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Page 30

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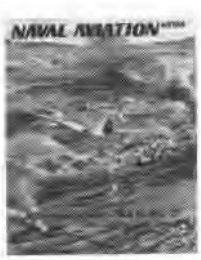

COVERS–Front: Combat artist John Charles Roach, recently returned from *Desert Storm*, rendered this oil painting of three F4Fs from USS *Enterprise* on 8 December 1941 after the previous day's devastation. Back: Robert L. Lawson photographed a VAK-308 KA-3B coming aboard *Ranger* in 1986.

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By VAdm. Dick Dunleavy, ACNO (Air Warfare)

Lessons and Solutions

The splendid performance of Naval Aviation in Operation *Desert Storm* demonstrated that we've been going in the right direction for a long time in a lot of areas. Above all, the training that our flyers and fixers received in recent years really paid off over the targets. We made a lot of good decisions in the planes and equipment that we bought, as well as in the emphasis we placed in such areas as suppression of enemy air defenses (SEAD). That emphasis saved a lot of our lives and made life miserable for the enemy. In fact, Naval Aviation provided 60 percent of the SEAD missions flown in support of coalition strikes.

No time to rest on laurels, however. *Desert Storm* showed us a need for improvement in many areas. The staffs in Washington are taking your inputs from the fleet and acting on them. Foremost is the need to forge better "connectivity" with the Joint Forces Air Component Commander (JFACC). We didn't have the communications architecture to quickly receive the Air Tasking Order from the JFACC to plan our strikes. The can-do attitude of our battle staffs made the best of the situation, but we must do better next time. The Chief of Naval Operations has made a fix to this a top priority.

Specific to Naval Aviation, here are a few of our lessons and initiatives:

Penetrating weapons: The Gulf War showed a need for bombs aboard our carriers that can penetrate hardened targets. As an interim fix, we are ordering kits and 2,000-pound penetrating bombs from the Air Force. In the future, the Advanced Bomb Family will include such a penetrator.

Stealth: The value of stealth as a force multiplier was known long before the war and revalidated by it. The proposed AX aircraft to replace the A-6 will incorporate as much stealth as we can afford.

Overland early warning: We noticed shortfalls in the overland capability of the E-2C; the Group II version will have enhancements in this area.

Reconnaissance: The F-14 TARPS (tactical air reconnaissance pod system) gave us great imagery, but the problem was getting it to all of the users. Unmanned aerial vehicles showed great promise, and the Advanced Tactical Air Reconnaissance System, soon to equip the FA-18, will magnify our capability.

Refueling: Lots of issues here, such as the number of Air Force tankers available to naval aircraft, the flash point problem of JP-4/8 fuel, and the drogue configuration of the tankers. We are investigating the possibility of a common fuel, but this may drive up fuel cost and restrict amounts available. Until then we are pressing for an agreement to ensure that JP-5 fueled tankers will be available. The Air Force is developing a KC-135R with two drogues trailing from the wings, and is installing three refueling points on some KC-10s.

Mission recorders: The relatively poor quality of our mission recorders hit home. We are pressing for a recorder that will be common for all tactical aircraft and that will be suitable for battle damage assessment, training, and mission evaluation.

Laser-guided bombs: We've known the value of precision weapons for years, but we didn't put enough of them in our carriers. That is changing. We're also going to have a laser self-designation capability for the FA-18, and we are investigating an autotrack capability for the A-6's laser.

Armed helicopters: The Marines, Army, and the Royal Navy demonstrated what an awesome weapon a helicopter is against patrol boats. We are pressing ahead to put missiles and survivability suites on the SH-60.

Other initiatives include improving signals intelligence connectivity and high-altitude bombing algorithms, improving battlefield air interdiction with the Air Force, and putting short-range missiles on S-3s and P-3s.

Naval Aviation will always be a force to be reckoned with as long we learn lessons and produce solutions. The Gulf War gave us an opportunity to reevaluate our thinking and adjust our priorities. The world is still a dangerous place, and Naval Aviation will still be the tip of the spear. Keep strokin'.

LCdr. Rick Morgan

EA-6B BuNo 163527 of VAQ-141 on SEAD (Suppression of Enemy Air Defenses) mission during Desert Storm.

Osborn

Lethal Load

An SH-3G *Sea King* helicopter was at a land base preparing to transport a large load of passengers and cargo to a ship at sea. The load exceeded the aircraft's gross weight by 1,000 pounds. The pilot executed a long, running takeoff in order to get airborne.

The *Sea King* made it into the air and proceeded toward the ship. The helo approached the landing area on the aft end of the ship and attempted to enter into a hover. As it did so, the rotor rpm began to droop. The power required to hover exceeded the power that was available.

The helicopter fell toward the ship, striking it belly first in an extremely nose-high attitude. The *Sea King* then rolled into the water and sank. The pilot, copilot, and two others were killed. Five other people were injured but survived.

Grampaw Pettibone says:

Gol dang it! The Sea King's been around for a long, long time and served us well. But it can't do the impossible.

The pilot in command was highly regarded for his airmanship skills but according to the investigators, rarely used the charts to calculate aircraft performance factors. The copilot was his close friend and they had flown the last 15 missions together.

They most certainly had confidence in each other.

But they didn't consult performance charts prior to the hover to make sure the SH-3 was within parameters – which it wasn't. The flight, therefore, ended in tragedy.

Fleet operations during this time were hectic and demanding. But short of saving a life under desperate circumstances, there just ain't no excuse to cut corners when flying the Navy way. Your bird can only give you just so much. You've got to draw the line somewhere, and performance charts and Naval Air Training and Operating Procedures Standardization point the way.

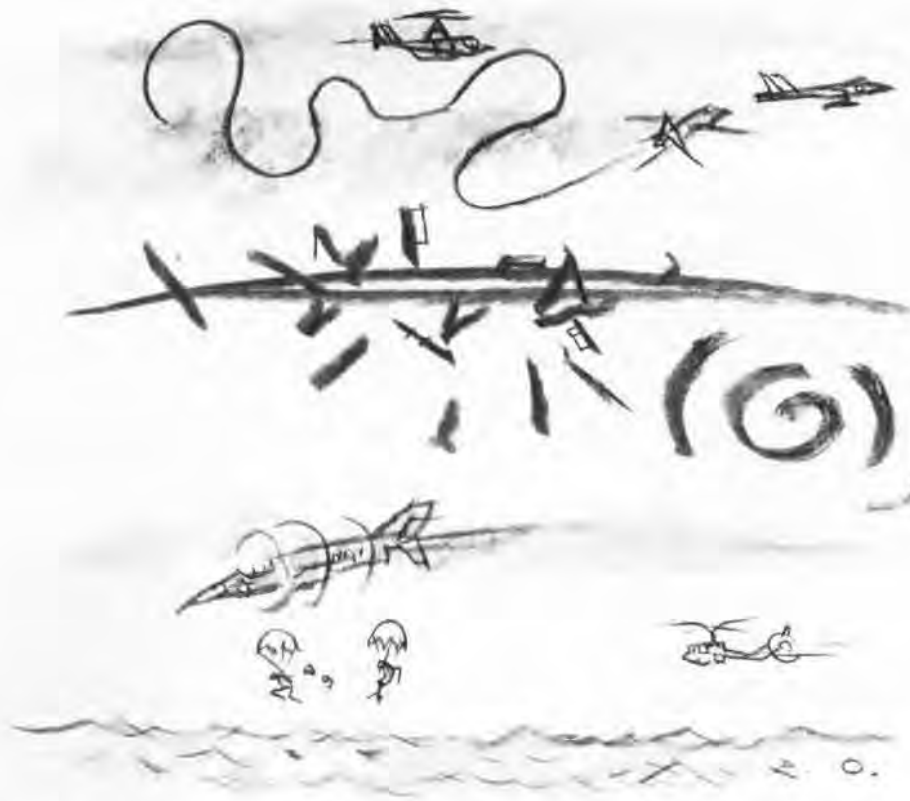
Phantom in a Frenzy

A section of F-4S *Phantoms* were over water practicing ship attack maneuvers, high G turns, and air refueling. After two hours and 50 minutes airborne, the wingman reached Bingo fuel and returned to base. The lead *Phantom* stayed on for a final "attack" under E-2C *Hawkeye* control. During the run, the F-4 was vectored toward two FA-18s and began a climbing intercept at 400 knots. After passing the first *Hornet*, the F-4 commenced several check turns looking for the second. Subsequently, the *Phantom* turned toward home base.

About a minute later, the pilot detected an FA-18 at four o'clock, moving away. The pilot of the F-4 made a 90-degree level right turn in afterburner, pulling four Gs at 325 knots with 18 to 20 units of angle of attack. In the turn, the *Phantom* entered a left, 360-degree uncommanded roll. The pilot countered the roll with right lateral stick and recovered, wings level, 30 degrees nose low, at about 325 knots.

The aircraft was now in a right skid (left yaw). The pilot thought that the ailerons or spoilers were not functioning properly. He scanned the cockpit, saw the ball pegged to the right, with rudder pedals stiff. He tried to push on the right rudder pedal but there was only a small amount of movement and the ball remained full right.

The pilot asked the radar intercept officer (RIO) to visually check the flight surfaces and simultaneously depressed the emergency disengage switch. He also disengaged all stabilization augmentation switches, ensured hydraulic gauges were at



3,000 pounds per square inch, and checked circuit breakers.

The RIO confirmed the skid and visually checked the rudder out to the left. The pilot declared an emergency and planned an arrested landing at the airfield. The pilot and RIO then reviewed the checklist for "uncommanded spoiler extension" and "hard-over rudder."

The crew checked the slats, ailerons, and spoilers. The RIO told the pilot that the left aileron was down and the right spoiler up, with the rudder off to the left.

The pilot ran rudder trim full right without effect. Remembering past experiences of cross-controlling in the F-4S, he believed he had a spoiler/aileron malfunction in addition to the known rudder problem.

The pilot decided to lower the gear and flaps to check controllability in the landing condition. The pilot and RIO did not talk about the need to trail the rudder following the controllability check by failing the utility system. This procedure was on the checklist. The pilot figured if disengaging everything didn't stop the problem, he would intentionally fail the utility system. At this point, the aircraft was at 9,000 feet, 250 knots.

At about 6,000 feet and 230 knots, the pilot lowered the gear and got a "down and locked" indication. But as the gear came down, the nose pitched up and the *Phantom* rolled to the left. The pilot applied full right aileron and pushed on the right rudder pedal as hard as he could, but the aircraft continued to roll left. Realizing he could not stop the roll, the pilot raised the landing gear handle. The plane completed a 360-degree left roll to wings-level, nose-low attitude. The pilot applied full right aileron, which had no effect. The *Phantom* continued into a second roll to the left. The RIO placed his hand on the lower ejection handle and noted that the left aileron was down and the right spoiler up with rudder still deflected left. He saw 3,000 feet mean sea level and 220 knots but didn't say anything to the pilot.

The pilot went to full afterburners, increased back stick, and saw airspeed at about 225 knots. The aircraft continued into a third roll, nose down. The pilot disengaged afterburner and set power at idle. The *Phantom* corkscrewed at 70 degrees nose down and the pilot could see only ocean. He fed in back stick but felt the *Phantom* stall. The stick was "mush" in his hand. At 2,000 feet, he transmitted, "Get out, get out, get out."

Both aviators ejected safely, but the pilot's head was thrown back as it entered the windstream and his helmet and mask were lost. His mask had been secured on only one side of the helmet. Both aviators were rescued by helicopter.

Grampaw Pettibone says:

That was some wild ride!

The investigation couldn't retrieve the wreckage of the Phantom but the culprit is believed to be hardover rudder, not spoiler or aileron problems. So a mechanical breakdown set this accident in motion.

But the crew shouldna let the Phantom slow down below minimum controllable airspeed with the flight controls actin' up like they were. That just added fat to the fire. Plus, the aviators had trouble decidin' what their real problem was. Also, a controllability check oughta be conducted well above 5,000 feet. Not much room for error when you're that low if things go bad, as was the case here.

There were some other drawbacks, such as possible conflicting Naval Air Training and Operating Procedures Standardization practices, which were addressed by officials. And Ole Gramps woulda liked to see the pilot and RIO help each other out a bit more with the pressure on. A better exchange of info, such as altitude and airspeed, as they got closer to water wouldna hurt.

Anyway, they survived a tough one. (And keep that O_2 mask cinched up right!)

Navy Nukes Head for Storage

In a televised address on September 27, President George Bush announced a dramatic reduction in U.S. nuclear arms, including the withdrawal of all tactical nuclear weapons from Navy ships.

Among many provisions, the order directed that all Navy air-deliverable nuclear weapons would be withdrawn from all aircraft carriers and stored or destroyed as would all such weapons associated with land-based naval aircraft, such as patrol planes.

Joint Chiefs of Staff Chairman Gen. Colin Powell noted that the withdrawal would provide "...space to carry additional conventional munitions, which are much more effective than they have been in the past." Powell also said, "I think it will give the Navy greater flexibility to respond to the kinds of missions that we see arising in the future and for which our new strategy is designed."

RP Senate Rejects Subic Treaty

The Republic of the Philippines Senate rejected on September 16 the treaty extending the lease on the Subic Bay naval base complex, including NAS Cubi Point. A compromise agreement reached on October 2 between the Senate and President Corazon Aquino to allow the United States forces three years to withdraw headed off a potential constitutional crisis between the Senate and President Aquino.

Faced with rejection of the treaty to allow the Navy to maintain bases at Subic Bay for 10 more years, President Aquino rescinded a notice of termination and proposed a referendum to decide the fate of the bases. Questions raised about the constitutionality of such a referendum resulted in the compromise reached with the Senate. However, the May 1992 elections in the Philippines may exert further influence on the fate of Subic Bay.

Indy Relieves Midway

The long-planned replacement of *Midway* (CV-41) by *Independence* (CV-62) was completed on September 11 when *Independence* pulled into its new home port of Yokosuka, Japan, as the Navy's only permanently forward-deployed carrier.

Independence and CVW-14 departed NAS North Island, Calif., on August 5, and *Midway*, with CVW-5 aboard, departed Yokosuka on August 10. The two carriers rendezvoused at Pearl Harbor, Hawaii, from August 22 through 28 for turnover of air wings and the exchange of some of the squadrons' aircraft. *Independence* then proceeded to Japan, while *Midway* made its first return to the U.S. since moving to Japan in 1973. *Midway* arrived in San Diego on September 14 and is scheduled for decommissioning in 1992.

At Pearl Harbor, CVW-5 and all but one of its squadrons (VFAs 192 and 195, VA-115, VAW-115, VAQ-136, and HS-12) shifted to *Independence*. VFAs 192 and 195 traded their FA-18A *Hornets* for the FA-18Cs of VFAs 25 and 113, which would return to the U.S. aboard *Midway* along with VFA-151, which changed home base from NAF Atsugi, Japan, to NAS Lemoore, Calif. VA-115 acquired several Systems Weapons Integration Program (SWIP) A-6Es and transferred all of its KA-6Ds. VFs 21 and 154, with F-14As, and VS-21, with S-3Bs, remained aboard *Independence* as new members of CVW-5.

VA-185, CVW-5's other A-6 squadron, was disestablished in August. (See article p.6.) VFA-151 will eventually be joined as its sister squadron at Lemoore by VFA-137, presently assigned to CVW-6 and based at NAS Cecil Field, Fla.

PH3 Malka Fliegener

Midway (CV-41), left, and Independence (CV-62) swap wings and squadrons at Pearl Harbor on August 23, 1991, as Independence heads for its new home port in Japan.

HSL-37 Stars in Record Drug Bust

Detachment 5 from HSL-37, deployed from NAS Barbers Point, Hawaii, aboard *Ingersoll* (DD-990), played a key role in the largest hashish drug bust in American history. The action, taking place 600 miles west of Midway Island, netted 100 tons of hashish valued at over $1.2 billion from the merchant vessel *Lucky Star*.

Det 5, with Lt. Mark Turner in charge, tracked *Lucky Star*, which exhibited behavior suspicious enough to warrant boarding. On July 1, Det 5's SH-2F helicopter chased down the smuggler vessel, guiding *Ingersoll* to the intercept. The Coast Guard Law Enforcement Detachment aboard *Ingersoll* then boarded un-*Lucky Star*, discovering a

cargo hold filled with thousands of bricks of hashish. *Ingersoll* escorted the smuggler to Pearl Harbor, where its crew was turned over to the U.S. Customs Service.

Red Wolves Rove Texas

Long active in the drug interdiction effort, Naval Aviation added another platform to the campaign during the summer when a detachment of HH-60H strike rescue helicopters deployed to Texas to support a marijuana eradication program.

Nine officers and 23 enlisted personnel from reserve Helicopter Combat Support Special Squadron (HCS) 4, based at NAS Norfolk, Va., augmented by three officers and three enlisted men from NAS Point Mugu-based HCS-5 in California, deployed to Bergstrom AFB, Texas, to aid the Texas Department of Public Safety in counter-narcotic operations. Covering 41 Texas counties, the *Red Wolves* flew over 240 hours, helping Texas authorities in confiscating marijuana with an estimated street value of $333,000.

Atlantic Fleet Welcomes SH-60F

An August 27 ceremony at NAS Jacksonville, Fla., marked the introduction of the SH-60F *Seahawk* carrier-based antisubmarine warfare helicopter into operational service with the Atlantic Fleet.

The *Tridents* of Helicopter Antisubmarine Squadron (HS) 3 had the honor of being the first East Coast squadron to trade their SH-3H *Sea Kings* for the new helicopter.

HS-3 personnel traveled to NAS North Island, Calif., upon return from Operation *Desert Storm* for training in operation and maintenance of the SH-60F from the Pacific Fleet's SH-60F fleet readiness squadron, HS-10. HS-3 has been reassigned from CVW-3 to CVW-8 and will eventually deploy aboard *Theodore Roosevelt* (CVN-71). While deployed it will also operate two HH-60H strike rescue versions of the *Seahawk*.

