Squadron Two (VMO-2) from Camp Pendleton, Calif., gave the OV-10 *Bronco's* new forward looking infrared (FLIR) equipment a realistic test recently with the help of a borrowed Soviet AN-2 *Colt* airplane.

The *Colt*, on loan from a civilian corporation, looks much like a 1930s' crop duster of modified bi-plane configuration. It is a short takeoff and landing aircraft used by many communist countries including North Korea, Cuba, Iraq and Vietnam.

According to VMO-2 skipper Lieutenant Colonel Rocco Valluzzi, the *Colt* is an ideal aircraft for use in clandestine operations such as resupplying or inserting guerilla forces. He says, "The airplane is very slow. It can land or take off with about 300 feet of ground. That gives it much of the mobility that a helicopter has. And it can carry 12 combat troops or 6,000 pounds of cargo."

"Flying at a low-level underneath radar, (it) could move slowly in and around valleys and land in a farmer's field, on a golf course or in a school yard," he explained, pointing out the need to test the FLIR ability to detect such aircraft.

The FLIR infrared sensor is mounted on the front of the *Bronco* and projects heat signature of what it sees onto a screen in the cockpit. This helps the pilot identify the object, in this case, the Soviet *Colt*.

OV-10 pilot Marine Captain Frank Alvidrez described the February 17-18 exercises as very successful. "We ran about 15 tests on the plane and had no problems identifying or tracking it."

Said Lt.Col. Valluzzi, "We wanted to see if we could identify that particular aircraft and see if some of the detection tactics used by our squadrons were good enough to identify it. We realize now that they are."

Sgt. Leesa Kruse

Moving Ahead With Traditional Values

The Navy is looking ahead to a return to traditional values and policies, and the crew of the carrier *America* got the word from the Navy's most senior enlisted member. Master Chief of the Navy Thomas Crow visited *America* in March and made a point of meeting with enlisted crewmen on the ship's forecastle, pointing out that "A big part of my job is to make myself available."

Speaking optimistically, he noted increased retention statistics and the success of such programs as the Naval Veteran's (NAVET) Program which is bringing back to active duty Navy veterans at a rate of approximately 900 a month. The Master Chief also pointed out revisions in the Armed Forces' entrance exams as a factor in improving the quality of the first-time recruit, and praised a return to traditional military structure in basic training. "This is a time of pride and professionalism in the United States Navy," he stated, "and its effects have been uniformly positive."

Master Chief Crow also discussed four major points of interest to Chief of Naval Operations Admiral Thomas Hayward. The first is an extension of the G.I. Bill 1989 deadline that would allow a serviceman who entered under the old bill to serve as long as he wished, then retire with those benefits. The second was seeing passage of a new G.I. bill that would allow service veterans who do not desire to use their benefits to transfer all or part of them to their dependents. Some sort of dependent dental care is a third priority, most likely under a modified CHAMPUS program that would allow treatment by nonmilitary dental care. Finally, there is concern for an annual cost of living increase, a concern the Master Chief says is shared by a majority of Congress and President Reagan, in the form of an increase this October to keep military pay in line with inflation existing rates.

Good Deal from the Dealers

Naval Air Reserve A-3 *Skywarrior* crews of VAK-1087, affectionately referred to as "*Whale* drivers," put their skills to practice in a recent week-long active duty training period that took them from their home base at NAS Alameda to locations stretching from Yuma, Ariz. to Honolulu, Hawaii.

Using VAK-208 and VAK-308 integral hardware, support and maintenance, the *Dealers* of VAK-1087 began the deployment with an extensive program to sharpen their skills. The in-flight training portion included practicing dissimilar aircraft refueling from a Marine Corps KC-130 near San Diego and other tactical training needed to become mission qualified in the KA-3B tanker version of the *Whale*.

With a wingspan of over 70 feet and length of almost 80 feet, the *Skywarrior* is the largest aircraft regularly flown aboard aircraft carriers. The KA-3B version is designed to refuel naval aircraft in flight and has its own refueling probe to accept fuel from other KA-3Bs or other aircraft such as the tanker version of the C-130.

VAK-1087's Dealers pose with a Whale.

The squadron also provided support for low-level and night strike exercises by VMA-131, a Marine Corps A-4E squadron home-based at NAS Willow Grove that was flying out of MCAS Yuma. Tanker qualifications were met with the cooperation of EA-6B *Prowler* aircraft from VAQ-129 out of NAS Whidbey Island. The squadron earned fleet tanker support qualifications working with VA-52, an A-6E *Intruder* unit, also from NAS Whidbey Island. Tanker services were also provided for VF-301 Naval Air Reserve F-4 *Phantoms* from NAS Miramar.

