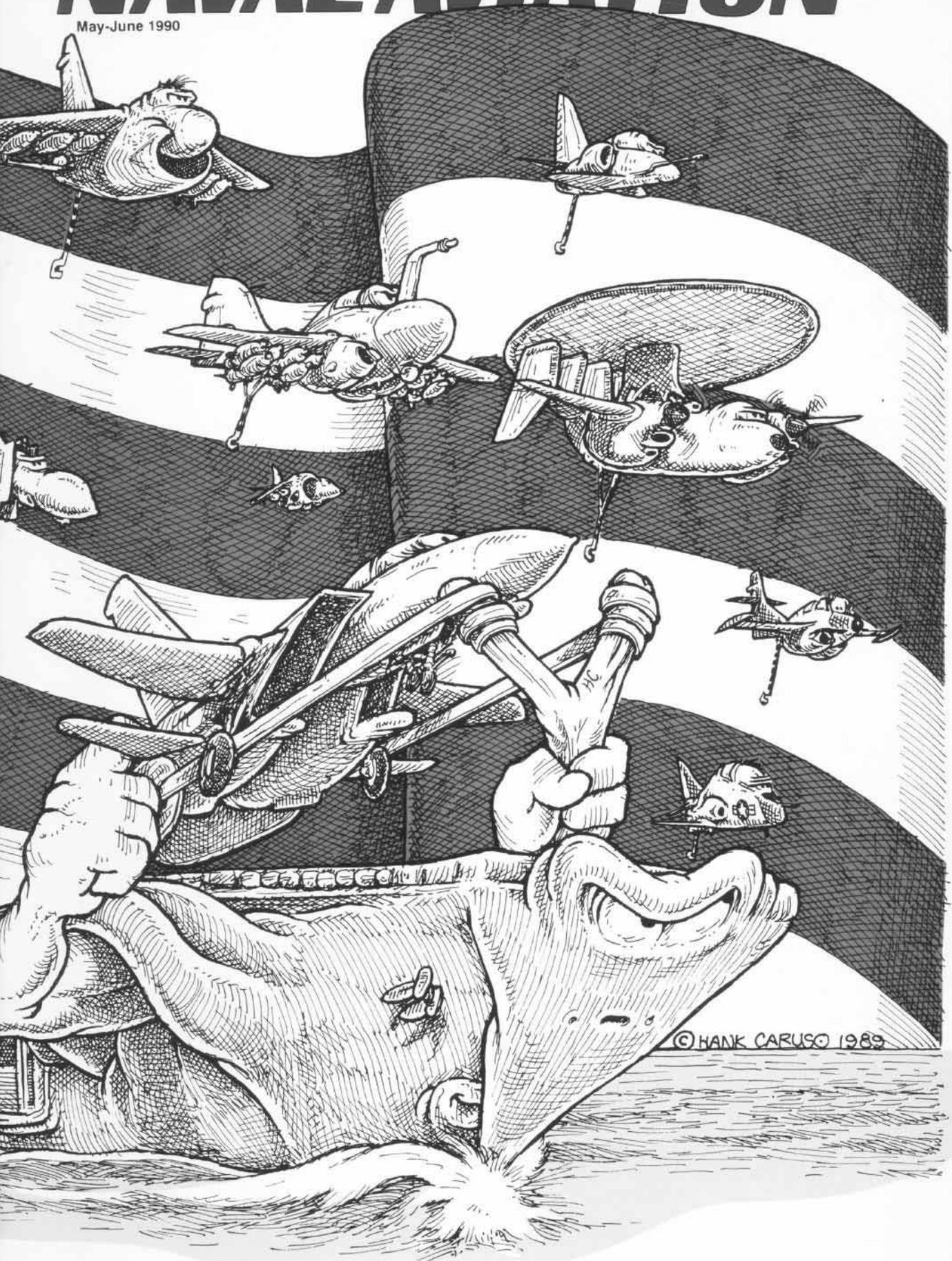


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Covers



COVERS—Artist Hank Caruso's personal salute to the officers and enlisted personnel of Naval Aviation.

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Hollow Force? Not on My Watch!

By VAdm. Dick Dunleavy, ACNO (Air Warfare)

With the sweeping changes under way across the map of the world, the national security structure of the United States is under intense scrutiny on all fronts, and for good reason. The verdict on what Naval Aviation will look like in the next several years is still being hashed out by the "heavies" in the Pentagon, White House, and Capitol Hill. Whether our resources decline, as seems certain, or not, one lesson from the past stands in the forefront of my thinking: *no return to a "hollow force."*

There are still plenty of us around who remember the Navy in the late 1970s, when spiraling inflation outstripped the pay of our troops, when retention of our technicians dropped to disabling levels, and when we were not able to man the ships and squadrons with enough trained people to maintain the required level of combat readiness. Squadron C.O.'s sometimes discovered sailors and their families living in automobiles, unable to find housing they could afford, and using food stamps and public relief to feed their families.

Problems abounded with maintaining our equipment, too. Parts to fix our planes too often came from other planes, wearing out the planes (and the people fixing them) faster. Cannibalization came to mean consuming an aircraft, not eating missionaries. Times were grim for Naval Aviation.

The build-up supported by the American people during the 1980s changed all that. Today, we have top-quality people, sky-high morale, good pay, good retention, and proven equipment. This could all go away quickly, however, unless we intelligently manage the coming change to maintain a balanced force tailored to our defense needs.

The balance needed is a combina-

tion of people, readiness, safety, and modernization. Most important is recruiting and retaining the quality people we need. Our force levels must match our strategic commitments, with enough ships and planes to keep deployments under control and give sailors a fair share of time at home. Reducing personnel without reducing our commitments and associated ships and squadrons will court disaster. Nor can we afford to let the military/civilian pay gap widen any further; we need proper compensation to retain the best we have.

Modernization of our aging aircraft fleet is critical to our fighting edge. We are under way with improvements to proven designs (F-14D, EA-6B ADVCAP, S-3B, E-2C Group II, night-attack AV-8B and F/A-18, P-3C Update IV, P-7) but must also press for-

ward with revolutionary designs such as A-12, ATS, and NATF to keep ahead of the very real, increasingly sophisticated threat out there in the Third World.

You men and women of Naval Aviation make extraordinary contributions to the security of the United States and deserve a lot of the credit for the positive changes we've seen of late in the world. It has been your dedication, your readiness, and your resolve which have brought those changes. You ask for little in return for your dedication and sacrifices. We in the leadership have our work cut out for us to ensure that you have the adequate pay and the modern equipment you need to do the job asked of you.

I'm committed to a balanced force. Return to a hollow one? Not on my watch! Keep strokin'. ■



PH3 Douglas E. Houser

Nav Nightmare

Two UH-1N helicopters were on a night vision goggles (NVG) navigation training flight at an overseas shore base. The weather was clear with visibility seven miles and a distinct horizon with visible starlight. The same aircraft had flown a day hop in the general area.

The Naval Air Training and Operating Procedures Standardization checklist was used in the briefing, but NVG mission briefing checklist/notes were not used. The lead pilot, also the mishap pilot (MP), briefed from memory although squadron standard operating procedure called for use of the checklist for all missions. But the other pilots felt the 45-minute brief was thorough. Two checklist items were not discussed: barriers/limiting features and crew coordination.

NVG navigation cards prepared by the lead pilot were handed out during the brief. The *Hueys* would fly at 90 knots, 500 feet above ground level. Also, the copilot in the second *Huey* (mishap wingman copilot, MWCP) was assigned to navigate the route in reverse after the second leg.

The post-sunset takeoff was normal. The MP was navigating from the left seat with the copilot (MCP) at the controls.

The first three points were found easily. Goggling occurred between points three and four. At point four, the lead aircraft circled once and took up a heading of 310 degrees although the nav card called for 290 degrees.

Over the intercommunication system, the MWCP told his pilot of the discrepancy in heading and asked for a check of radio magnetic indicator alignment with the wet compass. The MWP (mishap wingman pilot) confirmed that the alignment was O.K. The lead aircraft continued on a heading of 310. The nav card indicated time to checkpoint five was 5 minutes, 20 seconds. The MWCP told his pilot, "I think they (lead aircraft) are going outside the training area right now."

At the six-minute point on the leg, the flight reached a certain mountain and turned to 240 degrees. The MWCP saw a northern opening of a canyon and told his pilot, "We're off the map."



Next, the lead helo reversed course and flew back "onto" the primary navigation map. The MWCP felt the lead aircraft was looking for the canyon which lead directly to the next checkpoint. The lead aircraft reversed course again and flew off the map toward the northwest. The MWCP and MWP discussed using "Magellan," the code word for "check your navigation, correction needed."

They decided to wait a few moments before calling Magellan. (The reason for this derived from an incident that afternoon during a training flight with the same two aircraft. On the flight line after landing, the MP had harshly criticized the second aircraft's crew for its radio discipline.)

About a minute later, over the intercommunication system, the crew chief under training in the second *Huey* reported wire towers on the right. The MWP then saw a power line tower and began a climb. Neither the tower nor the wires were marked with balls or lights. At the same time, the MWP and MWCP saw sparks coming off the lead helo. (The sparks were only visible through goggles.) The wing aircraft flew past the lead aircraft, which had struck the lines.

The lead aircraft's nose yawed left and aircraft speed decreased. The *Huey* lurched forward, rolled right, and impacted the ground. It exploded, killing all five personnel onboard.



Grampaw Pettibone says:

The investigators came up with those four ominous words to define the cause of this terrible crash: loss of situational awareness.

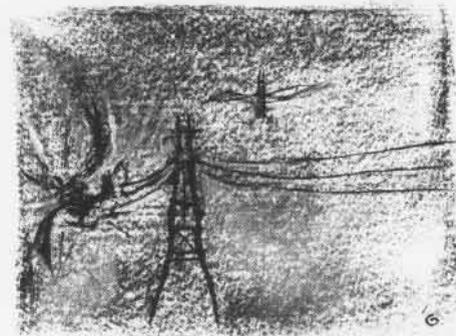
Lack of crew coordination was apparent. The crew got lost. It's as simple and as complicated as that.

The lead pilot failed to follow lost plane procedures, which include determining prominent terrain features, reversing course to the last checkpoint, climbing to establish a tactical air navigation system fix, or asking the wingman for help.

We don't know if there were other problems encountered in the aircraft. The lead pilot planned the mission by himself and then told his wingman's copilot at the preflight briefing that he was responsible for navigating the course in reverse. The lead pilot did not brief the mission in sufficient detail. Wingman responsibility in assisting navigation (Magellan), for instance, was not discussed. There was that NVG briefing from memory vice checklist or written notes. The nav card called for 290 degrees after checkpoint five but the leader headed 310 degrees. Maybe the radio magnetic indicator wasn't aligned before departure.

During the afternoon flight, the lead aircraft approached a restricted area and the wingman called Magellan and advised a course change. Also, when the lead called for landing clearance he missed the clearance call from the tower and the wingman advised him they were cleared inbound.

There was the "encounter" after



landing on the day hop described above. Yet the conduct of the MP in reprimanding the others was considered completely out of character for the lead pilot who later apologized. However, this incident affected the second helo's pilots with respect to delaying the Magellan call that night.

Additionally, a few days earlier, the MP had expressed his philosophy about calling Magellan. He felt it was important to allow the lead aircraft to correct his own error and establish himself on course by working it out on his own, if possible. The squadron C.O. became aware of this philosophy and reinforced the unit's policy on the responsibility of wingmen: When lead is off course and not making proper and timely corrections, call Magellan.

Excellent advice.

Hornet Horror

Three F/A-18 *Hornets* launched on a daytime air combat maneuvering/intercept flight. The opposition, an F-4 and an F-14 which proceeded independently, were not directly involved in the mishap.

As briefed, the lead *Hornet* proceeded 8 to 10 miles ahead of the trail section. The trail, or second, section was to maintain "resolution cell" formation, the wingman to maintain a loose tactical wing position on the section leader. The trio proceeded to establish this disposition for the initial intercept maneuver.

The flight leader commenced a left, 180-degree turn to establish a southerly intercept heading. The second section leader also turned left, lagging the leader's aircraft through 75 degrees of turn. The section leader saw his wingman on his right side at this time.

The section leader then called, "Let's come right," in order to accomplish a 270-degree right turn to establish an 8-to-10-mile trail on the lead aircraft.

"O.K.," responded the wingman. The wingman moved from his right position to cross above and to the left of the section leader in the turn. As the section was turning through a southeasterly heading the wingman called, "Three not visual."

The section leader transmitted, "Two's at 22,000."

"Roger," replied the wingman.

The section leader said he was "on the western side of the ridge," referring to the terrain below.

"Looking," said the wingman.

The section leader said he was nine miles in trail of the flight leader.

"Roger," said the wingman, at which time he left his position, estimated to be 2,000 feet above and to the left of the section leader, in a descent on a southerly heading.

As the flight leader was commenting on slow-moving traffic 15 miles to the north, just under 22,000 feet, the wingman impacted the section leader's *Hornet*. The wingman was killed on impact when the aircraft sustained heavy damage to the nose section.

The wingman's aircraft went into a nose-high, right-wing-down attitude above and to the right of the section leader, then descended in a near vertical path until it crashed into the ground. The last five seconds of the stricken aircraft's mission computer data indicated the *Hornet* had passed 22,500 feet in a minus-16-degree attitude at nearly 400 knots. At this time, the aircraft was in a 36-degree right angle of bank with a 12-degree-per-second left roll rate.

The section leader's aft underside and left engine were damaged in the collision and hydraulic systems associated with the left engine failed immediately upon impact. The aircraft was controllable but somewhat unstable. Multiple flight control system caution lights and left engine fire light were on. The pilot tried to move the left throttle to the off position but was unable to do so.

The aircraft became more unstable, although the right engine was operating normally with respect to rpm and exhaust gas temperature. However, the pilot was unable to maintain level flight.

The flight leader joined on the section leader and noted flames, approximately the length of the aircraft, coming from the left engine area. Nozzle and afterburner sections were missing from both engines. The underside

was blackened. The section leader rechecked the left fire light and found it had not been depressed on an initial attempt. He immediately pressed the fire light and the fire extinguisher ready light. The fire went out.

The aircraft was now at 220 knots with a 3,000-fpm descent. The pilot attempted unsuccessfully to reset the flight controls. He dumped fuel after the fire was out and realized he would be unable to reach a divert field. He ejected passing through 5,000 feet and was later rescued unhurt.



Grampaw Pettibone says:

A sorrowful story, this one. All pilots involved, including the officer killed, were highly qualified, seasoned professionals. Yet the mishap wingman failed to maintain safe separation from his section leader during the turn, and it cost him his life. Further analysis indicated that he descended rapidly during a 6 to 14-second period, from just above 24,000 feet to the midair point just below 22,000. His rate of descent was between 8,000 and 15,000 fpm.

He mighta misread the section leader's position call. He mighta missed seein' lead during a quick "belly check." Or he mighta descended through the section leader's altitude so as to "put" the section leader on or above the horizon - to help find him again.

Plots of the aircraft's altitudes show that the wingman may have crossed 2,000 feet above the leader in the turn and lost him shortly thereafter. He may even have gotten ahead of him, meaning the section leader was at his six o'clock.

Bottom line: A seemingly minor mistake produced a tragedy and a loss of two top-of-the-line flying machines.

We gotta remember: No matter how great one's credentials, it's a wise flier who always assumes that the worst can happen to him if he makes even the slightest mistake up there in the burnin' blue.



Super Tomcat Rolled Out

The Grumman "Iron Works" rolled out the first production F-14D in ceremonies held March 23 at Calverton, N.Y. The new *Super Tomcat*, which features advanced avionics and increased acceleration and maneuverability, is designed to command the skies well into the 21st century.

The first F-14D, BuNo 163412, was delivered on schedule under a contract signed in July 1984. The program is currently funded at 37 production airframes and the remanufacture of six F-14As into F-14Ds. The proposed FY-91 budget requests the remanufacture of 12 more F-14As.

The *Super Tomcat* retains all of the improvements incorporated in the F-14A+, including the General Electric F110-GE-400 engines that produce 54,000 pounds of thrust and greater fuel economy, requiring no afterburners for takeoff.

Avionics have been substantially replaced with new systems, including the Hughes APG-71 radar which offers high-speed digital processing, enhanced overland modes, and improved target detection and tracking in presence of enemy electronic countermeasures. A new infrared search and track set is mounted under the nose of the F-14D.

Other avionics improvements include: digital cockpit displays, digital stores management and inertial navigation, two AYK-14 mission computers, the ALR-67 Radar Warning Receiver, the ALQ-165 Airborne Self Protec-



The first F-14D

Grumman Corporation

tion Jammer, and the Joint Tactical Information Distribution System. Hundreds of miles of wiring have been replaced by a dual 1553b data bus.

Independence to Replace Midway in Japan

Independence (CV-62) is slated to replace *Midway* (CV-41) as the Navy's forward-deployed carrier based in Japan, as announced by Secretary of Defense Dick Cheney on February 23 near the end of his two-week visit to the Far East. The transfer will take place sometime during 1991, with *Midway* returning to the West Coast for possible retirement.

The selection of *Independence* was based on many factors, including her completion of the Service Life Extension Program in August 1987 and the fact that *Midway* is nearing the end of her useful service life. *Independence* will embark a slightly larger air wing and will include F-14s and S-3s that are not part of *Midway's* complement.

Ike Takes S-3B, F-14A+ to Med

Dwight D. Eisenhower (CVN-69) departed Norfolk, Va., March 8 for a routine deployment to the Mediterranean but for the ship and for CVW-7, her embarked air wing, the cruise would be history-making. It was the first major deployment of the S-3B version of Lockheed's *Viking* and the F-14A+ version of the Grumman *Tomcat*.

Although they were preceded in transition to the S-3B by sister squadron VS-30, the *Topcats* of VS-31 have the honor of introducing the improved *Viking* to the Mediterranean. The S-3B, upgraded from the S-3A to include the UYS-1 acoustic processor, the APS-137 inverse synthetic aperture radar, and the AGM-84 *Harpoon* cruise missile, greatly increases the maritime strike and antisubmarine capabilities of a carrier battle group.