Last(?) Prowler Rolls Off Line

Grumman delivered the last scheduled production EA-6B *Prowler* carrier-based electronic warfare aircraft in a July 29 ceremony at its Calverton, N.Y., plant. Capt. Dana McKinney, program manager for the EA-6B, accepted the *Prowler* for the Navy.

EA-6B BuNo 164403 is the last of 170 built for the Navy and Marine Corps since the first fleet delivery 20 years ago in January 1971. (The total does not include the three prototypes converted from A-6A *Intruder* attack aircraft.) The aircraft have been progressively updated with the EXCAP, ICAP I, ICAP II, and, currently under way, the ADVCAP/Block 91 improvements.

The ADVCAP/Block 91 program includes an improved tactical support jamming suite, the ALQ-149 communications countermeasures system, improved navigation (including the Global Positioning System), new multifunction displays, a heads-up display, and a digital autopilot. Aerodynamic changes to improve maneuverability include the addition of fuselage strakes and modifications to wing slats, flaps, and wingtip speed brakes; these changes, along with J52-P-409 engines, will decrease stall speed and increase landing weight. Two additional wing pylons will be added for the purpose of carrying HARM antiradiation missiles in addition to a full complement of jamming pods and drop tanks. Completed ADVCAP aircraft will be remanufactured EA-6Bs.

Navy planning for the mid-1990s may possibly include reopening the EA-6B production line to preclude future shortfalls in inventory, and foreign nations such as Great Britain, Japan, and South Korea have expressed interest in purchasing the *Prowler*.

FA-18s Get Improved Engines

Deliveries of the General Electric F404-GE-402 engine began in August to McDonnell Douglas for installation in FA-18C/D *Hornets*. Known as the Enhanced Performance Engine (EPE), the new engine will become the standard power plant for all future production FA-18C/Ds beginning in 1992.

The EPE provides 17,700 pounds of thrust, up to 20 percent more thrust than the F404-GE-400 engine that currently powers the FA-18, without sacrificing the 2,000-hour hot-section life. The EPE's enhanced performance is the result of improvements in design and materials in the turbine and afterburner.

Flight testing of the EPE began July 2 in an FA-18 at NATC Patuxent River, Md., and is expected to be completed in early 1992.

In a related development, the Navy has selected the Growth II+ version of the General Electric F404 jet engine to power the proposed FA-18E/F strike fighter. The Growth II+ will provide 35 percent more thrust than the current 16,000-lb.-class F404-GE-400.

Lockheed, John Rossino

The Naval Air Reserve took delivery of its first C-130T Hercules transport (BuNo 164762) on August 20. RAdm. Richard K. Chambers, Commander, Naval Air Reserve Force, accepted the first of six to be delivered to VR-54 at NAS New Orleans, La., from Lockheed Aeronautical Systems Company President Ken Cannestra. Acquisition of a total of 28 C-130Ts is planned, along with the establishment of three more reserve VR squadrons. Tail code CW is assigned to VR-54.

Corps Resumes Bronco Training

On October 1 the Marine Corps officially took over replacement training for its OV-10 *Bronco* observation aircraft. Previously, the training had been conducted by the Air Force at Davis Monthan AFB, Tucson, Ariz.

OV-10 training was assumed by Marine Helicopter Training Squadron (HMT) 303 at Camp Pendleton, Calif., with the first class beginning November 4. HMT-303 is also the training squadron for Marine UH-1 and AH-1 helicopters, using UH-1N, AH-1J, and AH-1W models. Before the Air Force assumed all OV-10 training in 1981, Marine OV-10 training had been conducted by Marine Light Helicopter Squadron 267 at MCAS New River, N.C.

UNFOs To Get Stick Time

The undergraduate Naval Flight Officer (UNFO) flight syllabus has been revised to include flights during which the student will actually pilot the aircraft. Each UNFO at Training Squadron (VT) 10 will receive 11 flights (totaling 22 hours) in the T-34C, 7 of which will involve piloting the aircraft.

The purpose of the stick time is to expose the student to crew coordination, communications, and "ownership" of the aircraft, in order to enhance "air sense," situational awareness, confidence, and assertiveness. Students will also start flying during their second week at VT-10, rather than waiting until their twelfth week. UNFOs will also receive 18 more T-34C flights, involving no stick time, during intermediate training.

Nav Training Bound for Texas

Maritime navigation training for undergraduate Naval Flight Officers, conducted since late 1976 at Mather AFB near Sacramento, Calif., is now scheduled to move to Randolph AFB, Texas, instead of the previously announced move to Beale AFB, Marysville, Calif.

Navigation training is conducted by Naval Air Training Unit, Mather, in conjunction with the Air Force's 323rd Flight Training Wing, which trains students in the T-43A, a military version of the Boeing 737 airliner. The move to Randolph AFB will begin in mid-1993, with completion scheduled by the beginning of 1995.

HH-1N New Name for Rescue Hueys

An April 15 notice from the Naval Air Systems Command established the HH-1N designation for many of the H-1 *Huey* helicopters in the Navy and Marine Corps inventory. The redesignation was to be completed by September 30.

UH-1Ns have served for 20 years as combat observation and utility helicopters for the Marine Corps, and as rescue and utility helicopters assigned to amphibious assault ships, air stations, and to Antarctic Development Squadron 6. A series of ongoing and planned modifications to many UH-1Ns to upgrade their combat capability, including electronic and infrared countermeasures, night vision goggles, tactical radios, and defensive armament, necessitated a redesignation of unmodified UH-1Ns to HH-1Ns.

A total of 44 aircraft, including six VH-1Ns recently retired to the desert from the VIP transportation role with HMX-1, will be redesignated as HH-1Ns, leaving 118 as combat-configured UH-1Ns.

Established...

VQ-6

Fleet Air Reconnaissance Squadron (VQ) 6 was established in a ceremony on August 8 at NAS Cecil Field, Fla. Cdr. James York is the first C.O. of the *Black Ravens*.

VQ-6 will eventually operate eight ES-3A *Viking* carrier-based electronic reconnaissance aircraft on detachments with Atlantic Fleet aircraft carriers as a long-needed replacement for the EA-3B *Skywarrior*, which ceased carrier operations in 1987.

VQ-6 is administratively assigned to Commander, Sea Strike Wing 1, and is assigned tail code ET. VQ-6's Pacific counterpart, VQ-5, was established in April.

HSL-51

Helicopter Antisubmarine Light Squadron (HSL) 51 was established on October 1 at NAF Atsugi, Japan, Cdr. Gary Hall commanding.

HSL-51 stood up as a consolidation of detachments from various West Coast HSL squadrons. It will eventually operate 10 SH-60B *Seahawks*, which will deploy aboard Seventh Fleet cruisers and escorts based in Japan. HSL-51 is administratively assigned to Commander Fleet Air, Western Pacific, and is assigned the tail code TA.

Disestablished...

VA-185

An August 6 ceremony at NAF Atsugi, Japan, marked the disestablishment (officially August 30) of Attack Squadron (VA) 185 after over four years of active service. Cdr. Bernard M. Satterwaite, Jr., was the last C.O. of the *Nighthawks*.

VA-185 was established at NAS Whidbey Island, Wash., on December 1, 1986, moving to Atsugi in September 1987 to become a sister squadron of VA-115 in CVW-5 aboard *Midway* (CV-41), when CVW-5 was structured as a *Coral Sea*-style air wing with two medium attack squadrons instead of one. Operating A-6E and KA-6D *Intruders*, VA-185 made its first major deployment in 1989 to the Indian Ocean, and, while returning, participated in Operation *Classic Resolve* supporting the Philippine government against an attempted coup.

Deploying in October 1990 in support of Operation *Desert Shield*, VA-185 led the first air strikes from the Persian Gulf against Iraqi targets. During Operation *Desert Storm*, the *Nighthawks* flew 457 combat sorties, delivering 720,000 pounds of ordnance on enemy targets.

Upon return to Japan in April 1991, VA-185 prepared for disestablishment, with many of its aircraft and personnel merging with VA-115 to form one large A-6 squadron. During its four years and nine months of service, the *Nighthawks* flew 14,000 hours without loss of a single aircraft or aircrew in combat or in peacetime.

VAW-127

Carrier Airborne Early Warning Squadron (VAW) 127 was disestablished at NAS Norfolk, Va., on September 30 after over eight years of service. Cdr. Stephen D. Doyle was the last C.O. of the *Seabats*.

Established on September 2, 1983, as the VAW squadron for newly forming CVW-13, the *Seabats* made three major Mediterranean deployments aboard *Coral Sea* (CV-43) operating the E-2C *Hawkeye*. During its first deployment, VAW-127 provided early warning and strike support for retaliatory strikes against Libya in March and April 1986. The *Seabats* completed their

third and last major deployment in September 1989 when *Coral Sea* returned to Norfolk prior to her decommissioning.

After CVW-13 was disbanded in January 1991, VAW-127 participated in drug interdiction operations and other fleet assignments until drawn down for disestablishment.

VP-MAU Moffett

An August 17 ceremony at NAS Moffett Field, Calif., marked the disestablishment (officially September 30) of Patrol Squadron Master Augment Unit Moffett (VP-MAU(M)). Cdr. Jerome H. Hines, USNR, was the last C.O. of the *Rolling Thunder*.

Established on December 20, 1986, and modeled after its counterpart at NAS Brunswick, Maine, VP-MAU(B) (which was disestablished on June 30), VP-MAU(M) trained reserve crews to augment active duty patrol squadrons when necessary. Unlike reserve force squadrons, which deploy as units in their own aircraft, the *Rolling Thunder* used fleet-current aircraft (baseline, Update I, and Update III versions of the P-3C, as well as the TP-3A for pilot training) to train individual crews which would be attached to their gaining active duty squadrons in event of a call-up.

Although not a squadron, VP-MAU(M) crews often operated small detachments in the Pacific in support of operations of fleet squadrons. During 1987, *Rolling Thunder* crews augmented VP-48 deployed to NAS Cubi Point, R.P., and VP-47 deployed to NAF Misawa, Japan. In 1988, the unit flew missions in support of drug interdiction operations. In 1989, seven MAU crews flew tactical events in the largest joint Pacific exercise, *PACEX 89*. During 1990, the unit provided training to VP-91, a reserve force squadron based at NAS Moffett Field, Calif., as it upgraded from the P-3B to the P-3C Update III. Also in 1990 and 1991, *Rolling Thunder* crews operated in the Caribbean on drug interdiction missions.

VP-MAU(M)'s crowning achievement was the provision of a crew and maintenance detachment in support of Operation *Desert Storm*, which flew seven combat missions in the Persian Gulf. The *Rolling Thunder* also compiled a mishap-free history while flying almost 12,000 hours.

For the Record...

- ***Bataan*** was approved by the Secretary of the Navy as the name of the fifth *Wasp*-class LHD. The first four ships in the class are (in order): *Wasp*, *Essex*, *Kearsarge*, and *Boxer*. The previous *Bataan* was an *Independence*-class light aircraft carrier which saw action during WW II and the Korean War.

- The **last U.S. Navy participants** of the Gulf War arrived home on August 27, including ***New Orleans*** (LPH-11), with HMM-268 embarked.

- ***Nimitz*** (CVN-68) returned to Bremerton, Wash., on August 24 from a six-month deployment to the Persian Gulf, Indian Ocean, and western Pacific. Her air wing, CVW-9, maintained air patrols over Iraq and formed part of the Maritime Interdiction Force enforcing sanctions against Iraq. *Nimitz* was relieved on July 13 by *Abraham Lincoln* (CVN-72), with CVW-11 aboard.

- An **SH-60F** helicopter from HS-6 dropped a two-man Explosive Ordnance Disposal team from ***Abraham Lincoln*** (CVN-72) into the Persian Gulf on August 2 to destroy a mine spotted earlier by a Marine helicopter from HMM-163(C) aboard ***Peleliu*** (LHA-5). More than 1,250 mines have been destroyed since the end of the Gulf War.

- Return to the Gulf: A two-helicopter detachment from **HM-15** deployed from NAS Alameda, Calif., to Bahrain on July 19 to provide vertical-onboard (VOD) delivery services to Navy ships deployed to the Persian Gulf. The *Blackhawks* maintained an MH-53E VOD detachment there earlier this year during Operation *Desert Storm*.

McDonnell Douglas

On September 4 an A-6E Intruder assigned to the Pacific Missile Test Center successfully launched a Harpoon antiship missile with Block 1D system improvements. The missile flew more than 50 miles, altering course at a programmed point and hitting the target ship. The Block 1D improvements include guidance software that allows reattack in cloverleaf search patterns, and a two-foot fuel tank extension that doubles the range over the Block 1C version. Many earlier versions will be upgraded to the Block 1D configuration.

McDonnell Douglas

Formal ceremonies held August 23 aboard the Italian Navy's new aircraft carrier Giuseppe Garibaldi at Norfolk, Va., welcomed the Italian Navy's two McDonnell Douglas TAV-8B Harrier IIs, the first fixed-wing aircraft to operate in the Italian Navy since 1923. The carrier will eventually operate the Harrier II Plus aircraft.

General Dynamics via Robert F. Dorr

The Coast Guard's newest Hercules made its first flight as an EC-130V airborne early warning aircraft on July 31. EC-130V 1721 was modified by General Dynamics at Fort Worth, Texas, with an APS-125 radar mounted in a rotodome above the fuselage. The EC-130V's endurance will enable it to patrol in drug interdiction missions much longer than can the E-2C Hawkeyes currently on loan to the Coast Guard from the Navy. The aircraft will be based at CGAS Clearwater, Fla.

● The **TA-4J** *Skyhawk* has been phased out of use in student NFO training with **VT-86** at NAS Pensacola, Fla., due to high cost of operation. Syllabus flights that have featured the TA-4J since 1974 are now using the **T-2C**.

● The **AH-1T** version of the *Super Cobra* helicopter gunship returned from what is likely to be its **last deployment** when *Guadalcanal* (LPH-7) returned on August 7 from a Mediterranean deployment in support of Kurdish relief operations. HMLA-269 from MCAS New River, N.C., which provided the AH-1T detachment to HMM-264, is the last operator of the AH-1T. All remaining AH-1Ts will be converted into AH-1Ws by the end of 1992.

● **HS-4** at NAS North Island, Calif., recently completed transition from the SH-3H antisubmarine warfare helicopter to the **SH-60F**, becoming the third West Coast squadron to operate the carrier-based version of the *Seahawk*.

● **VMFA-312** at MCAS Beaufort, S.C., received the first three of 12 new night-attack **FA-18C *Hornets*** on August 8 to replace its FA-18A versions. VMFA-312 is the first squadron at Beaufort to make the transition to the FA-18C.

● The Marine Corps recently acquired **six OV-10A** observation aircraft from the U.S. Air Force inventory. The *Broncos* will be upgraded to **OV-10D+** versions at Naval Aviation Depot, Cherry Point, N.C., and join the other OV-10s assigned to Marine observation squadrons.

● **T-2Bs retired (again):** The 14 T-2B *Buckeye* trainers in service with VT-10 at NAS Pensacola, Fla., training student Naval Flight Officers (NFO), were retired from service for the second time at the end of October 1991. Replaced by the T-2C for flight training in the early 1970s, the T-2Bs were returned to service for NFO training during the 1980s to alleviate a shortage of T-2Cs in the Naval Air Training Command. With a reduced pilot training requirement and the introduction of the T-45A, T-2Cs are now available for NFO training.

● **VA-155** received its first Systems Weapons Improvement Program **(SWIP)** version of the **A-6E** on August 19. The SWIP *Intruder* includes new composite structure wings and the ability to fire HARM antiradiation missiles. VA-155 is the last West Coast A-6 squadron to acquire the SWIP version.

● **VQ-1** recently moved its permanent detachment in Japan to **NAF Misawa** in northern Honshu Island. The detachment had been a fixture at NAF Atsugi for almost two decades after the main body of VQ-1 relocated from Atsugi to NAS Agana, Guam.

● **VP-1** completed transition from the P-3C to the **Update III Retrofit** version of the **P-3C** in August, the same month that **VP-4** began its transition from the Update I. Both squadrons are based at NAS Barbers Point, Hawaii.

● **VP-65**, a reserve squadron based at NAS Point Mugu, Calif., received its first of eight **P-3C** *Orions* on August 2. Transition from the P-3B officially began on September 1, with the goal of having 14 fully trained aircrews, as well as maintenance personnel, by March 1993.

● **VP-68**, a reserve squadron based at NAF Washington, D.C., has received its full complement of eight **P-3C** Update I aircraft to replace its P-3Bs and is training to be fully ready by May 1993.

● Five **Squadron Augment Units** were disestablished on September 30 at

Naval Air Reserve, Norfolk: VA-0686, which augmented the A-6 squadrons of Medium Attack Wing 1; VC-0686, which augmented adversary squadron VFC-12; VF-1486, which augmented the F-14 squadrons of Fighter Wing 1; VRC-4086, which augmented VRC-40; and VAW-1086, which augmented the E-2 squadrons of Carrier Airborne Early Warning Wing 12.

- **VC-1** at NAS Barbers Point, Hawaii, retired its three **CH-53A** *Sea Stallion* helicopters by October 1. The *Sea Stallions* were used for a variety of transport and utility tasks in support of fleet operations in the Hawaiian Islands.

- The **P-3C production** line reopened on August 7 to produce eight Update III aircraft for delivery to South Korea. The line was moved from Palmdale, Calif., to Marietta, Ga., as part of Lockheed Aeronautical Systems Company's reorganization.

- The Navy awarded McDonnell Douglas Corporation and Hughes Aircraft Company a contract on August 16 to build an improved radar for the FA-18, the **APG-73**, which is an upgrade of the APG-65 currently used on the *Hornet*. The APG-73 has more than three times the speed and memory of the APG-65. Deliveries of FA-18s with the APG-73 are expected to begin in June 1994, and the new radar will also be installed in the proposed FA-18E/F versions of the *Hornet*.