To complete long-range navigation qualifications for unit navigators, VAK-1087 completed a two-plane flight from NAS Alameda to Honolulu, Hawaii, and back.

The 12 *Dealers* logged 210 aircrew hours of flying time during the active duty period, referring to it as a *Whale* of a week.

PATROLLING THE SKIES

By Jeanne Gray

Operation *Thunderbolt*, October 1 to December 16, 1981, may not mean anything to you but to nearly one hundred suspects involved in drug smuggling activities it means serious business. It was a Navy operation to help bring to a standstill the flow of drugs coming into the country from southeast of Florida. The program called for an additional radar barrier to be set up by a Norfolk-based E-2 squadron flying from Patrick Air Force Base, Fla., using its APS-125 radar. The results were impressive and proved to be extremely effective in tracking down drug traffickers.

But *Thunderbolt* was not a new idea. In 1978, after a favorable opinion by the Department of Justice, the Chief of Naval Operations instituted a program of cooperation with civil law enforcement agencies. Since then, in support of U.S. drug interdiction efforts, the Navy has provided surveillance information obtained from its various units during normal operations.

However, in spite of these efforts the drug smuggling problem has become increasingly more signficant, to the point where the executive branch of the government has become involved. Recently, Vice President George Bush announced that the U.S. Navy would work with U.S. Customs and the Coast Guard to help intercept ships and aircraft attempting to smuggle contraband into the United States. The Vice President stated that assistance may include the embarkation of Coast Guard teams on Navy ships to perform law enforcement functions, and the employment of Grumman-built E-2C *Hawkeye* aircraft to help detect both airborne and surface smugglers.

According to the Federal Drug Enforcement Administration, about half of the illegal cocaine and 60 percent of the marijuana enter the United States by air. Much of the drugs comes into the southeastern part of United States from South America through the Caribbean.

While the job of drug interdiction may seem awesome because of the size of the area, the airspace between the Bahamas and Florida can easily be covered by the *Hawkeye's* airborne early warning radar. By comparison, one E-2C has the capability of tracking all the air traffic between Boston and Washington, D.C., according to Grumman officials.

Navy operational aircraft were first used to locate smugglers during Operation *Thunderbolt*. The *Hawkeyes* were

E-2C Hawkeye

instrumental in effectively detecting low flying aircraft transiting from areas south and east of Florida. The tactics used during the operation were routine for the patrolling crews, but effective in running down the bad guys.

Operation *Thunderbolt* resulted in 97 drug-related arrests, 45 seized aircraft and a large amount of confiscated drugs. One thousand pounds of cocaine, 26,000 pounds of marijuana and 250 pounds of hashish oil were seized in the 77-day period the *Hawkeyes* were on the prowl. The E-2Cs were a key element in almost half of the operation's drug interdictions during the period of the operation.

The *Hawkeye* was designed as an all-weather, carrier-based airborne early warning/command and control aircraft that would patrol task force defense perimeters and provide early warning of approaching enemy aircraft. The primary airborne early warning function can also provide strike and traffic control, area surveillance, search and rescue guidance, navigational assistance and communications relay.

The scenario during *Thunderbolt* was not that much different than its combat mission. Once a drug smuggling aircraft has been detected, its position course is determined and a Customs or Coast Guard aircraft vectored in for the intercept.

The operation had an additional benefit in evaluating the ability of the E-2C's APS-125 radar to meet the U.S. Customs air service, low-flyer detection requirements. The results of the operation provided data for the Treasury Department to help determine if an E-2C should be requested as part of the Treasury Department's budget. The operation was considered successful by all concerned and proved the effectiveness of the APS-125 radar in the drug smuggling detection scenario.

In addition to the on-going sighting program, the U.S. Navy is providing surface surveillance as well as air support by maintaining continuous communications with the U.S. Coast Guard, Drug Enforcement Administration and U.S. Customs Service officials. A message was recently sent to all Atlantic Fleet units from the Commander in Chief, U.S. Atlantic Fleet strongly supporting the Navy's role in drug interdiction efforts and directing unit commanders to actively participate in the war against drugs. Navy ship and aircraft crews are briefed to be alert for suspicious vessels at all times during normal operations at sea and to report suspicious sightings to law enforcement agencies.