VFs 142 and 143 are taking the F-14A+ on its maiden deployment. The main improvement over the F-14A lies in the replacement of the Pratt & Whitney TF-30 engines with General Electric F110 power plants which produce sig-

nificantly more thrust. Other upgrades include a computerized fuel control and improved carrier landing characteristics. The two squadrons are equipped with a mix of production and remanufactured aircraft.

The other squadrons deploying with CVW-7 are VFAs 131 and 136, VA-34, VAW-121, VAQ-140, and HS-5.

A-7s on Last WestPac Cruise

Carl Vinson (CVN-70) departed NAS Alameda, Calif., on February 1 for a routine deployment to the Western Pacific and Indian Ocean with CVW-15 embarked, taking the Vought A-7E *Corsair II* on its last scheduled WestPac deployment.

Squadrons aboard *Vinson* include VFs 51 and 111; VAs 27, 52 and 97; VAW-114; VAQ-134; VS-29; and HS-4. VAs 27 and 97 are making their fourteenth deployment to WestPac with the A-7 since their establishment in 1967. The *Corsair II* first deployed to the region in December 1967 when A-7As of VA-147 launched strikes in Vietnam from *Ranger* (CVA-61).

Upon return from deployment, VAs 27 and 97 will commence transition to the F/A-18

Hornet and be redesignated as strike fighter (VFA) squadrons. As the last operational A-7 attack squadrons on the West Coast, their transition will mark the end of an era at NAS Lemoore, Calif. This will leave only VA-122, the A-7 fleet replacement squadron, in place to provide personnel to the four A-7 attack squadrons remaining on the East Coast - VAs 37, 46, 72 and 105 - all based at NAS Cecil Field, Fla.

Vinson will end the deployment at Alameda but will depart shortly thereafter for a 22-month comprehensive overhaul at Bremerton, Wash.

First SH-2G Delivered to Navy

Kaman Aerospace Corporation formally delivered the first SH-2G version of its *Seasprite* LAMPS MK I helicopter to the Navy in ceremonies held March 21 at its facility in Bloomfield, Conn. The helicopter, BuNo 161653, was modified from a production SH-2F airframe and served as the developmental prototype for the SH-2G program, making its first flight on December 28, 1989.

The SH-2G incorporates a new power plant, two General Electric T700 gas turbine en-



The first flight of the new Kaman SH-2G *Seasprite* was conducted December 28, 1989, at the company's Bloomfield, Conn., flight test facility.

gines, a new tactical display, an onboard acoustic signal processing capability, an integrated infrared sensor system, and infrared countermeasures. Kaman is on contract to deliver six new SH-2Gs to the Navy, plus kits to upgrade older SH-2F versions to the SH-2G.

The SH-2G is scheduled for simultaneous introduction into the active Navy and the Naval Reserve. Four SH-2F squadrons are presently slated to be reequipped with the SH-2G: HSL-33 at NAS North Island, Calif., and reserve units HSLs 74, 84, and 94.

Constellation Rounds Horn for SLEP

Constellation (CV-64) departed its home port of San Diego, Calif., on February 12 for an eight-week, 14,000-mile transit around South America to Philadelphia Naval Shipyard, where she will undergo a 29-month Service Life



VA-27's current cruise with CVW-15 aboard *Carl Vinson* (CVN-70) marks the last WestPac deployment of the A-7E.

Extension Program (SLEP) refit. The SLEP is scheduled to commence July 1, after her sister ship, *Kitty Hawk* (CV-63), completes her SLEP.

A mixed air wing composed of CVW-9 squadrons and reserve units embarked aboard *Constellation* for the cruise, which took the ship to some South American ports.

The purpose of a SLEP is to extend the service life of a ship by 15 years, giving a carrier a life of 45 or more years. *Constellation's* SLEP, costing approximately \$750 million, will include improvements to the engineering plant and combat systems, habitability upgrades, hull work, and overhaul of catapults and arresting gear.

Constellation will be the fifth carrier to undergo SLEP at Philadelphia, following *Saratoga* (CV-60), *Forrestal* (CV-59), *Independence* (CV-62), and *Kitty Hawk*. *Kitty Hawk* is scheduled to join the Atlantic Fleet with home port at Pensacola, Fla.; *Constellation* is slated to rejoin the Pacific Fleet following SLEP.

HSL-49 Established

The *Scorpions* of HSL-49 were formally established in ceremonies on March 23 at NAS North Island, Calif., becoming the fourth deploying SH-60B LAMPS MK III squadron in the Pacific Fleet and the eighth in the Navy.

The new unit received its first SH-60B *Seahawk* on February 25, while still in the process of forming. The *Scorpions'* aircraft will display the tail code "TX." Cdr. Larry E. Larson is the first commanding officer of HSL-49.



HCS-4's first HH-60H strike rescue helicopter arrives at NAS Norfolk, Va., in January 1990 for its February 3 formal acceptance ceremony.

Enterprise Ends WestPac Cruise at Norfolk for Recore

Enterprise (CVN-65) completed a routine deployment to the Western Pacific and Indian Ocean on March 16, but ended the cruise at Norfolk, Va., rather than at her home port of Alameda, Calif. At nearby Newport News she will undergo a comprehensive overhaul that will last two years and will include a recore of her nuclear reactors.

CVW-11 was embarked for the deployment, including squadrons VFs 114 and 213; VAs 22, 94 and 95; VAW-117; VAQ-135; VS-21; and HS-6. For VAs 22 and 94, it was their last cruise with the Vought A-7E *Corsair II* attack aircraft; they will commence transition to the F/A-18C *Hornet* and be redesignated strike fighter (VFA) squadrons. HS-6 will give up its SH-3Hs for new SH-60F *Seahawks*.

Lincoln Slated for Alameda

NAS Alameda, Calif., has been selected to be the home port of the Navy's newest *Nimitz*-class aircraft carrier,

Abraham Lincoln (CVN-72), as announced by Secretary of the Navy Lawrence Garrett III.

Abraham Lincoln, commissioned November 11, 1989, at Norfolk, Va., will transfer to the Pacific Fleet during Fall 1990. CVW-11, last aboard *Enterprise*, will be the first air wing assigned to the new carrier.

P-3B Training Phased Out

VP-31, the West Coast P-3 fleet replacement squadron at NAS Moffett Field, Calif., closed down its P-3B TAC-NAVMOD training syllabus last December, ending almost 25 years of training personnel to fly and maintain the "Bravo" series of the P-3.

The last VP-31 P-3B syllabus sortie launched on December 13, 1989, as P-3B BuNo 154600 (side number RP-22) flew with Lt. G. L. Cadaing at the controls and Lt. M. W. Martin coordinating the mission. The following day, Fleet Aviation Specialized Operational Training Group, Detachment Moffett

Field conducted the last training session in the 2F69E tactical simulator. The 2F69E will eventually serve in the Naval Air Reserve to train reserve P-3B crews.

The phaseout of P-3B training occurred as the last two fleet "Bravo" squadrons were slated for transition to the Update II.5 version of the P-3C. VPs 6 and 22, both based at NAS Barbers Point, Hawaii, will have completed transition by the end of 1990.

Corps Sends Its Last A-4M to Reserve

An era ended on February 27 as VMA-211 at MCAS Yuma, Ariz., transferred out its last A-4M *Skyhawk*, marking the end of active service in the Marine Corps as an attack aircraft for the venerable "Scooter." Like many other A-4Ms, BuNo 158428 was transferred to the Marine Corps Reserve, in this case to Marine Air Group 42 at NAS Alameda, Calif.

VMA-211 has flown various versions of the A-4 since September 1957, and made four deployments to South Vietnam during the conflict there. The "Wake Island Avengers" are now transitioning to the night-attack AV-8B *Harrier II*.

The A-4M version first entered service in 1971 and will continue to render many more years of service in Marine Corps Reserve attack squadrons and in the Navy as an adversary aircraft.

HC-8 Helps Old Ironsides

Although Hurricane Hugo wreaked havoc on much of the South Carolina coast, it provided an opportunity for USS *Constitution*, "Old Ironsides," to obtain fallen timbers

for its upcoming overhaul. An HC-8 helicopter helped out by turning a ground search of weeks or months into a two-hour flight.

Constitution, the oldest commissioned ship in the Navy and a popular tourist attraction in Boston, Mass., is scheduled for an overhaul in 1992 in preparation for her 1997 bicentennial; acquisition of live oak is essential for this overhaul. After Francis Marion National Forest near Charleston, S.C., was devastated by the hurricane, a search was organized to locate timbers that could be used for the overhaul.

HC-8, based at NAS Norfolk, Va., provided a CH-46D and crew to fly the search team over the forest north of Charleston, scouting out fallen timbers and saving the effort incalculable time and funds.

The CH-46D used in the search was piloted by HC-8's skipper, Cdr. James P. Butler, with Ltjg. Timothy Green as copilot, and AMS2s Donald Livingston and Russell Deryn as crewmen.

Night Attack Weapons Systems Trainer

The newest advancement in aerial combat capability arrived at MCAS Yuma, Ariz., in January. The AV-8B Night Attack Weapons Systems Trainer (NAWST) was designed to train Marine Corps pilots transitioning to the night-attack version of the AV-8B *Harrier II*. The NAWST allows pilots to perform an entire night-attack mission, including engine start-ups, field or carrier takeoffs and landings, air-to-air and air-to-ground weapons deliveries, threat avoidance, and tactical navigation.

During a night attack, the

pilot must wear night vision goggles (NVGs). To compensate for limited peripheral vision while using the goggles, the trainer forces the pilot to turn his head left or right to visualize a target or enemy. A head tracker device is set up above the cockpit in the sphere-shaped simulator and a sensor is positioned on top of the pilot's helmet to follow every head movement. The eye on the tracker projects an image on the simulator screen everywhere the pilot looks. Due to the sensitivity of the NVGs when viewing bright lights, the lights of the instrument panel in both the aircraft and trainer have been changed to a softer green to allow the pilot to view the panel through the NVGs without blinding reflections.

While controlling flight simulation, the instructor can also change the day and night simulated lighting, weather, malfunctions, and threats, as well as score the pilot's weapons deliveries.



Cpl. D. Scott Fuller

The NAWST head tracker, positioned above the pilot's head, combines with night vision goggles to simulate night flight.

USS Coral Sea

"The Ageless Warrior"

By Robert J. Cressman

USS Coral Sea's decommissioning in Norfolk, Va., on April 30, 1990, followed the carrier's nearly 43 years of service to the United States. The Naval Historical Center's Robert Cressman summarizes here the illustrious history of the "The Ageless Warrior."

A ship, like a person, has life. Those who serve in her know it, and the names of great ships are found throughout the history of the United States Navy. The names of great battles bring to mind deeds of heroism and valor. One such name is Coral Sea – the first battle where neither side's fleet fired a shot against the other. The issue was decided solely by aerial antagonists.

In 1945, to commemorate the three battles then regarded as turning points





Straight-decked Coral Sea as she looked in 1947 shortly after commissioning, complete with 14 5-inch guns.

in the Pacific war, the names *Coral Sea*, *Midway*, and *Leyte Gulf* were chosen for the three projected large carriers (CVB). *Midway* was chosen for CVB-41. *Coral Sea* had originally been assigned to CVB-42, but the death of President Roosevelt in April 1945 resulted in the name being reassigned to CVB-43. *Franklin D. Roosevelt* became CVB-42. An escort carrier had originally borne the name *Coral Sea*. To clear the name for the CVB, CVE-57 was renamed *Anzio* and served with distinction for the rest of the war.

Laid down on July 10, 1944, at Newport News Shipbuilding and Drydock Co., Va., the second *Coral Sea* (so named in May 1945) was launched on April 2, 1946. She was christened by Mrs. Thomas C. Kincaid, wife of Rear Admiral Thomas Kincaid, who had commanded a cruiser division under Rear Admiral Frank Jack Fletcher in the Battle of the Coral Sea in May 1942. *Coral Sea* was commissioned CVB-43 on October 1, 1947, Captain Aaron P. Storrs III in command.

Coral Sea departed Norfolk on May 3, 1949, for her maiden deployment with the Sixth Fleet. Over the next

seven and a half years, *Coral Sea* (reclassified as attack carrier CVA-43 effective October 1, 1952) was homeported at Norfolk, Va. The carrier deployed to the Mediterranean eight times, interspersing those cruises with operations in locales ranging from the Virginia Capes to Mayport, Fla., and into Cuban and West Indian waters. Highlighting her deployments to the Med during those years were Yugoslavian head-of-state Marshall Josip Tito's three-hour cruise in 1952 and her powerful, reassuring presence off the coast of Egypt as the Sixth Fleet evacuated and protected Americans during the Suez Crisis in Fall 1956.

On February 26, 1957, *Coral Sea* departed Norfolk for Bremerton, Wash.; decommissioned there on April 24, the ship underwent a 33-month reconstruction. Her appearance was completely transformed with a spacious angled deck, three new deck-edge elevators, and a hurricane bow. New weapons elevators, improved arresting gear, and three improved steam catapults were also added, as well as hull blisters that widened her beam by eight feet. Recommissioned on January 25, 1960, she reported to the Pacific Fleet for duty after arrival at her new home port of Alameda, Calif., on April 1.

Over the next four years, *Coral Sea* conducted three peacetime

deployments to the Western Pacific to operate with the Seventh Fleet, commencing the first with her departure from San Francisco, Calif., on September 19, 1960. She was the first carrier to deploy after President Dwight D. Eisenhower's decision to keep three attack carriers on the line in the Seventh Fleet at all times. *Coral Sea* "showed the flag" in the Far East and stood ready to support American foreign policy in that area of the globe.

During her fourth WestPac deployment, the ship became actively involved in combat, initially in the wake of Communist guerrilla attacks on American air bases in South Vietnam. Before that eventful fourth WestPac deployment ended, *Coral Sea* logged over 10,000 combat sorties. Also during that time she was awarded the first (of what would be six during her career) Admiral Flatley Memorial Awards for aviation safety for FY 65, part of which covered the ship's operations on Yankee Station from February through June.

Coral Sea, the last ship to carry an attack squadron of piston-engined A-1 "Spads" into combat, ultimately conducted five more deployments on Yankee Station over the next six years with Carrier Air Wings (CVW) 2 and 15, earning four Navy unit commendations. During her total Vietnam war service, her aircraft downed six North Vietnamese MiG jet fighters in air-to-air combat. In the course of her operations against enemy positions in North and South Vietnam, *Coral Sea* lost 69 planes and 59 pilots and flight officers in combat. (Twenty-five eventually emerged from North Vietnamese prisoner-of-war camps.)

During 1967, tragedy struck the ship on October 25 when a Zuni rocket ignited during a routine test in the forward assembly area; nine sailors – three in critical condition – suffered burns. Fortunately, *Coral Sea*'s men promptly extinguished the blaze and removed their injured shipmates to sick bay for treatment, and the ship remained fully operational, launching strikes as scheduled the following morning. Soon thereafter, on November 7, *Coral Sea* extended a helping

Coral Sea in her final form, more powerful than ever.

hand to mariners in need when she rescued all 37 men from the Liberian flag freighter *Loyal Fortunes* at Pratas Reef, 170 miles southeast of Hong Kong, China.

In between combat deployments, from July 1, 1970, to June 1, 1971, *Coral Sea* underwent a \$44,000,000-dollar overhaul at Hunters Point, Calif., which improved shipboard habitability and saw the installation of a Navy Tactical Data System, elevator improvements, and other repairs. The ship returned to Alameda upon conclusion of the overhaul.

Following a period of flight operations off the California coast, and final preparations for sea, *Coral Sea* deployed to WestPac on November 12, 1971, for her last Vietnam combat deployment. Her air wing, CVW-15, initiated the mining campaign against Haiphong Harbor in May 1972 in response to the North Vietnamese spring offensive in South Vietnam.

She concluded her combat operations on June 30, 1972, to accolades from Rear Admiral James Ferris, Commander, Carrier Division Three: "It was more than just a ship," he declared, "but a spirit of the men on *Coral Sea* that fought the war on the line at Yankee Station. Your remarkable ability to get the job done with a ship launched in 1946 and a wing equipped with aircraft slightly older than the average has been an object lesson in what determination can produce. Your determined and innovative tactics in the air have led the way for many and have dealt the enemy many heavy blows." During her last deployment, *Coral Sea* had spent 147 days on the line at Yankee Station.

Peace in Vietnam brought changes



Coral Sea introduced the F/A-18 fighter into combat during operations against Libya in 1986.

PHAN Seaman

in the carrier's routine, and she sailed for her next WestPac cruise – the first carrier to deploy after the negotiation of the Vietnam cease fire agreement of January 27, 1973 – nearly a month later than scheduled. She conducted one period of operations on Yankee Station, returned to the Philippines, and went back to the Gulf of Tonkin to support the clearance of mines from North Vietnamese waterways. "Showing the flag" on Yankee Station became the ship's primary duty and more in-port periods for upkeep became the norm, interspersing these with port visits to Sasebo, Japan; Hong Kong; and Manila, R.P. She ultimately returned home to Alameda, winding up her first post-Vietnam war WestPac deployment on November 8, 1973.

Over the next year, *Coral Sea* carried out a schedule of carquals and restricted availability, intermixed with the maintenance items that had become a driving force in her routine. It was a difficult task to attempt to undo the wear and tear of extended cruises and short turnarounds that had been so common over the previous decade.

While the Vietnam war may have been over, the aftershocks of that conflict continued to be felt. With the collapse of Cambodia early in the spring of 1975, *Coral Sea* operated in standby status during the evacuation of the Cambodian capital of Phnom Penh on April 12, 1975, in Operation Eagle Pull. Over the following two weeks, the carrier cruised off the Vietnamese coast as North Vietnamese forces inexorably overran the south; as that country collapsed, Operation Frequent Wind, the evacuation of Saigon, proceeded during April 29 and 30, 1975. Her aircraft covered the helo lift of the last Americans to leave Saigon as the Communists overran the city.