- A retired AV-8C ***Harrier*** was dedicated at NAS Memphis, Tenn., in July by Marine Aviation Training Support Group 90 as a **memorial** to the Marines who served in Operations *Desert Shield* and *Desert Storm*.

- **Marine Aviation Training Support Group, Lakehurst, N.J.**, was deactivated on July 8.

- **Lt. Bill Reilly** was the VFA-132 FA-18A pilot who was ordered to shoot down the crippled E-2C over the Mediterranean on July 8. (See *NANews*, Sep-Oct 91, p.5.)

Corrections: *Jul-Aug 91, p.9*: The BuNo of the 1,000th Hornet is 164237, vice 164327. *Jul-Aug 91, p.11*: The BuNo of the last Navy P-3C is 163295, vice 163925. *Sep-Oct 91, p.8*: The A-6 on static display at NAS Oceana is not an A-6E but a KA-6D reconfigured to resemble an A-6E.

Bell Helicopter Textron

Bell Helicopter Textron delivered the 100th production AH-1W Super Cobra to the Marine Corps in an August 8 ceremony at Fort Worth, Texas. Shown are Bell President Webb Joiner, Col. Terry Crews (AH-1 Program Manager), Col. Randy West (C.O., MAG-39), and Bell Chairman L. M. "Jack" Horner.

PH3 Greg Welch

VFA-192 "Golden Dragon" FA-18As approach Midway (CV-41).

Abraham Lincoln and Carrier Air Wing 11 deployed to the Persian Gulf to enforce United Nations resolutions and sanctions regarding Iraq.

Wake for the Whale

LCdr. Rick Burgess

VAQ-33's last "Whale" formation at the break over Key West, Fla., September 27. VAdm. Dunleavy pays tribute to the sailors who flew and fixed the A-3.

By LCdr. Rick Burgess

It has finally happened: the Navy's "Whale" is gone.

No need to alert Greenpeace. In fact, this is one whale whose demise it would have cheered years ago.

This "Whale," the Douglas A-3 *Skywarrior*, was finally retired from the Navy on September 30 after 35 years of service. The A-3 was farewelled in a September 27 ceremony at NAS Key West, Fla., where Tactical Electronic Warfare Squadron (VAQ)33, one of the last three Navy units to operate the A-3, hosted the wake. A crew and aircraft (a *Desert Storm* veteran) from Fleet Air Reconnaissance Squadron (VQ) 2 flew in from NS Rota, Spain, to join in the farewell. The third A-3 operator, Naval Weapons Center China Lake, Calif., readied its sole NA-3B for retirement that week.

The A-3 retirement banquet attracted dozens of Whale veterans, including some who introduced the A-3 to the fleet. The guest speaker was retired Captain Paul Stevens, the man whose leadership took the *Skywarrior* through its test phase to the fleet as commanding officer of the first A-3 squadron, Heavy Attack Squadron (VAH) 1. Retired Captain Sid Banney, another VAH-1 C.O. who made the A-3 work, was also there, as were Vice Admiral Julian Lake, president of the Old Crows Association; Captain Jack Taylor, twice C.O. of VQ-2; and Captain James Vambell, with over 6,500 flight hours in A-3s. Vice Admiral Dick Dunleavy, Assistant Chief of Naval Operations (Air Warfare), who started out his long career in Whales, presided over the events, conducted by VAQ-33 C.O. Commander B. A. Notkke.

Capt. Stevens paid tribute to the A-3's designer, Ed Heinemann, also present for the occasion despite the infirmities of advanced age: "The wizard of El Segundo really designed a fine airplane!" Heinemann, an engineer at Douglas Aircraft's El Segundo division and already a designer of a host of successful warplanes, including the SBD *Dauntless* and AD *Skyraider*, is credited with defying convention with the *Skywarrior* design.

The Navy, embroiled in the post-WW II controversy over division of roles and missions between the armed services in the new nuclear age, called for a jet aircraft that would be able to deliver any but the largest nuclear weapons at a range in excess of 1,000 miles. This aircraft was intended to operate from the proposed *United States* supercarrier, designed to handle airplanes weighing 100,000 pounds. Faced with cancellation of the *United States* in favor of Air Force procurement of the Convair B-36 intercontinental bomber, the Navy's only alternative was to field a jet bomber that could operate from the *Midway*-class carriers, which had a deck weight limit of 68,000 pounds.

Heinemann drafted plans for a plane of such limited weight and took them to a Navy captain in Washington, who said, "You know damn good and well you can't build an airplane with that weight. I thought you were an honest engineer."

That captain, John Murphy, took a look at the design anyway, and the rest is history. (See "A Whale of an Airplane," *Naval Aviation News*, Nov-Dec 1987, for Heinemann's own account of the amazing creation of the *Skywarrior*.)

The prototype, designated XA3D-1, first flew on October 28, 1952, at Edwards AFB, Calif., with test pilot George Jensen at the controls. The swept-wing, twin-engined bomber, the first aircraft to be designed as a carrier-based nuclear strike aircraft, was soon to be the largest aircraft to ever regularly take off from and land on aircraft carriers. The A3D (as it was designated under the pre-1962 Navy system) quickly succeeded the North American AJ *Savage*, which was originally designed to operate as a conventional bomber from *Midway*-class carriers and reconfigured for the nuclear strike role.

The A3D-1 entered service on March 31, 1956, when then-Com-

mander Paul Stevens brought five A3D-1s of VAH-1 from NAS Patuxent River, Md., to NAS Jacksonville, Fla. A month later, VAH-2 introduced the *Skywarrior* to the Pacific Fleet. VAH-1 took the A3D on its first major deployment in January 1957, aboard *Forrestal* to the Mediterranean. The A3D-1 and more definitive A3D-2 (A-3B) went on to equip 13 VAH squadrons (including two replacement training squadrons), giving the Navy a credible nuclear strike force and making the aircraft carrier something for the Soviet Union to reckon with in the maneuvers of the cold war.

The *Skywarrior* took well to the carrier, but all was not roses in its fleet introduction. The lack of carrier experience of many of its initial crews made for difficulties "around the boat," and the reputation of the heavy attack community was seriously jeopardized. Through the efforts of RAdm. J. D. "Jig Dog" Ramage, more jet-experienced pilots filled out the squadrons and carrier operations went more smoothly.

As fine as the *Skywarrior* was, there was always some tension in its relationship with the aircraft carriers it sailed on. Its fuselage shape and sheer size earned it the appellation "Whale," and it became a hated nuisance to air bosses, who cursed it as they tried to move planes about crowded flight decks. In the early days of its career, when entire squadrons of Whales would deploy aboard large carriers, only the diminutive size of the other aircraft aboard – such as the A-4 *Skyhawk* (another Heinemann design) – made deck handling tolerable.

The Whales also operated in detachments off of the smaller *Essex*-class (27-Charlie) carriers in the Pacific Fleet; to their pilots, Capt. Stevens saluted, "You guys that flew off the 27-Charlies have to be the greatest pilots in the world."

While very popular with its crews for its flying qualities, the lack of ejection seats earned the *Skywarrior* another appellation, with A3D grimly denoting "All 3 Dead."

Skywarriors figured prominently by their presence during the cold war crises of the late 1950s and early 1960s, including the Cuban Missile Crisis. The A3D's role in nuclear deterrence began to fade in 1960, however, with the first patrol of the *Polaris* fleet ballistic missile submarines and the introduction of the supersonic North American A3J (later A-5A) *Vigilante*. (The nuclear mission of the *Vigilante* was short-lived and the aircraft served out its days as the RA-5C reconnaissance aircraft, retiring in 1979, and being out-lived by its A-3 predecessor by 12 years!) A total of 283 *Skywarriors* of all versions were built by Douglas when production ceased in 1961.

Coincident with the demise of the nuclear mission was the Vietnam War, which was to endear the Whale to countless carrier aviators as an angel of mercy. Long before the war, removable hose reel aerial refueling packages were fitted to A-3Bs. With the grind of daily air operations over Vietnam, the A-3 became extremely valuable as a tanker. Eventually, 85 A-3Bs had bombing equipment removed and permanent tanker packages installed, being redesignated as KA-3Bs. Five more A-3Bs were modified as EKA-3Bs, with electronic countermeasures (replacing the EA-1F *Skyraider*) and aerial refueling missions, with 34 KA-3Bs eventually becoming EKA-3Bs as well. Tanker Whales with VAH and VAQ squadrons were credited with saving over 700 aircraft from loss during the course of the war.

The A-3B did enjoy a brief and little-known bombing career over Vietnam during 1965 and 1966, with VAHs 2, 4, and 8 dropping "iron bombs" on lightly defended targets. Mining missions were flown as late as March 1967, when one VAH-2 A-3B was shot down over North Vietnam. Another VAH-2 A-3B fell victim to a MiG off China's Hainan Island in April 1966.

Other Whales skulked over Vietnam as well. RA-3Bs of Heavy Photographic Squadrons (VAPs) 61 and 62, many camouflaged with black or multi-shaded paint schemes, conducted infrared reconnaissance of North Vietnamese road networks at night. It was dangerous work: VAP-61 lost four RA-3Bs to ground fire. VQs 1 and 2 operated EA-3B electronic reconnaissance variants throughout the war, providing vital intelligence to the fleet and to high-level commanders.

The wind-down of the Vietnam War saw the KA-3B and EKA-3B replaced by the KA-6D *Intruder* and the EA-6B *Prowler*, respectively, with KA-3B tankers joining the Naval Air Reserve. The EA-3Bs of VQs 1 and 2 soldiered on as the only carrier-based Whales, showing up at every "hot spot," providing a vital perspective on developing events. The EA-3B was withdrawn from carrier use and from VQ-1 in December 1987, with VQ-1 turning over its Whales to VQ-2, which operated them to the very end, taking the Whale to its last war in January 1991 in support of Operation *Desert Storm*.

Beginning in 1970, the RA-3Bs were retired from their photoreconnaissance role and many were modified into ERA-3B electronic aggressor aircraft for service with VAQ-33 and later VAQ-34. These aircraft ranged throughout the world, providing realistic simulation of potential enemy threats to shipboard radar operators. These units also operated between them a handful of TA-3Bs, KA-3Bs,

An ERA-3B over Saratoga symbolizes the "Whale's" VAQ-33 mission of training the fleet to combat potential threats.

VAQ-33

and at least one each of the EA-3B, EKA-3B, and UA-3B versions. VAQ-34 retired its ERA-3Bs in February 1991, leaving VAQ-33 the last squadron to operate the Whale in the United States.

Among the various modifications of the A-3 were the TA-3B bombing and navigation trainer, some of which were modified as executive transports, joining a single VA-3B in that role. A VAQ-33 TA-3B made the Whale's last carrier landing on August 25, 1989.

Because of its large size, the A-3 lent itself to versatility as a research and development platform, particularly in testing fire control radars.

Throughout its entire career, many variants of the A-3 served at various test establishments, particularly the Pacific Missile Test Center at Point Mugu, Calif. These A-3s sported a wide variety of antennae and radomes in the course of their active lives.

At the retirement ceremony, VAdm. Dunleavy paid tribute to Ed Heinemann, the pioneers who made the Whale a success, and, above all, the sailors that flew and maintained the A-3 over its long career. As for the *Skywarrior*: "An aircraft of this capability will never go away."

That seems to be the case. Many of the recently retired Whales have joined a few others at civilian defense contractors (see Table 1). Though piped ashore from the Navy, they will be serving the nation in military research projects. ■

A VAH-4 A-3B "pickles" a bomb on a target in Vietnam.

Table 1

A-3s Still Flying

The following *Skywarriors* are now being operated or retained for parts support by defense contractors in military research roles:

Raytheon Corp. (for U.S. Army), Holloman AFB, N.M.	
ERA-3B	144838
ERA-3B	144841
RA-3B	144843
Westinghouse Corp. (for U.S. Air Force), Baltimore, Md.	
NRA-3B	142256
Hughes Aircraft Co., Van Nuys, Calif.	
NRA-3B	142667 (parts support)
NRA-3B	144825 (parts support)
ERA-3B	144846
TA-3B	144858
NTA-3B	144867
Chrysler Technologies Airborne Systems Corp., Waco, Texas	
EA-3B	144865
Thunderbird Aviation, Phoenix, Ariz.	
ERA-3B	142668
ERA-3B	144832
TA-3B	144856 (parts support)
ERA-3B	146446

A VAH-4 A-3B refuels an RA-5C off Vietnam. The A-3 outlived its intended replacement by 12 years.

LCdr. Rick Burgess

"Killer Whale." EA-3B BuNo 146454, a Desert Storm veteran, represented VQ-2 at the "Whale" retirement ceremony.

Table 2

Navy A-3 Operators

VAH-1
VAH-5
VAH-6
VAH-7
VAH-8
VAH-9
VAH-11
VAH-13
VAH-123 (ex HATUPAC)
RVAH-3 (ex VAH-3)
VAQ-33
VAQ-34
VAQ-129 (ex VAH-10)
VAQ-130 (ex VAW-13)
VAQ-131 (ex VAH-4)
VAQ-132 (ex VAH-2)
VAQ-133
VAQ-134
VAQ-135
VAK-208 (ex VAQ-208)
VAK-308 (ex VAQ-308)
VAP-61 (ex VCP-61)
VAP-62 (ex VJ-62)
VCP-63
VQ-1
VQ-2
VR-1
Commander Fleet Logistics Support Wing Det, Washington, D.C.
Naval Aerospace Recovery Facility (ex-National Parachute Test Range), El Centro, Calif.
Naval Air Development Center, Warminster, Pa.
Naval Airborne Project Operations Group, Hickam AFB, Hawaii
Naval Air Reserve Unit, Alameda, Calif.
Naval Weapons Evaluation Facility (ex-Naval Air Special Weapons Facility) Albuquerque, N.M.
Naval Air Test Facility, Lakehurst, N.J.
Naval Air Test Center, Patuxent River, Md.
Naval Weapons Center (ex-Naval Ordnance Test Station), China Lake, Calif.
Pacific Missile Test Center (ex-Naval Missile Center), Point Mugu, Calif.

Source: *Douglas A-3 Skywarrior*, Aerograph #5, by Rene Francillon with Edward Heinemann. Aerofax, Inc., 1987, Arlington, Texas.

A Goodbye Between Friends

By JOC Craig D. Grisoli

JOCS B. A. Cornfeld

A VAQ-33 TA-3B lifts off from NAF Washington with MCPON Duane Bushey aboard.

Having shared both good and bad times, one old friend patted the other, said goodbye, and parted ways forever last summer.

These brothers-in-arms – one machine, one human – were each reaching retirement and took the opportunity for one last flight together. The TA-3B *Skywarrior*, better known as the "Whale," is a veteran of 35 years' service to the Navy. The aircraft was retired from the Navy's inventory during ceremonies at NAS Key West, Fla., on September 27, when Tactical Electronic Warfare Squadron (VAQ) 33 bid farewell to its six venerable giants. Master Chief Petty Officer of the Navy (MCPON), AVCM(AW) Duane R. Bushey, will complete 30 years of service at the end of August 1992.

The goodbyes began when a VAQ-33 Whale with a crew of five flew to NAF Washington, D.C., on a training mission. The MCPON was offered a ride and he grabbed the chance to navigate his former aircraft for the last time.

Bushey is a qualified aircrewman and navigator in 16 types of aircraft, but he says the Whale has always been his favorite. "It's probably the aircraft in which I had the biggest responsibility. I was also one of the last to enter the enlisted navigator program. When I started, there were only about 25 or 30 flying in A-3s," explained the MCPON.

With five years in the Navy, Bushey was an aviation electrician's mate first class when he reported to Heavy Attack Squadron (VAH) 123, NAS Whidbey Island, Wash., and began an almost career-long association with the Whale. "I reported to the squadron, which was the replacement air group for A-3s, to be a plane captain," said Bushey. "I had been flying for about three months when word got out that there was a shortage of officer navigators, so the right seat was opening up to enlisted flyers. I jumped at the chance to sit up front, and I flew for about six months doing really simple navigation."

Being good in the right seat, Bushey was noticed by a navigation instructor at Whidbey Island. "He took me under his wing and had me come to his class at night and sit in. I learned dead-reckoning and celestial navigation there," said the MCPON, who has over 3,000 hours in the A-3. "A couple of opportunities came up for me to fill in gaps in the flight schedule, and I took advantage, even though I had not officially completed my "unofficial" schooling. You might say I got into flying right seat through the back door." All of this, Bushey admits, was done without the knowledge of his commanding officer.

Finally the day came that put Bushey on the spot. "I got my flight bag and a weather report, suited up, and flew out. I had to use celestial and pressure pattern navigation to get us there. There was no such thing as Omega or LORAN navigation [equipment] in those days."

The flight went off without a hitch. In fact, the young petty officer impressed the aircraft commander, who had been a navigator at one time, and had a reputation for being a demanding pilot on his navigators. "When we got back, he said I'd done a good job and asked when I graduated from navigation school," the MCPON said. "That's when it hit the fan!"

Later that day, Bushey was called to the skipper's office, and told to be in dress blues. He reflected, "The first thing that ran through my mind was to call Sue [his wife] and tell her not to buy too many groceries. I thought I was headed for a court-martial." Needless to say, young Bushey was not brought up on charges. After telling his story, he was "officially" sent to navigation school – as an instructor.

The next two years were the newly certified navigator's most memorable. "I was still with VAH-123 at the time, and we were doing carrier qualifications with new pilots and navigators. We became a very close-knit group; we worked hard and played hard. Our training load was heavy because of Vietnam," recalled Bushey.

"That's when I also learned why the *Skywarrior* was called the 'Whale,'" said Bushey. "They are big and heavy, but graceful in the air; but once you make them 'dirty' [gear down], they're not too graceful, especially when you get close to the carrier deck. It was an aircraft you had to respect."