This past spring, the Navy once again deployed E-2C *Hawkeyes* to Homestead Air Force Base, Fla., from Norfolk to conduct similar operations. With assistance from the Navy and the E-2C surveillance system, drug enforcement officials will be able to better deal with smuggling activities.

Drug smugglers should beware because somewhere out there the *Hawkeye* is patrolling the skies.

PEOPLE·PLANES·PLACES

Awards

NAS Meridian, Miss., recently received the 1981 Chief of Naval Air Training Retention Award. During the ceremony, RAdm. Peter Booth, CNATra, presented the award to Capt. Elton C. Parker, Jr., air station C.O., and to command career counselor ACCM Norman Parker. RAdm. Booth praised Meridian's retention effort as an important contribution to the Navy's future.

NAS Willow Grove's Lt.Cdr. J. Todd Greeno was recently presented the Navy Commendation Medal for his redesign of the hardware devices and gunsight system used for the laser air-to-air gunnery system, while he was on active duty at the Chief of Naval Air Training, NAS Corpus Christi, Texas, from June 1980 to August 1981.

The winner of the Naval Material Command's Productivity Excellence Award for 1981 is NARF Jacksonville for topping other units within NavAirSysCom in savings of money and man-hours. A cost reduction program provided documented savings of more than $85 million in a record-breaking production year.

Rescue

A crew of North Island-based HS-8 rescued two F-14 crewmen who were forced to eject from their aircraft and had landed in the water near USS *Constellation*. The HS-8 helicopter crew acted quickly when it became apparent that the *Tomcat* radar intercept officer was in danger of being pulled under the ship's stern by his still attached parachute. Within minutes they hoisted him clear of the water so he could be freed from his chute. Both men were returned to the ship unharmed. The helicopter's crew members were Lt.Cdrs. Sam Taylor and Jim Carlin, AW2 Ernest Lashua and AW3 Jeffery Marshall.

Honing the Edge

The aircraft carrier *Forrestal* had a different breed of visitors aboard during a recent deployment – six Army helicopter pilots assigned to the 132nd Aviation Company from Hunter Army Airfield, Savannah, Ga., in support of the 24th Infantry Division. They are members of the Rapid Deployment Force and fly the Army's CH-47 *Chinook* helicopters. The Army pilots were on board to familiarize themselves with helicopter operations on an aircraft carrier. Other joint operations are planned for the future. The pilots, two Army captains and four chief warrant officers, when asked what they thought of the ship, replied unanimously, "Confining but impressive."

PH Reymundo Arellano

The aircraft silhouette on the tail of this VF-41 F-14 memorializes last summer's engagement between two Tomcats from the carrier Nimitz and two Libyan SU-22 fighters. This particular aircraft was one of the two F-14s involved in the shoot-out which resulted in the destruction of both Libyan planes.

When the word went out that the *Belleau Wood* (LHA-3) was available for 12 days of carrier qualification training for helicopter squadrons of the Marine Air Reserve, approximately 100 officers and men from HMH-772 and HMM-764 volunteered for duty at sea. The training exercise took place off the

SSgt. W. E. Haynes

A Marine pilot lands a CH-46 aboard Cayuga while practicing carrier landings during the training exercise.

Mexican coast, during which pilots and their aircrews had numerous opportunities to launch from and land on the carrier deck. *Cayuga* (LST-1186) accompanied the carrier and provided an additional challenge to the pilots, who were able to practice landing on the single helicopter pad of the smaller ship. Night operations on *Belleau Wood* allowed the pilots to refine their night ship landing skills.

The *Dogs* of VF-143 recently returned from the Caribbean after completing the final phase of their turnaround training. The *Dogs* met every challenge of the demanding *Readex* 2-82 schedule and were commended by VAdm. James A. Lyons, Jr., Commander Second Fleet, for their performance in the exercise. Through a month of missile firings, antiair warfare exercises and reconnaissance missions, the *Dogs* excelled in demonstrating their newly-acquired tactical air reconnaissance pod system. The *Dogs* amassed over 700 flight hours and 350 traps, while leading the air wing in landing grades with a 3.45 and a 94% boarding rate.

VAW-78 gave an active duty wing, Carrier Air Group One, the pleasure of its company in Puerto Rico early this year when the wing was minus an E-2 squadron due to reorganization. Needing early warning aircraft support to complete air wing participation in Composite Unit Exercise 1-82, off the Caribbean island, the wing operated with the Norfolk-based reserve squadron commanded by Cdr. Dale McPherson. CAG-1 Capt. James T. Matheny and the squadron commander were both pleased with the result. The reserve squadron produced consistent quality performance and demonstrated an easy interface with active duty elements. On ground and in flight, members of active duty squadrons had renewed respect for the naval reservists.

