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naval aviation news

Tracking Smugglers...

A Naval Air War on Drugs

naval aviation news

Sixty-Seventh Year of Publication
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COVER—*NANews* Art Director Charles C. Cooney designed this eye-catching cover to symbolize the Navy's involvement in drug interdiction. The artwork depicts E-2 *Hawkeyes*, P-3 *Orions* and OV-10 *Broncos*, the three naval aircraft used in this effort.

Features

Departments

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On May 8, 1986, Naval Aviation will celebrate its 75th – Diamond – Anniversary, and a joint DCNO(Air Warfare)/ComNavAirSysCom staff is making the year-long list of events happen. Meet the staff on page 4.

Illegal drugs are smuggled into the U.S. by sea and air. One way to deal with the problem and catch the dopers is to use Naval Aviation's P-3, E-2 and OV-10 sophisticated tracking systems, and it's working. Read the latest on the "Naval Air War on Drugs" on page 6.

Royal Naval Aviation helps protect NATO's frigid northern flank. How it copes with the many problems of operating in this frozen region during the winter months is told in "Helicopters in Norway's Snow" on page 12.

Technology transfer is "America's Loss, Russia's Gain." Information on high-tech Naval Aviation systems and research, no matter how seemingly unimportant, is always of interest to Russian agents. The story of how it could involve you begins on page 16.

The P2V didn't win its laurels with good looks or crew comfort. It did it the hard way, with great deeds and performance. That's what Capt. Stephen Reinertsen, USNR(Ret.), and his wife discovered during "The Search for the Neptune's Soul." Page 20.

VX-4 is "A Leader in Fighter Weapons and Tactics" and the members of the squadron set the standard for professionalism and excellence in their respective aircraft. Read about these experts in the fighter community on page 26.

CV-Helo Contract

Sikorsky Aircraft was awarded a contract for full-scale development and production of a carrier version of the SH-60B *Seahawk*. The aircraft, officially designated by the Navy as the CV Inner Zone ASW Helicopter, is commonly known as the CV-Helo. Its primary duty will be to detect and destroy enemy submarines within the inner zone of the Navy's carrier battle groups. The CV-Helo hunts submarines by lowering into the water a sonar device which bounces sound waves off any lurking submarine's hull. The new helicopters will also carry two homing torpedoes.

The $50.9-million contract has production options for up to 91 helicopters, with the first flight of the pilot production aircraft scheduled for late 1986. Delivery to the Navy is planned for mid-1987.

Harpoon Inspection

A government team completed a three-phase inspection of the Navy's *Harpoon* antiship missile, and rated the quality and workmanship of the McDonnell Douglas-built weapon as excellent. The Navy initiated the inspection after questions of quality and workmanship surfaced in other weapon systems. The inspected missiles were reassembled, successfully tested and returned to the Navy's inventory. *Harpoon* is deployed on some 240 Navy ships and submarines and 290 aircraft and by 17 allied nations.

AH-1T+ Program

Bell Helicopter Textron, Inc., was awarded $49.1 million in additional funding for 22 Model AH-1T+ *SuperCobras* to be procured in FY 1985. The AH-1T+ is an improved version of the AH-1T helicopter already operational with the Marine Corps. It employs twin GE T700-401 engines, rated at 1,625 shaft horsepower each, which provide a 65-percent increase in power compared with those used on the standard T. Missions assigned to the AH-1T+ by the Marines include anti-armor, troop helicopter support, multiple weapon fire support, reconnaissance by fire and search and target acquisition.

Aircrew Survival Transceiver

The Aircrew Survival Systems Program engineering team of the Weapons Quality Engineering Center, Naval Weapons Station, Yorktown, Va., evaluated a new aircrew survival transceiver, the AN/PRC-90-1. "The New 1," as it is called, is superior to the AN/PRC-90 in providing emergency communications between a downed aircrewman and rescuers. The new transceiver transmits more output power in the voice and beacon modes and has improved stability, selectivity, audio output of the receiver section, and less receiver distortion. The AN/PRC-90-1 also uses plug-in circuit boards which can be removed and replaced more quickly than the sealed modules in the earlier transceiver.

C-130 SLEP

Lockheed-Georgia Company and the Navy marked the completion of a five-year service life extension program (SLEP) in June that gave new life to 49 older model Navy and Marine Corps C-130 *Hercules* transports. Modifications made to the aircraft during SLEP have increased squadron readiness because high maintenance items were replaced. The program involved Marine KC-130 tanker/transports, Navy EC-130 TACAMO communications platform aircraft and standard Navy C-130 cargo transports.

F/A-18 Generating System

The effects of prior servicing and repairing are major causes of reduced operational reliability in many aircraft systems. This problem as it applies to naval aircraft electric power systems was identified by the Naval Air Systems Command (NavAirSysCom) and led to the concept of a nonserviceable, nonrepairable electric power system with a 66-month contractor warranty. The NavAirSysCom procurement objectives for the F/A-18 electric power generating system were that it be low cost, lightweight and have higher reliability. A life cycle cost study projected savings of over $100 million.

In January 1985, the Naval Air Test Center (NATC), Patuxent River, Md., contracted for the *Hornet's* replacement system. Test samples are scheduled for delivery in January 1986 to be followed by a four-month qualification test program at NATC.

EC-130 Replacement

A version of the Boeing 707 jet being developed as a replacement for the aging EC-130 *Hercules* TACAMO (Take Charge and Move Out) aircraft is scheduled to be evaluated in late 1988 at the Naval Air Test Center, Patuxent River, Md.

The replacement airframe, designated the E-6A, will be equipped with jet engines more powerful than those now used, as well as two wing-tip pods to accommodate some of the avionics antennae. The E-6A is the same airframe the U.S. Air Force uses for its Airborne Warning and Command Systems (AWACS). It has a longer range than the EC-130 and the capability to remain airborne for more than 15 hours at a time. The E-6A's basic mission will be to maintain communications between subsurface ships and ground stations.

Grampaw Pettibone

Final Final

A tandem-seat aircraft on a NATOPS check flight was climbing through 800 feet after takeoff when the copilot (NATOPS instructor) initiated a simulated single-engine emergency by reducing power on the left engine. The pilot in the front seat undergoing the check called the tower and was cleared for low key entry to a simulated practice precautionary approach (PPA).

The pilot had full power on the number two (right) engine as he turned right for the downwind leg. He reached a modified abeam position at 1,300 feet with 116 knots climbing slightly. He reported "low key with gear, for touch and go" and was cleared to proceed. He lowered the wheels and, at the 135-degree position, commenced descent to intercept the final half of a PPA.

At the 90, the pilot and instructor confirmed that landing gear were down and stipulated that a centerline landing would be made rather than one on the left side, which would be proper if the emergency were real.

The aircraft passed a road located 1,300 feet from the runway threshold and at approximately 110 knots the pilot felt a momentary rudder shaker. He lowered the nose and added power to the right engine. At this point, he still "felt comfortable." The plane was about 125 feet above the ground.

A second later, the pilot began to transition to a landing attitude and sensed a yaw to the left. He added military power to the number two engine and "felt a sinking sensation."

The aircraft hit the ground left wing down in a 35-degree angle of bank, at 95 knots, in less than 500 fpm rate of descent, about 125 feet short of the runway threshold. The left main gear collapsed, the aircraft struck the edge of the threshold and continued onto the concrete runway. The nose wheel sheared and the external fuel tank ruptured, spewing ignited fuel down the runway. The plane slid through the fireball and began disintegrating as it departed the runway.

The pilot initiated ejection. The instructor was ejected from the rear cockpit, but the low mode of his ejection seat failed. He was killed on impact. The pilot tumbled once and got seat-man separation but partial canopy deployment just prior to hitting the ground. He suffered broken bones, contusions and a separated shoulder, but survived.

Grampaw Pettibone says:

Woe is us! The pilot, who was a squadron department head, had demonstrated good aerial skills before the mishap. He was under some stress or preoccupation due to his involvement in the forthcoming deployment of a detachment and an upcoming inspection. He asked to be removed from the det assignment in order to concentrate on other duties, but was turned down. Also, he and his wife were expecting a child.

The instructor, though in good spirits, tried to give away the hop to another NATOPS instructor before the brief. The mishap board felt that his concentration may not have been completely focused on the flight.

Regardless of the above, this accident is an open and shut case. The front seat man let the plane get away from him and the instructor made the crucial errors of not staying ahead of his student and not taking timely, corrective action.

Any aircraft in our inventory demands every ounce of attention that flyers can muster. That means from start to finish and all points in between.

Midair Mania

A P-3C *Orion* was flying at 1,000 feet through heavy rainshowers and fog, executing a radar run-in toward a ship. Visibility was nearly zero straight ahead and a half mile laterally. The crew, wisely, tracked inbound offset from the surface contact by about a mile.

Unable to make visual contact on the initial pass, the *Orion* descended to 500 feet for a second offset run. This time the crew spotted the target a mile away, abeam, as the P-3 sped by. The contact was an ocean tug towing two oil derrick towers 1,000 feet astern. The tip of the highest tower was 400 feet above the water!

In another case, an A-6E *Intruder* entered a military training route (MTR) at point alpha and three minutes later heard a pair of F-4 *Phantoms* check in on the same route but at point delta. The *Intruder* advised the *Phantoms* as to its position. Five minutes later, *Phantom* lead reported two USAF A-10s on the MTR flying the course in reverse direction at 500 feet. The A-10s corroborated this. All aircraft were on frequency 255.4. The *Intruder* adjusted its altitude to 1,500 feet and crossed over the A-10s at point delta, with 1,000 feet of separation.

The *Thunderbolt IIs* were actually proceeding to home base, VFR along the MTR, at 250 knots in consonance with FAA regulations. They were practicing low-level navigation work after an ordnance training session at a bombing range.

Grampaw Pettibone says:

A sight that'll twang any Orion's nerves: tall towers risin' from the mist like a pair of goal posts for Paul Bunyan. An A-10 with its big, twin turbines on either side of the fuselage comin' at you ain't no balm for nerves either. Head on,

ILLUSTRATED BY Osborn

the Thunderbolt II looks like Bunyan's binoculars.

The point is NMACs (near midair collisions) are on the rise. The sweat beads of worry on my brow won't go away. The Orion guys did it right, using offset techniques. Even so, there's always somethin' new in Naval Air, like oil derricks that move on the sea and can get in your way if you're low enough.

In this case, the Intruder didn't know it at the time but there was a flight of four, not two, A-10s that passed below the A-6E. No telling what would've happened if the friendly Phantom hadn't warned the Intruder. Low visibility paint schemes and multiship flights make NMAC matters worse nowadays.