That respect was evident at about 5:20 p.m. on August 19. Returning from his last A-3 flight, Bushey looked as bright-eyed and happy as he probably did back in 1967 after his first Whale flight. An hour was spent packing the parachute he had released to slow the flying giant upon its return. Many thoughful and perhaps painful moments were spent paying a final tribute to fellow enlisted A-3'ers who had lost their lives in the Whale. Bushey said later there were many.

A final kick of a tire, handshakes all around, and a tear of pride, thanks, and remembrance held steady in the corner of an eye – an era ended that day. ■

Strike Rescue in the Gulf War

By Steve Millikin

Bob Lawson

An HCS-5 HH-60H demonstrates its rescue mission.

With heroes returning from Operation *Desert Shield/Desert Storm*, the nation celebrated its victory over Saddam Hussein and Iraqi forces. Foremost on the minds of military planners is analyzing the lessons of the ground and air campaigns over the seven months of the coalition forces' efforts in the Mideast. Among the most important is the effectiveness of strike rescue, the term currently preferred by the Navy which replaces "combat search and rescue." The latter term continues to be used in joint tactical publications and by other armed services.

Helicopter Combat Support Special Squadron (HCS) 5, the *Firehawks*, was ready within days after being notified to deploy a detachment of two aircraft from its NAS Point Mugu, Calif., base. HCS-5's helicopter, the Sikorsky HH-60H *Seahawk*, is the newest and most capable Navy aircraft operating today to rescue downed personnel deep behind enemy lines. A pair of the aircraft, together with 50 active duty and Selected Reserve HCS-5 aircrew and maintenance personnel, were loaded December 11 aboard an Air Force C-5 *Galaxy* and within hours had established their base of operations at Tabuk in the western Saudi desert near the Iraqi border. They were joined by a similar det from their sister squadron, the HCS-4 *Red Wolves*, NAS Norfolk, Va. The HCS-4 and 5 detachments were the first Naval Air Reserve aviation units on station in the Persian Gulf War.

Operating together as a team, the detachments provided 24-hour, seven-day-a-week strike rescue coverage for their sector. The units' capability to operate either ashore or aboard ship gave important flexibility to theater commanders. HCS-4 and 5 detachments were equipped and manned to immediately split to provide self-sustained operations in two separate locations, if needed.

Strike rescue – together with its companion mission, special warfare support – is a task that has been assigned to the Naval Reserve since the end of the Vietnam war. HCSs 4 and 5, redesignated from Helicopter Attack Squadrons Light (HALs) 4 and 5 in October 1989 and October 1988, respectively, retained the special warfare support mission and acquired the search and rescue mission of Helicopter Combat Support Squadron (HC) 9 and the Vietnam-era HC-7.

The new squadrons provide the operating forces with a sustained, forward-deployed, deep-penetration strike rescue and special operations support capability. To operate in hostile territory, almost always at low level and at night, HCS crews practice extensively using night vision goggles and flying nap-of-the-earth, terrain-hugging flight profiles to evade sophisticated enemy air and ground defenses.

Their aircraft, derived from the sonar-carrying SH-60F *Seahawk* carrier-based antisubmarine warfare (ASW) helicopter, is equipped more like that of the Army MH-60K special operations *Black Hawk*. The first HH-60H was delivered to HCS-5 in July 1989 and replaced the Vietnam-era HH-1K *Huey*. Lieutenant Commander Joe Vaughan, *Firehawks* training officer, terms the *Seahawk* "vastly more capable" than the *Huey*. With two engines and increased speed, together with a whole new generation of electronics, navigational, communications, and flight control equipment, the HH-60H dramatically enhances crew effectiveness and survivability.

In selecting the *Seahawk*, the Navy called for an aircraft that could carry two pilots and a three-man crew 250 nautical miles while cruising at 145 knots, hover at 5,500 feet, recover up to four downed aviators, and return to its base. The requirement also specified the need to carry an eight-

man SEAL (sea-air-land) team with equipment 200 nautical miles to or from a remote, high-altitude landing zone. The HH-60H is equipped to insert and extract SEALs by a variety of means, including by rapelling, fastrope, or paradrop. Both squadrons are trained to operate either from a ship at sea or a forward-deployed, land-based site in any climate from the equator to polar regions.

To survive the harsh battle environment, the HH-60H features triple-redundant hydraulic and electrical systems, a ballistics-tolerant drive train and multiple electronic countermeasures systems, including hover infrared suppressors, the APR-39 radar warning receiver, an ALQ-144 infrared jammer, as well as ALE-39 chaff and flare dispensers. Included are two external stores stations configured to carry 120-gallon fuel tanks. The *Seahawk* defends itself with 7.62-millimeter machine guns mounted on each side of the cabin – and, planned for the future, rocket pods and air-to-surface missiles mounted externally.

And it works. In the three-month detachment, the *Firehawks* and *Red Wolves* det aircraft flew more than 750 flight hours and were mission ready more than 90 percent of the time despite the talcum-powder-like sand and rapidly changing weather of the western Saudi operating area. According to HCS-5 detachment maintenance chief, ADC Gregory Baker, "The aircraft did everything we asked of it and then some. It's a dream to work on; Sikorsky has given us a good aircraft. All of us were surprised at how durable it is in that tough environment. We had some trouble with the engines and rotor blades, but mostly with rotor blade pitch control bearings and blade dampeners; the sand got into the seals and messed them up. We changed a lot of those things."

The key to the success of strike rescue is the crew's skill with night vision goggles (NVGs). Using darkness and flight under 100 feet to mask their progress, aircrews train intensively with NVGs in the tough, canyon-filled terrain near Point Mugu. With all aboard wearing the goggles, while twisting through the rough terrain at 140 knots and less than 100 feet altitude, the crews gain confidence in skills that will keep them alive when done "for real."

Says LCdr. Vaughan, "Everyone in the aircrew is alert and helping to avoid obstacles; everyone's on the goggles and looking. I would think that anyone along for the ride and not on goggles would be very uncomfortable watching the tree branches go by, if they could even see them." Using the goggles is something like looking through two toilet paper tubes. Pilots say the NVG training is tough, perhaps as tough as any training they've had, but they can't get enough of it.

Vaughan states that the training given pilots and aircrewmen, drilling reservists, and active duty personnel is solid – for the basics. The skills are refined further through regular detachments to NAS Fallon, Nev., where the HCS capabilities are integrated with carrier air wings that receive their predeployment weapons training. "We're getting to be pretty well known," Vaughan says, "but there are some air wings we haven't worked with yet. We're looking forward to getting to work with all of them to show them our capabilities."

Once in the desert, however, the basics weren't enough. Because of the sameness of the terrain and the lack of vegetation, flying on NVGs was much tougher than the training could accommodate. AMH1 William Smith, one of HCS-5's most experienced H-60 aircrewmen, states, "It was hard to tell how high you were. Many times we thought we had plenty of altitude and we passed a ridgeline or sand dune much closer than we would have liked." Landing, particularly at night, was far more difficult because of blowing sand. Even in daylight, the fine sand obscured the pilots' vision in the last, critical several feet before touchdown.

"We had other problems, too," says Vaughan. "Though the *Firehawks* had trained to meet all expected contingencies, operating in the Saudi desert required some fine tuning. Navigation was a big problem. None of our charts were any help in the pinpoint navigation we must use. The terrain is empty and without feature. Getting from one point to another was possible, but only with the global positioning system equipment installed just prior to deployment.

"We found that we were part of the Air Force strike rescue network," Vaughan went on. "Though there was some concern at first, we found that we worked well with them. The Air Force relies upon satellite communications and we didn't have that equipment. We were usually paired with USAF H-60s or H-53s, but everyone spoke pretty much the same language and used similar tactics. It was relatively easy to work jointly with the Air Force, and it certainly taught us to be more flexible and to remember that the 'big picture' is almost always a little larger than we imagine while training."

The two HCS dets integrated their assets and operations and found that the combined arrangement yielded a more efficient evolution. Logistics support for the aircraft, for instance, was simplified with the colocation of detachments.

Though the detachment was alerted and actually launched on several occasions to recover personnel behind enemy lines, det aircrews participated in no actual recoveries.

Commander Robert S. Fisher, *Firehawks* commanding officer, states that the *Desert Shield/Desert Storm* operation proved the value of a strike rescue force ready for call-up on short notice to deploy to any location in the world. Fisher points with pride to the fact that his squadron was ready within days of the invasion to deploy and had a "large number" of HCS-5 Selected Reservists volunteer for det duty. "They were there as soon as the call went out, ready to do their job," he says.

He noted that the Navy has initiated plans which mix two HH-60H strike rescue helicopters with six SH-60Fs in carrier-based ASW squadrons. The "six-two mix" is designed to give Navy air wings an organic, quick-response strike rescue/special warfare capability for low-intensity conflicts. Fisher sees the HCS capability and that of the regular Navy ASW squadrons as complementary, stating that the *Firehawks* are trained and equipped to be positioned ashore, well inland, for long periods of time. He is proud of the fact that HCS-5 provides strike rescue and special warfare training for regular Navy ASW helicopter units.

Fisher notes a lesson learned that will improve strike rescue capabilities in the future: increased reliance on satellite communications which is the backbone of integrated, multinational strike rescue operations. He says the Navy's use of the global positioning system for pinpoint navigation was an essential element of the dets' operational success.

"The detachment personnel and aircraft performed superbly," the skipper added. "Morale was high throughout and all of us were ready and even eager to do the job we'd trained so hard for. We're glad to be home, though, now that the war is over." ■

Steve Millikin is editor of The Hook, journal of the Tailhook Association; Bob Lawson recently retired as editor.

Watching the World: EWACs, EVALs, and EWOPs

By Ltjg. Lou Cappucci

The *World Watchers* of Fleet Air Reconnaissance Squadron (VQ) 1 provide vital electronic warfare support to U.S. naval forces throughout the Pacific and Indian oceans. The Lockheed EP-3E *Aries I* and *II* aircraft flown by VQ-1 are converted antisubmarine warfare P-3s, now configured to conduct electronic reconnaissance.

Through a variety of antennae, operators onboard receive and identify electronic signals for threat analysis. In general, VQ looks for airborne, shipborne, and land-based radars. By measuring the frequency and other physical properties of a signal and comparing them to standard parameters, analysts can determine the source of a signal and its associated weapons platform. The crew can then pass that information immediately to the battle group commander and to several shore-based sites via various secure communications networks. These are the fundamentals of electronic warfare and the methods by which VQ-1 provides valuable real-time information to the fleet, both in peace and war.

The training required to conduct these operations is extensive. Pilots checking into "the Q" will first complete Third Pilot (3P) personnel qualification standards (PQS), which covers aircraft systems and normal and emergency operating procedures. A series of training flights follows the PQS. The squadron's self-study intelligence course and examination, covering detailed geography, various weapon systems and platforms, and mission procedures, must also be completed before designation as a 3P. The progression to Second Pilot (2P) is similar and involves another PQS and intelligence course, both more in depth than the 3P level. Following are syllabus flights and an initial Naval Air Training and Operating Procedures Standardization (NATOPS) check ride. Then, after logging at least 700 pilot hours (minimum 200 in type), finishing another set of PQS, a detailed intelligence exam, and a rigorous set of flights culminating in a grueling check ride, the young aviator is designated an Aircraft Commander. Final qualification as Electronic Warfare Aircraft Commander (EWAC) comes following at least 100 mission hours, recommendations from two other EWACs, and most importantly, an intensive oral board where the candidate is grilled on communication and reporting procedures, Pacific and Indian ocean geography, friendly and hostile warfare concepts, regional orders of battle, threat recognition, and complex mission scenarios. On the average, it takes more than 18 months to become a qualified EWAC.

For Naval Flight Officers (NFOs), there is a similar qualification track. Starting with the navigation table, NFOs first work to become Mission Navigators by completing a specified number of missions, PQS, a NATOPS check ride, and an intelligence test. Later, they begin working with the sensor operators and learn to effectively manage the EP-3E's mission equipment and 24 personnel. After finishing the required number of missions, a comprehensive intel exam, PQS, and another NATOPS check ride, the NFO is qualified as a Tactical Evaluator (EVAL). Like the pilots, the NFOs are subjected to a final set of PQS and a grueling oral board (similar to the EWAC board but additionally emphasizing electronic signal parameters) before completing designation as Senior Evaluator. The entire process can take up to two years.

For enlisted aircrew personnel, the qualification process is shorter, but no less challenging. They have their own PQS to complete, covering proper maintenance, operation and repair of aircraft equipment, as well as signal recognition and weapon systems correlation. After several deployments, and a successful check ride, the former trainee earns the coveted title of Electronic Warfare Operator (EWOP) and even more coveted aircrew wings. This process takes approximately one year.

The *World Watchers*, as their nickname implies, deploy throughout the western Pacific and Indian oceans, with a permanent detachment in Misawa, Japan (recently moved from Atsugi), and temporary sites at NAS Cubi Point, R.P., and other locations. During *Desert Shield/Desert Storm*, the squadron deployed to Bahrain in the Persian Gulf. Working with crews of VQ-2 from Rota, Spain, the two squadrons provided 24-hour threat indications and warnings to battle group commanders in the gulf and naval command centers ashore. They also exchanged information with Air Force reconnaissance assets. Flying over 4,000 hours, the highly skilled, well-trained men and women of VQ-1 contributed significantly to the success of *Desert Shield* and *Desert Storm*.

Despite the warming relations between the U.S. and the Soviet Union, the support provided by VQ-1 remains critical to our national security in peacetime. The substantial, continued U.S. military presence throughout the Pacific has been hailed as a major factor behind rapid economic growth and political stability in the region. VQ-1's mission plays a key role in that presence, and in protecting our national security interests abroad.■

Lt. Sondra Even became VQ-1's first female Senior Evaluator and Lt. Lisa Rathjen the squadron's first female pilot designated an Electronic Warfare Aircraft Commander. The squadron is one of relatively few in the Navy that currently offers flying billets to female officers and aircrew personnel. "While they may be uncomfortable with the extra attention, Lts. Even and Rathjen are role models," stated Cdr. George McKnight, C.O., VQ-1. "And I think it's important to let women in the Navy know that VQ is a viable career option, where they will have truly equal opportunity for assignment and promotion."

NADep Alameda Assumes Aries II

NaDep Alameda C.O. Capt. R. W. Smith (r) and Mr. Bruce MacLean, P-3 Engineering Supervisor (l) accept the NaDep's first P-3C for EP-3E Aries II conversion from Lockheed's Nick Gianetta.

By LCdr. Karl Yeakel

The EP-3E *Aries II* (airborne reconnaissance integrated electronics system) Conversion-In-Lieu-Of-Procurement (CILOP) program is congressionally mandated. It replaces the aging EP-3B/E aircraft inventory with 12 low-time, non-update P-3C aircraft and standardized configuration for passive electronic intercept reconnaissance missions. Since the EP-3B/E airframes were reaching their design limit lifetime, replacements were needed. The Navy was approaching an all P-3C active fleet and wanted a P-3C airframe for the EP-3E to minimize support costs. The Navy had previously approached Lockheed to design and build a new EP-3C aircraft, but the cost was prohibitive, and a review of foreign and domestic airframes for the same application found none to be within the funding constraint assigned by Congress. Therefore, a CILOP program was chosen.

The EP-3E *Aries II* CILOP contract was awarded to Lockheed Aircraft Services Company, Ontario, Calif., in June 1986. The contract included non-recurring engineering costs for a total contract value of approximately $60 million. The engineering and manufacture of installation kits were accomplished at Lockheed-Ontario. The Lockheed Aeromod Center at Greenville, S.C., was tasked with stripping the nonupdate P-3Cs of equipment racks, sonobuoy chutes, and other unneeded components and installing the modification kits into the P-3C airframes.

Naval Aviation Depot (NADep), Alameda is the P-3 cognizant field activity possessing both EP-3 engineering expertise and an extensive background in P-3 aircraft modifications. Because of production delays experienced by the contractor, the Naval Air Systems Command developed a plan to complete aircraft #2 through #5 (aircraft #1 was delivered July 20, 1990) at Lockheed and #6 through #12 at NADep Alameda. On July 31, 1991, the first of seven nonupdate P-3Cs arrived at Alameda for modification.

Six months prior to the arrival of the first aircraft, NADep Alameda organized several teams to research kit, facility, tooling, production, and engineering requirements. The program is considered large by aircraft modification standards, encompassing over 50,000 man-hours of work on each aircraft. Existing fleet EP-3E *Aries I* aircraft from Fleet Air Reconnaissance Squadrons (VQs) 1 and 2 are acting as donor aircraft by providing a portion of the basic mission electronic equipment required. This equipment will be removed and reinstalled in the P-3C airframes, along with the modification kit, resulting in the *Aries II* model. Over 33,000 parts make up each modification kit.

Each *Aries II* will take approximately 18 months to complete, with the last aircraft being scheduled for fleet delivery in 1995. The resultant aircraft will be newer airframes (with fewer flight hours, thereby requiring less maintenance) and an improved electronics suite, enhancing the mission effectiveness of VQs 1 and 2. ■

Lockheed

The EP-3E Aries II is replacing aging EP-3 Aries I aircraft in VQs 1 and 2.

XJF-1

JF/J2F Duck

By Hal Andrews

Stories abound on the aftermath of the Pearl Harbor attack on Sunday December 7, 1941. One covers the Monday morning flight of a Grumman J2F *Duck* utility plane on patrol, substituting for one of the many PBYs destroyed. With a drafted fleet radioman, armed with a rifle as a crewman, it went out to search one sector of the area around Hawaii for possible further Japanese actions.

A biplane among the modern monoplane combat types on both sides involved in the attack was not all that unusual; biplanes were still common in Navy and Marine scout and utility roles. However, J2Fs were unique as the only biplanes still in production for fleet operational roles at the time. And even more surprising, they would still be in production on V-J Day.