Coral Sea seemed destined for no rest during an ostensibly peacetime deployment, as she was en route to Perth, Australia, from Singapore when word reached her of the capture of SS *Mayaguez* by Cambodians on May 13. Steaming to the Gulf of Thailand, *Coral Sea's* CVW-15 flew 63 combat sorties on the 15th against Koh Tang Island and the Cambodian mainland in support of *Mayaguez's* recovery. Marines wounded in the action were flown to the carrier for medical attention and transfer back to Subic Bay.

The ship remained in the Gulf of Thailand through May 18, calling at Subic Bay and eventually proceeding to Perth, where she was bound when *Mayaguez* was seized, becoming the first American carrier to visit that port. *Coral Sea* returned to Alameda on July 2, 1975, having been reclassified CV-43 on June 30.

Entering Long Beach Naval Shipyard in California on August 6, 1975, *Coral Sea* underwent a seven-month comprehensive repair period. Extensive underwater body, machinery, and boiler work was performed, while improvements were made in habitability.

Following a WestPac deployment (February-October 1977) *Coral Sea* carried out local operations of the California coast into February 1978 and conducted carquals for West Coast Replacement and Basic Training Command squadrons, while the Navy's training carrier, *Lexington* (AVT-16), was undergoing a restricted availability. Subsequently, *Coral Sea's* home port was changed to Bremerton, effective March 8. Over the next 11 months, the carrier underwent an \$80,000,000 overhaul, during which the last of her 5-inch battery and all gun directors were removed. Returning to Alameda on February 9, 1979, *Coral Sea* conducted an intensive workup cycle, enabling her to sail for WestPac on November 13.

International events influenced *Coral Sea's* schedule during that deployment. As she made an accelerated transit to Korean waters following the assassination of South Korean President Park, the ship visited Pusan between December 10 and 12. At about the same time, the taking of American hostages in Tehran in the aftermath of the Iranian revolution prompted a crisis that found *Coral Sea* – after she had visited Pattaya, Thailand, and Singapore, en route – entering the Indian Ocean as *Midway's* relief.

What proved to be a 102-day, at-sea period culminated in the April 25, 1980, abortive attempt – flown from *Nimitz* (CVN-69) – to rescue the American hostages. The aircraft of *Coral Sea's* air wing, now CVW-14, were to provide cover and strike operations in support of the aircraft on the ground and in their exit from Iranian airspace. After the mission ended in



Coral Sea sends an A-4C from VA-153 on its way to targets in Vietnam in 1965.

disaster, *Coral Sea* began her transit out of the Indian Ocean on April 27, steaming via Korean waters, and ultimately returned to Alameda on June 10.

Commencing a restricted availability period in July, *Coral Sea* underwent repairs to restore the ship to first-rate operating condition in all systems. The Navy recognized her value as a deployable carrier asset for some time to come. During that period, the ship was equipped with three Vulcan-Phalanx close-in weapons system mounts; one-third of her crew's modular bunks was renewed, and she underwent extensive machinery repairs.

After a period of operations in Hawaiian waters, *Coral Sea* sailed once again for WestPac operating areas on August 20, 1981. She worked in the South China Sea and eventually relieved *America* (CV-66) on station in the Indian Ocean on October 18. She operated with Royal Navy units in "GonzoEx 2-81" and "Bright Star 82," an exercise involving the defense of Egypt and the vital Suez Canal. Relieved on December 17, 1981, by *Constellation* (CV-64) on station, *Coral Sea* returned to the Far East, visiting a succession of familiar ports, and operated in the Sea of Japan before returning home to Alameda on March 23, 1982. During a subsequent cycle of local operations in late July 1982, *Coral Sea* served as a movie "prop" in filming portions of the motion picture *The Right Stuff*.

Departing San Francisco on March 21, 1983, *Coral Sea* – assigned a new home port of Norfolk – sailed the long way around for the east coast of the United States, ultimately reaching Naval Operating Base, Norfolk on September 12. En route, she and CVW-14 participated in battle group exercises

in the Aleutians, power projection training over Korea and Okinawa, supported landing exercises in the Philippines, conducted air defense exercises over Singapore, operated in the Arabian Sea, "showed the flag" between Lebanon and Libya with the Sixth Fleet, paid port calls on Naples and Cannes, and ended the momentous world cruise showing "presence" off the coasts of South and Central America.

Shifting to the Norfolk Naval Shipyard in September 1983, she underwent repairs and alterations there that lasted into the following spring. Resuming normal operations the following summer, *Coral Sea* embarked a Naval Air Test Center detachment with F/A-18, A-6E, A-7E, F-14A and T-2C aircraft to complete shipboard testing of the ship's three catapults, four arresting gear, and automatic carrier landing system.

Coral Sea and her new air wing, CVW-13, sailed for the Med and operations with the Sixth Fleet on October 2, 1985. As 1986 began, worsening relations with Libya led to tension between the United States and that North African nation. Operations near Libya, in which *Coral Sea* participated, began at the end of January. Those evolutions, collectively named "Attain Document," took place in January and February. In late March, those tensions between the United States and Libya exploded into hostilities, with Libyan missiles being fired at American planes and American planes attacking Libyan naval vessels.

In the wake of Libyan retaliation for the engagements in the Gulf of Sidra, and with the failure of repeated U.S. efforts to persuade the Libyan leader to forsake terrorism as an instrument of policy, an attempt failed to persuade other western nations to peacefully iso-

late Libya. In Operation Eldorado Canyon that followed, on April 14, 1986, *Coral Sea* launched her strike/strike support aircraft, eight A-6Es from VA-55 and six F/A-18As, between 1750 and 1820. *America* also provided an attack group of her own while both carriers launched other aircraft to support the strike, to provide a combat air patrol, and other functions. The F/A-18As from *Coral Sea* and A-7Es from *America* launched air-to-surface Shrike and high-speed anti-radiation missiles against Libyan surface-to-air missile sites at Benghazi and Tripoli. Although Libyan planes were in the air daily, they did not venture out into the airspace above the Gulf of Sidra.

Coral Sea sailed for home on May 9, 1986, relieved by *Enterprise* (CVN-65), and arrived on May 19. Following an in-port period and Naval Reserve active duty training, sea trials and carquals off the Virginia Capes, *Coral Sea* entered Norfolk Naval Shipyard in July, remaining there until December.

Coral Sea, by now nicknamed "The Ageless Warrior," deployed to the Mediterranean twice more in the twilight of her career, the first time from October 11, 1987, to March 29, 1988, and the last between May 31 and September 30, 1989. During the latter, she steamed off strife-torn Lebanon in August 1989, "on station and ready to implement national policy...." The evacuation of the American embassy, accomplished on short notice, proved "a last superlative footnote" to The Ageless Warrior's chronicle of operations in that historic sea.

With *Coral Sea's* decommissioning, one more link with the WW II Navy passes from the scene. Even before her commissioning pennant is hauled down comes the movement to reassign the name to a future aircraft carrier, so that it can continue to provide inspiration to the men who take the ship to sea. No doubt such an assignment would prove not only appropriate but popular. Looking back over *Coral Sea's* proud history, one must echo RAdm. Ferris' comments in the summer of 1972. While meant to pertain to the recent deployment on Yankee Station that she had just completed, they could also sum up her career as well, *Coral Sea*: "...more than just a ship...." ■

In December 1988, a detachment from the Naval Air Test Center (NATC), Patuxent River, Md., conducted a flight test program matching up a Spanish aircraft carrier, *Principe de Asturias*, and the U.S. Marine Corps AV-8B *Harrier II* vertical/short takeoff and landing attack aircraft. The flight test results were nothing short of amazing. Takeoff performance of the AV-8 was dramatically improved, as well as safety and the potential for true *Harrier*/helicopter interoperability. All of this was realized from a single device with no moving parts – the ski jump.

For shipboard takeoffs, the AV-8 does not use a catapult like other conventional aircraft. The AV-8 pilot simply aligns the aircraft with the short takeoff line on the flight deck. On the launch officer's signal, he slams full power and accelerates. When he reaches the bow, the pilot rotates his four engine exhaust nozzles downward. The combination of engine lift from the nozzles and wing lift allows the aircraft to fly. The amount of deck run is determined for each takeoff and varies primarily as a function of aircraft gross weight, wind over

deck, and ambient temperature. The most limiting factor in *Harrier* takeoff gross weight capability is the deck run available. It is currently limited in U.S. amphibious ships to 750 feet on the *Tarawa*-class amphibious assault ship (LHA) and approximately 800 feet on the new *Wasp*-class multipurpose amphibious assault ship (LHD).

What makes this Spanish carrier so different from any U.S. ship is the addition of an upwardly curving surface on the ship's bow, called a "ski jump." Based on an original U.S. design for sea control that was never constructed, *Asturias* was built in Spain and delivered to the Spanish navy in May 1988. In December of that year, the United States was given the unique opportunity to perform, for the first time, a complete shipboard flight test program using instrumented AV-8Bs on an operational ski jump up to the gross weight limits of the AV-8B.

Ski jump operations are not entirely new. Since the mid-1970s, the British have routinely employed ski jumps on their *Harrier* carriers, but they fly the *Sea Harrier*, which is a variant limited to roughly 25,000 pounds gross weight. NATC also performed a brief

Harrier on a

flight test evaluation of the YAV-8B on a land-based ski jump in the late seventies, but a land-based ski jump is limited to the ambient winds (low wind over deck) and the YAV-8B was basically an AV-8A with an AV-8B wing and was still limited to 23,000 pounds gross weight. These operations were far too limited in maximum gross weight and wind over the deck, which are where the real advantages of the ski jump become apparent.

For years, it was thought that the performance improvements in the AV-8B were so substantial over the AV-8A that a ski jump was unnecessary. It's true that the AV-8B clearly outperforms the -A, but the aerodynamic improvements that make the AV-8B superior also make it ideally suited for ski jump operations: excellent slow-speed



Operations Ski Jump

By Major Art Nalls, USMC

handling qualities, rapid acceleration, and improved vertical/short takeoff and landing capability. The important difference between a ski jump and a flat deck is that the heavier the aircraft, and the higher the wind over the deck, the greater the advantage of using a ski jump.

The aircraft takeoff performance was so dramatically improved that the heaviest *Harrier* ever flown from any ship – 31,000 pounds gross weight – was launched from *Asturias* with only a 400-foot deck run. The 31,000 pounds equals the maximum gross weight capability of the AV-8B. To put this in perspective, a "typical" AV-8B with a close air support ordnance load

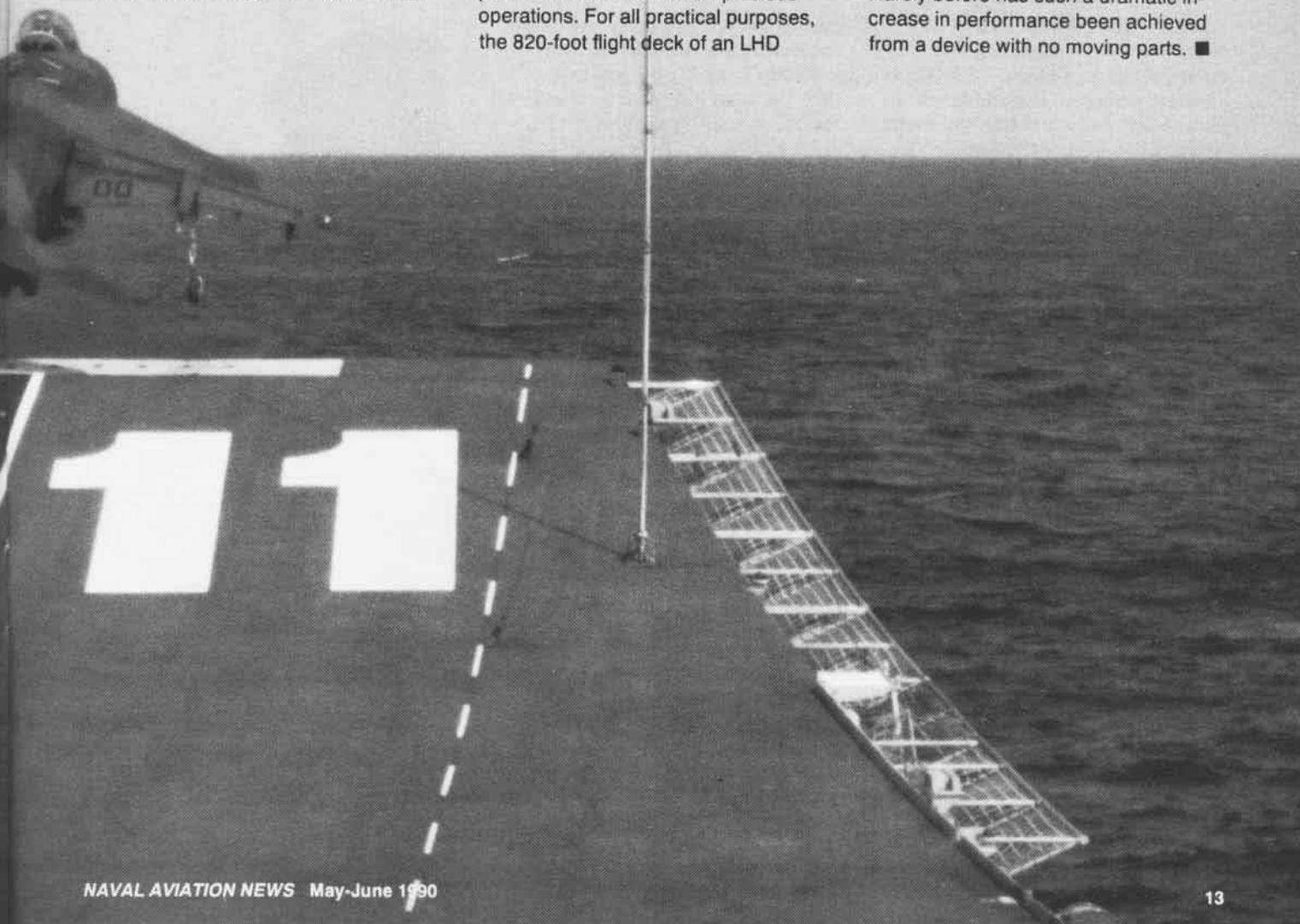
of full fuel, full water, guns, and 12 MK-82 bombs would weigh only about 29,000 pounds. On a typical 59-degree Fahrenheit day, with 35-knot winds over the deck, this load could be launched from a 300-foot deck run with a 12-degree ski jump. The same ordnance load would require the entire 750-foot flight deck of an LHA.

Any flight deck in front of a *Harrier* is unusable for any other flight ops until the AV-8 is airborne. On the other hand, any flight deck behind the *Harrier* can still be used for concurrent helo/MV-22 *Osprey* operations. If the deck run can be shortened from 750 to 300 feet, a valuable 450 feet for concurrent flight ops is acquired – an important consideration in amphibious operations. For all practical purposes, the 820-foot flight deck of an LHD

could be utilized like two completely separate ships – the front 400 feet for *Harrier* launches and recoveries, and the back for completely separate and concurrent helo/MV-22 ops.

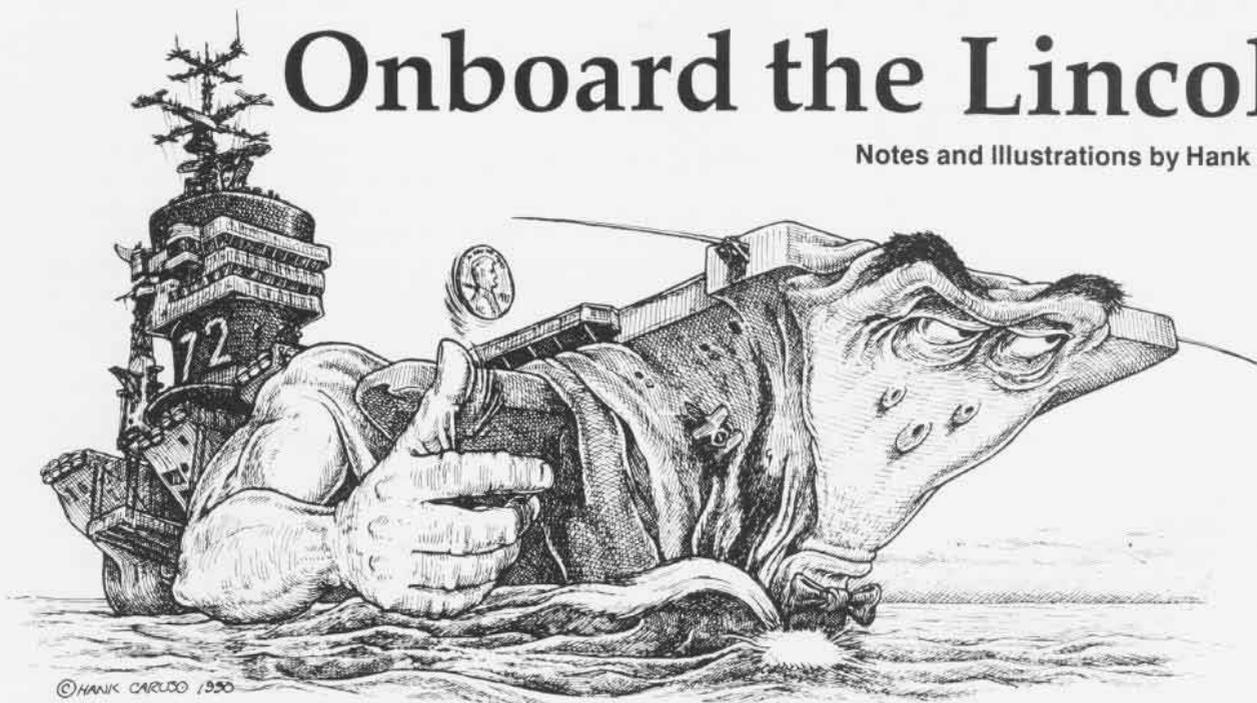
Another important aspect of ski jump operations is the inherent safety over a flat deck launch, after which the aircraft is only 60 feet (height of the flight deck) above the water for the accelerating transition to airborne. With a ski jump, the *Harrier* ALWAYS has a positive rate of climb due to the incline of the ramp. The accelerating transition begins at approximately 150 to 200 feet, vice 60 feet. This altitude cushion is a considerable increase in safety should the pilot encounter any emergency.