May I Have a Light, Please

An EA-3B *Skywarrior* was on final of a Mode II approach and reported, "Ball." Paddles responded by flashing the "cut" lights. As the aircraft drew nearer to the ship, the pilot noted an unusual, dim red glow in the vicinity of the lens. "Are they wave-off lights?" he wondered. "But wave-off lights are unmistakably bright and flashing," he thought.

In close, the crew was still looking at a ball and the curious dim red glow. Confused and uncertain, the pilot initiated his own wave-off. As the *Skywarrior* passed overhead, the crew gazed intensely at the mysterious glow. To their collective surprise and with a degree of horror, they realized the wave-off lights *were* on. The plane landed safely on the next approach.

There had been a mix-up in the recovery order. Primary expected an EA-6B *Prowler* on the approach, not an EA-3B. The LSO recognized the *Skywarrior's* distinctive sound and light pattern. After initially signaling "Roger, ball" with the cut lights, he flashed the wave-off lights since both the lens and arresting gear were set for the *Prowler.* Detecting no response as the *Skywarrrior* bore in, the LSO and Primary broadcast "Wave Off! Foul Deck!" Unfortunately, these transmissions were made on the frequency assigned to the *Prowler* two miles behind the ship.

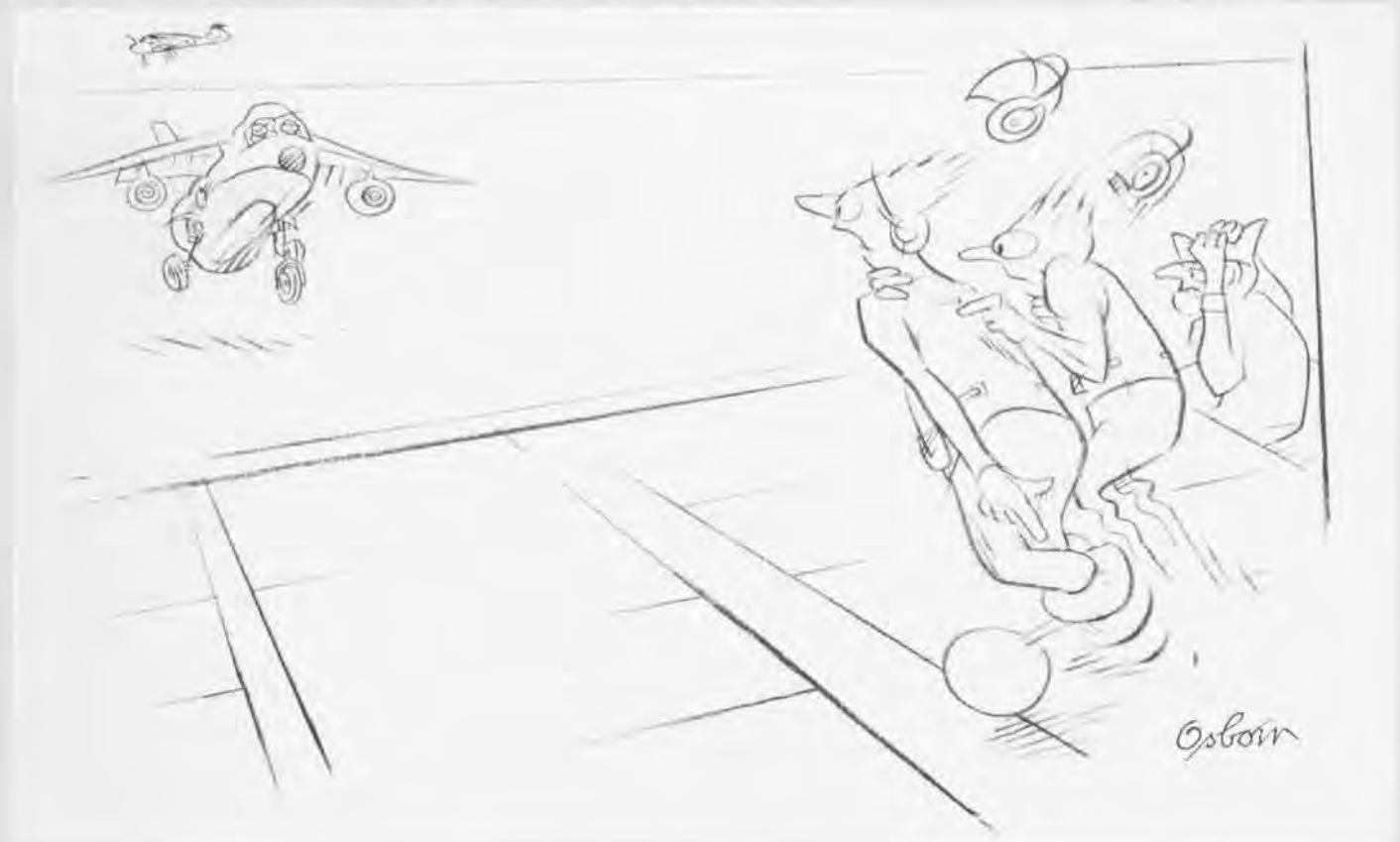
Grampaw Pettibone says:

Balls of fire! That's what we mighta had if the *Whale* kept a comin'. Pat on the back to the pilot for going around.

But what happened to the wave-off lights? Well, they worked as advertised according to the LSO NATOPS manual. First, they flashed at full brightness but then shifted down to the present position which, in this case, was at the lowest level. Result: a dim red glow or pulse.

A flyer on final could easily miss that first bright flash if he's on the gauges for a second or two. He might only see a dim red glow like these fellas.

Advice: LSOs, consider using a brighter setting on the wave-off lights. Also, have backup methods ready to wave off a customer if the lights and radio aren't doing the job. Pilots, if doubts circulate in your brain when tryin' to trap, tell somebody. Ask questions. Get answers. If you still don't feel right, wave off and try again. We don't need any fireballs on the flight deck or in the drink!



Gearing Up for the Celebration

Diamond Anniversary 75th Year of Naval Aviation

Anniversary Staff (from left to right): Capt. Maury Cagle, Capt. Richard Knott, Sherri Smith, JOCS Kirby Harrison, Cdr. Matt Costarakis, Capt. Gordon Krauss and Lt.Cdr. John Roach.

VAdm. Gerald E. Miller

The tempo is picking up on the scheduled activities to commemorate the 75th Anniversary of Naval Aviation on May 8, 1986. The six members of the official 75th Anniversary Staff have been assigned projects and are working full steam toward achieving their goals.

The 75th Anniversary Staff, under the auspices of the Deputy Chief of Naval Operations (Air Warfare) (OP-05) and the Commander, Naval Air Systems Command, is responsible for overseeing the entire Navy-wide program. Another group was recently established to mobilize support by those outside the immediate Naval Aviation community to include civilians, history buffs, nonprofit organizations, and businesses. Known as the National Committee, this group is headed by Vice Admiral Gerald E. "Gerry" Miller, USN(Ret.), a dynamic, energetic hard-charger who has already generated a great deal of enthusiasm and spearheaded several programs to promote the 75th Anniversary.

As director of the 75th Anniversary project, Captain Richard C. "Dick" Knott, USN, supervises the work of the 75th Staff and coordinates the various projects with the National Committee. He also wears two other hats as Special Assistant for Publications and Operational Records (OP-05D) and Head, Aviation Periodicals and History (AIR-07D4). Capt. Knott says the 75th Anniversary is going to tell the exciting story of Naval Aviation through hundreds of projects. As head of the program, he adds, "It's one of the most enjoyable jobs I've ever had."

It is noteworthy that most of the staff members are Naval Reservists who volunteered for active duty to work on the anniversary program, ongoing through the end of calendar year 1986.

Captain Maury Cagle, USNR, is Assistant Public Affairs Officer, Bureau of the Census, Suitland, Md., in his civilian job. He describes joining the 75th Staff as "a great opportunity to merge my professional background in communications, my Navy affiliation, and a lifelong interest in aviation." Capt. Cagle adds that, as a staff member, he feels a sense of time. He says, "I look out the window across the Anacostia River and see the hangars where my father went to school in 1925 to become one of the first seven rated Aerographer's Mates in the Navy. At the same time, my oldest son is on active duty as a Ltjg. aboard USS *Cimarron* in Pearl Harbor. And here I am, a surface officer, ending my Navy career on an aviation staff, just as I started out in 1956 at NAS Barber's Point."

Captain Gordon Krauss, USNR, is a Naval Flight Officer who looks at the anniversary year as an opportunity for the Naval Aviation community to excel in safety. "Let's honor the 75th Anniversary theme — Naval air power in defense of freedom — with a year of accident-free operations," says Krauss, who owns a small manufacturing business in New Jersey.

Commander Matt Costarakis, USNR, left his computer consulting business in Jacksonville, Fla., to contribute his knowledge of data processing to the communications efforts of the 75th Staff. An ex-P2V pilot, he feels his membership on this team is "a once-in-a-lifetime experience."

Lieutenant Commander John Roach, USNR, is a professional artist with a strong Navy background in public affairs. He says, "I wanted this job very much, both for my association with the Navy and for the professional development it brings."

Journalist Senior Chief Kirby Harrison, associate editor for *NANews,* brings considerable experience as a photographer and writer to the 75th Staff. He was chosen as the Navy's 1983 Photojournalist of the Year, and part of his job will be shooting photographs to support media requests during the anniversary.

Sherri Smith is a civil service employee as well as a Yeoman Second Class in the Naval Reserve. She is assistant editor of *NANews* and acts as administrative assistant for the 75th Staff. Prior experience in public affairs and knowledge of the Navy organization will enable her to help organize the staff's projects.

The following is a listing of some of the major projects planned for the 75th Anniversary and the point of contact on the 75th Staff:

Project	POC
January 1986 Kickoff Ceremonies Made-for-TV Film Flights of Historic Aircraft Talk Show Appearance of Navy Dignitaries TV Special	**Capt. Cagle**
Presidential Proclamation of Anniversary Year Grampaw Pettibone's Birthday National Aviation Events A-1 Replica and Flight 75th Anniversary Ceremonies/ Air Shows Gray Eagles	**Capt. Krauss**
Reenactment of World's First Transatlantic Flight Record Flights Statue of Liberty Centennial Electronic Bulletin Board	**Cdr. Costarakis**
Naval Aviation in WW I Commemorative Medallions Slide Presentations Naval Institute Projects Souvenirs Aircraft Decals USS *Theodore Roosevelt* Commissioning/Newport News 100th Anniversary	**Lt.Cdr. Roach**
Enlisted Personnel Involvement Calendar Poster Art	**JOCS Harrison**
Fourth of July Celebration Naval Aviation in Space Press Releases	**Ms. Smith**

The 75th Anniversary Staff and the National Committee can be contacted by calling autovon 335-2739/40/41 or commercial (202) 475-2739/40/41, or by writing to the 75th Anniversary Staff (OP-05D75) or National Committee, Bldg., 159E, Room 519, Washington Navy Yard Annex, Washington, D.C. 20374-1595.