When originally designed a decade earlier, the proposed utility amphibian, like its contemporary Grumman stablemates, featured considerable technical advancements over other aircraft being built for the Navy. All-metal structure, with semi-monocoque fuselage, the new Navy-sponsored Pratt and Whitney R-1830 twin-row radial engine with a long chord cowling and enclosed cockpits pointed the way to the future.

Ordered in April 1932, the XJF-1 stemmed from some special circumstances. Leroy Grumman and his top associates had left the Loening Aircraft Engineering Company following its sale, after playing major roles in the continuing development of the popular Loening single-engine amphibians. They chose not to move to the company's new location. Their new Grumman company's initial products were amphibian floats for Navy seaplanes. And their first two prototype airplanes were major steps forward in biplane design for Navy carrier fighters and scouts. The XJF-1 would be their third.

The XJF-1 combined the fuselage design of its two Grumman predecessors with a hull derived from the amphibian floats, faired together to provide a hull compartment for the radio/photo operator and his equipment. A folding seat for the rear crewman allowed access to the lower compartment. Designed for catapult launching from battleships and cruisers and arrested landing on carriers, with racks for five 30-pound bombs under each lower wing and a flexible .30-caliber gun in the aft cockpit, the 700-hp R-1830 was needed for a large, heavy, single-engine airplane.

After initial flights at Grumman in April 1933, the XJF-1 went to NAS Anacostia for final demonstration flights and Navy trials in early May. With considerable attention on the new twin-row engine's peformance and cooling, an oil cooler was added. An increased area fin cured a directional stability problem, and forward float damage in rough water tests required repair and strengthening. Trials were successfully completed in early July, following a June 30 contract for 22 JF-1s. The XJF-1 went back to Grumman for various Trial Board changes, including improved aileron controls to be evaluated on the first production airplane.

Navy trials of the first JF-1 began in May 1934. The revised aileron controls introduced new problems; their correction delayed fleet deliveries until July. While the JF-1s were being built, the Navy ordered nine unarmed JF-2s for the Coast Guard, at the same time adding five more -1s for its own use. The Coast Guard chose to power its JF-2s with a 700-hp Wright R-1820-102 Cyclone, the nine-cylinder, single-row radial Cyclone having a considerable operational service background. The Navy followed with an order for five similarly unarmed JF-3s for shore-based operations, without arresting hooks, also switching to the Cyclone engine, a 750-hp R-1820-08. These also incorporated a revised horizontal tail; the adjustable stabilizers and balanced elevators were replaced by fixed stabilizers and unbalanced elevators with trim tabs for longitudinal trim. Six more JF-2s for the Coast Guard also included this change; the last of these was traded to the Navy. A Coast Guard crew in one of their JFs set new international amphibian performance records.

Operation of the JF-1s by fleet utility squadrons, other utility units, and the Marines led to consideration of an improved -4 model for fleet operations. Continuing with Cyclone power, it would have considerably increased fuel capacity, as well as other changes to expand its utility and Marine expeditionary mission effectiveness. The necessary increased float buoyancy was met with a lengthened hull, providing space for the increased fuel tank and equipment space as well. An R-1820-20 engine and other improvements, including a new aileron control system without inter-aileron struts, rounded out the design which received a production order for 29 in June 1935 as J2F-1s.

Trials of the first J2F-1 starting in July 1936 resulted in hull failures during catapult trials as well as in rough water tests, which were corrected with minor beef-ups. Of more concern were tail vibrations; these were resolved with extension of the fuselage-hull fairing aft to the rear hull bulkhead. The second J2F-1 was tested with an uprated R-1820 engine and controllable-pitch propeller, showing considerably improved performance. The first, meanwhile, was tested with upper wing ailerons locked out, and then with a different set of wings heaving full span flaps on the upper wings and larger lower wing ailerons. The decrease in stall speed did not warrant a general changeover. By the end of the year, the J2F-1 was finally accepted and production aircraft began to replace JF-1s in fleet units. By this time, catapulting provisions were deleted.

With the J2F in production, the JF was released for export and eight were built for the Argentine navy in 1937. These were unarmed and essentially the same as the final JF-2s and the -3.

Over the next few years, the J2F series was improved with uprated Cyclones, controllable-pitch propellers, and other relatively minor changes. Thirty, 20, and 32 J2F-2s, -3s and -4s, respectively, were built, the last -4s delivered in May 1940. These filled the needs of the expanding fleet, both at sea and increasingly at island bases. Nine Marine J2F-2s were modified in 1940 with a fixed, forward-firing .30 machine gun and increased bomb carriage capacity for use in Neutrality Patrol operations in the Caribbean. Four unarmed J2Fs followed for Argen-

Bern Ederr

J2F-3

tina, the only pre-WW II foreign user of JF/J2F models.

The 1940 buildup of Navy and Marine forces resulted in a new production order in December 1940: 144 J2F-5s. The engine installation and cowling were extensively revised for the 900-hp R-1820-50 engine, and provisions to carry 325-pound depth bombs on each lower wing bomb rack were standard. Production of these was completed in March 1942, with the line shut down as Grumman met other wartime needs. By this time, the J2F had officially acquired its previously unofficial nickname: *Duck*.

Wide use of the J2Fs by both the Navy and Marines in the Pacific theater, including air-sea rescue and various missions to island destinations without airfields, led to a requirement for additional *Ducks*. Commitment of Grumman's production facilities to other wartime needs resulted in an innovative solution: a small company, Columbia Aircraft Corporation, located nearby, would take over the design and tooling and produce the J2F-6 model. Upgraded with the 1,050-hp R-1820-54 and a further revised engine installation and cowling, 100 were initially ordered in April 1943, with production reaching 330 through post-V-J Day cancellations – though production was already being cut back before V-J Day.

Postwar *Ducks* saw limited use and most were surplused. Navy overhaul had already been cut off in mid-1945, with older or damaged aircraft being scrapped. A small number became Army Air Force OA-12 models, some sent to various Central and South American countries where they were used well into the fifties, and a limited number were sold into civilian careers. A few still exist in museum collections where this early 1930s design, which survived the transition to monoplanes in the fleet, can still be seen. ■

J2F-6

J2F-5

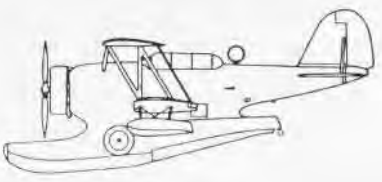
JF-1

JF-2

Gordon S. Williams

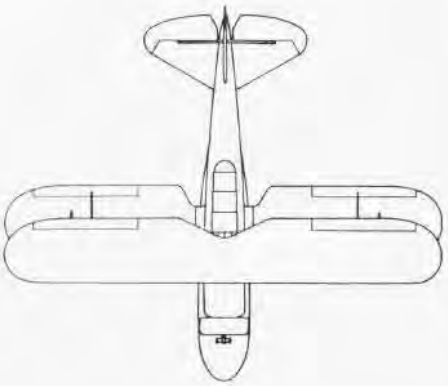
J2F-3

JF-2

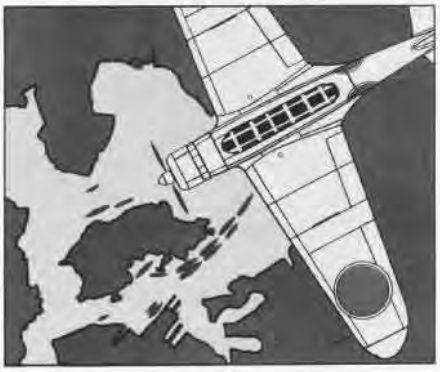


	JF-1	J2F-1	J2F-6
Span	39'	39'	39'
Length	33'	34'	34'
Height (on land)	12'4"	12'4"	12'4"
Engine:	P&W R-1830-62 700 hp	Wright R-1820-20 750 hp	Wright R-1820-54 1,050 hp
Maximum speed	168 mph	189 mph	190 mph
Service ceiling	17,800'	17,500	26,000'
Maximum range	770 m	890 m	850 m
Crew	2*	2*	2*
Armament	1 .30 flex mg	1 .30 flex mg	No gun
	10 30-lb. or	10 30-lb. or	2 100-lb. or
	2 100-lb. bombs	4 100-lb. bombs	2 325-lb. depth bombs

*3rd crew member could be accommodated in hull radio/camera compartment.



"This is No Drill."



U.S. Naval Aviation and Pearl Harbor, December 7, 1941

80-G-32835

In the wake of the first Japanese strafing attack on NAS Kaneohe Bay, officers and enlisted men strive to save a burning Catalina, while a dog (right of center) stands by. The second wave of attackers, however, destroyed the plane shortly thereafter.

By Robert J. Cressman and J. Michael Wenger

In the predawn darkness that cloaked the Pacific Ocean 200 miles north of Oahu on December 7, 1941, Vice Admiral Chuichi Nagumo's First Air Fleet, formed around the aircraft carriers *Akagi*, *Kaga*, *Soryu*, *Hiryu*, *Shokaku*, and *Zuikaku* – the most powerful concentration of such ships ever assembled – pressed inexorably southward. At 0550, the force commenced launch of 184 planes. A second strike would follow an hour later. Once airborne, the 51 *Vals*, 89 *Kates* and 43 *Zeroes* of the first wave droned toward the south at 0616. Ahead lay the U.S. Pacific Fleet, the Army and Army Air Force bases that existed to protect that fleet, and the U.S. Naval Aviation facilities on Oahu – at Pearl, Kaneohe Bay, and Ewa Mooring Mast Field.

Almost simultaneously, returning from ferrying F4Fs from VMF-211 to Wake Island, *Enterprise* (CV-6), with Task Force 8 under Vice Admiral William F. Halsey, Jr., was some 250 miles due west of Oahu. Between 0615 and 0629, *Enterprise* launched 18 SBDs. The nine two-plane sections were to search ahead of the ship to a distance of 150 miles and then proceed to NAS Pearl Harbor. Task Force 8, which had been operating on a war footing since it had departed Pearl on November 28, was to make port that afternoon.

At 0630, some 200 miles to the east, the general stores issue ship *Antares* (AKS-3), standing toward Pearl, summoned the destroyer *Ward* (DD-139), on harbor entrance patrol, to investigate what looked like a small submarine 1,500 yards off *Antares*' starboard quarter. At about the same time, Ensign William P. Tanner, USNR, was taking off from NAS Kaneohe in 14-P-1, a PBY-5 (BuNo 2419) armed with two depth charges; it was one of three *Catalinas* slated to patrol assigned Fleet Operating Areas off Oahu with orders to bomb any sub-

marine found outside regularly scheduled areas. Four other PBY-5s, from VP-24, were aloft for training.

Twenty minutes later, 14-P-1's crew spotted a submarine about a mile south of the entrance to Pearl's channel, with a destroyer steaming close astern. Initially thinking that he was seeing a friendly submarine in distress, being escorted by a destroyer, Tanner refrained from dropping his depth bombs and released two float lights instead to mark the sub's position. As 14-P-1's perplexed pilot looked on, however, *Ward* opened fire and then dropped depth charges on what proved to be a Japanese midget submarine. After *Ward*'s attack, the submarine began to turn toward Pearl and submerge. Continuing his approach, now certain of the submersible's unfriendly nature, Tanner dropped two depth bombs ahead of the swirling water. Both *Ward* and Ens. Tanner reported the incident around 0700.

Elsewhere on Oahu, at 0702, two U.S. Army privates manning their scope at a mobile radar site at Opana Point, on the island's north coast, discovered an unusually large "blip," 136 miles to the north and closing. The officer on watch in the control center, however, dismissed the incoming planes picked up by the radar as inbound B-17s expected that morning at Hickam Field, the Army bomber base on Oahu.

Meanwhile, Commander, Patrol Wing (ComPatWing) 1, one of the addressees on Tanner's coded dispatch, requested confirmation at 0715. Tanner radioed back: "SUNK ONE ENEMY SUBMARINE ONE MILE SOUTH [OF] PEARL HARBOR." Word of the encounter with the midget submarine reached ComPatWing 2's staff duty officer at 0735 and went to the operations officer, Commander Logan C. Ramsey, two minutes later. By 0750, Ramsey had drafted a search plan.

80-G-32497

Sailors on Ford Island belt ammunition, probably around the time of the attack by the second wave of Japanese planes on December 7, 1941.

At about 0757, Coast Guard Lieutenant Frank Erickson, the aviator assigned to the cutter *Taney*, and NAS Pearl Harbor's duty officer that morning, who had been in the process of seeing to morning colors, heard the sound of two heavy explosions – probably bombs dropped by the first *Vals* bombing the VP-22 hangars and patrol aircraft arrayed on the ramp. He looked out just in time to see a *Kate* fly past 1010 Dock and launch a torpedo at the nearby battleship *California* (BB-44). Soon thereafter, Captain James M. Shoemaker, the NAS C.O., having heard the explosions, telephoned Erickson, demanding: "What the hell kind of drills are you pulling down there?!" As the Japanese attack descended "like a thunderclap," a dispatch soon emanated from Ford Island: "AIR RAID PEARL HARBOR X THIS IS NO DRILL."

Consolidated Catalinas of VP-14 in flight. Twelve of the squadron's PBY-5s arrived on Oahu on November 23, 1941; 14-P-1, in foreground, would bomb a Japanese midget submarine off the Pearl Harbor entrance channel on December 7.

80-G-279382

At that moment, U.S. Naval Aviation assets on Oahu under Rear Admiral Patrick N. L. Bellinger, ComPatWing 2 and Carrier Task Force 9, consisted principally of 33 PBYs (-3s and -5s) from four squadrons: VPs 21, 22, 23, and 24 at Pearl; and 36 PBY-5s, from VPs 11, 12, and 14 at Kaneohe. Over at Ewa, under the C.O. of MAG-21, sat VMSB-231's seven spare SB2Us, left behind when the squadron deployed onboard *Lexington* (CV-2) bound for Midway, VMSB-232's 23 SBD-1s and 2s, and 11 F4F-3s from VMF-211. At both Navy and Marine air facilities there sat the usual utility planes, the target towers, and transport aircraft that the irreverent usually called "various junk" (VJ) – 31 at Pearl, one at Kaneohe, and eight at Ewa. Fortunately, no aircraft carriers lay in port that Sunday.

From the moment the first bomb exploded on Ford Island, the officers and men at both naval air stations battled back with any means at their disposal. Men grabbed rifles or improvised machine gun mounts and fired at the attackers, sometimes from the rear cockpits of Grumman J2F *Ducks*, heedless of their personal safety.

At Kaneohe, ACOM John W. Finn and RM2c Robert J. Peterson mounted .50-caliber machine guns on instruction stands and blazed away at whatever Japanese planes came within range. Finn, wounded several times, nevertheless stood his ground until ordered to have his wounds dressed. Peterson, after one attack, proceeded to a group of exploding PBYs and singlehandedly saved one plane by extinguished a fire blazing in it. Finn, meanwhile, although still in pain, hobbled back to the squadron area after his wounds had been attended to and supervised the rearming of returning PBYs. For their heroism that morning, Peterson received the Navy Cross and Finn the Medal of Honor.

In addition, the tenders attached to the patrol wings – ranging from *Curtiss* (AV-4), *Tangier* (AV-8), and *Avocet* (AVP-4) moored off Ford Island; and *McFarland* (AVD-14), *Thornton* (AVD-11), and *Hulbert* (AVD-6) at the Submarine Base – added to the barrage put up in the face of the attacking Japanese. Over at Ewa Mooring Mast Field, Marines possessing little more than rifles and small arms fired back at the strafing Japanese planes that destroyed or heavily damaged every aircraft on the mat.

Soon after the first bombs exploded near VP-22's hangar, Cdr. Ramsey's search plan was promulgated. Having the means to carry it out, however, was another matter. RAdm. Bellinger arrived at Ford Island during the first attack, and as the first phase ended, learned that only two PBYs remained operational at Kaneohe – one at Pearl. He ordered the two from Kaneohe to patrol to the west northwest of Oahu, but wreckage, fires, and damaged planes prevented the only operable PBY on Ford Island from getting aloft. He also ordered available utility aircraft to look for the Japanese. The second wave of Japanese planes, however, attacked both stations and while the plane at Pearl miraculously escaped destruction, the two *Catalinas* at Kaneohe did not. Commander Knefler McGinnis, ComPatWing 1, at Kaneohe, unable to send them out to cover the west northwest sector, instead diverted two airborne PBYs – one of which was Ens. Tanner's – to cover the sector in question.

As the Japanese onslaught swept over the Naval Aviation facilities on Oahu, *Enterprise*'s inbound aviators soon began encountering the enemy. A *Zero* attacked Lieutenant Commander Howard L. Young, *Enterprise*'s air group commander, and his wingman, Ensign Perry L. Teaff, near Ewa. They evaded the *Zero* but had to weather a storm of friendly antiaircraft fire to reach Ford Island. There, Young and his passenger, Lieutenant Commander Bromfield B. Nichol, VAdm. Halsey's tactical officer, headed by car and boat to the headquarters of Admiral Husband E. Kimmel, Commander in Chief, U.S. Pacific Fleet, at the Submarine Base.

Sadly, however, not all of the SBD pilots enjoyed such good fortune. *Zeros* overwhelmed Lieutenant Clarence E. Dickinson and Ensign John R. McCarthy, USNR, who probably arrived near Ewa soon thereafter, and shot both Navy flyers down. Both pilots bailed out and survived. (Dickinson began a minor odyssey by foot and car to reach Ford Island, and McCarthy suffered a broken leg while trying to get out of the tree into which he had parachuted.) Their respective

passengers, RM1c William C. Miller and RM3c Mitchell Cohn, died. *Zeros* off Barbers Point likewise attacked Lieutenant (jg) Frank A. Patriarca and Ensign Walter M. Willis, USNR.

Patriarca managed to evade his antagonists, radioing a warning to *Enterprise* that the Japanese were attacking Pearl, but enemy fighters shot down Willis' SBD, killing him and his passenger, Coxswain Fred J. Ducolon. Patriarca searched in vain for *Enterprise* and later ended up at the Army's Burns Field on Kauai.