This NATC flight test program served to highlight the significant performance improvements in takeoff capability and safety that could be realized by the addition of a ski jump to our existing amphibious ships for the AV-8B. In fact, every navy in the world that operates *Harrier* carriers uses ski jumps, except one: the United States. Rarely before has such a dramatic increase in performance been achieved from a device with no moving parts. ■



Onboard the Lincoln

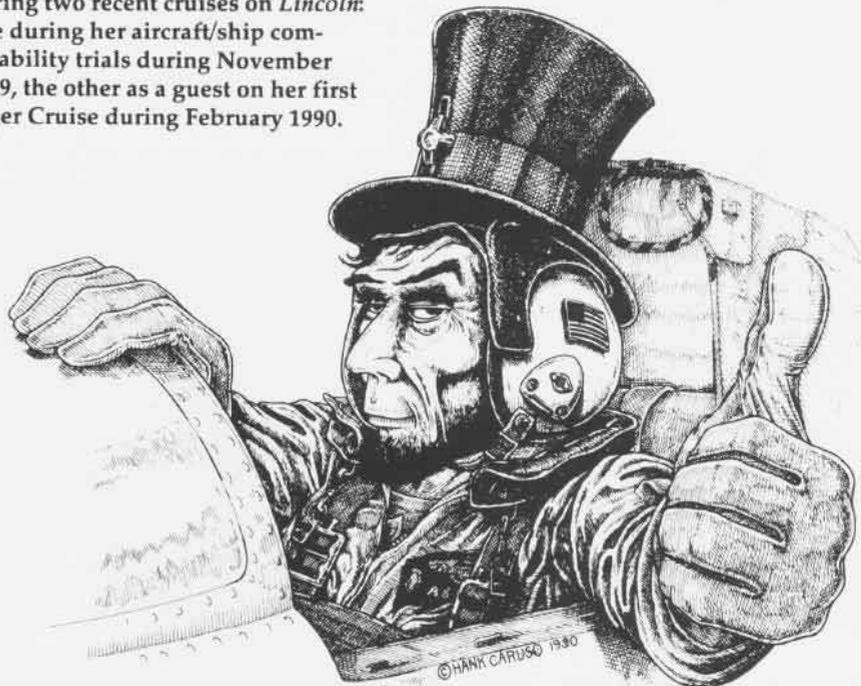
Notes and Illustrations by Hank Caruso



It's not that the officers and crew of the Navy's newest nuclear aircraft carrier, *Abraham Lincoln* (CVN-72), are more dedicated or professional than on any other carrier in the fleet. Nothing I've experienced would suggest that. It's just that they have the incredibly good fortune to be associated with one of the most powerful images in American history. The character of Abe Lincoln still represents the essence of what it is to be an American. His Lincoln-head penny silhouette is one of the most readily recognized profiles of anyone from this country's past. It seems that everywhere on the ship there is some visual reminder of its namesake, from the 1972 Lincoln-head pennies on the crew's name tags to his profile proudly displayed on bulkheads and equipment. It's impossible to be onboard *Lincoln* and not associate the ship with the man.

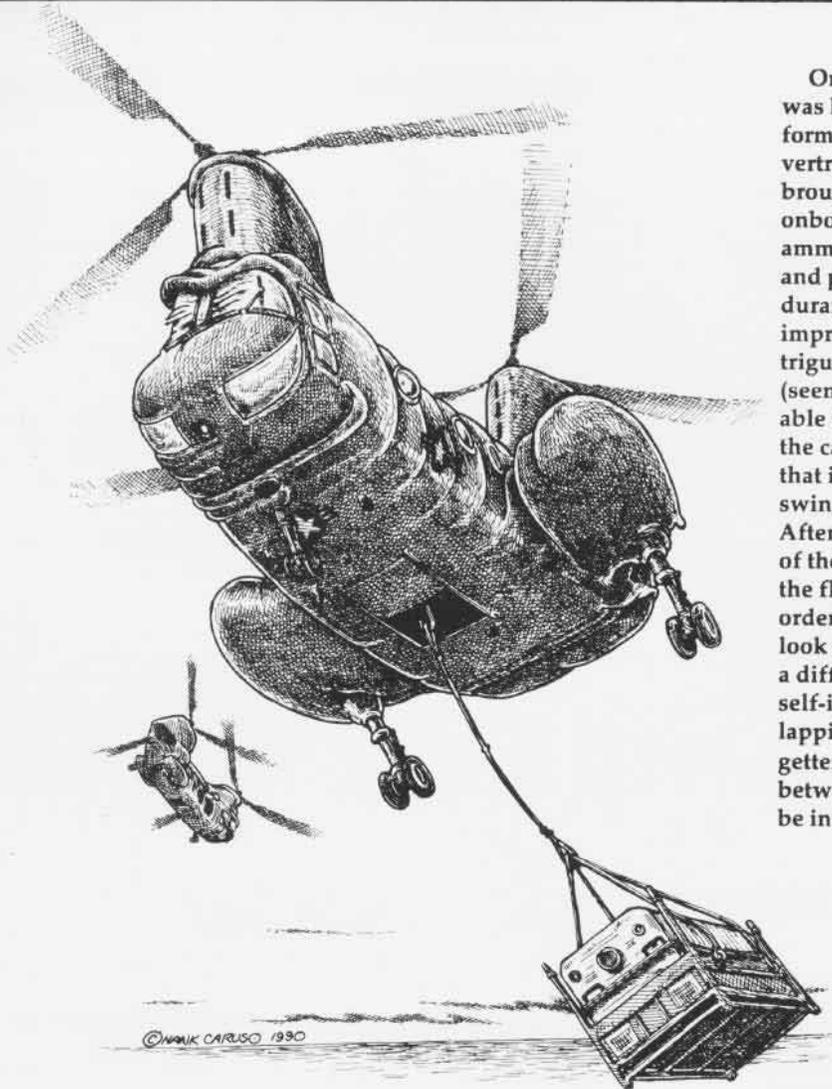
The illustrations on these two pages reflect some of my reactions

during two recent cruises on *Lincoln*: one during her aircraft/ship compatibility trials during November 1989, the other as a guest on her first Tiger Cruise during February 1990.



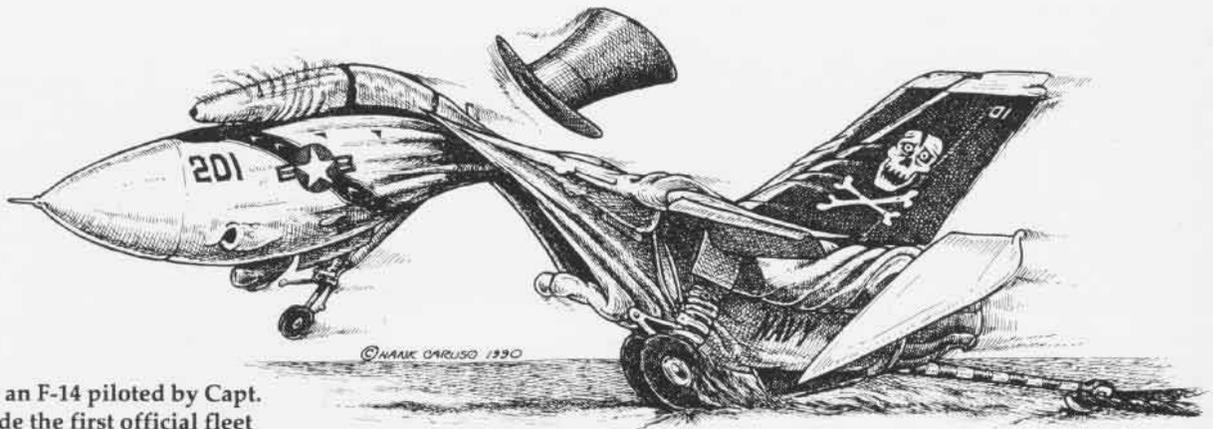
As commanding officer of *Lincoln*, Captain William Hayden has the rare privilege of bringing one of the largest and most powerful ships in the world to life. He is certainly the ship's most energetic promoter of the Lincoln image and takes every oppor-

tunity to step into character. Seeing Capt. Hayden in full flight gear and stovepipe hat following his successful trap seemed both incongruous and perfectly natural at the same time.



One of the real surprises for me was how fascinated I was by the performance of the CH-46s during the vertrep [vertical replenishment] that brought the first load of munitions onboard *Lincoln* and the subsequent ammunition offload. The efficiency and precision (not to mention the endurance) of the "Frog" drivers were impressive. I was particularly intrigued with how precisely and (seemingly) effortlessly they were able to time the pendulum swing of the cargo at the end of the sling so that it would reach the bottom of its swing just as it touched the deck. After flying back to shore aboard one of these helos, my appreciation for the flying skills involved grew by an order of magnitude. The Frog may look stable from the outside, but it's a different picture on the inside. The self-inflicted buffeting from the overlapping twin rotors is a real attention getter, and the continual competition between rotors to see which one will be in front is decidedly unsettling.

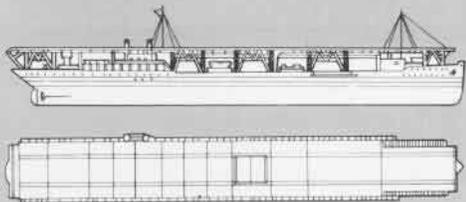
Acknowledgments: My special thanks to Capt. William Hayden for sharing the privilege of being onboard *Lincoln*; to LCdr. Kent Rominger and Lt. Rob Fisher from NAS Patuxent River, Md., Carrier Suitability for helping make my first cruise possible; and to LCdr. Terry Shoemaker, USS *Abraham Lincoln*, for his hospitality and infinite supply of information.



Fittingly, an F-14 piloted by Capt. Hayden made the first official fleet landing onboard *Lincoln*. The OK-3 trap received reverent nods of approval from the landing signal officers waving the aircraft aboard. I'm afraid that I probably could not appreciate the emotional impact of the moment with the same intensity that

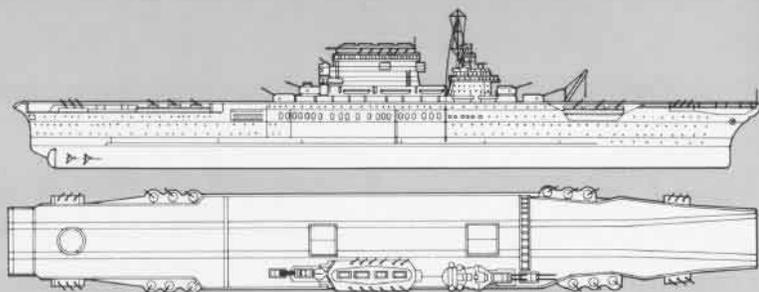
the crew obviously did. All I could think back to was my recent cat shot and trap at NAS Patuxent River, Md., and how the airplane must be reacting to those intense forces and disorienting sensations.

All illustrations copyrighted by Hank Caruso



Langley (1922)

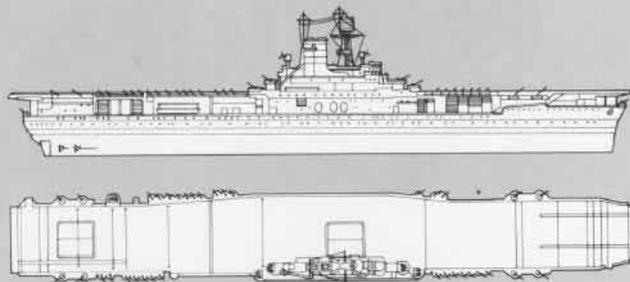
America's first carrier, and among the first in the world with a full-length flight deck. Converted from a collier, she had two retractable funnels, a forward-mounted bridge, and used cranes to hoist planes from four holds below.



Lexington (1927)

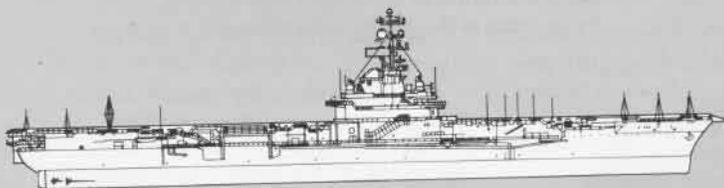
Converted from battlecruisers to conform to post-World War I arms limitation treaties, she and her sister ship, *Saratoga*, were the largest carriers of their time. Although less stable than a ship based on a purpose-built carrier hull would be, they offered excellent speed and a large rectangular flight deck. Experience gained from them contributed significantly to later carrier design and flight operations.

EVOLUTION OF THE SUPERCARRIER



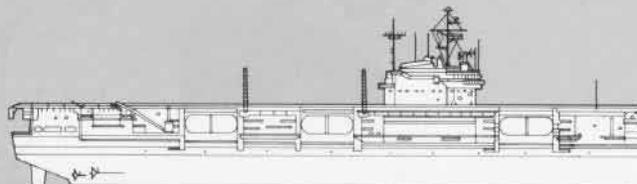
Wasp (1940)

Similar in many ways to the *Yorktown* class, but closer in size to the *Ranger*, the *Wasp* was first to use a rudimentary deck-edge elevator, which in an improved form became a standard design feature on later carriers.



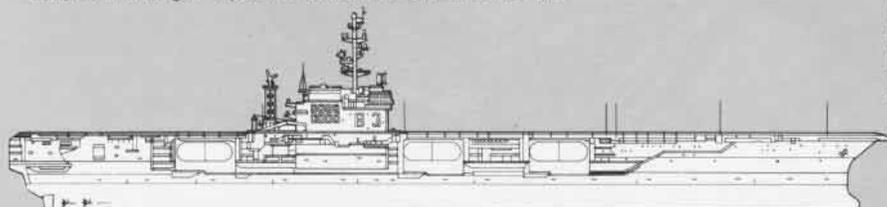
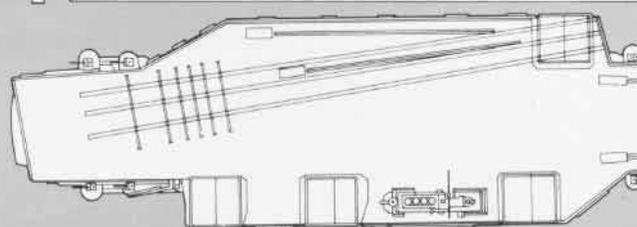
SCB 27A/SCB 27C (1950/1954)

Based on lessons learned from the *Antietam* prototype, these two modifications to the *Essex* class produced the first sustained run of angled-deck carriers. The 27C modification added steam catapults, producing attack carriers. The earlier 27A modification left the old hydraulic catapults, resulting in ships better suited to antisubmarine warfare.



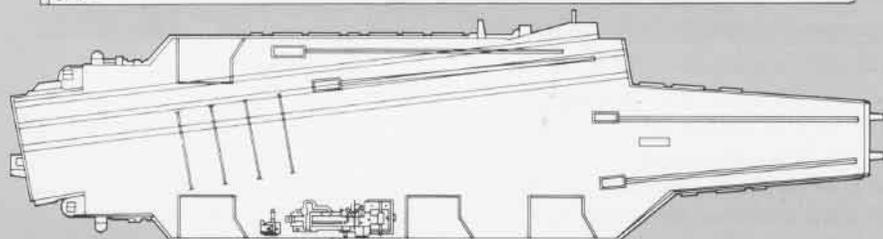
Forrestal (1955)

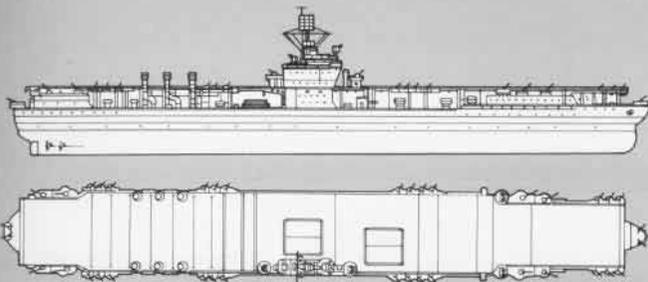
The first carrier designed and built after the war, and the first intended from the outset to launch jet aircraft. Known as the first of the supercarriers, she and her three sister ships each displaced 75,900 tons, could carry 100 aircraft, had four steam catapults, traveled at 33 knots, and were overall a major advance over previous designs.



Kitty Hawk (1961)

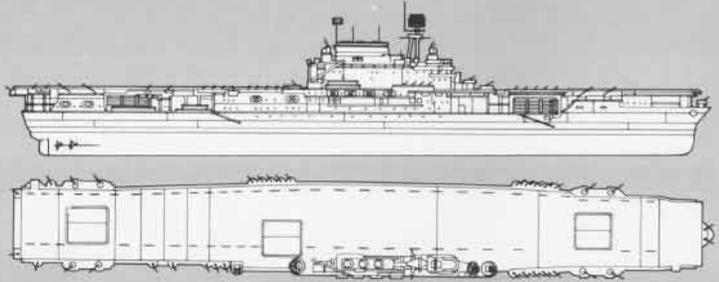
Made up of four vessels, this was the last class of conventionally powered attack carriers built by the U.S. Similar to the *Forrestal*, they were distinguished by a more efficient arrangement of elevators. By moving the island aft, room was made for two starboard elevators positioned to serve the two bow catapults. The port-side elevator was moved back, nearer the starting point of the angled-deck catapults. The fourth ship, *John F. Kennedy*, is officially considered a separate class.