Photos by JO2 Timothy J. Christmann

75th Anniversary Logo Unveiled

VAdm. Edward Martin, DCNO (Air Warfare), congratulates NANews Art Director Charles C. Cooney after accepting his artwork as the official logo for the 75th Anniversary of Naval Aviation.

On July 3, 1985, the official logo for the 75th Anniversary of Naval Aviation was unveiled during ceremonies at the Naval Aviation Museum, NAS Pensacola, Fla. Rear Admiral J. S. Disher, Chief of Naval Air Training, reminded those present that it was a Navy aircraft that made the first transatlantic crossing. "To the Pacific theater of WW II, to Korea and Vietnam," he said, "these aircraft and the Navy men who flew them helped America save the world for freedom and democracy."

Designed by Charles C. Cooney, Art Director, *Naval Aviation News,* the blue and gold emblem is symbolic of the Navy's history, achievements, and leadership in the area of airborne defense. Pictured on the logo is the A-1, the Navy's first aircraft, along with the traditional symbol of Naval Aviation — the 68-year-old pilot's Wings of Gold — and Naval Flight Officer's wings, which are symbolic of the several other groups that make up the Naval Aviation community today. The others include Naval Aircrew, Naval Flight Surgeons, Aviation Supply Officers, Combat Aircrew, Naval Astronauts, Naval Flight Nurses, Naval Aviation Observers and Flight Meteorologists, Marine Aerial Navigators, Aviation Warfare Specialists, Naval Aviation Experimental Psychologists and Physiologists, and all the support personnel who make Naval Aviation work.

At the unveiling, RAdm. Disher summed up the purpose of the 75th Anniversary festivities: "Even today we rest a little easier knowing that our carriers are on station, near trouble spots, ready to defend our interests. All this developed because the Department of the Navy in 1911 had a vision — a vision to launch aircraft at sea as well as on land. This has proven to be a remarkable achievement that became the model for other world powers." ■

Tracking Smugglers...

A Naval Air War on Drugs

By JO2 Timothy J. Christmann

The drug smuggler's mission was almost complete. In 20 minutes, he would land his single-engine Bonanza, *laden with 600 pounds of cocaine (worth $15 million), on an airstrip several miles north of Miami, Fla. There, under the cover of darkness, a group of drug dealers would inspect and divide the contraband, then pay the smuggler $75,000 for his trouble. The thought alone made him smile.*

Fifteen minutes passed. The smuggler, flying at a low 100 feet, crossed the Florida coast and located the airstrip. It was surrounded by forest and illuminated by a string of makeshift lights. He circled, decreased speed, lowered the wheels, and made his approach. Everything was running on schedule. Already he could feel the money in his hands.

The Bonanza *touched down on the runway and trembled to a stop. But, to the smuggler's chagrin, a U.S. Customs* Citation Two, *packed with several heavily armed law enforcement agents, landed right behind him. The drug dealers fled while the agents swarmed the aircraft, handcuffed the smuggler and reveled in their large catch of cocaine.*

But the bust wasn't theirs alone. In fact, Customs' part in the mission depended largely on Naval Aviators and aircrews flying an E-2C Hawkeye *and OV-10* Bronco.

P-3 Orions have been invaluable in locating maritime drug smugglers in the South Florida area.

Over the past four years, these aircraft (along with the P-3 *Orion*) have been invaluable in assisting law enforcement agencies and the U.S. Coast Guard in confiscating more than four million pounds of marijuana and 4,000 pounds of cocaine in the South Florida area. In addition, they have aided in the arrest of more than 2,000 people and the seizure of some 500 boats and aircraft.

The *Hawkeye* in this particular bust was flying a training mission for Carrier Airborne Early Warning Wing 12 when its APS-125 radar, which specializes in detecting low-flying aircraft 250 miles in any direction, spotted the smuggler's *Bonanza*. Using the E-2C's powerful on-board advanced radar processing system computer, the crew analyzed and tracked the doper's position. They also discovered, thanks to the *Hawkeye's* sophisticated receivers, that the *Bonanza's* transponder wasn't squawking an IFF signal.

Quickly, the *Hawkeye* crew relayed their information to the U.S. Customs Air Support Branch at Homestead AFB, in Miami, Fla. Suspicious, Customs requested Marine Observation Squadron (VMO) 1, temporarily stationed at Homestead, to investigate. Within minutes, a forward-looking infrared (FLIR) radar-equipped OV-10 *Bronco* took off in hot pursuit of the suspected quarry. The OV-10's FLIR makes the aircraft ideally suited for a night mission, because it enables the Marine pilot and aerial observer to see objects (planes, ships, etc.) at night on black and white video screens inside the cockpit.

The E-2C vectored the *Bronco* to the smuggler's position. Undetected, the OV-10 manuevered behind the *Bonanza* and relayed a description of it back to Customs. Using its intelligence resources, Customs discovered that the *Bonanza* had flown an irregular flight pattern all the way from Columbia. It immediately dispatched a *Citation Two,* which relieved the OV-10 about five miles off Florida's east coast and went in to make the bust.

Years ago, Naval Aviation assets (E-2C *Hawkeyes,* P-3 *Orions* and OV-10 *Broncos*) couldn't assist Customs in stopping drug traffickers coming into the United States, particularly through South Florida, because of the Posse Comitatus Act. This act, which was made into law in 1878, embodied the principle that the armed forces shouldn't interfere in civilian law enforcement.

In 1978, however, the U.S. Navy was allowed to provide limited surveillance to help Customs and the U.S. Coast Guard catch air and maritime drug traffickers.

This approval came at a time when an estimated 800 to 1,000 private aircraft were making 5,000 to 8,500 flights into the U.S. annually, transporting more than 11 million pounds of marijuana and 17,500 pounds of cocaine. Of these flights, the Drug Enforcement Agency estimated in 1981 that Florida was the target of 47 percent of all air smuggling and 68 percent of all maritime smuggling destined to the United States from principal source countries like Peru, Bolivia, Jamaica and Columbia. Florida has been the preferred entry point for smugglers because of its proximity to source countries, many miles of isolated inland waterways, numerous unlit dirt airstrips, open beaches and coastal islands.

In the fall of 1981, Naval Aviation's assistance in curbing the drug flow increased dramatically with Operation *Thunderbolt,* a Customs' operation conducted in southeast Florida. *Thunderbolt* was designed to deter drug smuggling by aircraft and to evaluate the effectiveness of the E-2C *Hawkeye* in the interdiction effort. During a 90-day period, three *Hawkeye* squadrons were staged at Patrick AFB, near Cape Canaveral, Fla., and spent 367 hours flying bilateral tracks to the Bahamas. *Hawkeye* crews teamed up with Customs' air arm and helped confiscate 13 tons of marijuana, 1,113 pounds of cocaine, and 250 pounds of hashish. *Hawkeyes* also contributed to 50 percent of the arrests made during the operation.

Based partly on the impressive result of Operation *Thunderbolt,* Congress passed and President Ronald Reagan signed the Posse Comitatus Amendment on December 1, 1981. This legislation permitted the military, specifically the U.S. Navy, to furnish information, lend equipment and facilities, and provide training and advice to law enforcement agencies. It also expanded the Navy's ability to track and communicate the movement of vessel and aircraft traffic. But the amendment prohibited involvement of military personnel in searches, seizures and arrests. It also stipulated that the Department of Defense could not provide assistance which would adversely affect the preparedness of the armed forces.

James Dingfelder, staff coordinator of the Vice President's South Florida Task Force in Miami, said the Posse Comitatus Amendment has made "a noticeable difference" in smuggling activities. He added that since its ratification, military assets — particularly the *Hawkeye, Orion* and *Bronco* — have been involved in every large-scale interdiction operation.

The last two major operations, *Hat Trick* (1984) and *Blue Lightning* (1985), resulted in the destruction of more than 70,000 pounds of marijuana, 8,000 pounds of cocaine, the seizure of 25 boats and two aircraft, and 58 arrests.

"We could never have done this without Navy assets [which included surface ships]," said Dingfelder, whose organization was established in 1982 by President Reagan to help law enforcement agencies curb the drug flow into South Florida.

"...drug traffickers have learned to respect (Naval Aviation) assets."

"Over the years, drug traffickers have learned to respect and fear the capabilities of [Naval Aviation] assets," he added. "For instance, when the E-2s came down here for Operation *Thunderbolt,* I spoke with a squadron commanding officer who defined the South Florida area as a 'shooting gallery.' That is how plentiful smugglers were. Today, however, *Hawkeye* squadrons see a lot fewer traffickers."

Captain John W. Bookhultz, Commander, Carrier Airborne Early Warning Wing 12, agreed. "[In the early 1980s] , a *Hawkeye* could go out and find two or three smugglers every day. Today it may find a couple in a week."

Bookhultz, whose air wing has seized more than $900 million worth of contraband since Operation *Thunderbolt* began, added that when an E-2 squadron operates from South Florida, many smugglers stop trafficking drugs until it goes away.

"The dopers will see E-2s flying out of places like Homestead AFB, and they'll walk up to sailors on the street and ask, "Hey, do you guys fly those funny-looking airplanes? How long are you going to stay here?'"

As far as Capt. Bookhultz is concerned, just having *Hawkeyes* present in South Florida provides a deterrent, because the

The E-2C Hawkeye provides a deterrent that has helped complicate the drug smugglers' mode of transportation.

smugglers never know if the E-2s are flying for Customs or the Navy. "After all, drug interdiction isn't the only reason *Hawkeyes* are there," he added. "Their most important job is operating with, and protecting, the carrier air wing with its 250-mile footprint."

Lieutenant Colonel James P. Byrnes, commanding officer of VMO-1, said the *Hawkeye* is "superlative" in the interdiction mission.

"You couldn't ask for a better example of the Navy and Marine Corps team than a combination of an E-2 and OV-10 down here," said Byrnes, whose *Bronco* squadron (thanks to skillful coordination with E-2s and Customs) has aided in the seizure of more than 3,000 pounds of cocaine and 250,000 pounds of marijuana since 1983. "Our coordination really works well in catching surface and air smugglers."

At least one active or reserve E-2C and P-3 *Orion* squadron regularly assists South Florida's drug interdiction effort. The *Hawkeyes* scour strategic areas in the Atlantic Ocean, Gulf of Mexico and Caribbean primarily in search of suspected aircraft smugglers, while P-3s cover similar areas in search of suspected maritime smugglers. Their mission is not to chase suspects, but rather to vector Customs, the U.S. Coast Guard or VMO-1 in to intercept.

According to James Mahan, spokesman for Customs in Washington, D.C., the P-3s have provided an "invaluable service" to the drug interdiction effort. In fact, this year, Customs bought a P-3 from the Navy and it has already aided in the seizure of 9,000 pounds of marijuana, 900 pounds of cocaine, 9 aircraft, and 22 arrests.