Ensign Fred T. Weber, USNR, had become separated from his section leader, Ensign Manuel Gonzalez, during the course of their search, thus leaving Gonzalez alone to encounter six *Vals* from *Shokaku* and *Zuikaku* rendezvousing approximately 10 miles from Kaena Point to return to their ships. As the enemy planes approached, Gonzalez radioed at about 0833: "THIS IS 6-B-3, AN AMERICAN PLANE. DO NOT SHOOT." Some pilots heard him instruct his passenger, "STAND BY TO GET OUT THE RUBBER BOAT," but no one ever saw Gonzalez, nor his passenger, RM3c Leonard J. Kozelek, again.

NH 60930

Having achieved surprise, Japanese planes go about the business of attacking Battleship Row and NAS Pearl Harbor. The geysers from torpedo explosions tower almost one-and-a-half times the masthead heights of the battleships. Smoke boils skyward at extreme right from fires among the PBYs parked near the VP-22 hangar.

Lieutenant Wilmer E. Gallaher, VS-6's X.O., whose wingman, Ensign William P. West, USNR, had an inoperative radio, had heard Patriarca's voice over the radio and then Gonzalez'. Seeing the heavy black smoke and antiaircraft fire spattering the sky over the harbor convinced Gallaher that something was dreadfully wrong.

Also approaching Barbers Point shortly after 0830 was VS-6's C.O., Lieutenant Hallsted L. Hopping, who had become separated from his wingman, Ensign John H. L. Vogt, USNR, when Hopping had gone down to scrutinize the Honolulu-bound tanker SS *Pat Doheny* off Oahu. Hopping, too, had heard Gonzalez' message, and after he saw Ewa under attack, reported that Pearl was being attacked by Japanese planes. Then he, too, flew through a storm of antiaircraft fire over Pearl to land at Ford Island. Indications are that Ens. Vogt, meanwhile, had encountered a *Val* passing Ewa during its retirement from Pearl, and after a brief dogfight, collided with him. Vogt and his radio-gunner, RM3c Sidney Pierce, bailed out, but both died when they slammed into trees after their parachutes did not fully deploy.

NH 102446

Ens. Theodore W. Marshall, circa 1941, who attempted to follow the Japanese in a type of plane he had never flown before – a Douglas TBD-1.

Seeing the antiaircraft fire in the sky over Pearl, Ensign Edward T. Deacon, USNR, and Ensign Wilbur E. Roberts, USNR, sought safety at Hickam Field; however, eager but inaccurate gunners at Fort Weaver and the Fleet Machine Gun School shot down Deacon's SBD. Ditching in the shallows off Hickam, Deacon and his wounded radioman, RM3c Audrey G. Coslett, were picked up by an Army crash boat. Roberts, meanwhile, landed at the bomber base without further incident.

LCdrs. Young and Nichol, meanwhile, reached Adm. Kimmel's headquarters. After they had reported and informed those they found there that other planes were trying to get in, too, the Commandant of the 14th Naval District signaled all ships present at Pearl at 0908: "DO NOT FIRE ON OUR PLANES COMING IN."

In the proverbial heat of battle, though, it appeared that few paid attention. Gallaher and West, after seeing the flak over Pearl, circled between Barbers Point and Ewa, where Ens. Weber, having survived a brush with a Japanese plane near Kaena Point, joined them. Soon, Lieutenant (jg) H. Dale Hilton and Ensign Edwin J. Kroeger, USNR, and then Ensigns Carlton T. Fogg and Cleo J. Dobson, USNR, joined up, too. For several minutes, Gallaher's flock circled between Ewa and Barbers Point at an altitude of 400 to 500 feet, before Gallaher saw Japanese planes 3,500 feet above. Knowing that without armor or self-sealing gas tanks he and his men stood little chance in aerial combat, he led them 5 to 10 miles out to sea to await further developments.

Back at Ford Island, VP-21's Ensign Theodore W. Marshall, USNR, at the BOQ when the attack started, commandeered a squadron truck. After driving it between the quarters, the en-

NH 96660

Curtiss (AV-4), one of the seaplane tenders assigned to the Pacific Fleet, afire after being crashed by a Val on December 7, as seen from Tangier (AV-8)

listed barracks, and NAS Pearl Harbor, ferrying officers and men to their battle stations – practically oblivious to the bomb fragments and strafing that nearly riddled the vehicle – Marshall proceeded to the flight line. Although unfamiliar with landplanes, he climbed into a Grumman F4F. Finding that it had been damaged by strafing, Marshall, undaunted, spotted a Douglas TBD-1 (BuNo 0289, an ex-*Enterprise* machine that had been assigned to the Battle Force pool on November 18), climbed in, and coaxed the engine into life. Despite being as unfamiliar with a *Devastator* as he had been with a *Wildcat*, Marshall took off and attempted to track the Japanese planes as they retired from Pearl. For 150 miles, he tried to keep up with the enemy, until his flagging fuel state compelled him to return to Ford Island, where he managed to land the lumbering plane successfully. For his heroism that day, Marshall was awarded the Silver Star.

In the meantime, the airborne PBYs also searched for the enemy. Ensign Otto F. Meyer, Jr., commanded 14-P-2, one of the two PBYs dispatched by ComPatWing-1 to search north of Oahu. Around 1000, a formation of about nine planes crossed his bow. When they turned menacingly toward 14-P-2 and then attacked, Meyer's gunners returned the fire. One of the PBY's tormentors headed north, trailing a thin wisp of smoke, while the other eight gave up and turned away, too. Meyer kept 14-P-2 – which had been holed 14 times – heading back toward Oahu until the last of the Japanese disappeared in the haze. At that point, he wheeled the *Catalina* around and resumed the search, ultimately flying out 380 miles without sighting anything but clouds and whitecaps.

Ensigns Raphael Semmes, Jr., and Maurice Thornton, USNR, meanwhile, from the aviation unit of the light cruiser *St. Louis* (CL-49), took off in their obsolete Curtiss SOC biplanes during the raid and attacked – unsuccessfully – a formation of *Vals*. Neither man had taken along a radio-gunner, and Thornton ran out of gas during the return flight, necessitating his rescue by a destroyer on December 9.

The courage evidenced by Ensigns Marshall, Semmes, and Thornton matched that of the pilots of the utility squadrons who took off in VJ-1's Sikorsky JRS-1s. Ensign John P. Edwards, USNR, took up the first, followed by Lieutenant (jg) James W. Robb, Jr., USNR, Lieutenant Gordon E. Bolser, USNR, and Ensign Nils R. Larson, USNR. Lieutenant (jg) Wesley H. Ruth, USNR, with ACMM (Naval Aviation Pilot) Emery C. Geise as his copilot in JRS-1 (BuNo 1063), encountered a *Zero* from *Shokaku* 200 miles off Oahu in what was probably the last aerial engagement between U.S. Navy and Japanese planes on December 7. For courageously piloting utility amphibians armed with only Springfield rifles, Edwards, Robb, Bolser, Larson, and Ruth were all awarded the Navy Cross. While the brave men who accompanied them in their scratch crews received appropriate commendations, too, only one – Sgt. Thomas E. Hailey, USMC – would receive the Navy Cross. Hailey had quit *Oklahoma* (BB-37) after she had been ordered abandoned, helped rescue his shipmates from the oily water, and then manned an antiaircraft gun on board *Maryland* (BB-46). Once on Ford Island, he unhesitatingly volunteered to go up in one of the Sikorskys, armed with only a rifle and still wearing only the skivvies in which he had swam away from the capsized battleship.

In addition, pilots of other SOCs proved that courage and initiative were not just the preserve of the fighter pilot. Lieutenant Malcolm C. Reeves and Ensign Frank H. Covington, USNR, from the heavy cruiser *Northampton* (CA-26) in Task Force 8, searching for the Japanese west of Oahu, experienced more success in the unaccustomed role of dogfighters as they battled a *Zero* and sent it away trailing smoke.

As the day wore on, there was little rest for the *Enterprise* aviators, who had flown into the middle of hostilities with no warning. LCdr. Hopping, shot at by American guns as he took off,

Lt. James W. Robb, Jr., April 13, 1942, one of five JRS pilots awarded the Navy Cross for seeking out the Japanese carriers on December 7.

NH 102551

Ford Island, December 8, 1941. The gutted Hangar No. 6 looms beside a collection of SOCs, OS2Us, and PBYs. The planes parked near the hangar were among the first targets hit by Japanese aircraft the day before.

Ford Island, December 8, 1941. Two Sikorsky JRS-1s share the warming up platform. One appears to have been hastily camouflaged. 80-G-32481, Courtesy of J. Michael Wenger

80-G-32943

NAS Kaneohe Bay on December 9, 1941, two days after the Japanese attack on the station. Note wrecked hangar at center of photo, and at least six PBY Catalina flying boats around the ramp and hangar areas.

Ens. Raphael Semmes, Jr. circa 1941, the great grandson of the celebrated captain of CSS Alabama of Civil War fame, one of the two SOC pilots from St. Louis (CL-49) who attacked Japanese dive-bombers on December 7. NH 102304

had investigated reports of two Japanese carriers southwest or west of Barbers Point between 25 and 40 miles on a midmorning solo reconnaissance flight. RAdm. Bellinger then ordered Hopping to take a nine-plane group out to 175 miles to search from the north-northeast to the north-northwest of Oahu and to attack any enemy forces encountered. Remaining available planes were to investigate reports of hostile surface ships and sampans south of Barbers Point.

Around noon, Hopping and his group took off.

Soon thereafter, Ens. Teaff noted alarming oil temperature in his SBD's engine. Although Hopping authorized him to return at his own discretion, Teaff remained with the group as it sought the enemy for over three hours. On the return leg, his Wright Cyclone began to "miss" badly, and he found it difficult to lower the landing gear. After landing, he discovered damage to the engine and hydraulic system. Teaff's courageously continuing the search, when little chance for rescue existed, earned him the Navy Cross.

A search launched from *Enterprise* late that afternoon was equally futile. In response to a sighting of "Japanese ships" off Oahu, the carrier launched a 31-plane strike group of TBDs, SBDs, and F4Fs under Lieutenant Eugene E. Lindsey, C.O. of VT-6, late that afternoon. The group returned to the ship not having sighted any enemy warships; *Enterprise* recovered the scouts and the torpedo planes but directed the fighters to fly to Ford Island, which lit up in expectation of their arrival. Jittery gunners opened fire, however, as Lieutenant (jg) Francis F. Hebel of VF-6 brought in his six F4Fs, shooting down four; three pilots, including Hebel, died. Two *Enterprise* SBDs ended up landing at Kaneohe despite the attempts by the men at that base to render the landing mat unusable by parking vehicles on it!

Not all acts of heroism on December 7, 1941, were performed strictly in contact with or search of the enemy. An OS2U-3 from *Maryland*, one of six such aircraft dispatched after 1400, piloted by Lieutenant (jg) James B. Ginn, with RM2c William R. Roberts as his radioman-gunner, crashed in heavy seas at around 2000 about eight miles off Barbers Point on the way back to Pearl; the impact knocked both men unconscious.

Regaining his senses, Roberts freed himself from the after cockpit, inflated his life jacket, and in the blackness, located the unconscious Ginn trapped in the front cockpit with his right leg pinned between the seat and the fuselage side. Freeing him, Roberts inflated Ginn's life jacket, placed him on a wing float, and then, after repeated dives, succeeded in freeing the rubber boat from its housing. Placing the pilot in the boat, Roberts paddled toward Barbers Point where the surf capsized it. In the turbulent, crashing water, Ginn momentarily disappeared, but after the radioman located him, he dragged him ashore, made him as comfortable as possible, and then hiked inland in search of a truck – no mean feat given the state of tension on Oahu. Roberts succeeded in locating help but too late for Ginn, who died of his severe injuries. Nevertheless, for his heroic exertions to save his pilot's life, Roberts received the Navy Cross.

In the stygian darkness on the night of December 7, 1941, Naval Aviators reflected on the tumultuous events of the day. Although surprised by a resourceful foe, the officers and men at Pearl and Kaneohe had fought back resolutely, exhibiting their own brand of bravery. Fortunately, the Japanese had not caught any carriers in port, *Enterprise* and *Lexington* providentially at sea when the blow fell. They, like the base itself which had escaped destruction due to the Japanese emphasis on sinking the battle line, would prove a part of the means by which the United States Navy would begin to battle back in the Pacific and take the war to the enemy who had begun the conflict with such swift and terrible suddenness. U.S. Naval Aviation would indeed "Remember Pearl Harbor." ■

Mr. Cressman is a historian in the Ships' History Branch of the Naval Historical Center. Mr. Wenger is a materials analyst for the Square D Company, Raleigh, N.C. They collaborated on the book, Steady Nerves and Stout Hearts: The Enterprise (CV-6) Air Group and Pearl Harbor, 7 December 1941.

50 Years Ago — WW II

December 10: Aircraft from *Enterprise* (CV-6) attacked and sank the Japanese submarine *I-70* in waters north of the Hawaiian Islands. This was the first Japanese combatant ship sunk by U.S. aircraft during WW II.

December 10: Antisubmarine patrols over the South Atlantic were initiated by Patrol Squadron 52, equipped with PBY *Catalinas* operating from Natal, Brazil.

December 12: The Naval Air Transport Service (NATS) was established under the Chief of Naval Operations to provide rapid air delivery of critical equipment, spare parts, and specialist personnel to naval activities and fleet forces all over the world.

December 16: The Secretary of the Navy approved an expansion of the pilot training program from the existing schedule of assigning 800 students per month to one calling for 2,500 per month, thereby leading to a production of 20,000 pilots annually by mid-1943.

December 17: Seventeen SB2U-3 *Vindicators* of VMSB-231, led by a PBY of Patrol Wing 1, successfully made the 1,137-mile flight from Oahu to Midway in 9 hours, 45 minutes. It was the longest single-engine landplane massed flight on record.

Jack C. Rittichier:

Coast Guard Aviation Hero

Lt. Rittichier, Da Nang, South Vietnam

By LCdr. Doug Kroll, CHC, USNR

Coast Guard Aviation celebrates its 75th anniversary in 1991. A little known chapter of that history involves the handful of Coast Guard aviators who flew combat search and rescue in Vietnam as part of a pilot exchange program with the U.S. Air Force between 1968 and 1975.

One of those aviators, Lieutenant Jack C. Rittichier, became the first Coast Guard casualty due to enemy action in South Vietnam. He gave his life for the proudest Coast Guard mission of all – trying to rescue someone in need. His story illustrates the heroism displayed by all of these Coast Guard aviators.

Rittichier was born in Akron, Ohio, on August 17, 1933. After graduation from high school in 1951, he majored in art at Kent State University and earned his bachelor's degree in 1957.

Commissioned as an officer in the U.S. Air Force in August 1957, Rittichier trained as a pilot and received his wings in December 1958. He served as a B-47 bomber pilot.

Jack Rittichier was discharged from the Air Force as a captain to accept a commission as lieutenant (jg) in the Coast Guard Reserve on September 26, 1963. After tours at Coast Guard air stations as a search and rescue (SAR) pilot, he volunteered for exchange duty with the U.S. Air Force 37th Aerospace Rescue and Recovery Squadron at Da Nang Air Base, Vietnam. The exchange program called for each of the services to trade five pilots – three helicopter and two fixed-wing – to acquaint them with the tactics, techniques, and activities of the other service in search and rescue work. The five Air Force pilots were sent to Coast Guard air stations in the U.S. Coast Guard helicopter pilots flew Air Force HH-3E "Jolly Green Giants," and later HH-53s out of Da Nang, while fixed-wing pilots flew Air Force HC-130s from Clark Air Base, in the Philippines.

Lieutenant Commander Lonnie L. Mixson, Lieutenant Lance Eagan, and Lt. Rittichier were the first three to fly combat SAR missions in Vietnam. Lieutenants James Quinn and Thomas F. Frischmann were the first and only Coast Guard pilots to fly Air Force HC-130s out of Clark.

Prior to their arrival in Vietnam, the rotary-wing pilots underwent extensive training. After instruction in the H-3 helicopter, they went on to combat crew survival and mountain flying training. Before deployment, they completed combat rescue crew training, which included instruction in air-to-air refueling from the HP model of the C-130 and in combat SAR tactics with escort aircraft.

Arriving at Da Nang on April 10, 1968, Rittichier quickly showed the Air Force the Coast Guard aviators' kind of courage. On April 21, he was awarded the Distinguished Flying Cross (DFC) for rescuing, under hostile ground fire, four crew members of two U.S. Army helicopter gunships that had been shot down by the enemy. During the rescue, Rittichier served as the rescue crew copilot of an HH-3E.

A little over a week later, on May 2, Jack Rittichier penetrated the extremely hostile, heavily defended A Shau Valley to investigate an aircraft crash site for possible survivors or confirmation of the aircraft fatality. For braving numerous thunderstorms and hostile antiaircraft positions in order to complete his mission, Lt. Rittichier was awarded a first oak leaf cluster for the Distinguished Flying Cross.

Two days later, serving as the rescue commander of an HH-3E, he again entered the A Shau Valley and landed at a bomb-cratered landing zone to prepare two downed helicopters for aerial recovery out of the hostile area. Lt. Rittichier onloaded one crew, complete with all personnel equipment and all portable aircraft equipment, and departed the landing zone, which was littered with unexploded bombs and mines.

On May 12, Rittichier twice entered an extremely hostile area to rescue four survivors of a downed helo and five seriously wounded personnel. The survivors were located in a very small landing zone, surrounded by tall trees, on the side of a steep mountain slope. Lt. Rittichier made the second approach and departure by flare light because the site was obscured by smoke and clouds. For this rescue, he was awarded another DFC.