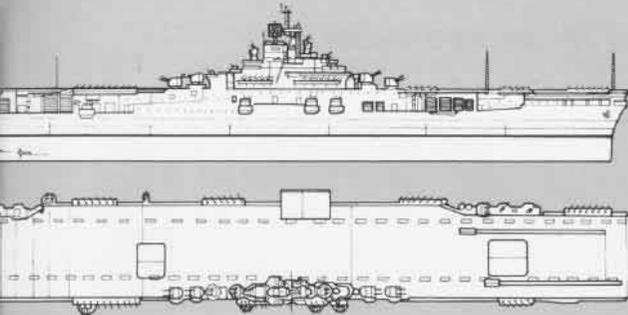
Ranger (1934)

A small one-off carrier that was in some ways a throwback to the *Langley*. She was, however, purpose-built with a starboard island, six retractable funnels, two elevators and a capacity for 80 planes. Catapults still were absent.



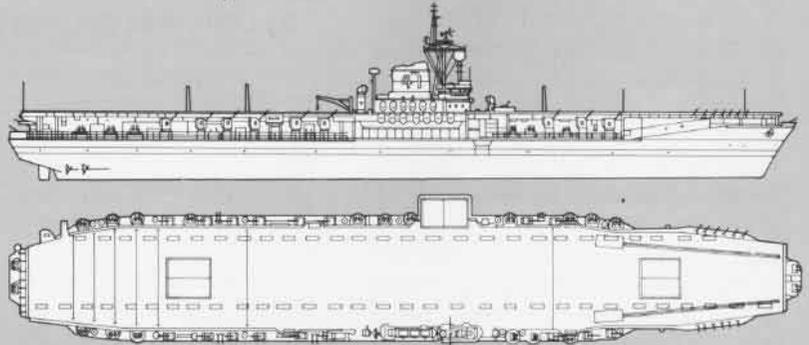
Yorktown (1937)

First in a class of three ships (*Yorktown*, *Enterprise* and *Hornet*) that were instrumental in World War II's decisive Battle of Midway—a battle dominated by carriers on both sides. The ships had two hydraulic catapults on rectangular flight decks, and two had another on the hangar deck below. Three elevators handled traffic between the decks, and four screws propelled the ships to 33 knots. *Hornet* featured enough improvements to be considered a separate class.



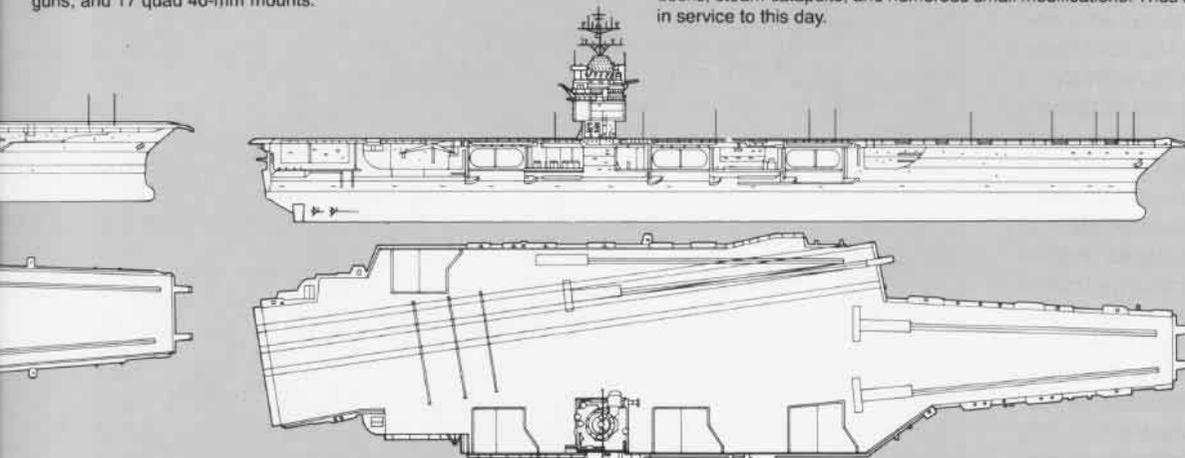
Essex (1943)

The 24 ships of this class were the mainstay of America's attack carrier force during the later stages of World War II. Displacing 36,380 tons, the ship had two hydraulic catapults, operated 80 to 100 planes depending on the type, and carried heavy anti-aircraft armaments, including 12 5-in. guns, and 17 quad 40-mm mounts.



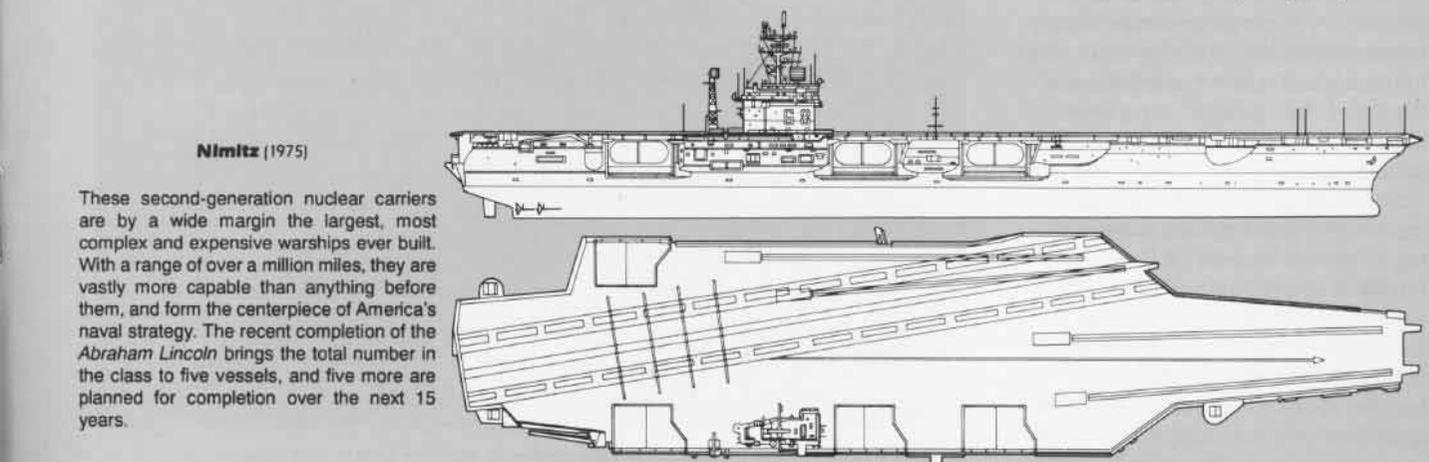
Midway (1945)

Comprising three ships, this class was the culmination of World War II carrier design, but is perhaps most notable for what they became after the war. All three were upgraded with angled decks, steam catapults, and numerous small modifications. Thus transformed, *Midway* remains in service to this day.



Enterprise (1961)

The first nuclear-powered surface warship ever, the *Enterprise* demonstrated the revolutionary potential of the new technology, much as *Nautilus* had done for submarines a few years before. Larger in every dimension and more capable than anything before her, she was also distinguished by a swirl-shaped, pierced-array radar on her island—an early form of the antenna on today's *Aegis* ships.

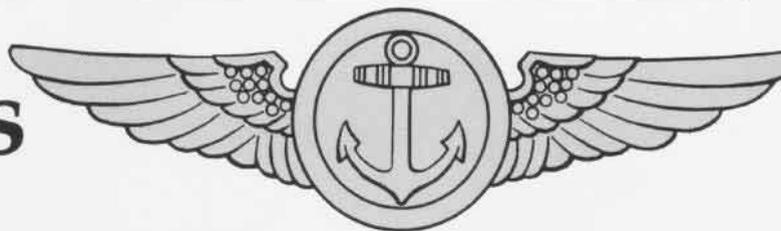


Nimitz (1975)

These second-generation nuclear carriers are by a wide margin the largest, most complex and expensive warships ever built. With a range of over a million miles, they are vastly more capable than anything before them, and form the centerpiece of America's naval strategy. The recent completion of the *Abraham Lincoln* brings the total number in the class to five vessels, and five more are planned for completion over the next 15 years.

Adapted from an illustration by John Batchelor in *Popular Mechanics*, March 1990. Copyright The Hearst Corporation. All rights reserved.

NAO Wings



In 1965, the professionalism of the rapidly growing community of non-pilot Navy flying officers, known as Naval Aviation Observers (NAO), increased to a point where the NAOs were redesignated Naval Flight Officers (NFO). When a new wings design was adopted for NFOs in December 1968, the NAO wings virtually disappeared from the uniforms of naval personnel. NAO wings recently staged a comeback, however, and will soon be more visible in the Navy than they have been in two decades.

Until recently, NAO wings have been limited mainly to a small group – Marine Corps ground officers who are graduates of the Naval Aviation Observer School, MCAS New River, N.C. These tactical air controllers fill flying billets primarily in the OV-10 *Bronco* but are also qualified for flight in the UH-1 *Huey*, AH-1 *Cobra*, and OA-4M *Skyhawk*. They act as the link between close air support aircraft and the aircraft mission's air and ground forces that they are supporting.

In March 1989, Commander Patrol Wings Atlantic, (ComPatWingsLant) released instruction CPWLInst 3710.15. It encouraged patrol squadron (VP) intelligence officers to periodically fly on peacetime missions to gain knowledge of operations and a full appreciation of the capabilities of the P-3 *Orion* as well as the unique requirements and special elements encountered in flight.

Although not a mandatory requirement, ComPatWingsLant is encouraging VP air intelligence officers to qualify in one of three areas: selected passenger, technical observer, or naval aviation observer. It is felt that flying will enhance an intelligence officer's ability to provide high-quality training, particularly to P-3 crewmen, by improving a squadron's intelligence collection capability.

By LCdr. Rick Burgess and JO1 Milinda D. Jensen



Lt. Geri Krotow mans the starboard aft observer window of a P-3C Orion.

PH3(A/C) James Dale

Stage a Comeback

On December 9, 1989, Lieutenant Geri Krotow was presented Naval Aviation Observer wings, becoming the first air intelligence officer in Patrol Wings, Atlantic history to be so designated. Lt. Krotow had served as intelligence officer for VP-5, NAS Jacksonville, Fla., for three years. She fulfilled the required training syllabus and accumulated the 200 hours of flight time necessary to earn the wings.

The requirements for designation as an NAO are delineated in Article 1420235 of the Naval Military Personnel Manual (MILPERSMAN): have qualified under NATOPS [Naval Air Training Operating Procedures Standardization] standards of knowledge of aircraft systems and safety procedures; successful completion of a course of instruction associated with their flying mission as prescribed by the appropriate type commander; accumulation of 200 hours of flight time which must be directly related to the purpose of their assignment to duty; and assignment to duty involving flying for a period of not less than one year.

Lt. Krotow completed these requirements by achieving designation as a Technical Observer (as explained in MILPERSMAN Article 1820260), completing Aviation Physiology and Water Survival School, Observer Personnel Qualification Standard, a NATOPS check flight for the P-3, and logging 200 hours on operational missions.

Established nearly 70 years ago, the Naval Aviation Observer designation was needed to comply with a law establishing the Bureau of Aeronautics, which stated that the bureau's chief and at least 70 percent of its officers be either pilots or observers. The bureau defined the functions and qualifications of NAOs and recommended a course of study for their training. Rear Admiral William A.

Moffett, the bureau's first chief, received his NAO wings on June 17, 1922. However, the designation fell into disuse as only one or two officers underwent training yearly. The last officer so designated before WW II was "winged" about 1930.

In 1944, regulations still allowed any commissioned or warrant officer in the Navy or Marine Corps who had successfully completed a specific course and had 1,000 hours of air time to be designated an NAO. The wings were seldom seen, though, because the training and duties of observers were considered obsolete or had been absorbed by other activities.

In 1945, the designation was revived and divided into three categories. NAO (navigation) and NAO (radar) were approved in 1945. The NAO (tactical) designation was established in 1946 and was intended for Navy and Marine Corps officers performing duty as gunfire and artillery spotters, general liaison, and observation duties in connection with amphibious operations. However, no training program was provided.

The Bureau of Personnel (BuPers) requirements for naval aviation observer (navigator), as addressed by BuPers Manual Article c-7302(5) (1958), were: the successful completion of a formal course of instruction in aerial navigation approved by Commander Naval Air Force, U.S. Atlantic Fleet or Commander Naval Air Force, U.S. Pacific Fleet; the completion of at least 200 hours of flight time while performing navigational duties; demonstrating operational proficiency to the satisfaction of the commanding officer; and being physically qualified, temperamentally suited, and aeronautically adapted for duty involving flying in connection with assigned duties.

With the technological advances in



PH2(AC) Jim McCarter

Lt. Krotow is the first ComPatWingsLant intelligence officer to wear the NAO wings that date back to 1922.

aircraft during the mid-fifties, a heavier demand was placed on pilots to fly their aircraft as well as operate newly developed electronics. By 1958, the need for an additional officer to operate these weapons systems became readily apparent, especially with the introduction of the F-4 *Phantom II* interceptor.

In 1960, a Basic Naval Aviation Officers School (BNAO), known as "banana school," was established as part of the training department of NAS Pensacola, Fla. Three years later the school became a separate unit to train and indoctrinate nonpilot officers and officer candidates and prepare them for training leading to the NAO designation.

In 1965, existing NAOs were redesignated as Naval Flight Officers.

In January 1968, the BNAO was redesignated as Training Squadron (VT) 10, the source of NFOs for the Navy ever since.

The new program involving VP intelligence officers will start a small expansion in the current NAO community. Soon, more and more officers will be wearing the venerable and distinguished NAO wings. ■



FJ-1

The rather portly North American FJ-1 *Fury* is difficult to recognize as the stepping stone between the company's famed WW II P-51 *Mustang* and its equally well-known sleek F-86 *Sabre* swept-wing jet fighter. The subsequent Navy designation of the carrier fighter derivatives of the F-86 as FJ *Furys* (FJ-2, 3, and 4 series) has further confused the unique identity of this early carrier-based jet fighter. While built in limited numbers, the FJ-1 has a deserved place with the McDonnell FH-1 *Phantom* (*Naval Aviation News*, January-February 1989) as one of the first two jet fighters to be flown by a carrier squadron at sea.

With development of the XFJ-1 (original designation of the FH-1) well along in mid-1944, the Bureau of Aeronautics (BuAer) undertook a major study of potential future carrier fighters, both piston and jet engine powered, recognizing the new engine developments under way. Industry was solicited for proposals with a minimum of specific requirements. Review of the ensuing proposals resulted in two designs of single-engine jet fighters being ordered at the end of the year: three each Chance Vought XF6U-1s in late December and North American XFJ-1s in early January 1945. An order for three McDonnell XF2D-1 twin-engine jets followed two months later. Subsequent events would stamp their success in inverse

order to their contract dates, the XF2D-1 achieving wide success as the F2H *Banshee*.

Of four North American designs submitted, three were generally similar using different jet engines, and a fourth was a carrier derivative of the latest P-51H *Mustang*, Merlin powered. The selected design, using a General Electric TG-180 3,800-pound thrust, axial flow jet engine being developed for the Army Air Force, was the company's first jet fighter to be ordered. Characterized by straight-through flow from the nose inlet through the mid-fuselage-mounted engine to the aft exhaust nozzle, the cockpit was over the inlet duct and the fuel tanks in the lower fuselage extended up around the lower half of the

FJ-1 Fury

inlet duct and engine. This arrangement resulted in the fuselage's bulky appearance, but overall shape minimized its drag. Engine removal, when there was no accepted standard, was accomplished by removing the upper fuselage section and lifting the engine out – a scheme abandoned until the recent advent of the *Harrier* series of vertical/short takeoff and landing aircraft. Six .50-caliber machine guns, three stacked on each side of the inlet duct, were the FJ-1's armament, with no provisions for carrying bombs. Auxiliary 170-gallon fuel tanks, one on each wing tip, extended range or endurance. The cockpit was not pressurized and emergency escape was the traditional "bailing out."

Aerodynamic surfaces traced directly to those of the P-51, with the latest laminar flow airfoils for the thinner wing sections of the nonfolding wings. The nose gear could be retracted with an auxiliary nose wheel installed to provide a nose-down kneeling position on the carrier – allowing one aircraft to be parked partially under the next one in front, and diverting the jet exhaust flow upward during operations on deck. Picket fence-type dive brakes were extended both up and down from the wing – as had been used on the A-36 version of the *Mustang*. Hydraulic power boost was provided for the ailerons and elevators to reduce control forces at high speeds.

All these features were incorporated in the XFJ-1 mockup which was inspected by BuAer in April 1945. The usual detail changes resulted, and design development proceeded. In



XFJ-1

By Hal Andrews

May, the Army Air Force ordered a development of the XFJ-1, also straight winged but with wing fuel tanks and a thinner fuselage, as the original XP-86. Only later, following acquisition of German swept-wing data, was it redesigned to its swept-wing configuration. The same month, 100 FJ-1 production aircraft were ordered, with initial flight of the first XFJ-1 expected by the end of the year. The end of the war and delays in the TG-180 program, including production transfer to General Motors – initially to a Chevrolet-run war plant and then to Allison – delayed the start of taxi tests until July 1946, with the first flight on September 11. The second followed in October and the third in February 1947. Meanwhile the production contract had been cut to 30 airplanes, essentially an operational evaluation quantity for one squadron.

Flight development led to two obvious changes in the FJ configuration. Problems – including an in-flight asymmetric failure – with the wing-mounted speed brakes resulted in their replacement with hinged panels mounted on both sides of the lower rear fuselage. And some aerodynamic problems were corrected with a triangular extension of the inboard wing leading edge at the fuselage. These changes were incorporated in the production FJ-1s, which were already moving down the line and started rolling out in the fall.