"You couldn't ask for a better example of the Navy/Marine Corps team than a combination of an E-2 and OV-10 down here..."

Unlike the E-2C, the four-engine turboprop P-3, which specializes in hunting submarine and surface targets, can fly 16-hour missions and search huge expanses of ocean (95,000 square nautical miles in an hour).

According to Lieutenant Gerald L. Wilson, public affairs officer for Patrol Wing 11, the drug interdiction mission fits well into the P-3's type of training.

"One of our primary missions is surface surveillance and intelligence," said Lt. Wilson, whose wing has aided in the

seizure of three-and-a-half-million pounds of marijuana, 350 vessels, and the arrest of 1,400 people since 1982. "Consequently, we practice that mission by conducting a lot of patrols. We will search an assigned area and take a look at every surface contact either visually or by radar. In many instances we'll fly over a contact that appears [to fit a drug profile] and pass our information on to the Coast Guard. They will usually send one of their aircraft or cutters out to take a closer look at it."

In addition to alerting the Coast Guard, the P-3 will occasionally vector VMO-1 *Broncos* to a suspicious surface contact. Although based in New River, N.C., VMO-1 (the only OV-10 squadron on the East Coast) periodically makes detachments to Homestead AFB for training and to support the U.S. Customs' Miami Air Support Branch. Like the P-3s and E-2s, VMO-1's FLIR-equipped OV-10s are used for surveillance and intelligence-gathering purposes and cannot physically apprehend smugglers.

According to Lt.Col. Byrnes, the squadron usually hunts for smugglers at night. Typically a *Bronco* will launch at 0200, fly to a predesignated area about 100 to 200 miles off the coast, and wait to be vectored to a potential air trafficker. While waiting, the *Bronco* will scan the surface with its FLIR, trying to find possible maritime smugglers.

"A surface contact that would make us suspicious would be a high-speed (60-knot-plus) boat racing with its lights out from the outer islands into Miami," said Lt.Col. Byrnes. He added that the FLIR makes this search easy. In fact, it is so effective that VMO-1 has film footage of smugglers dumping bales of marijuana into the water at night. "The footage was so clear, we could count the bales," he said.

VMO-1 is usually vectored to a potential air smuggler if the suspect isn't squawking an IFF code, or is flying without a flight plan, flying low with its lights out, or flying an erratic course in the hope of sneaking into shore.

"Once vectored to the suspect, one of our OV-10s will slide up behind him, almost at a parade formation position, and scan him with the FLIR," said Byrnes. "We use the FLIR

The FLIR-equipped OV-10 Bronco, a propeller-driven aircraft that can fly 84 to 325 knots, has helped in the capture of more than 250,000 pounds of marijuana.

to get a good description of the plane, then relay the information to Customs."

While the *Bronco's* pilot and aerial observer are making a visual identification of the aircraft, Byrnes said the smuggler doesn't even know they are there. "Most civilian aircraft have poor rear visibility, so the smuggler can't see us," he explained.

After relaying the information to Customs, the OV-10 tails the suspect until Customs sends up a plane to follow through with the bust.

"You wouldn't believe some of the routes these smugglers fly," said Byrnes, who has been C.O. of VMO-1 since 1983, the year the squadron joined the drug interdiction effort. "We have a videotape of a Lockheed *Loadstar* that one of our planes picked up [and pursued] about 120 miles east of Miami. The guy kept changing his airspeed from 120 to 200 knots and altitude from 500 to 5,000 feet. He did turns, modified split-Ss. . .and all this was done at night [in an attempt to escape detection]. The first *Bronco* stayed with the smuggler until he ran low on fuel. When he was dry, we launched another OV-10 and the chase continued until they reached the South Carolina-Georgia border, where the smuggler tried to land on an airstrip. But his buddies on the ground must have heard him being followed and shut off the lights used to mark the strip. The plane crashed and the pilot was killed. Customs found 3,000 pounds of marijuana and 50 pounds of cocaine in the wreckage."

Capt. Bookhultz, who has 5,000 flight hours in early warning aircraft, said that he has seen chases go all the way from Columbia to Long Island, N.Y. "Sometimes, depending on the type of plane, you can estimate its endurance and destination," he added. "But some smugglers try and outfox you. You'll think their aircraft can only go 500 miles, but you'll find out later that they have configured the plane to take extra fuel tanks. So a little single-engine plane that can't [normally] fly from Columbia to Long Island, does."

Before assuming his present position, Capt. Bookhultz served two years as military advisor for the National Narcotic Boarder Interdiction System (NNBIS) at the Old Executive Building, located beside the White House, in Washington, D.C. NNBIS is a nationwide government operation which is responsible for coordinating requests by civilian law enforcement agencies for military assistance relating to drug smuggling. He said at times the job was frustrating because often the Department of Defense, due to operational constraints, didn't have enough equipment to allocate for drug interdiction. "So we did the best we could with what we were given," he remarked.

It is estimated that narcotics is a $120-billion-a-year business in the United States, so there isn't much the smuggler can't afford. In fact, smugglers have been known to buy 707s, small freighters, and the most sophisticated electronics gear imaginable to keep business in the black.

Despite the enemy's enormous wealth, Customs drug seizures have increased dramatically over the years. According to Jim Mahan, the total value of narcotics seized rose from $7 billion in 1983 to nearly $11 billion in 1984. He added that Naval Aviation assets had a great deal to do with this achievement.

Figures aside, Capt. Bookhultz said that perhaps the most dramatic accomplishment *Hawkeyes, Orions* and *Broncos* have made in South Florida is to complicate the smuggler's mode of transportation.

"Today's drug smuggler will often try and avoid South Florida and take his contraband into the Gulf states (Texas, Louisiana, Mississippi) or transport it farther north above the Carolinas," he remarked. "For example, we once found a smuggler 500 miles east of Bermuda sailing north and his mode of operation was to turn south and drop his load off along the way."

According to Dingfelder, smugglers now have a tendency to air drop or offload their contraband on islands in the Caribbean and then bring it in on small boats to escape the E-2's accurate radar."

Although smugglers may be diverting drugs more frequently today than years ago, Lieutenant Commander Jim Simpson, public affairs officer for the Seventh Coast Guard District, said that there is no evidence of this happening to a great degree.

"The smuggler's transportation and distribution system has been based in Florida for the past 20 years," he said, "so they have a strong motivation to stay."

Since making its first big marijuana seizure in 1973, the Seventh Coast Guard District has seized more than 15 million pounds of marijuana. In fact, in the past four years, it has averaged a seizure rate of more than two million pounds of marijuana, or close to 90 percent of the total seizures the Coast Guard made nationwide. Despite this impressive average, Lt.Cdr. Simpson said that boatloads of marijuana continue to make it into Florida.

The National Narcotics Intelligence Consumers Committee estimates that more than 60 percent of the marijuana imported is shipped by sea. And one of the Coast Guard's strategies for decreasing this percentage is intercepting "motherships." Motherships are vessels ranging from 60 to 300 feet that carry large quantities of marijuana from source countries and transfer it to smaller boats which have a better chance of eluding capture. The USCG's effective means of intercepting motherships – before they are able to transfer their cargo – is to catch them coming in through the Yucatan Channel, Windward Passage, Mona Passage and Anegada Passage (the four major Caribbean choke points which are the smuggler's gateway to the United States).

The Coast Guard relies on its own aircraft (C-130 *Hercules,* HU-25 *Guardians,* H-3 *Sea Kings,* and H-52 *Sea Guards*) as well as Navy and law enforcement intelligence to assist its surface force in intercepting motherships.

Virtually all Coast Guard intercepts are conducted by cutters and Tactical Law Enforcement Teams (TACLETs). TACLET crews are heavily armed boarding parties which,

Left, the Yucatan Channel, Windward Passage and Mona Passage are three major choke points for maritime drug trafficking.

Right, a suspected drug smuggler is taken into custody by the Coast Guard.

Bales of marijuana are stacked on a dock by law enforcement agents following a recent bust in South Florida.

thanks to the Posse Comitatus Amendment, are allowed to embark aboard, and make seizures from, U.S. Navy ships.

"[TACLETs] are a significant deterrent," said Lt.Cdr. Simpson, "because when the smuggler sees a gray ship he doesn't know whether it has a TACLET on board that is going to stop and board him."

According to Simpson, smugglers have never used weapons to resist a USCG boarding. He added that only a fool would try to resist a 210-foot cutter with a three-inch deck mount, 50-caliber machine guns and a boarding party armed with shotguns, M-16s and 45-caliber pistols.

Although they refrain from firing on cutters and TACLET crews, smugglers have resisted being boarded in other ways (i.e., scuttling their boats before a catch can be made and trying to ram a USCG cutter). Also, the Coast Guard has had to use disabling gunfire, such as shooting into the stern to stop drug runners who refused to heave-to. "But this has only happened about 12 times in more than 5,000 boardings," said Lt.Cdr. Simpson.

Years ago the smuggler's stereotype may have been a Latin American in a dirty, beat-up fishing boat. "But today you can't categorize his profile," Simpson added. "Nowadays we seize many people who are American citizens on nice yachts."

Because of the success of drug interdiction activities, the smuggler has had to resort to being much more covert. For instance, years ago it was typical for the Coast Guard to seize a boat carrying 30 tons of marijuana.

"The smuggler would just put it on the deck of his boat and head north," said Simpson. "Not anymore. Today we find that the smuggler has the drugs stored in hidden compartments. For example, he builds a false tank within a fuel tank and puts marijuana in there. In fact, once we found 700 pounds of cocaine buried in 25 metric tons of yams."

He added that today drug runners refrain from bringing one 30-ton load into Florida. "Instead they will bring three loads of 10 tons each," Simpson said. "This is one of the reasons why the Coast Guard is seizing more boats but getting less contraband."

According to Lt.Col. Byrnes, most smugglers in the drug business aren't a bunch of jerks you find on a street corner.

"They are professionals," he said. "They know they can make a lot of money so they buy the best equipment and plan real hard. They have to. They know we're out there waiting for them."

Byrnes added that most people don't realize the scope of American's drug problem until they come down to Florida and see the large amounts of drugs that are seized. Although what is seized is only a portion of what is smuggled into the country every day, he said that VMO-1, like most military squadrons involved in this effort, enjoys helping to bust traffickers.

"It is an intriguing mission and my officers and enlisted men get really pumped up when an aircrew returns after a successful chase," he said.

Added Lt.Cdr. Simpson, "It is such hard work that no matter how you feel going into a bust, you're satisified once you see the contraband stacked on the dock and the prisoners led off in handcuffs."

Like most people involved in the drug interdiction effort, Lt.Cdr. Simpson knows that the war against smuggling won't end until the contraband is eradicated from its source countries in South America. Until then, law enforcement agencies will rely on Naval Aviation personnel and assets to assist in the fight.