Dallas-based VF-202 recently added another milestone when the *Fighting Superheats* launched all 14 of their F-4N *Phantoms* for a simulated *Alpha* strike to the Brownwood training area. It was a demonstration of the squadron's maximum mobilization readiness and thorough safety philosophy.

VF-202 returns to Dallas, Texas, at the end of its training.

Et cetera

Fifteen enlisted Navy men and one enlisted Navy woman have been selected for the Navy's Flying Limited Duty Officer program.

AT2 D.W. Buchanan	AQ2 T.E. Page
AC1 A.C. Campbell	AC2 D.K. Scott
AX2 T.L. Gowen	PN1 R.S. Seeley, Jr.
TD2 Roy M. Knox	AD1 K.J. Speas
EM1(SS) W.B. Lawton	ADC S.W. Sullivan
AZ1 K.A. Liles	FTGC(SS) L.E. Wallace
AE1 G.S. Miller	ET1 J.A. Westrick
AE1 F.C. Morgan	AX2 D.D. Yackel

The program is designed to help offset current and projected shortages of Navy pilots and will provide further career opportunities for enlisted personnel. The above selectees will join student Navy Aviators for aviation indoctrination and flight training in Pensacola, Fla.

Commodore Frocking

Although most frocking ceremonies are fairly standard, a unique set of circumstances made Captain John Weaver's frocking to commodore an exception.

As F/A-18 Project Manager at the Naval Air Systems Command, Washington, D.C., he was in Australia for the first management review of the Australian F/A-18 program in mid-February, when the Senate approved the commodore list. Admiral J. G. Williams, Chief of Naval Material, who was in Australia for a meeting with Vice Admiral G. J. Willis, Chief of Naval Staff, Royal Australian Navy, received the authorization and conducted a surprise frocking ceremony for Capt. Weaver with VAdm. Willis in attendance.

"I was very surprised, honored and pleased that Adm. Williams and Vice Admiral E. R. Seymour, Commander, Naval Air Systems Command, went to so much effort to frock me in such a speedy manner," said Commodore Weaver.

Perhaps the most unusual part of the ceremony was when Adm. Williams pinned on Como. Weaver's shoulder boards. Since there were no regulation shoulder boards available, a set was quickly fabricated from brass. The boards, which are now a memento of the ceremony, are on display in Weaver's office.

Como. Weaver was selected for promotion to the one-star flag officer grade in December 1981, along with 38 other captains. These are the first promotions to the rank since WW II. The rank of commodore was reinstated in the Navy by the Defense Officer Personnel Manpower Act to bring the Navy in line with the other services, all of which have a one-star rank.

Commodore Weaver

Change of Command

CVW-1: Capt. Luther F. Schriefer relieved Capt. John M. Bowers, Jr.

HC-1: Cdr. Richard W. Barr relieved Cdr. Alan J. Billings.

VA-145: Cdr. Michael J. Reilly relieved Cdr. Frederick D. Litvin.

VAQ-129: Cdr. James W. Dickson relieved Capt. Grady L. Jackson.

VAW-123: Cdr. James N. Mahood relieved Cdr. Frederick J. Glaeser.

VAW-1086: Cdr. E. Matthew Marks relieved Cdr. Charles K. Fisher.

VC-13: Cdr. Michael R. Scott relieved Cdr. Jere W. Rivers.

VF-111: Cdr. Lonzo O. Milam relieved Cdr. Stuart O. Schmitt.

VF-211: Cdr. Larry Ernst relieved Cdr. Steve Husak.

VF-213: Cdr. Thomas W. Finta relieved Cdr. W. James Haley.

VP-9: Cdr. Robert J. Quinn, Jr., relieved Cdr. James L. Mattson.

VP-40: Cdr. Elcon S. Wilson relieved Cdr. Darold S. Axtman.

VR-51: Cdr. Thomas P. O'Connor relieved Capt. Wayne S. Salmon.

VR-53: Cdr. Terry O. Warner relieved Capt. Joseph A. Montanaro.

VT-22: Cdr. Julian R. Lowe relieved Cdr. Jon K. Dekker.

PROFESSIONAL READING

By Lieutenant Commander Peter Mersky, USNR

Tillman, Barrett, *The Dauntless Dive Bomber of World War Two*. Naval Institute Press, Annapolis, Md. 21402. 1976. 232 pp. Bibliography, indexed, heavily illustrated. $17.95.