Less than a month after that, on June 9, 1968, 37 miles west of Hue, a

Marine Corps fighter pilot lay in a ditch beside a road with a broken arm and leg. He had parachuted into a North Vietnamese army bivouac area. The enemy used him as bait to lure the "Jolly Green Giant" rescue helicopters within killing range.

Air strikes pounded the site around the downed pilot. The first helo made three attempts to reach the Marine pilot but was seriously damaged in the process and had to break off. The downed Marine pilot was beginning to lose consciousness so Lt. Rittichier dove his HH-3E, with three Air Force crewmen onboard, in for the pickup. Heavy enemy fire forced him off. He swung around to let the A-1 escorts clean the area again and followed them in for another pickup attempt. As the HH-3E hovered over the downed pilot, bullets punched the aircraft and it began to burn. Rittichier pulled away but the helicopter would not rise. It settled to the ground and exploded. Within 30 seconds, fire consumed the aircraft.

Lt. Rittichier's body was never recovered and he is still officially listed as "missing in action" (MIA). Today, he remains the first Coast Guard casualty in Vietnam caused by enemy action, and the only Coast Guard MIA from the conflict.

Jack Rittichier gave his life saving lives. For his courage and heroism, he was awarded the Silver Star and the Purple Heart (posthumously).

Lt. Rittichier exemplified the highest traditions of Coast Guard aviators, as well as the valor shown by Coast Guardsmen in Vietnam. They were more than participants: they were heros. Six other Coast Guardsmen lost their lives while serving in Southeast Asia and 59 were wounded.

On June 16, 1969, Rear Admiral William F. Rea, III, USCG, Commander of the Ninth Coast Guard District, dedicated the hangar at the Coast Guard air station on Selfridge AFB, Mich., in memory of Lt. Rittichier. At the dedication ceremony, RAdm. Rea presented his widow the Silver Star medal, the Distinguished Flying Cross with two oak leaf clusters, and three Air Medals – all of which Jack Rittichier was awarded for his service in Vietnam. The Rittichier Memorial Hangar stands today as a tribute to the Coast Guard aviation hero. ■

DoD via Robert F. Dorr

Coast Guard exchange pilots flew Air Force HC-130 Hercules aircraft and HH-3 "Jolly Green Giant" helicopters in Vietnam.

ANA Bimonthly Photo Competition

Below, VF-24 X.O. Cdr. "T-Bear" Carson won the fourth bimonthly ANA Photo Contest with this shot of a squadron F-14 Tomcat over Kuwait's burning oil wells. PHC(SW) Mark D. Ball was part of the competition with his photograph (right) captioned: "Hanging on permanent display in the atrium of the National Museum of Naval Aviation, Pensacola, Fla., the Blue Angels are frozen in time, flying their famous diamond formation."

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.

Awards

The Marine Corps Aviation Association presented the following awards for 1991:

Alfred A. Cunningham Aviator: Lt. Col. Michael M. Kurth, HMLA-369.

Robert G. Robinson Naval Flight Officer: Maj. Richard J. Findlay, VMA(AW)-533.

Aviation Ground Officer: Maj. Bonnie J. Robison, MALS-16.

Air Command and Control Officer: Capt. Mark R. Cyr, MASS-2.

Air Command and Control Marine: SSgt. Brent W. Pforthmiller, 3d LAAD Battalion.

Aviation Electronic Technician: SSgt. Charles W. Anderson, VMA(AW)-533.

Bud Baker V/STOL Enhancement: Maj. Kenneth G. Williams, VMA-311.

Exceptional Achievement (Individual): MGySgt. Ronald A. Perez, Aviation Logistics Department, 3d MAW.

Fixed Wing Aircrewman: MSgt. Bruce A. Taylor, VMGR-252.

Helicopter Aircrewman: Cpl. Richard N. Gravel, HMH-261.

Plane Captain: Cpl. Dale M. Harp, HMLA-369.

James Maguire Enlisted Aviation Safety: SSgt. Stephan W. Guillote, HMM-263.

James E. Nicholson Enlisted Leadership: GySgt. William R. Shearer, MALS-29.

Silver Hawk: Lt. Gen. Royal N. Moore as of October 1, 1991.

Commandant's Aviation Efficiency: HMM-266.

Robert M. Hanson Fighter Squadron: VMFA-235.

Lawson H. M. Sanderson Attack Squadron: VMA-311.

Edward S. Fris Air Command and Control Unit: 2d LAAD.

Keith B. McCutcheon Helicopter Squadron: HMLA-369.

Aviation Logistics Squadron of the Year: MALS-14.

Wing Support Squadron of the Year: MWSS-174.

Pete Ross Safety: VMA-134, MAG-46.

The 1990 **Captain Arnold Jay Isbell Award** for air antisubmarine warfare excellence was awarded to HSLs 36 and 42, HS-15, VP-11, and VS-22 in the Atlantic Fleet; and HSLs 33 and 47, HS-8, VP-17, and VS-38 in the Pacific Fleet.

VFA-303, NAS Lemoore, Calif., recently received the 1991 **F. Trubee Davison Award**. The McDonnell-Douglas Corporation sponsors the award which is presented annually to the best "tailhook" squadron in the Naval Reserve. The award was named in honor of Lt. F. Trubee Davison, USNR, who formed the Yale Unit, the first component of what was to become the Naval Air Reserve.

The 1991 **John W. Finn Aviation Ordnanceman of the Year** is AO1 (AW) Thomas Carey Behne of VA-35. The Association of Aviation Ordnancemen award honors AOC (Lt.) John W. Finn who was awarded the Congressional Medal of Honor for heroism during the Japanese attack on NAS Kaneohe Bay, Hawaii, December 7, 1941.

Records

Cdr. Vance L. Toalson, C.O., VFA-127, NAS Fallon, Nev., recently surpassed 1,000 flying hours in the F-5E *Tiger II*. Toalson has accumulated more than 4,500 flight hours in Navy fighters, including the F-4 *Phantom* and the FA-18 *Hornet*.

Capt. James S. Falls, C.O., NAF Misawa, Japan, recently passed 5,000 career flying hours.

Rescues

Two **VA-75** aircraft recently played a pivotal role in the rescue of a woman trapped on a sinking sailboat off the North Carolina coast. While participating in a joint Navy and Marine exercise, Lts. Patrick Walsh and Rick Mooday monitored an urgent request for assistance in a rescue operation. With LCdr. Doug Andre and Lt. Kurt Barnard in wing position, the two A-6 *Intruders* proceeded to the area.

Utilizing the A-6's all-weather attack radar because of adverse weather conditions, the aircraft located the small sailboat. Lts. Walsh and Mooday flew under the low cloud ceiling in order to visually assess the situation and identify the boat, while LCdr. Andre and Lt. Barnard remained high in order to vector a rescue helo to the scene.

After confirming positive contact between the rescue helo and the sailboat, the aircraft departed. The woman was safely hoisted into the helo and the sailboat subsequently salvaged.

NAS Lemoore's search and rescue (SAR) team recently completed another difficult rescue (see *NANews*, Sep-Oct 91, p. 34). Despite engine trouble and an impending sunset, the crew was able to pluck a rock climber from a rocky ledge 1,500 feet above the Yosemite Valley at an elevation of 5,200 feet.

Two climbers were scaling Washington Column when one of the climbers fell approximately 150 feet to a ledge below. According to AMH2 Bradley Peterson, National Park Service rangers were already on the scene when the Navy helo arrived. The rangers had been delivered to the top of Washington Column by a park service helo and climbed down to the victim, where they administered first aid.

Peterson rappelled down to the victim, who suffered a broken heel, broken wrist, a fractured arm, and fractured eye socket as a result of the fall. The helo then lifted the climber down to the valley floor where he was to be pulled up into the aircraft.

As the helo hovered three feet above the ground just prior to landing, number one engine failed. The pilot was able to put the aircraft safely on the ground and the climber was taken to a nearby hospital for treatment. The SAR helo was transported out of Yosemite on a flatbed truck.

Two men and a pregnant woman lost their sailboat to Hurricane Bob and drifted in a life raft for 10 days, surviving on dried fish and sea water. A Coast Guard C-130 spotted the orange raft August 28 about 80 miles off Cape May, N.J. The search, which included Coast Guard and Navy vessels, spanned 80,000 square miles from South Carolina to New York's Long Island. A Navy helo from **HS-11** on a training mission 45 miles away was diverted to the raft, only to find sharks circling. One survivor grabbed the hoist line and was lifted into the

helo but a crewman from the rescue helo had to dive into the water and swim to get the others who were too weak to grab the line. He hooked up the victims one at a time and guided them into the helicopter.

All three were flown to *America* (CV-66) where a doctor treated them for dehydration and exposure and then transferred them to a hospital in New York.

Honing the Edge

A new, lighter, and more comfortable NASA astronaut suit for use by future space shuttle crews is undergoing certification tests at the **Naval Air Development Center (NADC)**, Warminster, Pa., in the center's environmental chamber.

The old urethane-coated nylon suit material will be replaced with Goretex, a Teflon membrane with fabric fused to either side to let water vapor escape, but retain air pressure. The new suit is considerably better because it requires less effort to do necessary tasks and is cooler to wear with better ventilation.

The suit went through several evaluations while in the cockpit orbiter at the Johnson Space Center in Houston, Texas. All reports were 100-percent favorable, and based on the information obtained, the certication program began.

Several phases to be held at NADC to determine the capability of the new suit include cold-water testing and heat stress.

Nine of the scheduled 10 VFA-192 *Golden Dragons* left NAF Atsugi, Japan, and flew aboard *Midway* (CV-41) as she left her home port for the past 17 years in Yokosuka, Japan, for the last time. The FA-18As were returning to the States with the carrier – except aircraft #302 which had undergone major repairs over the past 14 months.

Long hours and hard work were put in by the maintenance detachment that remained behind in Atsugi to ready the aircraft. Four days after Midway sailed, LCdr. Ray Zack flew #302 out to the carrier, accompanied by a VA-115 A-6 tanker after the maintenance detachment applied one final touch – spray paint! Phrases such as "Gimme Gas," "Lawn Dart," "World Famous Golden Dragons Do It Again," and a mouth full of shark teeth adorned #302 as it landed on the carrier.

PH1 Ted Salois

Puppy Love? A Doberman puppy nibbles the ear of EM3 Sean Russell aboard Abraham Lincoln (CVN-72). Lincoln transported hundreds of pets during the recent evacuation of nonessential personnel from the Philippines due to the eruption of Mount Pinatubo.

Aircraft #302 after landing on Midway. Artwork supplied by VFA-192's maintenance det.

Scan Pattern

Dwight D. Eisenhower (CVN-69) witnessed a unique event in Naval Aviation history when an all-flight surgeon crew trapped aboard *Ike* in an S-3B *Viking* from **VS-27** during fleet carquals. The aircraft was piloted by LCdr. Bill Busch who is currently assigned as flight surgeon for Strike Fighter Wings, Atlantic, Cecil Field, Fla. The copilot seat was manned by LCdr. Tom Hatley who is now the flight surgeon for the *Seawolves* of VS-27.

SN Candis Pitts

I don't stop for red lights! Traffic came to a screeching halt, heads turned, and necks strained as an FA-18 Hornet lumbered through the streets of Catania, Sicily, on its way to the city's seaport. PO3 Zachery Evans waved to stunned city motorists and pedestrians from the cockpit as it was slowly towed through the town's port district. The plane suffered in-flight structural damage during a routine training mission and made an emergency landing at NAS Sigonella. Since it could not be repaired at the naval air station, the aircraft was towed to the Port of Catania where it was loaded onto a barge and later onto a commercial cargo ship for transfer to Jacksonville, Fla.

Former Black Cat Retires

When Robert N. Dunham retired as a logistics management specialist in the Naval Air Systems Command (NavAir) in October 1991, he completed a combined Navy military/civilian career of over 55 years. His 20 years of military service included some interesting duty. As an enlisted member, he was ship's company in search of the airship *Macon*, and he was attached to USS *Langley* during the aerial and ship search for Amelia Earhart. During WW II, he was a "Black Cat" pilot in the South Pacific. "Black Cat" squadrons flew PBY *Catalinas* painted black and equipped with radio altimeters which permitted them to skim low over the water for torpedo runs or to make low-level bombing attacks on enemy ships. The Naval Aviation Pilot also flew the TBF torpedo bomber, and received his commission during the war. Later, he ferried R6Ds overseas and flew 25 missions during the Berlin Airlift.

Dunham retired as a lieutenant in 1955 and the same year began civil service in the Bureau of Aeronautics (BuAer), NavAir's precedessor. In 1963, he was assigned to the Martin-Baker Aircraft Company in England as a BuAer representative to accept ejection seats for the U.S. Navy, Army, and Air Force – returning to NavAir in 1972. He will be remembered for his long and dedicated service to the Navy and Naval Aviation.

Photo and information courtesy Joseph G. Handelman

Alive and Well . . . Two ex-Navy Martin JRM Mars flying boats are alive, well, and working in British Columbia, Canada. Five Mars aircraft served with VR-2 flying Pacific transport routes from 1946, with some serving into the mid-fifties. Four JRMs were purchased by Forest Industries Flying Tankers in 1959 and put to work fighting fires in Canada's Pacific Coast province. Two aircraft remain in service, JRM-3 C-FLYL (BuNo 76823) "Hawaii Mars" and JRM-3 C-FLYK (BuNo 76820) "Philippine Mars." Both aircraft fly between 100 and 200 hours per year from Sproat Lake and each has about 21,000 hours on its airframe. Forest Industries Flying Tankers utilizes the Martin Company's original linen plans to manufacture needed spare parts. By skimming a lake surface, a Mars is able to scoop up 30,000 pounds of water to be dropped on burning timberland.

Change of Command

CarGru-2: RAdm. James A. Lair relieved RAdm. Riley D. Mixson.

CGAS Barbers Point: Capt. David S. Belz relieved Capt. Richard V. Butchqa.

CGAS Brooklyn: Cdr. James Rao relieved Cdr. Ralph D. Utley.

ComFAirMed: RAdm. Daniel T. Oliver relieved RAdm. Peter H. Cressy.

CVW-5: Capt. Arthur N. Langston relieved Capt. James M. Burin.

CVW-8: Capt. Charles W. Moore, Jr., relieved Capt. W. J. Fallon.

Enterprise: Capt. Daniel C. Roper relieved Capt. Harry T. Rittenour.

FACSFAC VACAPES: Capt. John A. Seddon, Jr., relieved Capt. Reginald B. Teague.

HC-2: Cdr. John L. Dailey, Jr., relieved Cdr. Joe A. Baker.

HC-4: Cdr. Richard Tenga relieved Cdr. Arne Nelson.

HC-11: Cdr. Charles G. Deitchman relieved Cdr. Lawrence W. Hayner.

HC-16: Cdr. Dennis D. Dolfie relieved Cdr. Robert C. Haas.

H&HS-38: Maj. Vincent M. Dubois relieved Lt. Col. Robert D. Erick.

HM-18: Cdr. Charles M. Ress relieved Cdr. G. L. White III.

HMM-164: Lt. Col. Donald C. Lewis relieved Lt. Col. Guy M. Vanden Linden.

HS-85: Cdr. Kirk D. Wessel relieved Cdr. Robert B. Blickle.

HSL-32: Cdr. Joseph E. Belinski relieved Cdr. David K. Wright.

HSL-40: Cdr. David W. Willmann relieved Cdr. Scott T. Cantfill.

HSL-44: Cdr. J. Kevin Moran relieved David W. Willmann.

HSL-47: Cdr. Robert J. Vernon relieved Cdr. Timothy M. Naple.

HSL-49: Cdr. Daniel S. Zazworsky relieved Cdr. Larry E. Larson.

MACS-7: Maj. Bradley E. Turner relieved Lt. Col. John R. Garvin.

MAGs 11 and 70: Col. Donald A. Beaufait relieved Col. Manfred A. Rietsch.

MWHS-3: Lt. Col.-selectee Cass D. Howell relieved Lt. Col. David G. Keck.

NAMRL: Capt. Alfred J. Mateczun relieved Capt. James A. Brady.

NAMTraGru Millington, TN: Capt. Robert B. Cameron relieved Capt. James V. Qurollo, Jr.

NAS Memphis: Capt. Earl W. Shaut relieved Capt. Jerry Baker, Jr.

NAS Whiting Field: Capt. James E. Eckart relieved Capt. Ken Johnson.

NavSpaCom: RAdm. Herbert A. Browne, Jr., relieved RAdm. L. E. Allen, Jr.

NATC: RAdm. Jack W. Snyder relieved RAdm. Donald V. Boecker.

NATTC Millington, TN: Capt. Joseph W. Parker, Jr., relieved Capt. Thomas W. Finta.

ResPatWingLant: Capt. Douglas R. Birr relieved Capt. Michael T. Korbet.

StrkFightWpnsScolPac: Cdr. Charles E. Wattam relieved Cdr. Carlton A. Simmons.

TraWing-5: Capt. Howard W. Nesbitt relieved Capt. Richard A. Catone.

TraWing-6: Capt. Richard W. Potter relieved Capt. James W. Jones.

VA-15: Cdr. Richard J. Cassara relieved Cdr. H. Denby Starling.

VA-34: Cdr. Richard D. Jaskot relieved Cdr. Ronald K. Alexander.

VA-36: Cdr. Thomas M. Deyke relieved Cdr. T. Ladson Webb, Jr.

VA-42: Cdr. Daniel J. Franken relieved Capt. John T. Meister.

VA-65: Cdr. Thomas J. Ross relieved Cdr. Ralph H. Coon.

VA-85: Cdr. Ralph C. Miko relieved Cdr. Lewis W. Crenshaw, Jr.

VA-115: Cdr. James D. Kelly relieved Cdr. Terry J. Toms.

VAQ-134: Cdr. Michael G. Bamford relieved Cdr. James W. Rowley.

VAW-120: Cdr. Edward F. Caffrey relieved Cdr. Thomas C. Lang.