"We're making a real impact down here and we're getting better all the time," said Dingfelder. "We're going to win." ■

Bardufoss Winter '85

Helicopters in Norway's Snow

By Terry C. Treadwell

How do you even contemplate changing a helicopter engine in the Arctic open air when the temperature is below −22 degrees F? Well, according to the Royal Navy, all you need is a parachute and a portable heater nicknamed "Herman the German." This inventive method was demonstrated by the men of Royal Navy's 846 Squadron last winter during its annual Arctic winter exercise in Bardufoss, northern Norway, some 140 miles north of the Arctic Circle.

To accomplish a cold-weather engine change, the parachute is draped over the nose of the aircraft and tied down. The heater is then connected to a large hose which in turn is inserted into the parachute enclosure. With the heater turned to full power, the hot air then inflates the parachute and creates a working environment of around 50 degrees F. All major repairs can be carried out using this method, although it is, of course, much easier and more comfortable to use a hangar. As part of their training, all of the ground crews who visit Bardufoss are

expected to perform at least one engine or gearbox change in this manner.

The Royal Navy's Fleet Air Arm and the Royal Marines hold training exercises each year consisting of 10 weeks of real-world learning experiences. Within each period, one week is dedicated to survival training during which aircrews have to spend two nights in a tent and one in a "snow hole" or hand-built shelter. It is not hard to imagine what conditions would be like if an aircraft had to ditch in the mountains, especially at night! Therefore, survival training is a must.

The Royal Navy 846 Squadron's role in the Arctic is to train in the movement of troops and materials in the mountainous regions that make up northern Norway. This culminates in an exercise which is designed to practice the reinforcement and defense of Norway. Some 10,000 troops from five NATO countries take part.

If maintaining the aircraft in the Arctic is a problem, then flying presents a few more. Before any helicopter leaves the ground, the ground crew must ensure that the engine is at proper operating temperature. If it is not, they can do one of two things: apply direct heat to the engine and gearbox using the portable heater, or start the engine, run it for a few minutes and then shut it down for inspection. The latter is used only when there is no portable heater available.

All emergency equipment also must be checked and carefully stowed on board the aircraft. In addition to each crew member's personal survival gear, the crew chief also ensures that all of the helicopter's covers are aboard in case of an unexpected stop, where protection from the elements may not be available. The covers insulate the more vulnerable parts of the aircraft from severe frost or heavy snow.

It is interesting to note that the carrying capacities of the Royal Navy's *Wessex* and *Sea King* helicopters are drastically reduced when operating in the Arctic. This is because of the emergency equipment that is normally carried plus the survival gear of each member of the crew. Add to this the equipment carried by the embarked Marines and their skis. Thus, instead of being able to carry 12 men, the aircraft can carry only six.

With this reduced performance, flying in the mountainous regions of northern Norway can be challenging. Weather conditions can change from valley to valley and local meteorologists must constantly provide timely weather information, particularly during marginal conditions. They warn the pilots to look out for changing weather that cannot be forecast. For example, even on clear days, snow can be seen blowing off the tops of mountains, thus giving an indication of heavy turbulence in the valleys below. There is no substitute for experience and the older, more experienced pilots know exactly when to wave off, if and when the conditions get too

A parachute is inflated with hot air to create a working environment of 50 degrees F so that Royal Navy squadron maintenance personnel can comfortably accomplish aircraft repairs in Arctic temperatures.

dangerous.

There are other hazards to consider when flying in these difficult conditions, and the Norwegian pilots are more than pleased to offer their help and knowledge to any pilots that operate there. At briefings, a great deal of emphasis is placed on visual navigation, including the constant checking for reference points to avoid possible dangers. In this snow-covered terrain, power lines and radio and TV masts are very difficult to see, and every year there are a number of fixed-wing and helicopter accidents involving them. Although local Norwegian charts are not updated for these obstacles, all squadrons that operate in these areas have their own hazard maps that are based on years of experience. These special charts are necessary because in the event of a "gray out" – which can happen in overcast snowy weather when the gray of the sky and the gray of the land merge, leaving no horizon – reference points must be found quickly to enable the crew to locate landing sites if they think it is unsafe to go on.

Icing is another of the major problems that the helicopter pilots have to face in the varying weather conditions of the Arctic. It normally occurs between 14 and 30 degrees F and is severest in the upper part of the clouds. Avoiding it is paramount and, when it does occur, shedding it can cause a number of problems. Ice coming off the leading edges of rotor blades can seriously damage the tail rotor. Ice forming on the fuselage can be sucked into the engine, causing a flameout. Therefore, it is important not only to know what to do when the problem arises, but to recognize the initial symptoms and take the appropriate action.

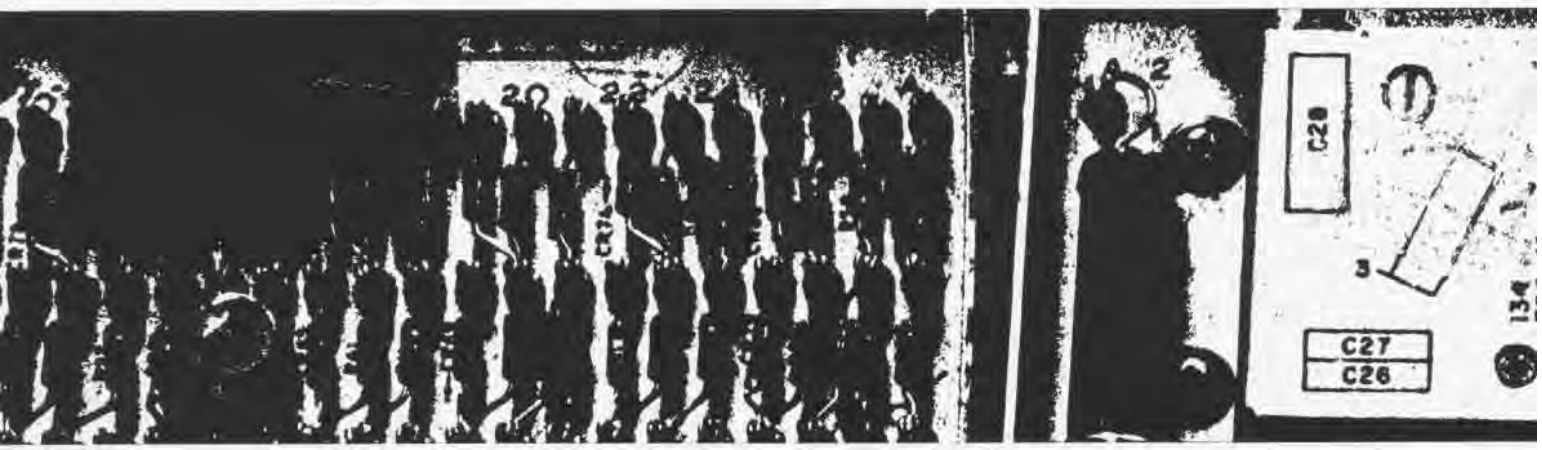
But why go to all this trouble and expense to defend Norway? There is nothing complicated about the answer. Whichever major power controls the sea lanes around Norway controls the North Atlantic. If the Soviets controlled Norway, their ships would have any number of safe harbors and their submarines would have the most natural bases in the world from which they could attack convoys trying to supply Western Europe from the United States. Their Air Force would have a number of forward airfields from which to attack Britain and Europe. In addition, these airfields would be extremely hard to locate and destroy. Conversely, held by NATO, the Russian fleet would be unable to move freely in the North Atlantic without the knowledge of the NATO Alliance and would ostensibly be hemmed it. Any movements by the Soviets against the West would have to include either the taking or neutralizing of Norway. So, maintaining a high state of readiness in this region is vital to NATO's security regardless of the weather.

The bottom line is that the expense, no matter how costly, is more than justified to ensure the northern flank of NATO is properly protected and defended. ■

Technology Transfer...

America's Loss, Russia's Gain

By JO2 Timothy J. Christmann



Technology transfer, which is the conveyance of information and equipment pertaining to U.S. high technology to the Soviet-bloc, dates back to the Cold War. During this period of frosty relations between the U.S. and the U.S.S.R., America leaped ahead of the Soviets in research and development of high technology. Although the technological breakthroughs were crude compared to today's standards, they nevertheless laid the groundwork for the powerful microcomputer chips, accurate laser guidance systems, and far-seeing radars of the 1980s.

Since the Cold War, the Soviets and their Eastern-bloc allies have been successful in obtaining a wide range of classified U.S. technology secrets by skillfully exploiting government employees and military servicemen. NANews is publishing this article to make the Naval Aviation community aware of the severity of technology transfer and how to assist law enforcement agencies in stopping it.

In 1982, during a U.S. Senate hearing on the severity of technology transfer, a representative for the Defense Intelligence Agency said that the Soviet Union uses the United States as an easily accessible reservoir of important technical and scientific information.

"In fact," he added, "they tap into it so frequently that one must wonder if [the Soviets] regard U.S. research and development as their own national asset. They have enjoyed great success with minimal effort, primarily because in this nation we lack the awareness of what they are about."

This lack of awareness, coupled with the greedy desire of some people to have their pockets lined with money, has resulted in serious losses of U.S. defense-designed and manufactured high technology over the past several decades. In fact, today, the Naval Investigative Service (NIS) and the U.S. Customs Service estimates that the Soviet Union and its Warsaw Pact allies obtain more than 70 percent of their high-technology needs from the West.

"The technologies of primary concern are those used to manufacture advanced weapons," said William R. Shaw, special agent on the NIS foreign counterintelligence squad which is based at the Washington Navy Yard, in Washington, D.C. One aspect of the squad's mission, as part of its worldwide operation, is to work in conjunction with other government agencies, such as Customs, in stemming the legal and illegal flow of high technology to potential adversaries.

High-tech transfer is the conveyance of technical information and equipment to unfriendly countries, specifically the Soviet Union, according to Shaw. He added that NIS' job is using its investigative and counterintelligence capabilities to stop Soviet acquisition of high technology from the Department of the Navy.

Law enforcement agencies like NIS have discovered that technology transfer has at least two major advantages for the Soviets and their Warsaw Pact countries. First, there is a tremendous cost advantage. By legally and illegally obtaining U.S. high technology since the Cold War, the U.S.S.R. has saved billions of dollars in research and development. Secondly, U.S. technology is superior to anything the Soviets can "home grow."

In many areas the U.S.S.R. can duplicate and surpass Western scientific research, but it is unable through strictly domestic efforts to turn those findings into viable manufacturing processes. Reasons for this vary, but it appears to be the result of the Soviets' industrial organization system which is based on quantity rather than quality production.