The squadron chosen to be equipped with the FJ-1s was VF-5A at NAS San Diego, Calif., the first jet squadron on the West Coast. VF-5A received its first FJs in late 1947 and began training operations while Board of Inspection and Survey trials were getting under way at NAS Patuxent River, Md. While unusual, this was considered necessary to gain squadron experience with jet aircraft pending full release for operations at sea. Despite the low engine overhaul period of the new axial flow J35 engines (from 10 to 35 hours!), in February 1948, the squadron made its first publicity flight. Three *Furys* were flown from Seattle down the coast, setting speed records to San Francisco, Los Angeles, and San Diego, one by each aircraft. In March, two squadron *Furys* went aboard *Boxer* for the FJ-1's first carrier operations, including both catapult launches and free deck takeoffs.

By May, the remaining production FJ-1s had been delivered to VF-5A,

giving the squadron more than a full complement. The "extras" proved warranted when the squadron went aboard *Princeton* for carrier qualifications/operations. Unlike the initial *Boxer* operations, these resulted in several *Furys* sustaining overhaul or strike damage with the rest of the scheduled operating period cancelled. Among the problems were nose gear failures, and the kneeling feature was deleted with the fixes to increase strength. Subsequently, VF-5A operated from various carriers.

September saw the squadron, redesignated VF-51 on the first, in the limelight again – participating in the National Air Races. With Secretary of Defense (SecDef) direction that the Air Force and Navy not compete, it was the Navy's turn to fly and seven VF-51 *Furys* vied for the Bendix Jet Trophy from Long Beach, Calif., to Cleveland, Ohio. Four were clocked at the finish in times a little over four hours, including the time for refueling stops. The one minute faster time clocked for a California Air National Guard P-80 was unofficial under the SecDef rules, and the fastest *Fury* was the winner.

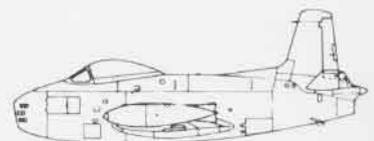
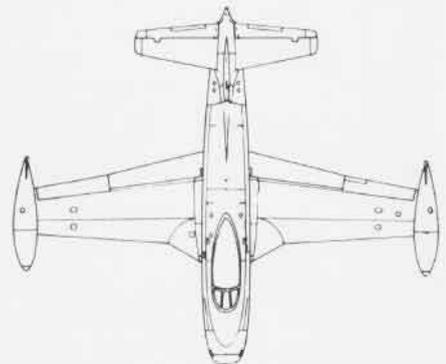
Flight operations of the VF-51 *Furys* settled down to routine into 1949. As the next-generation carrier jets (*Panthers* and *Banshees*) came off the production lines in 1949, the *Furys* were replaced in VF-51 by F9F-3 *Panthers* during the year. Maintained in storage or processed through overhaul at NAS Alameda, Calif., the FJ-1s began their second career in 1950, as did the FH-1 *Phantoms*, serving to familiarize Naval Reserve pilots with jet fighter operations. The *Furys* were first assigned to the reserves at Oakland, Calif., in early 1950, followed immediately by Los Alamitos, Calif., and Olathe, Kans. A few were operated at NAS Dallas, Texas, for a short period in 1951. While published photos would tend to emphasize the Oakland operations, both Los Alamitos and Olathe operated more *Furys* for a longer period of time. The last were withdrawn from Olathe in mid-1953.

Only one or two saw any other service use during the 1948-53 period, the third XFJ-1 being assigned as chase for North American's initial XFJ-2B swept-wing *Fury*, a converted F-86. Two of the production FJ-1s subsequently found their way into museums, so the first "West Coast" Navy jet fighter may still be seen today. ■

FJ-1



Wing span	38'2"
Length	34'5"
Height	14'10"
Engine: Allison J35-A-2	4,000-lb. thrust
Maximum speed	510 kn
Service ceiling	38,000'
Maximum range (ext. tanks)	1,300 nm
Crew	Pilot
Armament	Six .50-caliber machine guns



The Neutrality Patrol:

To Keep Us Out of World War II?

Part 2 of 2

By Capt. William E. Scarborough, USN(Ret.)



VPs 55 and 56 were the first fleet squadrons to fly the Martin PBM-1. 55-P-1 is hoisted aboard a tender, probably Albemarle, at an unknown location and date.

Courtesy of David W. Lucabaugh



Part 1 of this account of U.S. Naval Aviation's participation in the Neutrality Patrol appeared in the March-April 1990 issue. In Part 2, the author describes the operations of Navy patrol planes in the hunt for the German battleship *Bismarck*, and summarizes the final developments of the Neutrality Patrol until U.S. entry into WW II.

The German battleship *Bismarck*, on her first operational sortie, had been engaged by a British force in Denmark Strait between Iceland and Greenland early on May 24, 1941. HMS *Hood* was sunk by *Bismarck* which then, in company with her escort cruiser, *Prinz Eugen*, eluded the British force and disappeared. The search effort which was launched to locate the German ships included the PBVs of VP-52 in what was certainly a broad interpretation of the Neutrality Patrol!

Of the 11 planes at Argentia, Newfoundland (52-P-6 was at Quonset Point, R.I., on a logistics flight), four - 52-P-5, -9, -10, and -11 were scheduled for a search of western Greenland on the 24th for signs of German occupation. That flight was delayed by weather but at about 1330 crews standing by in the planes were ordered, by blinker light signal from the ship, to prepare for immediate takeoff. By 1430 pilots arrived at the planes and after a hurried crew briefing, with no details of the "highly classified" (sic) mission, engines were started and the planes took off at about 1440. They were to proceed to an area south of Cape Farewell, Greenland, to search for a ship (*Bismarck*, of course, and some crew members recall bags of bullet-hole plugs being delivered to each plane!). The consensus of interviewees was that planes were unarmed, with instructions to maintain

contact if a sighting was made, and to send contact reports in plain language on the International Emergency CW frequency, 500 kc. After join-up the four PBVs climbed on top of the cloud deck, proceeded to the assigned area, and let down to about 700 feet for the search.

Visibility was limited but a scouting line was formed (then standard procedure) and search of the area in the rapidly dwindling daylight began. When darkness and limited visibility made further effort fruitless, the flight leader ordered an individual return to base. During the climb, icing and turbulence were encountered but all planes found clear areas between layers and proceeded toward Argentinia. As the planes continued on course, the cloud tops built up and eventually the PBVs were at 20,000 feet to stay clear of the clouds to avoid icing. The extreme cold and lack of oxygen contributed to navigation problems resulting from numerous course changes to avoid build-ups and, at dawn, as the planes approached Argentinia, only one flier – legendary Navy P-boat pilot Chief Boatswain Pat Byrne – was sure of his position. Radio contacts with *Albemarle* (AV-5) brought word of worsening weather and orders to proceed to the southwest to find an alternate landing site, if fuel levels permitted, or to hold over the ship and make an instrument approach when the weather improved.

Of the planes in the first group only 52-P-5, flown by Byrne, made an instrument letdown and landed outside

Argentinia harbor in Placentia Bay, about 15 miles from *Albemarle*. Too short of fuel to taxi in and with a favorable 40-plus-knot wind, Pat cut the engines and sailed the PBV into the harbor! Of the other three planes in the group, Number 9, flown by Ensign Dexter Rumsey and the writer, found a hole and let down for a safe landing at Jamestown on Trinity Bay on the east side of Newfoundland. When weather at Argentinia improved, Number 9 was able to get in, with a total of some 22 hours in the air and fewer than 100 gallons of fuel remaining. Number 10 heeded the ship's radioed advice and headed southwest, breaking into clear weather over Nova Scotia and continuing for a landing at Newport, R.I., with about 20 hours flight time logged.

The last plane of the first group, 52-P-11, was trapped above the overcast with fuel nearly exhausted and the crew preparing to bail out when a hole in the clouds suddenly appeared. After a tight spiral letdown into a narrow valley, which led them to the sea and Forteau Bay, Labrador, a safe landing was made after some 20 hours in the air. The crew anchored off a beach near a cluster of houses and after confirming their location by talking to men who rowed out to the plane, contacted *Albemarle* for instructions. Advised to remain where they were for the night, they were assured fuel would be flown in as soon as possible.

Unfortunately, winds increased during the night and changed direction, forcing the crew to seek better holding ground for the anchor and shelter from ice floes being driven by the wind. During the move, Naval Aviation Pilot Bob Weber, who was handling the anchor, was swept off the bow by a wave which broke over the PBV. Ice floes driven by the wind had cracked the bomber's window and punctured the hull below the water line, resulting in leaks which flooded the bow compartment to the floorboards. The loss of buoyancy resulted in seas breaking continuously over the bow and the plane taking on more water. The plane commander then decided to beach the PBV to avoid further damage, and to seek help for a search for Weber. A sand beach about half a mile away was selected as the best site available and

the plane was beached there with no additional damage.

Local fishermen, alerted by the sound of engines, had seen Weber swept off the bow and launched a boat to search for him. Continuing the string of near-miracles, the two men rowing the boat found semiconscious Weber and rowed back to the beach, towing him with his arms over the stern of the boat, one of the rescuers holding onto them to keep Weber's head above the water. Uninjured, though his fleece-lined flight suit had been slashed by a propeller as he was swept under the wing, Weber was taken to a house and after being stripped and rubbed down was put to bed. Later in the day he was moved to a mission clinic in the settlement and remained there under the care of a resident nurse until he was returned to *Albemarle* by plane.

W. E. Scarborough Collection



Peninsula at left center is site of future NAS Argentinia, Nfld., in September 1940 photo. Seaplane mooring area was in small bay opposite anchored ship. Two small, conical islands at right center were known to all P-boat pilots as "the Mae West hills." Usual takeoff from the seadrome started at lower end of the harbor and extended past the famous hills!

With the help of the local people, the plane crew rigged a block and tackle to haul Number 11 clear of the breakers, to prevent further damage and to make the damaged areas accessible. The crew turned to with materials and tools aboard the plane and prepared the hole in the hull and the cracked bomber's window for repair. Later that day, May 26, a PBV arrived from Argentinia with a repair party and fuel. After completing repairs, sand was dug from beneath Number 11 and it was refloated with the help, again, of the fishermen. The relief plane then returned to *Albemarle* with Bob Weber. At the suggestion of the local people, the PBV took off and flew to a better anchorage for the night in nearby Red Bay. The next morning, after an uneventful night, 52-P-11



W. E. Scarborough

56-P-9 taxis in Willoughby Bay, off the Breezy Point seaplane ramps at NAS Norfolk, Va., Spring 1941.

finally took off for Argentina, with a fuel stop en route at the Royal Canadian Air Force base at Botwood.

The other seven PBYS flying the search mission – 52-P-1, -2, -3, -4, -7, -8, and -12 – were launched near sunset at 1720 on the 24th, proceeding independently to reach the search area south of Cape Farewell at sunrise. Weather en route was like that experienced by the first group – poor with ceiling and visibility near zero below the clouds with icing and heavy turbulence in the clouds. With unknown winds and no opportunity for star sights, aircraft positions were uncertain, at best, but the flight continued toward the search area until it was ordered by the flight leader to return to base, weather conditions obviously making visual search impossible.

Most of the return flight was on instruments, in icing and increasingly severe turbulence. On approaching Argentina, the aircraft were advised by radio, as the first search group had been, that conditions were below minimums and not expected to improve. Planes with sufficient fuel were directed to continue to Halifax, where weather was forecast to be suitable for landing. Those with low fuel states were advised to hold and to attempt instrument approaches when the weather improved.

Numbers 1, 7, and 8 found holes in the overcast and landed in Shoal Harbor on Random Island, Newfoundland. Numbers 3 and 4 were able to let down and landed in Fortune Bay, west of Placentia Bay. Number 2, nearly out of fuel, landed off St. Mary's Island, Quebec. Last of the group, Number 12, reported on the water safely, out of fuel, on the north side of Anticosti Island in the Gulf of St. Lawrence.

As weather improved on the 25th, six of the PBYS were able to fly back to Argentina during the afternoon, all of them logging 20 to 22 hours in the air for the mission. On the 26th, the squadron flew fuel to Numbers 2 and 12 and both were back in Argentina later that day. Number 12 had provoked a minor international incident at Anticosti Island when some of the crew went ashore in a raft to check on their location and were unable to communicate with the French-speaking natives. The natives assumed the fliers were German and the advance guard of a Nazi invasion force! Their report to Canadian authorities generated a precautionary air defense alert as the Canadians had not been advised (as they normally were) that the search mission had been launched on the 24th.

Although this extension of the Neutrality Patrol mission had been unsuccessful, it had demonstrated that the pilots and flight crewmen were resourceful and that the rugged PBY then, as it did repeatedly during WW II, could be depended upon to bring her crews home. The exercise had also demonstrated that communications equipment and its operators needed improvement and that accurate weather forecasts were essential if North Atlantic seaplane operations were to be successful.

On July 1, 1941, as part of a general reorganization of fleet patrol squadrons, Patrol Wing (PatWing), Support Force was redesignated Patrol Wing-7, continuing as a unit of Support Force. Wing PBY squadrons 51, 52, 53, and 55 were redesignated 71, 72, 73, and 74. The last, after receiving 3 PBM-1s from VP-56, was equipped with 12 PBM-1s. VP-56 and its remaining PBMs became a transitional training unit under

Naval Aviation in WW II

Commander, Patrol Wings, Atlantic Fleet. A new patrol wing – 8 – was established, with several old redesignated squadrons and some newly established ones assigned. Although a part of Support Force, PatWing-8 provided little more than training service for the remainder of 1941 and was transferred to the West Coast after the start of the war.

Summer 1941 proved an active time for the squadrons, both in Newfoundland and at home in the States. Patrols and convoy escort were major tasks but there were also surveys of Iceland, Greenland, and Labrador, and search and rescue missions. On the heels of the *Bismarck* search, on May 29, VP-52 deployed 4 PBYS to Iceland. Based on *Belknap* (AVD-8) at Reykjavik, the planes surveyed the east coast of Greenland where Danish weather stations were suspected of being in German hands. Flights on May 31 and June 5 located the stations, with no indication that they were in use and, on June 8, the detachment returned to Argentina.

Later in the month the squadron ferried old planes to Norfolk, Va., turning them over to newly commissioned VP-43. New PBY-5s in blue-gray over light-gray camouflage, with self-sealing fuel cells, armor, and revised waist gun stations, were picked up and flown back to Quonset Point and Argentina. Increased weight and the rough nonspecular camouflage reduced speed, decreased rate-of-climb, and extended takeoff time and distance significantly in comparison to the earlier PBY-5s. Squadron markings were in black and the Neutrality Patrol star on the bow, authorized on March 19, 1940, was continued in use. (The star was also authorized for *Ranger* (CV-4) and *Wasp* (CV-7) air group aircraft and was moved to the aft fuselage when a December 1940 directive changed ship-based aircraft color to overall light gray.)

On July 3, four of the new planes, with auxiliary hull tanks to compensate for the fuel capacity lost to the self-sealing tanks, departed Argentina for Reykjavik. One of the group,



PH2 W. J. Henning
USS Albemarle at anchor in Argentina harbor, June 1941. Reason for "Dress Ship" unknown.



PH2 W. J. Henning

VP-52 searched coast of Greenland in June 1941 for suspected German-occupied Danish weather stations but found no evidence of occupants.

72-P-12, failed to arrive in Iceland and was presumed lost to the weather or to an explosion while transferring fuel from the hull tanks. Extensive search of the route and the Greenland coast failed to find any trace of the plane, VP-72's first-ever loss of a crew.

This VP-72 detachment provided escort cover for a task force which landed a U.S. Marine Corps force in Iceland on July 7. On the 13th, the task force departed to return to the States and was escorted out of the harbor and for the remainder of the day by the PBYs.

During the summer, the Argentinia detachments of VPs 71, 72, and 73 began a rotation program, later including VP-74, which regularly exchanged deployed planes and personnel at the advance base with those at the home ports, Quonset Point and Norfolk. Crew training and major maintenance were conducted in the States while operational flights received priority at Argentinia.

On July 19, VP-74 deployed a three-plane PBM-1 detachment to Argentinia. The addition of the PBMs, with new demands for structural and engine maintenance, stretched *Albemarle's* resources and support

capability to their limits. By early August, a detachment of VP-74 PBMs and VP-73 PBYs, based on *Goldsborough* (AVD-5), were providing routine convoy escort in the North Atlantic shipping lanes from Skerja Fjord, near Reykjavik. Convoys were covered up to 500 miles from base and a regular antisubmarine warfare patrol of Denmark Strait between Iceland and Greenland was flown. From August 6 through 20, VP-71 conducted a three-plane survey of Greenland, based on *Lapwing* (AVD-1), in Tungdliafik Fjord on the west coast of Iceland. This was a joint U.S. Army/Navy project.

During this period both the PBYs and the PBMs began receiving early model British radar, the ASV with antenna arrays on hull-mounted posts. The transmitting antenna posts on the sides of the forward hull were vulnerable to damage by boats tending planes at the buoys and there was little success in keeping the gear operational.

In August, Roosevelt and Churchill held the historic six-day conference in Argentinia aboard *Augusta* (CA-31) which produced the Atlantic Charter, released to the public on August 14. During preparations and for the duration of the conference, PatWing-7

squadrons flew a heavy schedule of offshore and harbor patrol, guarding the site.

Seaplane operations from Iceland, severely hampered by a lack of any facilities ashore, were by far the most difficult yet experienced by the Neutrality Patrol forces. Crew messing and berthing aboard the converted WW I destroyer seaplane tenders were so limited that most of the crews preferred to stay aboard the planes at the buoys. That was so until the Iceland weather began to display its true character later in the year, with winds of 50 to 60 knots and high sea states the norm. Temperatures were rarely far above freezing and living aboard the uninsulated, unheated PBYs became an ordeal. The PBMs were better but still far from comfortable. Servicing aircraft at the buoys was a brutal test of skills, perseverance, and dedication.