The first of the author's recent naval aircraft biographies (others include the F6F *Hellcat*, F4U *Corsair* and TBF *Avenger*), this book is clearly a labor of love detailing one of the most important aircraft of the Pacific war – perhaps even WW II itself. Obsolete by the time America entered the war in 1941, the SBD *Dauntless* soldiered on to the war's end.

Production of the SBD ended in 1944. It was engaged in every Navy operation through D-day in 1944 and functioned not only as a dive-bomber but as a fleet defense fighter because of its unusually good maneuverability, endurance and firepower.

Tillman, whose father was a Marine SBD pilot, tells in detail of the *Dauntless'* decisive role in the Battle of Midway in June 1942, when SBDs destroyed four of the Japanese Imperial Navy's largest aircraft carriers. Later in the same year, SBDs covered the Allied landings in North Africa and America's first offensive at Guadalcanal. It was one of the most glorious chapters in *Dauntless* history when Marines of Cactus Air Force (Cactus was the code name for Guadalcanal) bombed, strafed and fought the Japanese in some of the most horrible conditions encountered in the war.

Written in Tillman's highly readable style and profusely illustrated with photographs, this book should be in every collection of WW II literature.

Gay, George, *Sole Survivor*. Midway Publisher, Box 8088, Naples, Fla. 33941. 320 pp. Illustrated. $15.00.

This is a very personal book, i.e., more than an autobiography. It is a stirring account of an incredible battle and one man's amazing luck and survival. On June 4, 1942, Ensign George Gay became one of the heroes of Midway when he alone out of the 30 men of VT-8, flying from USS *Hornet*, survived a devastating attack on the Japanese fleet in which all the old TBD bombers were shot down. Gay remained in the water for more than a day before being rescued. During that time, he had an eyewitness view of the battle action. He was eventually awarded the Purple Heart and the Navy Cross.

Sole Survivor is very much like *Baa Baa Black Sheep*, which is the autobiography of "Pappy" Boyington, the Marine Corps' top WW II ace. In fact, Gay credits Boyington with providing much of the impetus for writing *Sole Survivor*.

It is an engagingly written, upbeat story full of a young man's wonder at new experiences and an older, wiser man's reflections on those experiences.

Gay recounts his childhood in Texas, rejection by the Army Air Corps in 1939, eventual flight training in the Navy, assignment to VT-8 and seeing the launch of the historic Doolittle raid on Tokyo in April 1942. All of these accounts are extremely interesting as are the variety of unit documents and award letters which detail the men assigned to his squadron and their contributions to the war effort.

Furthermore, it is the fast-paced telling of the Battle of Midway and Gay's own action-filled participation in the dramatic attack on the Japanese carriers which is the centerpiece of this book and makes it worthwhile reading. *Sole Survivor* is full of personal insights, interesting anecdotes and descriptions. It is a thrilling account of one man's military service during an exciting era in Naval Aviation history.

Horikoshi, Jiro, *Eagles of Mitsubishi: The Story of the Zero Fighter*. University of Washington Press, Seattle, Wash. 98105. 1981. 176 pp. Indexed, illustrated. $18.95.

Jiro Horikoshi, who died in January 1982 at the age of 78, can loosely be compared to Ed Heinemann. Indeed their creations met in combat many times during WW II. Both men designed some of the world's outstanding combat aircraft which played dramatic roles in their respective countries' wartime efforts.

This edition is a translation of the 1970 edition published in Japan, and gives some very worthwhile background behind the actual planning and design of the fabled Zero-sen. It is not just another combat history of a famous airplane. While there are references to wartime exploits, the main focus of the text is on the intense effort of Horikoshi and his team to create a new fighter to meet the demanding specifications issued in 1937 by the Imperial Navy. It describes the development of the prototype through its early testing stages, the operational debut and initial successes of the aircraft, and efforts to continually update and modify the basic airframe throughout the war.

By 1943, the introduction of such aircraft as the F6F *Hellcat*, F4U *Corsair*, P-38 *Lightning* and P-51 *Mustang* had begun to put the *Zero* on the defensive. Despite herculean efforts, the Japanese were unable to counter the ever-growing quantity and quality of airpower produced by the industrial colossus of the West. It was only a matter of time before the once omnipotent *Zero* fell before the guns of its more powerful new opponents.

Horikoshi provides an insight into design problems and their solutions and describes the early successes of the A6M series in China. *Eagles of Mitsubishi* is a short, but informative book on a famous fighter which made the world sit up and take notice.