By relying on imitating U.S. technology, the U.S.S.R. is limiting its potential for moving ahead of the West in the most basic areas of technology. But, due to their high production rates, the Soviets are able to turn new techniques into military hardware faster. Therefore, it is possible for the U.S.S.R. to produce new weapons based on obtained U.S. secrets and technological advancements while

they are still on the drawing board in America.

In short, technology transfer provides the Soviets with the best of both worlds – Western technology and Soviet production capabilities at the disposal of Soviet military procurement. It is a winning combination that NIS, Customs, and other law enforcement agencies are trying to prevent.

"I see technology transfer as being parallel to national problems like drunk driving and child abuse," said James M. Crotty, a special agent assigned to the U.S. Customs Services' Washington, D.C. field office. "It is something that has been plaguing our country for years. However, it has only recently gained the public's attention [via the media]."

Stopping tech transfer is particularly important to Crotty. He is the port coordinator of Operation *Exodus,* a Customs Service enforcement program designed to protect U.S. national security by intercepting illegal technology and military hardware exports to the Eastern bloc. Since *Exodus'* inception in 1981, it has made more than 4,200 seizures of illegally transferred high-tech equipment valued at $275 million.

As port coordinator of *Exodus* in Washington (there are *Exodus* detachments in many cities nationwide), Crotty's job is making sure potential tech-transfer victims (i.e., computer manufacturers, civilian contractors, etc.) are taught how to detect Soviet tactics and react accordingly. If Crotty develops information regarding an individual attempt to illegally export technology, he or another agent investigates.

"The first thing the assigned special agent will do is verify that there is a violation occurring," Crotty said. "He can implement numerous investigative procedures including undercover tactics and surveillance. He will also identify the suspect and the suspect's associates to determine whether any of them have a criminal history of if they have ever been suspected of being involved in illegal tech transfer. In the end, the investigating special agent will have attempted to obtain enough evidence to prevent the high-tech item from reaching unfriendly hands and also to arrest and convict the violators.

The KGB (the Soviet committee for state security) and the GRU (the Soviet military intelligence organization) are the organizations primarily responsible for gathering U.S. high technology.

"As a result of their success in obtaining Western technology, the KGB and GRU have dramatically increased their manpower levels assigned to this task," said Crotty. It is now estimated that there are several thousand collection officers at work throughout the nation and the free world.

Soviet-bloc agents not only feed on Washington, D.C., (because it is the seat of government and a budding area in high-technology items) but many other

cities which possess specific technological qualities. The most popular cities include Los Angeles, Calif., for its high volume of critical technology exports through its international airport and high volume of military equipment exported from its seaports; Norfolk, Va., which has the largest U.S. naval base, a naval air station and a growing electronics industry; Boston, Mass., for its active airport and seaport in an area known for its high-technology industries; and Newark, N.J., a large seaport used in the exportation of strategic military equipment.

"They [Soviet-bloc agents] try to infiltrate not only the established high-technology areas, but also the developing areas where they can grasp new ideas," said Crotty, who was a special agent for the Bureau of Alcohol, Tobacco and Firearms for six years before transferring to Customs.

According to Shaw, Customs and NIS are currently conducting several investigations in the nation's capital. This doesn't surprise him, considering that in 1984 alone more than 10,000 Soviet-bloc dignitaries, scholars and tourists visited the U.S.

"All Soviet-bloc visitors are considered potential agents while inside this country," said Shaw, a former police officer.

Eastern-bloc tourists don't pose the same threat as embassy personnel, scientists on exchange programs, or covert intelligence-gathering officers, but they do have the potential for being in the U.S. to collect high-tech or intelligence information. And it is common for Soviet tourists to get debriefed upon their return to the U.S.S.R., according to Crotty.

In a nationwide radio address on June 30, President Ronald Reagan warned the U.S. of the increasing "number and sophistication" of espionage and tech-transfer activities by Soviet-bloc countries. He also called for a reduction of the 2,500 Soviet diplomats in the nation, 30 to 40 percent of whom he said were known or suspected agents.

Shaw said that Eastern-bloc agents assume various covers and do whatever is necessary (steal, bribe, blackmail, etc.) to obtain secrets and technology. They are determined men and women who are being pushed by a government that is not only paranoid about the technological prowess of the U.S., but is trying desperately to overcome a three to five-year Western lead in high technology.

"They target practically all military installations (specifically large ones) not only for information on new weapons, but for any intelligence information they can get their hands on," said Shaw. He added the Soviet-bloc countries pay "ridiculously small amounts" of money compared to what they gain in high-tech data.

"(The Soviets) are after any information they don't have, including a wide range of unclassified material."

The primary method of illegal acquisition of U.S. high technology is through the use of export diversion tactics.

"This is accomplished primarily through U.S. and foreign firms who will arrange for the exportation of high technology to neutral or friendly countries which are not under any U.S. embargo," said Crotty. "The Soviets and their American-based conspirators will arrange for the commodity to be exported to a fictitious corporation in the West, then reshipped (often several times) to conceal its ultimate destination. It will finally enter the Soviet Union or Eastern bloc from a country that is not aware of its diversionary history and one which does not have stringent exportation regulations," he added. In the end, U.S. high technology strictly prohibited from the Soviet Union arrives in the U.S.S.R. and is applied to Soviet industrial military interests."

There are, however, several legal ways in which the Soviets obtain information. One of the primary means is through open-source material (magazines, journals, newspapers, etc.) in which U.S. high-technology manufacturers and designers advertise and discuss their specific commodities. In addition, a tremendous amount of detailed information (such as blueprints on the space shuttle) is made available free to taxpaying Americans, and subsequently to Soviet agents, through a myriad of government agencies like the National Aeronautics and Space Administration, Government Printing Office, etc.

In a statement to members of the Senate Armed Services Committee in February, Rear Admiral John L. Butts, Director of Naval Intelligence, said that

Photo by JO2 Timothy J. Christmann

William R. Shaw

legally obtained technological information has enabled the Soviets to accelerate their space shuttle program; make substantial progress in developing directed-energy weapons; fashion an aircraft carrier catapult system; save years in developing composite materials for military aircraft structural components; and establish the world's foremost capability to produce gun barrels.

Both Crotty and Shaw are concerned with the delicate information that is sometimes used by national and international publications. A recent case which supports their concern occurred in October 1984 when a civilian intelligence analyst for the U.S. Navy was arrested by the Federal Bureau of Investigation for passing classified photographs to a British publication.

According to Crotty, open-source information is collected by Soviet agents and sent to Moscow where the material is analyzed, categorized and computerized by about 150,000 employees of the Soviet Union's Scientific and Technical Information Center, which makes it accessible to the Soviet military.

Another legal means by which the Soviets collect U.S. high-technology information is through symposiums, conventions and organizations which are attended by members of the world's scientific community.

"Many Soviet scientists attend these professional meetings in pursuit of specific technical data," said Crotty. "We stress in our *Exodus* literature that if any American scientist is contacted by a Soviet-bloc scientist at these worldwide exchange conventions, he or she should contact Customs or NIS."

Some of the obvious (and most

Photo by JO2 Timothy J. Christmann

James M. Crotty

destructive) examples of technology transfer have been publicized in recent years. For instance, in December 1981, William H. Bell, a radar project engineer working for Hughes Aircraft, provided more than 20 classified reports on future U.S. weapons systems and components to a Soviet-bloc agent. Among the systems compromised in this three-year transaction were look-down-shoot-down radar for the F-16, *Stealth* quiet radar, an all-weather radar system for tanks, the *Phoenix* air-to-air missile, a towed array sonar system, and an improved *Hawk* surface-to-air missile.

Bell was approached by a Soviet-bloc agent who was also an official for the Polish American Machinery Company, an enterprise incorporated under U.S. law. The agent pursued an apparently innocent friendship with Bell and then exploited his personality weaknesses and financial insecurities to elicit cooperation in espionage. For his services, Bell was paid a fraction of what the multimillion dollar information was worth.

More cases: In October 1984, an engineer named James Harper was arrested for stealing key missile defense documents from his wife's Silicon Valley company, Systems Control, Inc. He was caught selling the documents to Eastern-bloc agents.

In March 1985, D. Frank Bazzare, a Maryland engineer, pleaded guilty to illegally selling microcircuits used for cruise missiles, antisubmarine warfare equipment and other military technology to an Austrian firm which resold it to East Germany, and eventually the Soviet Union, for a reported $6.5 million.

Tech transfer seems to be paying off handsomely for the Soviets and the

"The Soviet Union will put their people through U.S. colleges and move them into specific American companies to gather technical secrets and products."

results are obvious. For instance, their military arsenal includes the *Atoll* air-to-air missile, which bears a remarkable similarity to the U.S. *Sidewinder* air-to-air missile. Also, their AWACS aircraft is a copy of a U.S. prototype, according to Shaw. And the missile guidance system used to shoot down the Korean airlines' Flight 007 two years ago was also based on U.S. design technology, he added.

Crotty and Shaw stress that civilians and military personnel don't have to be in high positions, or have access to classified material, in order to be approached by a Soviet-bloc agent.

"[The Soviets] are after any information they lack, including a wide range of unclassified material," Shaw said.

He added that a high percentage of civilian and military personnel will be approached by a Soviet-bloc agent in a social atmosphere.

"It may happen in a bar or a restaurant," said Shaw. "And the person approached may or may not be someone who the Soviets have been watching for awhile. But they will [often] make the contact look like a chance encounter when in actuality it was prearranged."

According to Crotty the reason for the encounter can be left up to the ingenuity of the intelligence-gathering officer.

"For example, the Soviet agent could pose as a freelance writer who is writing an article that just happens to be in the area of professional interest of the person he has just approached," Crotty said. "He could begin by asking for unclassified, readily available information like a phone book or anything else that he could use to enhance his article. Once he receives the phone book, or whatever he is given by the person he approached, he may provide a small finder's fee. The Soviet agent's intention is to get his contact in a compromising situation in which the person cannot escape without harming his or her position and reputation."

According to Crotty, Soviet agents aren't in a hurry to obtain valuable information from service members and civilians. He added, that often Soviet-bloc agents will take years to acquire information from a source.

"They will master the language, master the culture and move into specific areas of a community near people who work in a particular high-tech field," he said. "The Soviet Union will even put its people through U.S. colleges and move them into specific American companies to gather technical secrets and products."

A government employee, defense contractor or military serviceman should be on guard when approached by someone who wants classified or unclassified information.

"If you feel the individual or the individual's request is suspicious, don't follow your immediate inclination to sever the relationship," he said. "It isn't our objective to discourage a potential Soviet bloc agent, because if he can't get the information he wants from you, he'll go elsewhere and we will have lost an opportunity to catch him."

Instead of discouraging the individual, the civilian or service member should put the suspected agent in abeyance and immediately contact the *Exodus* command center in Washington, D.C., at (202) 566-9464, or special agent in charge, NIS resident agency, Washington, D.C., at (202) 433-3858.