As the countdown toward WW II continued during the final months of 1941, the Neutrality Patrol operations moved ever farther from "neutrality" toward active support of the Allies. Convoy escort and ASW patrol planes began carrying general-purpose and depth bombs during the summer months. Orders for attacks on hostile forces threatening U.S. and non-Axis

VP-51 PBY-1s at San Juan, P.R., March 1940. Crew lived in tents at edge of field on San Juan airport and PANAM base. Building at right center was sick bay.



foreign flag shipping were in force and were amplified and extended by Argentia Air Detachment OpOrders in September and October, based on Commander in Chief, Atlantic Fleet (CinCLantFlt) orders. These directives were explicit regarding the protection of shipping: "Escorting ... convoys ... and destroying German and Italian naval, land, and air forces encountered."

VP-71 established an advance base operation on *Gannet* (AVP-8) at Kungnait Bay, Greenland, on October 1, but was forced to recall it on the 18th due to the violence and uncertainties of the Greenland weather. Weather at Argentia was little better but operations continued, with convoy escort in the shipping lanes the major effort.

The full impact of the orders regarding protection of shipping was dramatically emphasized by a series of events in the North Atlantic in September and October. On September 4, 1941, *Greer* (DD-145), a destroyer en route to Iceland, was notified by a British patrol plane that a German U-boat was in her area. When asked if she would attack the submarine, *Greer* answered in the negative, having no orders at that time to initiate such action. The British

David W. Lucabaugh Collection



Naval Aviation in WW II

plane then attacked the U-boat with depth bombs, with no apparent result, and left the area. The submarine, not knowing the source of the attack, maneuvered into position and fired two torpedos at *Greer*, both missing the target. The ship, acting in self-defense, delivered a depth charge attack on the submarine, again with no effect, and resumed course for Iceland. This event resulted in the Neutrality Patrol mission becoming "search and destroy," as in the CinCLantFlt orders referred to above.

Another, even closer indication of the proximity of a shooting war occurred on October 17, when the destroyer *Kearney* (DD-432) was torpedoed with the loss of 11 lives while defending a British convoy off Iceland. The ship limped into port, severely damaged. Later in October, the tanker *Salinas* (AO-19), was torpedoed, with no loss of life but with a huge hole blasted through both sides of the ship. Ensign Bill Hardaker and his crew in 72-P-11 found her on October 30, and escorted her toward St. Johns, Newfoundland. On October 31, while providing convoy escort off Halifax, the old four-stack destroyer *Reuben James* (DD-245) was torpedoed and sank with the loss of 115 lives. These losses brought Congressional action to relax the restrictions of the Neutrality Act by allowing U.S. ships to escort convoys into combat zones and U.S. merchant ships to be armed.

Just five weeks after these final events in the history of the Neutrality Patrol, the attack on Pearl Harbor plunged the United States into WW II. The Neutrality Patrol had served a purpose – though not the one intended by the directives of September 1939, which established the patrol as insurance against U.S. involvement in the war in Europe. What had been accomplished had an immediate and profound effect on the war and, ultimately, on our readiness for war. As it began, the patrol safeguarded our neutrality and the sanctuary our home waters provided for ourselves and for our future allies. Later, it assured the delivery of war material which kept our allies fighting in spite of

R. W. Weber



VP-51 aircraft parking area adjacent to PANAM operations base and hangar on San Juan airport, late 1939. USMC security patrol was on station at all times.

overwhelming odds. And, it created requirements for more and better equipment and the personnel to man it.

Naval Aviation, especially the patrol wings and squadrons, would have been ill-prepared for war had it not been for the demands placed on it by the Neutrality Patrol and the resulting stimulation and training, which produced the high level of operational readiness achieved by the time war came. ■

Note: The writer served in VP-52 (later VP-72) from 1939 to 1943. This account is based on personal recollection, his diary, letters, review of VP-52 flight logs, correspondence and interviews with personnel of VP-52 and other squadrons that flew the Neutrality Patrol, squadron histories, and other historical sources.

Next in the WW II Series: Training Naval Aviators

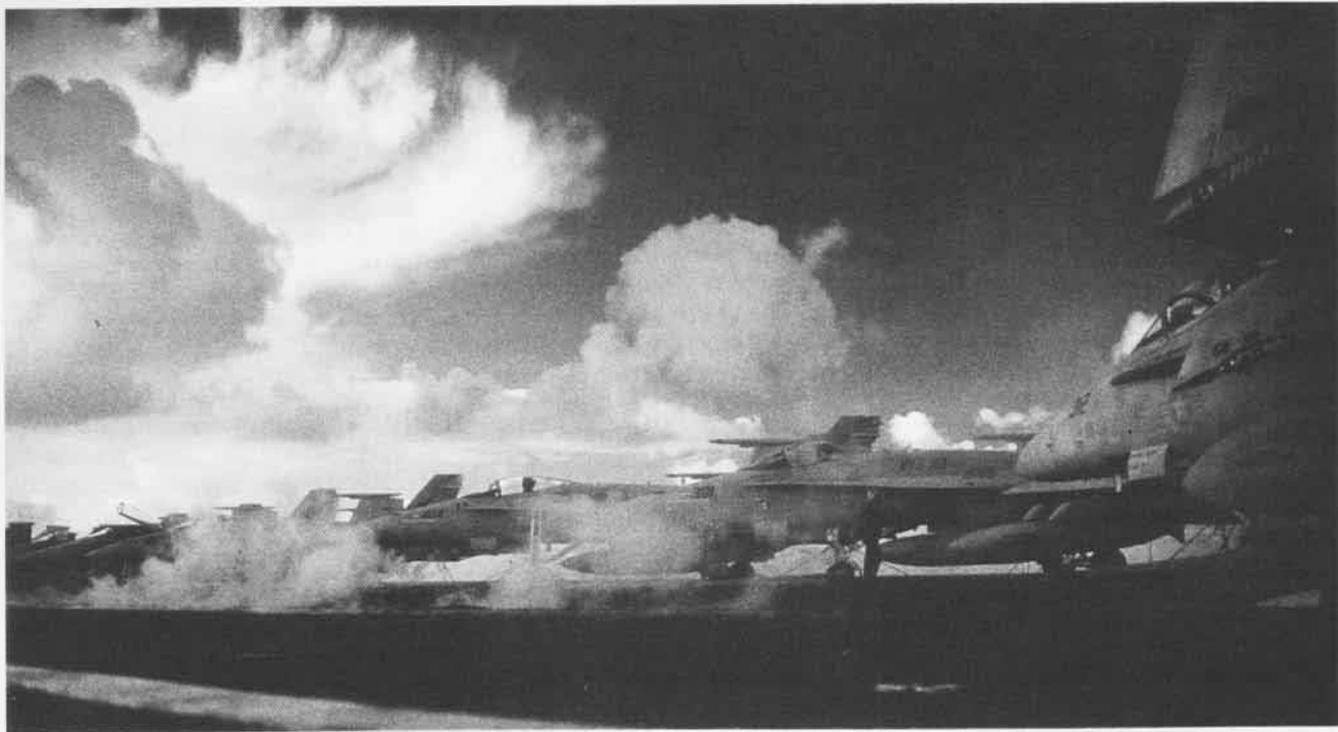
50 Years Ago – WW II

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

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

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

Association of Naval Aviation Bimonthly Photo Competition



Ensign Lance Chang of VAW-113 won the second bimonthly Association of Naval Aviation Photo Contest with his photograph, above, of VFA-113 Hornets aboard Constellation (CV-64) during PACEX '89. Randy Jolly received honorable mention for his shot of TH-57s, right.



The Association of Naval Aviation Photo Contest

The Association of Naval Aviation and its magazine, *Wings of Gold*, is continuing its annual photo contest which began in 1989. Everyone is eligible except the staffs of *Wings of Gold* and *Naval Aviation News*. The ONLY requirement is that the subject matter pertain to Naval Aviation. Submissions can be in black and white or color, slides or prints of any dimension. Please include the photographer's complete name and address, **and PHOTO CAPTION.**

Cash awards: Bimonthly — \$100; Annual — First, \$500; Second, \$350; Third, \$250.

For deadline and submission details, call (703) 998-7733.

Mail photographs to: Association of Naval Aviation Photo Contest, 5205 Leesburg Pike, Suite 200, Falls Church, VA 22041.

Records

Several units marked **safe flying time**.

HCS-5: 21,500 hours and 12 years
 HMM-163: 58,000 hours and 10 years
 HMX-1: 200,000 hours and 42 years
 HS-11: 9,200 hours and 3 years
 HS-15: 15,498 hours and 5 years
 HSL-41: 43,700 hours and 7 years
 NAS Bermuda: 8,600 hours and 12 years
 VA-22: 2 years
 VA-27: 15,000 hours and 4 years
 VA-72: 22,332 hours and 5 years
 VA-196: 47,500 hours and 10 years
 VA-97: 3 years
 VAQ-134: 23,500 hours and 19 years
 VAW-123: 40,000 hours and 21 years
 VF-14: 3 years
 VF-103: 35,000 hours and 10 years
 VF-213: 4 years
 VF-154: 18,000 hours and 5 years
 VFA-15: 17,000 hours and 5 years
 VFA-106: 80,000 hours and 5 years
 VMA-231: 22,000 hours and 4 years
 VMFA-251: 29,000 hours and 7 years
 VMFA-323: 10,000 hours and 2 years
 VP-19: 21 years
 VP-30: 250,000 and 25 years
 VP-31: 150,000 hours and 17 years
 VP-46: 193,400 hours and 26 years, and
 VP-48: 150,000 hours and 22 years.

The *Nighthawks* of **VA-185** reached a milestone in their three-year history of over 3,000 arrested landings on *Midway* (CV-41).



HMT-204's C.O., Lt. Col. Chip Parker (right), MCAS New River, N.C., recently accepted an award from Boeing Helicopters' president, Don Chesnut, for the squadron's attaining 50,000 accident-free flight hours in the Boeing CH-46 Sea Knight.



On January 9, 1990, Cdr. Rod Casey, VF-114's skipper, made his 1,000th trap in an F-14 Tomcat aboard *Enterprise* (CVN-65).

LCdr. Michael N. Pocalyko, OinC, HSL-46 Det. 3, embarked in *Boone* (FFG-28), made his 1,000th destroyer-frigate small deck landing while under way in the North Atlantic on December 31, 1989, flying the LAMPS MK III SH-60B *Seahawk*.

Cdr. Roy Resavage, C.O. of HS-1, flew his 5,000th career flight hour on October 20, 1989.



McClusky (FFG-41) celebrated her 3,000th mishap-free takeoff and landing during a recent deployment to the northern Persian Gulf. Cdr. Greg Hansen, C.O. of the "Mighty Mac," under the guidance of the landing signal enlistedman, launched and then recovered SH-60B *Lonewolf* 55 of HSL-45, Det. 12 to mark the event.

For the second consecutive year, members of the **HSL-45 Wolfpack** have won the annual LAMPS MK III "Top Torp" competition.

The **Tomcatters of VF-31** won the CVW-6 Golden Tailhook Award at the mid-cruise point of the 1989-90 Med deployment aboard *Forrestal* (CV-59).

The **Tophatters of VF-14** received the Meritorious Unit Commendation from SecNav for the 1988-89 Med cruise while deployed with the *John F. Kennedy* (CV-67) battle group.

Rescues

The members of **HSL-45, Det. 9** rescued four stranded sailors in a life raft near Midway Island. The *Wolfpack* team onboard *Kincaid* (DD-965) received a call from the Coast Guard stating that a sailboat named *Mimi* had run aground on a coral reef while participating in a race from Honolulu, Hawaii, to Hiroshima, Japan.

While en route to the scene, the Det. 9 crew was informed that the survivors were in relatively shallow water above a bed of sharp coral. Rescue swimmer AW2 Rod Molina moved the sailors individually away from the raft where they could be more easily lifted into the helo.

All survivors were successfully hoisted into the aircraft and transferred back to *Kincaid* for food and a medical check. The det then shuttled the survivors to Midway Island for transport back to Honolulu.

USCG Lt. Richard H. Schlatter received an Air Medal on November 8, 1989, for heroic achievement in rescuing two critically injured sailors from the Soviet vessel *Professor Soyusov*.

Lt. Schlatter earned the medal during a rescue he and his flight crew performed while stationed at CG Air Station, Barbers Point, Hawaii.

The crew overcame gusting winds, thunderstorms, and low overcast clouds by performing five successful night hoists from an unfamiliar ship that was being tossed about by heavy seas. The helo was nearly skewered by the ship's jackstaff when the unlit deck pitched up violently from a large swell. In a 75-foot hover, while lowering the flight surgeon to the bow of the ship, Lt. Schlatter was forced to use maximum power to maneuver away from the rising bow to protect the helo and crew. After pushing the HH-65A *Dolphin* to the limits of fuel endurance in order to hoist both the patients and the flight surgeon aboard, the helo departed for Hilo. The aircraft landed with 18 minutes of fuel remaining to deliver the patients to a waiting ambulance.

Kudos

CPO David D. Johnson, USN(Ret.), was asked to don his uniform one more time and return to his last duty station at the Naval Air Engineering Center, Lakehurst, N.J., in December 1989. Capt. James R. MacDonald, C.O., read the citation from President Bush that accompanied the Navy and Marine Corps Medal for heroism presented to Johnson.

The citation stated that Johnson heard the sound of an automobile accident while conducting a routine patrol of the base in his car. Hurrying toward the sound, he found a smoldering vehicle and a motionless driver inside. Johnson approached the damaged car and helped the stunned driver to safety. Within two minutes the automobile was engulfed in flames and was completely destroyed.

Honing the Edge

Three Marine pilots from the Naval Air Test Center – Lt. Col. Jim Casler, Maj. Gerald Hammes, and Maj. Bob Price – graduates of the U.S. Naval Test Pilot School, are the first military fliers to pilot the V-22. They have completed about 50 hours training and practice in the *Osprey* trainer in the Manned Flight Simulator at the southern Maryland test center.

The Naval Air Technical Training Center's Aviation Boatswain's Mate (Aircraft Handler) School recently graduated 40 men and one woman. All but five, who were reassigned to shore duty, went directly to carriers and amphibious ships.

Although few billets are available to women in the ABH rating two have graduated from NATTC Lakehurst, N.J. The sole female graduate from this class, ABHAA Kimberly Dawn Cals, was assigned to *Lexington* (AVT-16).

Scan Pattern

The Naval Aviation Depot, Norfolk, Va., celebrated the opening of its Hazardous Material Storage Facility on January 22, 1990. The multilevel, 14,000-square-foot building is equipped with appropriate water sprinkler, fire alarm, spill containment, and ventilation systems, as well as required building exits and eye-wash or drench showers.

A dispensing room provides a new

JO1 Dan Simon



A U.S. Air Force C-5A Galaxy touches down on the icy runway at McMurdo Station, Antarctica, making it the largest airplane to ever visit the frozen continent. This support flight occurred during the latest Operation Deep Freeze.

capability in which materials can be issued to shops in more appropriately sized containers than in the past. This will assist in limiting the storage of hazardous materials in shop areas and reducing hazardous waste generation.



PH1 Ted Salois

An SH-60B, recovered from 120 feet below the ocean's surface after its tail rotor seized and it plunged into the water, is suspended above the deck of USNS Sioux (ATF-171) in Subic Bay, R.P. Its crew had been rescued just 14 minutes after splashdown by the whaleboat team of USS Lake Champlain (CG-57), another Seventh Fleet ship.

VQ-3 welcomed Ens. Matice J. Wright aboard December 29, 1989. The first black female Naval Flight Officer in Naval Aviation history, Ens. Wright is a graduate of the U.S. Naval Academy, Annapolis, Md. She entered the Naval Flight Officer pipeline in February 1989, earning her wings in August of that year.

Since then, Ens. Wright has been attending schools at NAS Patuxent River, Md., and Waco, Texas, for E-6A airborne communications officer and navigator training.

PH1 Ted Salois



Like chicks gathered around the mother hen, Navy tugboats follow alongside Peleliu (LHA-5) in Subic Bay, R.P. The amphibious assault ship docked at Subic Bay for a routine port visit.

Awards

The following are the CY-89 winners of the **CNO Aviation Safety Awards**:

ComNavAirPac: HC-11, HM-15, HS-14, HSLs 33 and 47, VAs 97, 122, and 185, VAQs 136 and 137, VAW-114 (second consecutive year), VC-1 (second consecutive year), VF-21, VFA-113, VP-1, VQ-3, and VS-21.

ComNavAirLant: HC-16 (second consecutive year), HS-11, HSLs 32 and 44, VAs 36 and 37, VAQ-33, VAW-120, VF-41, VFA-106, VP-26, VS-31, and VX-1 (second consecutive year).

CG FMFPac: HMH-463, HMLA-369, HMM-163, PSD-12, VMFA (AW)-121, VMFAs 212, 232 and 531.

CG FMFLant: HMMs 263 and 266, VMA (AW)-332, VMA-331, VMFA-451 (second consecutive year), and VMGR-252.

ComNavAirResFor: HM-18, VAW-88, VF-202 (third consecutive year), VFA-303 (second consecutive year), VP-65, and VR-51.

CNATra: HT-18, VTs 2, 10 (second consecutive year), 22, 26, and 31 (second consecutive year).

CG 4th MAW: HML-767 and VMFA-321.

ComNavAirSysCom: NavAirTest-

Cen Patuxent River, Md.

The 1989 **CNO Readiness Through Safety** and **Admiral James S. Russell Naval Aviation Flight Safety** awards went to Naval Air Force, U.S. Atlantic Fleet.

The 1989 recipients of the **Admiral Flatley Memorial Award** are *Enterprise* (CVN-65) and *Nassau* (LHA-4).

The 1989 winners of the **VADM Robert B. Pirie** and **VADM William P. Lawrence** awards are, respectively: Air Traffic Controller of the Year, AC1(SW/AW) Todd L. Lake, NAS

Brunswick, Maine; and Air Traffic Control Technician of the Year, ET1(AW) Kenneth R. Ellard, NAS Norfolk, Va.

Winners were announced for the FY-89 **Golden Anchor Award** recognizing career motivation programs.