Letters

Voluntary Recall Program

Know any reserve military aviators who might be interested in the Voluntary Recall Program? Assignments are still available in all pilot communities for qualified reserve aviators in the grade of lieutenant commander and below, with fewer than four years inactive service. Reserve interservice transfers are being considered on a limited basis. Primary assignment requirements exist in training commands, but recalls will also be considered for sea duty and overseas tours. Recalled aviators are eligible for Aviation Officer Continuation Pay bonus, with years of military aviation service as the qualifying criteria. Information about the Voluntary Aviator Recall Program can be obtained by contacting Ltjg. Cathy Hines, Naval Military Personnel Command (NMPC-432D), Washington, DC 20370, autovon 224-8708, commercial (202) 694-8708.

A-4 Skyhawk

I am in the process of doing the research for a new book on the A-4 *Skyhawk* for Jane's Publishing Company's new Jet Combat History series. I would like to hear from anyone who was connected with the A-4, from design on through its long career. Pilot recollections of combat will be the central portion of the book. I also need photos, particularly of combat operations in Vietnam and Israel, which will receive great care and will be returned.

Jeff Ethell
Route 1, Box 519
Front Royal, VA 22630

Kudo

Congratulations on the superb March 1982 issue of *Naval Aviation News*. This is a most fascinating and captivating account of airborne minesweeping.

I've been teaching general physics for over a quarter of a century and have used your magazine in my classes throughout the years. The students are really interested when I can show them, via an article in *NANews*, how principles of physics are put to use in everyday life.

Many thanks to the authors for making this excellent information possible. May you continue to introduce your readers to the wonders of physics through the interesting pages of your dynamic publication.

Rev. John M. Scott, S.J.
Creighton University
2500 California Street
Omaha, NB 68178

Battles of Solomons and Santa Cruz

I am presently writing an eyewitness history of the Eastern Solomons and Santa Cruz carrier air battles of August 23-25 and October 26, 1942. I would like to locate men who were there and who would be willling to give firsthand accounts of their experiences. Please call me at (415) 355-6678 or write:

Eric M. Hammel
1149 Grand Teton
Pacifica, CA 94044

Correction: It has come to our attention that the photographs on pages 17 and 21, Naval Aviation News, March 1982, describing the helicopters as belonging to HM-12, were incorrectly captioned. To set the record straight, both aircraft were from HMH-463 assigned to Operation End Sweep.

Vietnam Veterans

I am interested in contacting former Navy and Air Force aviators who flew missions over North Vietnam and Laos, 1964-66, for information for a forthcoming book. Of particular interest are Operations *Flaming Dart*, *Rolling Thunder* and *Iron Hand*, as well as combat search and rescue missions.

John Morrocco
2300 N Street, N.W.
Washington, DC 20037

Reunions, Conferences, etc.

Naval Air Transport Squadron, Inc., reunion August 16-20, 1982, Pensacola, Fla. Contact Capt. Al May, USNR(Ret.), 1015 W. South Avenue, Independence, MO 64050.