"We will get in touch with the appropriate Customs and NIS agents near the caller and they will conduct a preliminary investigation and plan an investigative strategy," said Crotty. "If it is determined that an illegal transfer has occurred or will occur, U.S. Customs and NIS agents will pursue a strategy that will hopefully lead to the suspect's arrest and conviction."

Despite the success of Operation *Exodus* and NIS in helping to curb the tech transfer problem, Crotty and Shaw are realists who expect no early abatement of the problem. Still, both realize that by intensifying their efforts in making civilians and service members aware of the severity of tech transfer, less technical secrets and equipment will be lost.

"The only way we're going to stop Soviet-bloc agents is by making a lot of arrests and seizures, thereby creating a viable deterrent," said Crotty. "This illegal activity has to be stopped, and we need the assistance of civilians and service members in order to do it." ■

The Search for the Neptune's Soul

By Captain Stephen P. Reinertsen, USNR(Ret.)

VP-4 remapping southeast Alaska with specially configured P2V-2s in 1948.

Lockheed-California Co.

"Sweetheart, the kids are grown, the business is sold and this is the perfect time to do what I've always dreamed. Why not take a year, at the most, to travel around the world and the U.S. collecting tall tales of the venerable Peter Two Victor Neptune? For some strange reason, no one has ever bothered to write [a complete] history. . . ."

Captain and Mrs. Reinertsen depart on their U.S. odyssey from NAS Moffett Field.

That discussion took place over three years ago and, to tell the truth, our youngest was still at home. To my wife's credit, resigned since courtship days to competing with airplanes, she countered my "Why not?" with a simple "Why?" rather than a far more sensible "No!"

Why scare her out of her wits with the tale of that near-miss in the soup at night over the Taiwan Strait; or hundreds of other boring, and a few hair-raising, stories offshore from other strange coasts; or that low-fuel-state crosswind GCA to the only active at Rota, with gusts to 60 knots, 90 degrees to the runway; or the 15 years of walking away in one piece from several thousand other P2V landings, some you didn't deserve to survive? How do you explain an irrational lifelong love/hate affair with a 170-knot aluminum can filled with 115/145 avgas?

Perhaps I should have appealed to her sense of historical justice and tried to convince her why this history deserves recording. The P2V was the first airplane ever to patrol all the world's oceans, day after day in peacetime. It had the longest continuous production run in history (1945-1979). *The Truculent Turtle's* astonishing 1946 non-refueled long-distance record of 11,236 miles in 55 hours, 17 minutes lasted 16 years.

No, to persuade my wife, it made more sense to push the travel and fun angles, and it worked. She consented. Little did she know that we would spend most of the next three years chasing across Europe and Asia, then making a 22,000-mile, nine-month circuit of the U.S. in a motor home, in hot pursuit of the elusive *soul* of an airplane.

In the summer of 1982, we set out for Europe where four countries had flown *Neptunes*: Great Britain, France, The Netherlands and Portugal, our first port of call.

Colonial wars, an internal revolution and an air force-navy squabble over the maritime aviation role overshadowed Portugal's employment of P-2s. In the mid-fifties, the Portuguese obtained 12 early P2V-5s from the Dutch, who transitioned and trained them. The Portuguese are justifiably proud that all 12 aircraft were retired in the mid-seventies, with no strikes and no fatalities. While there's wasn't much material here for *Neptune* history, I left with some fine sea stories from an admiral and an air force general. Both were former *Neptune* pilots whose fond recollections indicated that, for them, she had a soul.

On to Paris, where I learned that between 1953 and 1961 France bought 26 P2V-6s and 34 Dash 7s. By 1982, only five were still in service in France and four in New Caledonia in the South Pacific. All were retired in 1983.

During the troubles in Algeria, the French flew *Neptunes* on night radar surveillance patrols at 10,000 feet over the electrified barbed-wire border of Morocco. Small defensive platoons were scattered too thinly along the desert front, and *Neptunes* bridged the gaps with flare and/or low-level night searchlight bombing and strafing runs on anything that moved.

Great Britain obtained 52 P2V-5s in 1952, apportioned to four squadrons of the RAF Coastal Command, and the aircraft were used for maritime patrol until 1957 when Britain's defense budget was drastically cut. Two of the four squadrons were disestablished, and the 52 *Neptunes* were retired and replaced with 26 *Shackleton* patrol planes.

When Britain disposed of its *Neptunes* in 1958, eight went to Argentina. Years later, when the Argentines attacked the Falklands, they were down to one or two flyable *Neptunes* and in need of spare parts. President Reagan had embargoed Argentina's war material shipments, stranding a batch of high-priority P-2 and A-4 parts. Nonetheless, one morning the Argentines managed to launch a radar-up *Neptune* over the weathered-in South Atlantic between their coast and the Falklands. Radar reported a large surface target and its position was duly relayed back to mainland headquarters. Two Argentine (French-built) *Super Etendard* jets armed with *Exocet* missiles were vectored overhead the *Neptune,* which in turn gave them a letdown penetration steer to the radar target. Both jets broke through the low undercast to find HMS *Sheffield* boresighted dead ahead. Both fired their *Exocets.* The first went wide but the second struck *Sheffield* amidships her aluminum superstructure and sank her.

Why should a 35-year-old flying relic still be around playing such deadly games? While not evidence of a soul, something unique seemed to be going on.

The task in Holland was easy. A few weeks before my arrival, the Dutch naval history personnel had published a fine hard-cover narrative and pictorial history of their navy's entire employment of the *Neptune.* In all, the Dutch flew 12 P2V-5s – which later went to Portugal, as mentioned – and 19 Dash 7s. Of the latter, Lockheed delivered 15 with solid noses similar to early *Neptunes,* each mounting four 20-mm fixed-forward-firing cannon.

The early research in Europe was inconclusive. Perhaps the *Neptune* was simply a collection of aging parts that flew well together over salt water. There had never been any great outpouring of public affection for her, like the DC-3 or the P-51. With no tailhook (later I would learn of a test *Neptune* that did have a tailhook!), no high-altitude dash capability, no air conditioning and no pressurization, the *Neptune's* public obscurity was guaranteed by the *Right Stuff* heroes then busily punching into space. Yet, wherever *Neptune* drivers congregated in Europe, I found the same

VU-3 heads out to launch two BQM-34A target drones from a squadron Neptune.

wistful memories of a beloved old friend. With outrageous exaggeration of her good qualities, and excuses or silence about her shortcomings, there was mounting evidence of a soul.

Besides her disdain for creature comforts, ex-*Neptune* drivers still excuse her other sins. There were those frightening engines with their tendency to explode and puncture the fuselage with turbine-bucket shrapnel, rat's nest plumbing and electrical systems seemingly redesigned every few months, leaky cockpit overhead hatches dribbling rainwater down your neck, and the ever-frozen relief tubes. The list is endless.

Nonetheless, in defense of the free world, she flew forever over great ocean expanses, scanning them with powerful airborne radar eyes. She was gentle and forgiving. She did whatever you told her to do. Though she required never-ending maintenance to get her balky carcass airborne, once aloft, she would surprise everyone by flying safely through all manner of adversity. In defiance of rational odds, she brought you home. For all her cantankerous misery, the payout wasn't half bad. Moreover, it was consistent.

Upon our return, a year of banking the home fires passed before we were on our way again early in 1984, bound for Australia and Japan.

With their usual enthusiasm, the Australians took to the *Neptune* like a migrating duck headed south. In 1951, they bought 12 early P2V-5s without jets (retrofitted in 1959) and added 12 Dash 7s in 1962. Altogether, their two maritime patrol squadrons flew *Neptunes* from 1951 to 1976, with P-3 replacements beginning in 1967. Because of Australia's thousands of miles of coastline, the SAR mission looms large in their operations and makes for innumerable salty tales – including finding and helping rescue a U.S. Navy submarine that had run aground on a coastal reef in 1966.

By any historical measure, Japan's employment of *Neptunes* is the most significant of the foreign countries who flew them. My first encounter came in 1956 when, inbound to Iwakuni on a transpac deployment, we lost an engine and diverted to a base on the southern tip of Kyushu. Taxiing-in our tired, old, smoking, oil-smeared Dash 5F, we were parked on a line of brand-new Dash 7s sporting bright red meatballs. None appeared to have ever flown. Their titanium exhaust flashplates were shinier than the day they left the Lockheed plant. Later, invited by the Japanese to tour aboard one, we were first requested to remove our flight boots!

The first batch of 16 Dash 7s was a military-aid purchase from the U.S. In 1958, Japan signed a pact for 48 more, the first 14 to be imported in knockdown-kit form and the balance manufactured by Kawasaki Heavy Industries. Then the Japanese went to work on their own *Neptune* design, the P-2J, which first flew in 1966. It featured two G.E. T64 turboprops, two J3 jets, a 50-foot-longer fuselage, 39-foot-diameter twin wheel mounts on tricycle gear, a redesigned vertical tail with a rudder having lighter pedal forces, air conditioning and a number of other advances. In all, 82 P-2Js were built and all are still flying. They are being replaced by P-3Cs, also built by Kawasaki, with final *Neptune* phaseout scheduled for 1992.

In 1978, the Japanese rolled out a highly modified Dash 7 for fly-by-wire and variable-stability experimental flight testing. At age 33, the *Neptune* tackled new frontiers in advancing state-of-the-art aerodynamics research.

It was March 1984, time to return for the U.S. research. As we flew eastward, I pondered what had been learned in Europe and WestPac. Nowhere had anyone bad-mouthed the *Neptune,* in spite of her shortcomings. Quite the contrary, everyone's nostalgic affection for her matched my own.

Some hypotheses, not yet conclusions, were beginning to emerge. Most of her shortcomings stemmed from piston engines and vacuum tubes – miseries shared by all aircraft of that era. With turbine propulsion and solid-state avionics yet to come, what could account for her longevity, her gentle and forgiving nature, her uniqueness? I began to suspect it was the remarkable airframe. Compared to her predecessors, the *Neptune* airframe was, and is, a workhorse of incredible strength and endurance – aerodynamically way ahead of its time. I landed in California determined to learn how this came to be.

Nearly 200 ex-*Neptune* crewmen had responded to my earlier requests in military periodicals for personal experiences, cruise books, photos or anything of historical or anecdotal interest. Our plan was to visit these correspondents along the way, between stops at the major historical repositories.

We live in Marin County, Calif., just north of the Golden Gate Bridge. Awaiting our return was a new 32-foot "fifth-wheel" house trailer, coupled to a powerful pickup tow truck – our home and office for the rest of 1984. Inevitably, the rig's name became "The Truculent Turtle" and emblazoned on her side was Walt Disney's colorful logo – drawn for the epic flight – depicting a lazy, one-eyed pip-squeak of a pipe-smoking turtle pedaling a propeller.