VC-10: Cdr. J. W. Bean relieved Capt. G. G. Evans.

VF-43: Cdr. Thomas B. Russell III relieved Cdr. Richard E. Davis, Jr.

VF-101: Cdr. Mark P. Grissom relieved Capt. C. Kenneth Crandall.

VF-124: Capt. George Moe relieved Capt. Mike McCabe.

VF-126: Cdr. Michael A. Szoka relieved Cdr. Peter C. Chisholm.

VF-142: Cdr. Richard Gallagher relieved Cdr. Hamlin B. Tallent.

VF-201: Cdr. Robin M. Macklin relieved Cdr. Robert A. Duetsch.

VF-301: Cdr. Randal L. Surratt relieved Cdr. Steven A. Murray.

VFA-27: Cdr. Donald P. Davis relieved Cdr. Stanford H. Hlavka.

VFA-97: Cdr. Donald K. Bullard relieved Cdr. James T. Noland, Jr.

VFA-305: Cdr. Scott Sanwick relieved Cdr. Jack McGuire.

VMA-322: Lt. Col. Daniel T. Ventre relieved Lt. Col. Robert P. Kudwa.

VMFA-312: Lt. Col. James F. Amos relieved Lt. Col. Michael A. Hough.

VP-1: Cdr. James J. Miller relieved Cdr. William F. Eckert.

VP-5: Cdr. Robert D. Whitmire relieved Cdr. Franklin D. Bryant, Jr.

VP-8: Cdr. Hugh C. Dawson relieved Cdr. Bruce Crawford.

VP-17: Cdr. Gerald K. Stair, Jr., relieved Cdr. Charles A. Jedlicka.

VP-31: Capt. Gregory A. Markwell relieved Capt. David C. Hull.

VP-69: Cdr. Max B. Norgart relieved Cdr. Robert O. Passmore.

VR-57: Cdr. Philip J. Swartz relieved Cdr. Stanley A. Jorgensen.

VR-60: Cdr. Tom Crews relieved Cdr. L. J. Benson.

VRC-30: Cdr. William A. Goulding relieved Cdr. John F. Ford.

VS-27: Cdr. James B. Renninger relieved Cdr. Raymond J. LaTurno.

VS-28: Cdr. Stanton C. Greenawalt relieved Cdr. Joseph S. Gershon.

VT-3: Cdr. Wayne E. Smith relieved Lt. Col. Michael F. Monigan.

VT-6: Cdr. James J. Destafney relieved Cdr. Dennis A. Hathaway.

VT-28: Cdr. Glenn C. Powers relieved Cdr. Robin M. Parker.

VT-31: Cdr. Rand G. Yerigan relieved Cdr. George J. Wylie.

VT-86: Cdr. David C. Ploeger relieved Lt. Col. Steven D. Summers.

VTC-21: Cdr. Robert B. Stack relieved Cdr. Robert H. Stuhlman.

PROFESSIONAL READING

By Cdr. Peter Mersky, USNR-R

Aggressors, Howell Press, 1147 River Rd., Charlottesville, VA 22901, 1990, 1991. $24.95/volume.

Vol. 1, *Tank Buster vs. Combat Vehicle*, Alex Vanags-Baginskis.

Vol. 2, *Carrier Power vs. Fighting Ship*, Norman Polmar.

Vol. 3, *Interceptor vs. Heavy Bomber*, David A. Anderton.

Vol. 4, *Patrol Aircraft vs. Submarine*, Dr. Alfred Price.

An interesting experiment in aviation history publishing, this set of books (each measuring 11" by 13") has good and bad points.

Most readily visible are the incredible airbrush renderings by Rikyu Watanabe, whose work is well known to readers of Japanese enthusiast magazines. Each volume features several profile and oblique views of the aircraft covered in the traditional elevation presentation, as well as an illustrative treatment showing the aircraft in its operational element. For the most part, the black and white halftones are beautiful. Although several photos are well known, many are not, especially those showing Japanese aircraft.

Each volume's text is written by well-known authorities who have penned their share of other books and articles. The texts give fine overviews of their individual topics with fascinating details of equipment development and combat deployment. Volume 4, on antisubmarine warfare operations, is especially enlightening and describes how the Allies overcame the prowling German U-boat menace with accounts of action in the Atlantic. The book also discusses in unique detail the Japanese submarine effort and how American aircraft surmounted that portion of this adversary's war machine.

Although the *Aggressor* series has several attributes, the set does have problems. Watanabe's illustrations overwhelm the reader and subjugate the text. The books' awkward size makes them hard to hold and read comfortably. While the large format does take advantage of the airbrush renderings, there are times when the interior photos are unreasonably small and poorly positioned on such large pages.

There are occasional typos, indicating poor proofreading, which is especially unfortunate for such lavishly illustrated books. Volume 3, printed in Japan, even has a gap in a sentence where a date is missing. Also, the photo captions involving Japanese aircraft are poorly translated, in the pidgin English one sees in Japanese magazines. While the reader can make sense of these captions, they detract from the overall effect.

Although there are new books appearing constantly, there is very little new or innovative in aviation history. Therefore, even with some of the aforementioned problems, *Aggressors* is a fine effort and worthy of purchase. Even the most knowledgeable reader is bound to find something new in each book.

WEATHER FRONT

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

Global Warming

A 1970 Massachsetts Institute of Technology report, based on the Federal Aviation Administration estimate of 500 supersonic transports flying by 1990, calculated gases and particles produced by jet exhausts could remain in the stratosphere from one to three years before disappearing. In addition, aircraft engines would introduce enough sulfur dioxide, hydrocarbons, and soot into the stratosphere to double the normal levels globally, leading to a 6 to 7 degree centigrade warming of stratospheric temperatures. That was then, but even today, under certain meteorological conditions, contrails left behind high-flying aircraft can persist and reflect as much as 40 percent of incoming solar radiation.

The mechanics are simple: The sun is the only significant heat source for

our planet. About 30 percent of short wave energy from the sun never reaches the earth's surface, either reflected or absorbed by clouds. The remaining 70 percent is absorbed by the earth but then retransmitted as long wave radiation. It is important to note that if the same amount of heat does not pass back into outer space as was received by earth, the earth will become progressively hotter or colder, and therein lies our problem!

There is no longer a heat balance in the earth's atmosphere. Concentrations of carbon dioxide (CO_2) and other trace gases generated by human activity are altering the atmospheric heat balance. The gases trap outgoing radiation that normally would be dispersed into space, resulting in a warmer atmosphere. The efficient absorption of outgoing energy by CO_2 and the other trace gases is why the process is called the "greenhouse effect."

The potential seriousness of the problem is highlighted by a March 1990 General Accounting Office report on the greenhouse effect. The report noted that current climate models suggest the average surface temperature could increase by some 2 to 6 degrees centigrade during the next century. These changes in turn affect life on this plant.

What are the future implications of global warming on Naval Aviation? Exotic nonpetroleum aircraft fuels (perhaps hydrogen) could be introduced in years to come. Currently there is ongoing research for cleaner fuels to operate gas turbines and jet engines and more efficient wing designs to reduce fuel requirements.

This is the last "Weather Front" column. *NANews* extends many thanks to Capt. O'Connor for his contributions over more than three years.

Battle of Midway

50th Anniversary Commemoration

The Washington Squadron of the Association of Naval Aviation will hold the commemoration of the 50th Anniversary of the Battle of Midway on June 4-7, 1992, based at the Marriott Crystal Gateway, Arlington, Va. Events are scheduled at significant locations, including the Navy Memorial, Arlington National Cemetery, the Navy Museum, and the National Air and Space Museum. A panel discussion by battle participants and a Midway film festival are planned.

If you wish to help sponsor the event, please call Sharon Cavileer at 703-503-8126. To receive a registration form, write: 50th Midway, P.O. Box 16408, Arlington, VA 22215.

VMFA(AW)-225

The *Vikings* of VMFA(AW)-225, the Marine Corps' newest FA-18 squadron, stood up July 1, 1991, at MCAS El Toro, Calif. A spring reunion for all past and present squadron aircrew is being planned, and we wish to contact previous *Vikings*. Also, information on the history of VMFA(AW)-225 is requested. Contact X.O. Maj. Bill Macak at autovon 997-3522/4111 or 714-726-3522.

Aviation Ordnance

John M. Elliott's WW II series article, "Aviation Ordnance, 1939-1941," in the July-August 1991 issue was most welcomed for the light it throws on an aspect of Naval Aviation that is often neglected. Our naval aircraft were and remain rather handsome machines, but it's the ordnance that gets the bad guys to pay attention.

A portion of the article is inaccurate, however. Between the wars, bomb and bomb fuze technology had been a low priority, but some work had been done in these areas. By the time of Pearl Harbor, the American air services had a number of the modern aviation ordnance items used through WW II. These included the AN-M103 nose impact fuze, modifications of which were used as late as the *Linebacker II* operation in 1972; the 100-lb. incendiary cluster adapter for the AN-M54 and AN-M54X incendiary bombs; the 100-lb. M47 incendiary bomb; and the fragmentation cluster adapter AN-M4, with three parachute-retarded bombs. Mr. Elliott notes that the fuze for this last bomb was so sensitive that it could not be used aboard carriers, and he is correct. In fact, the Royal Air Force added a spring below the striker on this fuze for added safety.

By the end of WW II, American aviation ordnance personnel had an intimidating array of bomb and fuze types for virtually any target, including water and deck-discriminating fuzes for antiship attack, nose and tail fuzes with offset arming vanes for air-launched guided weapons, and even a reverse-engineered German bomb, the SD2 Butterfly, which was in the inventory as late as 1966.

Mark Newton
Curator, Battleship Massachusetts

Kudos

I want to let you know how much I enjoy reading *Naval Aviation News*. Not only is it interesting to read, it serves as a valuable reference for aviation researchers and historians like myself. I especially like Hal Andrew's ["Naval Aircraft"] column, change of commands, "Airscoop," and the photo contest winners, to name a few.

Old age has caught up with me so I cannot contribute as a photographer as I have in the past – having been warned by my family to stop strapping a rocket to my back and let the younger generation take over. There are so many good aviation photographers coming up that I am sure I will not be missed. However, I miss the thrill of flying, but more important I miss the association with the younger air crew.

Please keep up the splendid job.

Harry Gann
Historian, McDonnell Douglas
3855 Lakewood Blvd.
Long Beach, CA 90846-0001

Acronyms

I retired six years ago from the Marine Corps, after 32 years in the aviation community. I started as a plane captain on various models of the F4U *Corsair*. I began to read aviation safety magazines as my duties and rank increased, and I always looked forward to *Naval Aviation News* and *Approach*. Upon retirement, I subscribed to both.

Your July-August 1991 issue, with its survey card, prompted this letter. For me to check off those items and articles that I enjoy is futile. I read every issue from cover to cover. As for improvements, I'm sure there is room but you folks seem to have a good handle on what should be done.

My one criticism is the ACRONYMS. Over the years, I have learned a lot of them but sometimes when reading an article the acronyms are so confusing that I lose the meaning of the story. IFR used to refer to weather conditions; now it means in-flight refueling. I'm sure there are a lot of us reading your pub at times under IFR – oops, I mean IMC – conditions!

MGySgt. Robert F. Duerden, USMC(Ret.)
52 Orange St.
Abington, MA 02351

Ed's note: Thank you for the kind words. However, I must challenge the acronym issue. Naval Aviation News has always endeavored to keep the acronyms to a minimum for the sake of clarity and readability. When we must use them, they are defined either immediately before or after the acronym appears. By the way, IFR still means "instrument flight rules" in our magazine.

Can You Beat This Record?

Cdr. Ronald N. Hilson/1325 served continuously in VP-90 as an aviation officer in a flying billet from January 1, 1972, to August 31, 1991 – a period of 19 years and 8 months. From our records, this is longer than any other commissioned aviation officer in our squadron; from our research, this is longer than any other flyer in naval history. Any challengers?

Cdr. Sam Kupresin
C.O., VP-90
NAS Glenview, IL 60026-5290

WW II Book

I am collecting material for a book on the experiences of Navy men during WW II. It will be a companion piece to my *The GI's War*, about soldiers, and *The Airmen*. I try to tell the complete war story of a number of individuals, taking them from entry into

the service to the point where they leave. Please contact me if you wish to participate.

Edwin P. Hoyt
P.O. Box 520
North, VA 23128

Locator

As part of a research project, I am trying to locate a former Navy aviator. Henry Shea was designated an enlisted pilot in 1922, Shipplane Pilot Number Ten. He was stationed at North Island, San Diego, in April 1927, and later flew for NYRBA and Pan Am.

Paul Grindrod
P.O. Box 6242
Albuquerque, NM 87197

I wish to locate former shipmates who were aboard USS *Marcus Island* in WW II when the A-bomb was dropped. Call me at 618-656-4397 or write:

Matthew J. Greco
R.R. #1, Box 228
Edwardsville, IN 62025

I wish to contact U.S. Navy and Marine Corps personnel who took part in any of the following campaigns: China, 1946-49; Lebanon, 1958; Cuban Missile Crisis, 1962; Dominican Republic, 1965; Lebanon, 1983-86; bombing raids on Libya, 1980s; Persian Gulf, 1986-88, and Gulf War, 1990-91.

Carlo E. Mikkelsen
63 Chartwell Ave., Glenfield
Auckland 10, New Zealand

I'm attempting to establish a roster of senior *Tophatters*, currently designated VF-14. If you were a member when the squadron was VB-4, VS/VB-41, VA-1A or VA-14 in the prop-driven, piston engine, tail dragger days, please contact me.

Robert E. Holmbeck
2596 Moundsview Dr.
Moundsview, MN 55112

National Flight Log

The Naval Aviation Museum Foundation, in conjunction with the National Museum of Naval Aviation, NAS Pensacola, Fla., is establishing the National Flight Log – an interactive computerized collection of biographies of individuals who helped shape the history of Naval Aviation. This program will give visitors an opportunity to review, on display screens throughout the museum, the personal histories of Navy, Marine Corps, Coast Guard, and civilian personnel who played or are playing an active role in either naval or civilian aviation.

For information about the log, call the Museum Foundation at (904) 453-6289 in Florida, or toll free 1-800-327-5002.

Northern Marianas Book

The Public School System, Commonwealth of the Northern Mariana Islands, is writing a high school textbook for its mandatory history class. We are seeking photographs and information about the islands' past, particularly during and after WW II on Saipan, Tinian and Rota.

Don Farrell
Commonwealth of the
Northern Marianas
Public School System
P.O. Box 1370 CK
Saipan, MP 96950

PBMs

Having just read your March-April 1991 issue, I noticed that the first two PBMs on page 25 ["Wings of Victory, Part 3] will probably make Grampaw Pettibone's column. No wing floats! Probably an incomplete artist's rendition, right?

Forrest F. Goodrick
11153 Conestoga Ct.
Oakton, VA 22124

Ed's note: Close, but no cigar. The first two aircraft in the photo are PBM-1s, which had wing floats that retracted into the wings. The two trailing aircraft are PBM-3s.

Wanted

I would welcome donations to a research project involving old U.S. aircraft carrier memorabilia. The material needed includes photos, Welcome Aboard, Change of Command and Commissioning booklets, ship newspapers, and/or other historical data.

NCCM(SW) C. R. Johnson, USN(Ret.)
1701 Dinuba Ave. #158
Selma, CA 93662-2263

Donated USN/USMC 1940s-era color photographs and/or decals by leather patch artist for reference material. Call 407-639-4367 or write:

J. Signor
3418 Carolyn Ln.
Cocoa, FL 32926

T-28 and OV-10 Vets

I wish to contact individuals who have been involved in the operation and/or maintenance of the T-28 *Trojan* and OV-10 *Bronco* and their variants. The Philippine Air Force still operates the AT-28D *Trojan* as a counterinsurgency aircraft.

Maj. Edmundo F. Gammad
15th Strike Wing
Sangley Point, Cavite City 4101, R.P.

Reunions, Conferences, etc.

65th Red Ripper reunion planned early 1992. Need updated addresses of former members. POC: LCdr. P. M. Pompier, VF-11, Unit 60118, FPO AE 09504-6102.

Navy Convair (C-131/R4Y) flight crews reunion planned. Spring 1992. POC: Robert M. Campbell, Rt. 2, Box 161, Harrisonburg, VA 22801, 703-434-8957.

Kearsarge (CVA-33) Electricians 1954-58 reunion planned. POC: Kenneth McDaniel, 301 East Dr., Oak Ridge, TN 37830, 615-482-4302.

NAF Cam Ranh Bay Detachment Saigon proposed reunion. Seek former members to establish roster. POC: Danny Wade, 13708 Modrad Way #13, Silver Spring, MD 20904.

PBY Catalina 50th Anniversary Pearl Harbor reunion, DEC 2-8, Honolulu, HI. POC: James Thompson, 1510 Kabel Dr., New Orleans, LA 70131, 504-392-1227.

Nassau (CVE-16) reunion, DEC 4-11, Honolulu, HI. POC: Sam Moore, 10320 Calimesa Blvd. #221, Calimesa, CA 92320, 714-795-6070.

Okinawa (LPH-3) reunion. JAN 27-31, Palm Beach County, FL. POC: Capt. W. T. Brown, Navy Aviation Supply Office, 700 Robbins Ave., Philadelphia, PA 19111-5098.

MCAS-MCAF-MATCU Air Traffic reunion. FEB 14-16, Sparks/Reno, NV. POC: GySgt. Joseph Medico, Box 295, Magalia, CA 95954.

Princeton (CV-7) reunion. FEB 23-26, San Diego, CA. POC: Robert Butler 1401 Brion Pl., Camanche, IA 52730, 319-259-8219.

VFA-15/VA-15/VT-4 50th Anniversary. JAN 11. POC: C.O., VFA-15, NAS Cecil Field, FL 32215, (AV) 860-5558 or (COM) 904-778-5558.

NANews 1991

Index

NAVAL AVIATION NEWS
November-December 1991