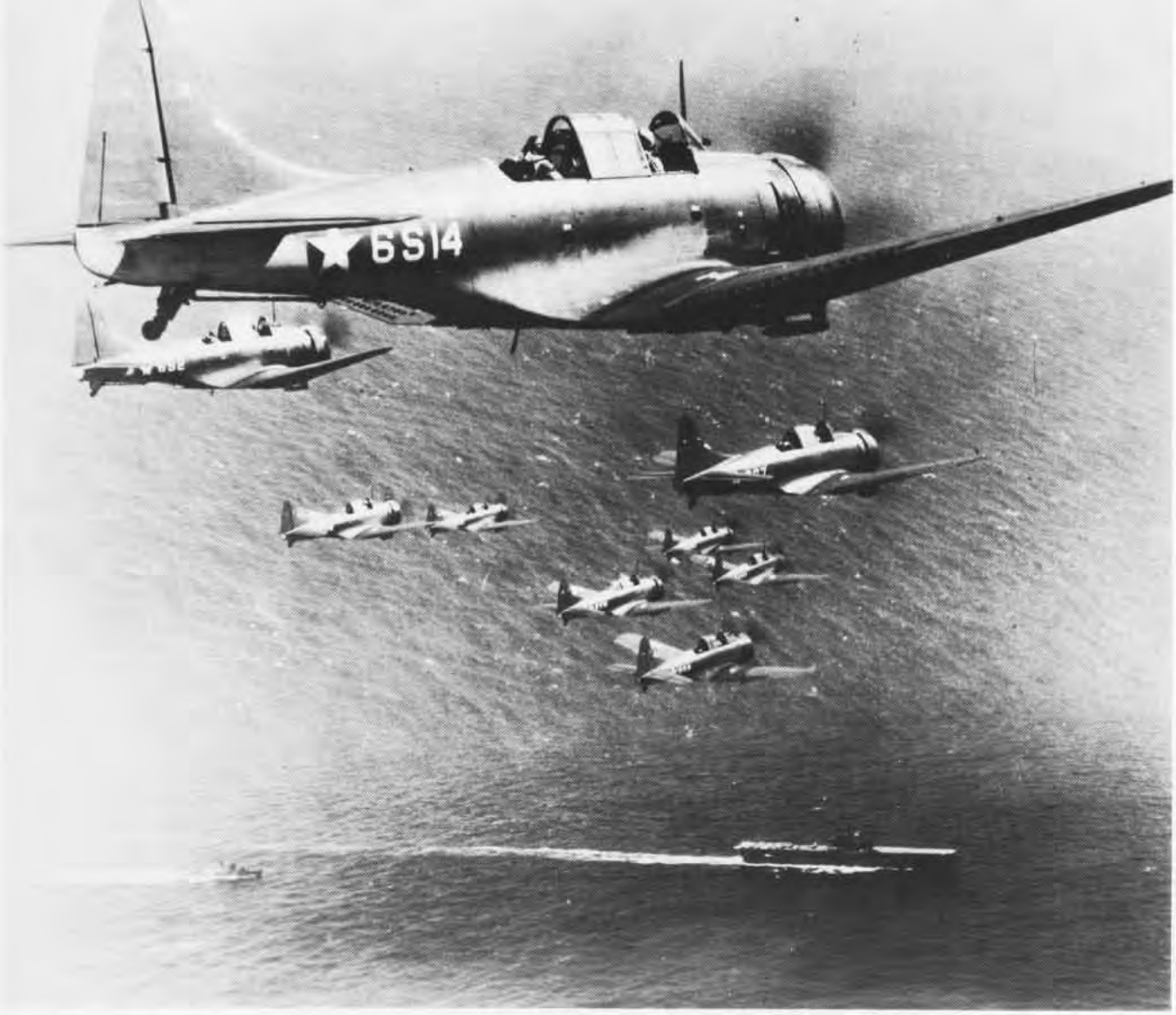
USS Philadelphia (CL-41) nineteenth reunion, Pittsburgh, Pa., September 1982. Write F. J. Amoroson, 93 Dunbar Street, Somerset, NJ 08873.

A-3 Skywarrior thirtieth anniversary celebration, September 23-26, 1982, San Francisco, Calif. For more details, contact Capt. Tad Bingham, Carrier Group 787, NARU, NAS Alameda, CA 94501, commercial (415) 869-4204/3535 or autovon 686-4204/3535.

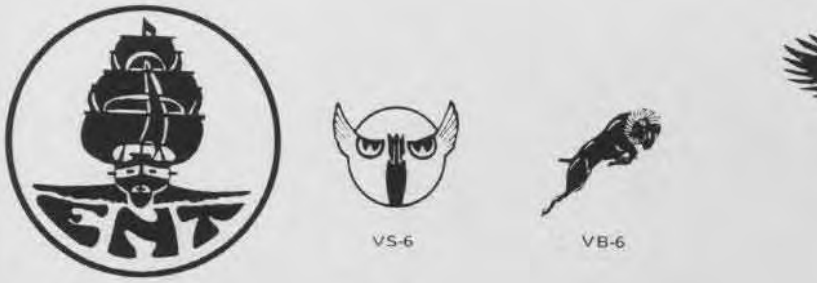
USS Fanshaw Bay (CVE-70) reunion being planned for 1983. For particulars, contact Harold A. Hoffman, 8647 Belhaven Drive, St. Louis, MO 63114, (314) 427-0126.

WW II crews or post-war associations of VC-77 and USS Rudyerd Bay (CVE-81) reunion planned. For information, write Kaj Swenson, President, USS Thorn (DD-647) Association, Inc., 2190 Allwood Drive, Bethlehem, PA 18018.

USS Natoma Bay (CVE-62), VCs 9, 63, 81 and CarDiv-24, reunion September 10-12, 1982, Minneapolis, Minn. Details: Ralph Grant, 7405 Girard Avenue S., Minneapolis, MN 55423.