Commander-in-Chief, Pacific Fleet: *Midway* (CV-41), VA-185, VAW-115, VQ-3, VX-5, NAS Cubi Point, R.P., and NAF Atsugi, Japan.

Commander-in-Chief, U.S. Naval Forces, Europe: VQ-2 and ASWOC, Sigonella, Italy.

Change of Command

CinCPacFlt: Adm. Charles R. Larson relieved Adm. David E. Jeremiah.

ComFAirMed: RAdm. Peter H. Cressy relieved RAdm. S. Frank Gallo.

ComMatWing One: Capt. W. Craig Chewing relieved Capt. W. J. Fallon.

Constellation: Capt. Leonard Oden relieved Capt. John Zerr.

CVW-2: Capt. Jay A. Campbell relieved Capt. Christopher T. Wilson.

FASOTraGruLant Det. Oceana: Cdr. George R. Tiedeman relieved Cdr. Philip Schuyler.

HS-11: Cdr. James A. Bowlin relieved Cdr. Robert B. Lambert.

HSL-33: Cdr. Frederic Ruehe relieved Cdr. Thomas Freeland.

HSL-43: Cdr. Frank Gallic relieved Cdr. Scott Cantfil.

MAG-11: Col. Manfred A. Rietsch relieved Col. Paul A. Fratarangelo.

NAS Mayport: Capt. Morris G. Steen, Jr., relieved Capt. John S. Meserve.

NAS Whidbey: Capt. David T. Waggoner relieved Capt. Donald B. Sehlin.

NR NAS 4089: Capt. Paul R. Kuntz relieved Capt. James S. VanderHoek.

Ranger: Capt. Ernest E. Christensen, Jr., relieved Capt. Robert P. Hickey, Jr.

VA-196: Cdr. David C. Nichols relieved Cdr. Bruce T. Stuckert.

VAQ-138: Cdr. Walter J. Donovan, Jr., relieved Cdr. Darrell W. Jones.

VAQ-209: Cdr. Edward Brandt relieved Cdr. Robert Hathaway.

VAW-115: Cdr. Dale E. Stoehr relieved Cdr. Leo F. McGinn, Jr.

VAW-120: Cdr. Thomas C. Lang relieved Capt. Richard F. Braden.

VAW-1086: Cdr. Christopher Sullivan relieved Cdr. Warren Zatezalo.

VF-126: Cdr. Michael A. Szoka relieved Cdr. Tommy R. Brown.

VF-142: Cdr. L. G. Rutherford relieved Cdr. H. B. Tallent.

VFA-82: Cdr. Jim Ross relieved Cdr. Rick Eason.

VFC-13: Cdr. Michael A. Ranftle relieved Cdr. Michael P. Rishel.

VMFA-451: Lt. Col. A. S. Dudley, Jr., relieved Lt. Col. R. L. Lard.

VP-65: Cdr. Harry Rector III relieved Capt. Greg Brose.

VP-91: Cdr. Doug Bellows relieved Cdr. Mike Goss.

VS-21: Cdr. Steven R. Hinson relieved Cdr. Glenn A. Main.

VS-27: Cdr. Raymond LaTurno III relieved Cdr. Phil Voss.

VS-31: Cdr. Jansen W. Buckner relieved Cdr. Robert D. Parlet.

VS-38: Cdr. Christopher Henry relieved Cdr. James Brooke.

VT-10: Cdr. Thomas L. Daniels relieved Cdr. William H. Hobgood.

VX-1: Capt. Randall O. Abshier relieved Capt. T. A. Carr.

VXN-8: Cdr. Garland R. Johnson relieved Cdr. Daniel E. Brown.

PROFESSIONAL READING

By Cdr. Peter Mersky, USNR-R

Brown, RN, Captain Eric M. *Duels in the Sky: World War II Naval Aircraft in Combat*. U.S. Naval Institute, Annapolis, MD 21402. 1989. 222 pp. Ill. \$23.95.

An interesting presentation, this book pairs various Allied and Axis aircraft against each other. The author's unique depth of experience – he had the chance to fly many of the Japanese and German types he discusses – allows him to hypothesize about the outcomes of such encounters based on each aircraft's capabilities.

The book's photos are disappointing in quality and selection, and many have been published often before.

Allen, Richard Sanders. *Revolution in the Sky: The Lockheeds of Aviation's Golden Age*. Orion Books, 225 Park Ave. S., New York, NY 10003. 1989. 253 pp. Ill. \$27.95.

A good look at one of America's great pioneer aircraft companies during the decade of 1927 to 1937, this book covers the great explorers and performance records of that important era of aviation. General arrangement drawings of

some of the more important types and a good photo selection of aircraft and personalities complement the text.

Jenkins, Dennis R. *Grumman EA-6A Intruder/EA-6B Prowler*. Aerofax, Box 200006, Arlington, TX 76006. 1989. 56 pp. Ill. \$10.95.

This book, Aerofax Minigraph 7, details the development and employment of two unique members of the long-serving *Intruder* family. The two-seat EA-6A was derived directly from the bomber A-6 and saw service in Vietnam with the Marines as an electronic countermeasures platform. The four-seat *Prowler* represented a more drastic development, with a 40-inch extension of the forward fuselage to permit two additional crew members and their equipment. The EA-6B also saw service in Vietnam, albeit during the late stages of the war.

Following the established series format, the book includes squadron synopses and construction details of the "electric" A-6s. Scale drawings, color and black-and-white photography complement the main text.

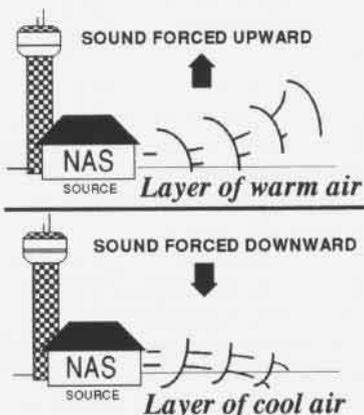
WEATHER FRONT

Airport Noise

Say Mickey Mouse ears and you immediately think of flight deck or flight line crews. These folks are equipped to handle high levels of aircraft engine noise. Similarly, exposed personnel at civilian airports use protective gear. However, communities just outside an airport boundary often experience aircraft engine noise almost as loud as on the flight line itself and complain that it is a nuisance and even encroaches upon their quality of life. In 1985 (the latest study available), the Federal Aviation Administration (FAA) estimated that airport noise significantly affected about five-million Americans – those living in areas subjected to an average day-night sound level of at least 65 dBa. A dBa is a unit of measurement which describes the intensity of sound as experienced by the normal human ear. It is a term used in federal regulations relating to occupational noise exposure. As an example, a household vacuum cleaner at a distance of 10 feet produces an output of 69 dBa.



By Capt. Neil F. O'Connor, USN(Ret.)



So how does the sound of a revving aircraft engine slip over an airport or air station boundary? Air temperature and wind are the principal culprits! When air at the surface is colder than the air above, wave fronts emanating outward from a turned-up engine are deflected downward, and although they may travel more slowly the distance the noise is carried is increased. Wave fronts are reflected upward when air at the surface is warmer than the air above it. The upward deflection limits the range at which noise can be heard. As for wind, it either enhances or diminishes the range of engine noise. Sound is decreased in the direction from which the wind is blowing, and increased in the direction toward which the wind is blowing. The distance which

sound can travel under certain meteorological conditions is astounding. Probably the loudest sustained-noise produced by man was the artillery barrages of Flanders during WW I, fought with howitzers, mortars, and railway guns. Windows were rattled 90 miles away as sounds of battle were carried across the English Channel to London.

How serious are aircraft noises? In 1969, aircraft engine noises were officially recognized as an environmental pollutant. The National Environmental Policy Act of 1969, as applied to the Federal Aviation Act of 1958 (still in effect), requires inclusion of aviation noise as a possible pollutant in any environmental impact statement of proposed construction or improvements of an aviation activity. And the FAA continues to award various airports grants which fund studies to determine how the airport can keep its noise from bothering nearby businesses and homeowners.



WW II Series

I want to commend you on your WW II series article, "Ready to Mobilize," Part 1. It was absolutely correct and well written. Then in Flight Bag, Jan-Feb 90, I read, "PBYS only flew in the Southwest Pacific and shared duties with PBMs in the liberation of the Philippines."

Your article correctly located a patrol wing at Seattle, Wash. Patrol Wing 4 moved to Kodiak, Alaska, then to Dutch Harbor. Even before the Japanese invaded Attu and Kiska, VPs 41, 42 and 43 were based at Kodiak, Dutch Harbor, Umnak, and other places along the Aleutians chain. Sometimes we were as far north as Nome – a long way from the South Pacific.

Your article correctly stated that more than 3,000 PBYS were made. The CAF received a lot of them, and the RAF flew a large number from bases in England, as well as Patrol Wing 5 in Norfolk, Va. – also far from the Southwest Pacific.

Carl Dillon
2372 Hazel
Beaumont, TX 77702

Unitas XXX

Regarding your March-April 1990 issue, under "Honing the Edge" in the "People-Planes-Places" department, *Unitas XXX* is described. One very important unit was missing from your list of participants. VC-6 had an eight-man detachment aboard *Manitowoc* (LST-1180). We provided aerial target services to the South American naval forces and units of our own task force. The hard work and dedication of this crew should not be unnoticed.

AT1 Garry L. Arbogast
VC-6 Det Dam Neck
Virginia Beach, VA 23461-5588

Ed's note: Whole heartedly agree. Unfortunately, we're only as good as our sources. VC-6 was not mentioned in the press release from which we took the information. Thanks for keeping us straight.

Reunions, Conferences, etc.

VP-22 Assoc. reunion, Kansas City area. Contact Joe Brant, 10310 Manor Rd., Leawood, KS 66206, (913) 381-4487.

American Helicopter Society Annual Forum and Technology Display, May 21-

Naval Air Reserve Opportunities

A-6 Bombardier/Navigators

The Naval Air Reserve at NAS Atlanta, Ga., has openings for A-6 qualified BNs. If you are selected, your assignment to a RESFORON will involve extensive flight training and authorization to perform extra drills.

Qualifications: A-6 NATOPS qualified; O-3 or O-4 paygrade; former instructor duty a plus; NFOs from other communities welcome; support personnel needed also.

For more information, call: in Georgia, 1-800-822-4548 x5470; out of state, 1-800-241-2358 x5470; autovon 925-5470; or (404) 421-5470.

23, Washington, DC. Contact AHS, 217 N. Washington St., Alexandria, VA 22314-2538, (703) 684-6777.

Forrestal (CV-59) reunion, June 1990, Mayport, FL. Contact Lt. Marv Maschke, PAO, USS Forrestal (CV-59), FPO Miami, FL 34080-2730.

VF-84/61/5B/17 reunion, June 1-2, NAS Oceana, VA. Contact LCdr. Tom Bauer, VF-84, NAS Oceana, VA 23460, (804) 433-5345.

Essex (CV/CVA/ CVS-9) reunion, June 11-16, Knoxville, TN. Contact Bob Morgan, 6361 S.W. 106th Pl., Ocala, FL 32676, (904) 854-6474.

HS-85 20th anniversary celebration planned, July 1990, NAS Alameda, CA. Contact Cdr. Rob Blickle, X.O., HS-85, NAS Alameda, CA 94501, (415) 263-9204.

Salisbury Sound (AV-13) reunion, July 5-7, New Orleans, LA. Contact Paul Punzo, 3512 Somerset Dr., New Orleans, LA 70131.

VPB-20 reunion, July 6-8, Parkersburg, WV. Contact Robert F. Gilles, 126 Bennett Ave., Webster Springs, WV 26288.

Shangri-La (CV/ CVS/ CVA-38) reunion, July 17-22. Contact Barry Marple, 4211 Marblehead Ct., Virginia Beach, VA 23456, (804) 471-5356.

Dayton International Air and Trade Show, July 19-22. Contact Dayton Air and Trade Show, Dayton International Airport, Vandalia, OH 45377, (513) 898-5901.

CVW-16 reunion, July 26-29, Bremerton, WA. Contact Don Purdy, 512 Viewmont St., Benicia, CA 94510, (707) 745-1627.

Northeast Stearman Fly-In, July 20-22, Simsbury Airport, CT. Contact Bev Hasselmark at (203) 379-0901.

VA-163 reunion, July 21, Dallas-Fort Worth Hilton, Grapevine, TX. Contact Larry

Spear, 1551 S.W. 119th Ave., Pembroke Pines, FL 33025, (305) 431-8171.

Ranger (CVA/CV-61) reunion, August 3-5, Charleston, SC. Contact John Muzio, P.O. Box 49, Round Top, NY 12473.

Aviation Boatswain's Mates Assoc. Symposium, August 7-10, Silverdale, WA. Contact D. Deese at (206) 871-5963.

Philippine Sea (CV-47) reunion, August 9-12, Charleston, SC. Contact USS Philippine Sea Assoc., P.O. Box 597, Levittown, PA 19057, (215) 946-3836.

Assoc. of Minemen reunion, August 17-19, Yorktown, VA. Contact the association at P.O. Box 71835, Charleston, SC 29415, or call Cdr. Lyal Stryker, USN(Ret.), (803) 797-0841.

Bon Homme Richard (CV/CVA-31) reunion, August 17-19, Muskegon, MI. Contact Ralph Pound, P.O. Box 1531, Tupelo, MS 38802, (601) 842-8247/0572.

NAS Hutchinson, KS, personnel planned reunion. Contact Jim Powell, Box 113, Newburg, PA 17240.

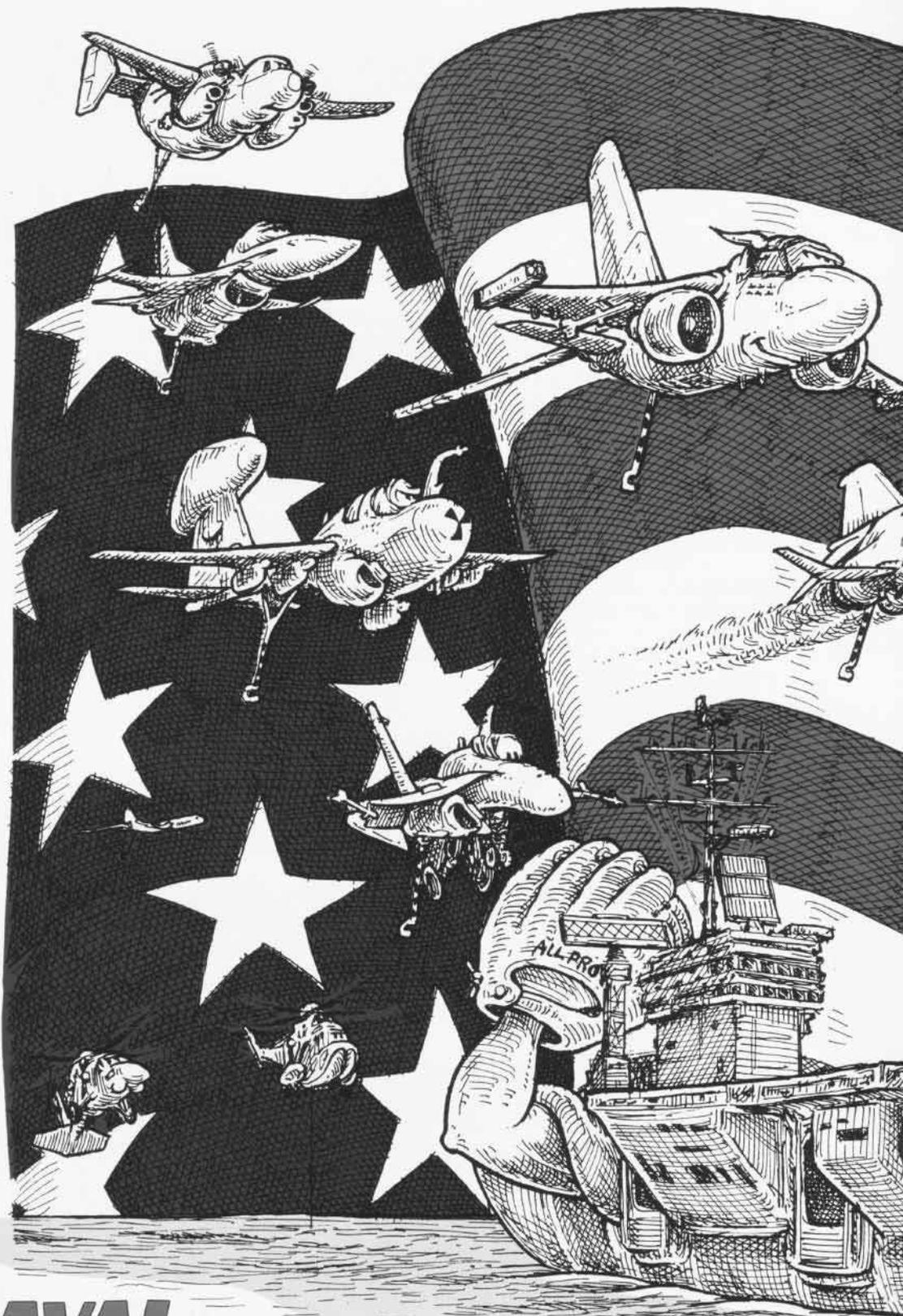
Escort carrier personnel planned reunion. Contact Escort Carrier Sailors Assoc., 1100 Holly Ln., Endwell, NY 13760.

VF-3/6/31 reunion, Fall 1990, Virginia Beach, VA. Contact LCdr. Carl Gull/Lt. Broc Bradley, VF-31, FPO New York, NY 09504-6106.



The U.S. Naval Institute and the Naval Aviation Museum Foundation are presenting their fourth annual naval aviation symposium – "Carrier Aviation: Past, Present, Future." It is a series of social events and seminars analyzing current and future carrier aviation, which will take place on May 10-11, 1990, in Pensacola, Fla.

For information, call (904) 453-NAVY or 800-327-5002.



NAVAL AVIATION NEWS

May-June 1990