SQUADRON INSIGNIA



ENTERPRISE (CV-6)

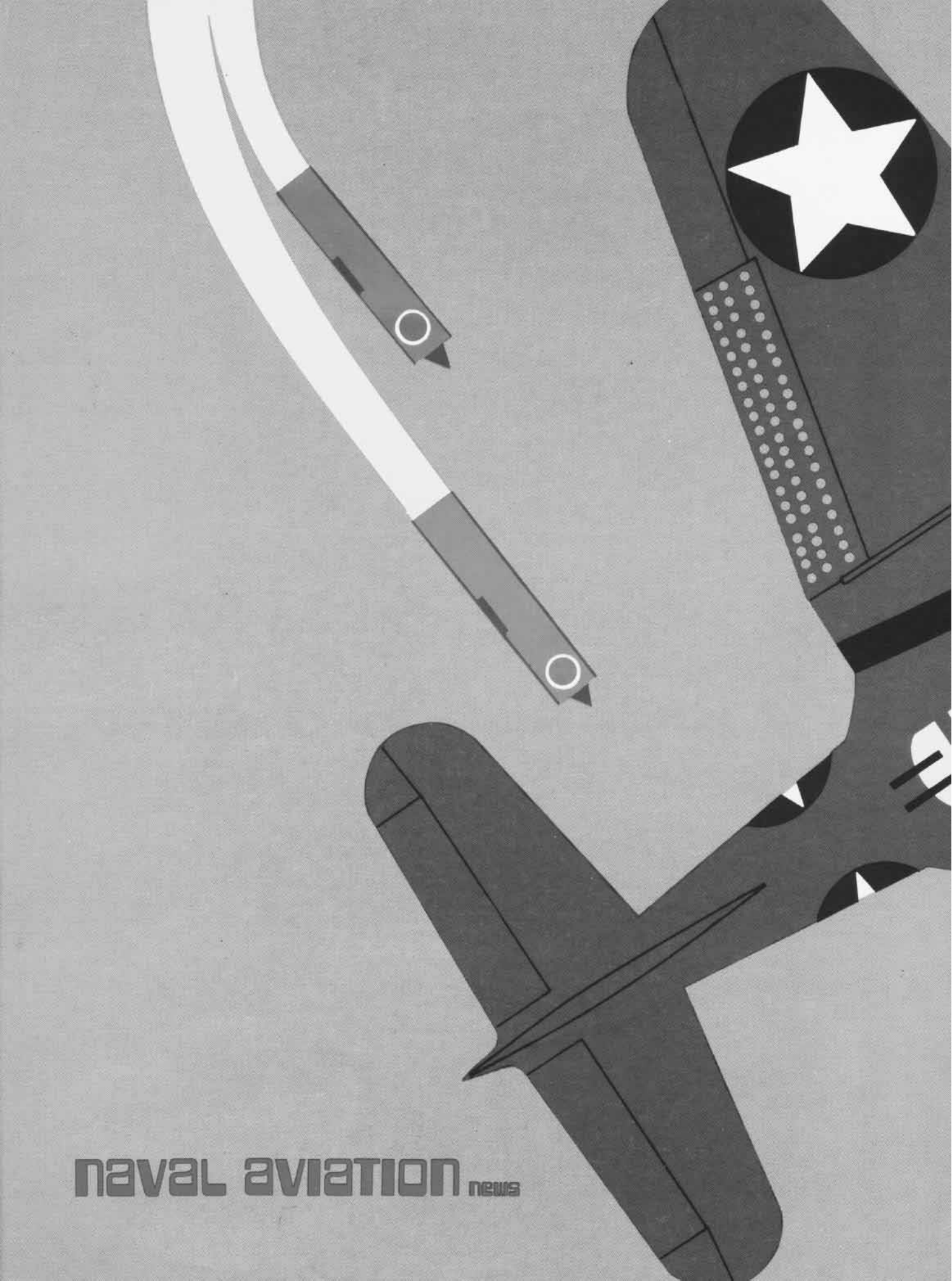
VS-6

VB-6

YORKTOWN (CV-5)

VB-3

SBD *Dauntless* dive bombers of Scouting Squadron 6 (VS-6), shown in photo flying over USS Enterprise, and SBDs of two other squadrons destroyed four Japanese carriers in the Battle of Midway on June 4, 1942. Others involved were Bombing Squadron 6 (VB-6) from *Enterprise* and Bombing Squadron 3 (VB-3) from *Yorktown*.



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