I schemed for a joyous getaway day to downplay a touchy morale situation with milady copilot, understandably leery about abandoning the family nest for the vagabond trails ahead. April 2 dawned auspiciously as we bade friends and neighbors farewell.

Our first major research stop lasted nearly a month at Lockheed-Burbank, the *Neptune's* birthplace. From an RV park north of Burbank, I became a daily commuter-cum-briefcase, a pattern later to be repeated at many stops. Lockheed hospitably opened its archives and photo files, and I dug in like a kid in a candy store.

I learned about the *Neptune* airframe that I had pondered while homebound over the Pacific. The original V-135 design proposal was unveiled the day before Pearl Harbor. I spent several fascinating hours with three retired

members of the V-135 group.

For openers, they had selected nice round numbers: 100-foot wingspan, 1,000-square-foot wing area, 50-pounds-per-square-foot wing loading, and an aspect ratio of 10. While many design changes evolved before the first flight of the XP2V-1, those day-one numbers prevailed for every *Neptune* built. At last I was striking pay dirt in the search for the *Neptune's* soul. If it began anywhere, it began here.

Another interesting design feature was the variable camber (varicam) horizontal tail. For younger readers, the *Neptune* is the only airframe ever to have a three-section, narrow chord horizontal tail: a fixed leading edge stabilizer, a pilot-controllable midsection varicam, then conventional elevators aft.

After attending a May VP-2 reunion in San Diego, which included much camaraderie and many tall tales, we headed eastward to Davis-Monthan AFB, Ariz. At the Military Aircraft Storage and Disposition Center (see "Please, Don't Call It a Boneyard," *NANews,* October 1982), we found 116 Dash 7 *Neptunes* last flown by reserve squadrons. I examined the transfer histories of every P-2 in and out of Litchfield Park (pre-1962) and Davis-Monthan, which it later became. I also watched and photographed the contract removal of 14 *Neptunes* to be based at Stead AFB, Nev., for use by the National Oceanic and Atmospheric Administration and the Naval Research Laboratory in worldwide oceanic research until the year 2015.

By now, readers may well be questioning the sanity of anyone who spends time and money chasing after the soul of a flying bucket of bolts. But, for you skeptics, I have a proposition: With your logbook in hand, go to Davis-Monthan and find the type of aircraft that you flew. At dawn or dusk when the wind is still and the twilight paints the surrounding Tucson mountains in hues of purple, go out alone onto that silent desert valley floor and stroll up and down the peaceful rows. When you come upon familiar bureau numbers, and you will, relive your flights together. Recall your wingman or the crew who flew that old bird over there. Then sit and listen. As the temperature changes, metal contracts or expands and some say it creaks, groans and snaps. I say it talks – about that young jaygee who pranged old number 7 onto a 10 G blown-tires landing, then went on to become the best pilot old number 7 ever had – about that insane mission over the Vietnam hills when, with holes in the wings you could shoot baskets through, all came home safely – and so on. Experience this and, if you still don't believe airplanes have souls, I can't help you.

In Arizona and New Mexico, we visited two civilian fire-fighting contractors who convert and fly *Neptunes* for the U.S. Forest Service. The airframes are stripped, then a rather sophisticated eight-section bomb bay tank and intervalometer are installed. The *Neptune* carries more slurry – 2,700 gallons at nine pounds per gallon – than any other fire-fighter aircraft except the DC-7.

At the USAF Alfred F. Simpson Historical Research Center at Maxwell AFB, Ala., we learned very little about the seven Dash 7s the Air Force bought and flew in the late fifties and sixties for electronic surveillance missions. Nor did we learn much more at USAF historical centers in D.C. and at Wright-Patterson AFB, Ohio, except that the aircraft were redesignated RB-69As.

We had better luck at the Fort Rucker Army Air Museum in Alabama and later at the Army's Military History Institute, Carlisle Barracks, Pa. We obtained a history of the First Radio Research Group, a U.S. Army detachment that flew *Neptunes* on enemy communications snooper missions over Vietnam.

At NAS Pensacola, Fla., we photographed the original *Truculent Turtle's* zinc-chromated hulk, patiently awaiting restoration in a pasture behind the Naval Aviation Museum. We also spent a fascinating evening with the former X.O. of VO-67, the unit that sowed disguised sonobuoys into the Laotian jungle in

A P2V-3C makes a JATO-assisted takeoff from USS Midway.

support of "McNamara's Electronic Fence" across the Ho Chi Minh Trail. This 1968 deployment was a disaster; two crews and part of a third were lost in the first few weeks. Jungle-fighting *Neptunes* – fish out of water – were replaced after six months by more suitable F-4s.

A week at the Naval Safety Center, NAS Norfolk, Va., was a sobering experience. I reviewed every *Neptune* accident on record. For you P-3 drivers, I have a Grampaw Pettibone-type observation to pass on without apology, for I flew both P-2s and P-3s: Be grateful for today's superb training, equipment, squadron quality assurance inspectors, NATOPS procedures – the whole collective effort to keep you intact. When *Neptunes* first flew, these safety programs were nonexistent or in their infancy and the accident records reflect it. Reviewing them, I came upon some real shockers – the names of ex-squadron brothers I thought were still alive.

At the Naval Air Test Center, Patuxent River, Md., I reviewed the preliminary and final acceptance flight test reports for all seven *Neptune* models. She didn't always pass with flying colors. For example, that airframe I've bragged about never did exhibit enough lateral control on final to please the Navy, although Lockheed scrambled to redesign aileron controls and add spoilers on later models. Also, there were complaints about pilot and crew discomforts, but we all know none of these were ever corrected! At one point in the early turbo-compound engine days, the president of the Board of Inspection and Survey, after 19 engine changes on test aircraft, grounded the whole test program. Then fleet commanders restricted all Dash 4s with turbo-compounds to VFR flights within 50 miles of landfall. Years later, it is reassuring to discover that somebody back there cared. Eventually, we got better engines.

Also in the Patuxent River archives were development reports I'd long sought of two unique *Neptune* projects: the carrier-based weapons deliverers and the Fulton Gear (later described). In the late forties and early fifties, the *Neptune's* bomb bay was the only one in the Navy capable of delivering an atomic weapon. While later the AJ *Savage* and still later the A3D *Skywarrior* would assume this mission, for several years, the *Neptune* carried the ball alone – JATO-assisted carrier takeoff, one-way delivery, then either landing in friendly territory or ditching at sea. In 1948, Lockheed brought forth a special model for this, the Dash 3C, featuring minimum-drag, long-range, beefed-up everything, a retractable hydroflap water brake for open-sea ditchings, and (for test only) a tailhook!

A later series Julie/Jezebel Dash 5 with jets. Lockheed-California Co.

Two months in pre-election Washington were hot and tedious, but productive. From Navy Yard historical archives, I extracted histories of every Navy outfit ever to fly *Neptunes,* and even one Marine unit. From Naval Air Systems Command records, I was able to trace the service life of every *Neptune* from Burbank to desert storage. The embassies of Brazil and Argentina, the only two countries we didn't visit, filled in the gaps with their *Neptune* histories.

The State Department's archives furnished texts of the between-government exchanges following *Neptune* "incidents" over the high seas. It was of comfort to learn that our government really went to bat for us after these incidents. For example, when a particularly outrageous shoot-up over international waters south of the Bering Strait ended with a flaming *Neptune* crash-landing on St. Lawrence Island, a furious President Eisenhower demanded, and got, reparations from the Russians.

Departing Washington with a full bag, we headed north to the Naval Air Development Center, Warminster (formerly Johnsville), Pa. In the technical library, I found the Fulton Gear story mentioned earlier. This all started back when barnstormers first began carrying the U.S. mail. Remember the twin posts with a mailbag strung between on a clothesline for aerial pickup? Or at county fairs when a barnstormer in low-altitude steep-turn orbit would reel up a brave volunteer from the ground?

During WW II, the British used the clothesline idea for plucking spy satchels out of Europe. By the late forties, inertial reels with energy-absorbing capabilities, like big rubber bands, were available. Robert E. Fulton, Jr., grandson of the steamboat Fulton, proposed a mechanism for retrieving a person from the ground, or a life raft, and lifting him up to a low-flying aircraft. Wearing a special harness, the man on the deck would launch a helium balloon tethering a cable. Mounted forward of the aircraft's nose was a large V-shaped snagger similar to butterfly antennae. On a low, slow pass, it would snag the cable, transfer it to an on-board inertial drum and reel him in. Fulton perfected the gear at Patuxent River and Johnsville, and he himself was the first to be retrieved from a life raft in the Chesapeake Bay. The device became operational both on P-2 and S-2 aircraft.

After a stop in New England, we motored on to Canada. Reception at the Defence History Headquarters in Ottawa was most cordial and helpful. In 1955, the Canadians bought 25 Dash 7s without jets (later retrofitted in Canada) to replace their aging *Lancasters* for maritime patrol. The thorough Canadians had run *Neptunes* through their own proving trials in 1956. Not surprisingly, their report mirrored Patuxent River findings, especially in the crew comfort department. Two eastern squadrons and a training unit flew them out of Halifax and Greenwood, Nova Scotia, and Summerside, Prince Edward Island. One western squadron at Comox, British Columbia, got *Neptunes* somewhat later and flew them until 1968. In both enthusiasm and abundance of sea stories, the Canadian experience closely paralleled our Australian one.

With snow flurries threatening on the late side of Halloween, we scurried south to Detroit, Mich., then west to Minneapolis-St. Paul, Minn., a hotbed of ex-*Neptune* types. We talked for a few days and hurried on to Fargo, N.D., the city of my birth.

A retired chief petty officer, now a restaurateur in Bozeman, Mont., has one of the best private collections of *Neptune* memorabilia going, with sea stories to match. In fact, he was ordnanceman in the crew from VP(ML)-2 who picked up the first production *Neptune* at Burbank, and he still has his orders to prove it. After a week of inventory and acceptance flights, by late one Friday afternoon, Lockheed wanted to get rid of the bird. The crew officers were ashore, so the chief signed for the Navy's first *Neptune*!

The NAS Whidbey Island and Seattle environs also harbored many ex-*Neptune* types, both Navy and Lockheed. One of the many tales I managed to confirm was of a *Neptune* years ago on a night IFR airways flight over Wyoming. Due to an inverter fire and subsequent loss of the gyros, routine boring through the soup suddenly became a nightmare inverted split-S to a recovery in a tiny VFR pocket surrounded 360 degrees by the Rocky Mountains. Having enough of flying for the night, the crew landed on an emergency strip at Rawlins. After midnight, they were astonished to learn that they were local heroes. As the sheriff paraded them down Main Street, bars emptied and patrons cheered!

Southbound from Seattle, our "Turtle" seemed to be on autopilot, blown downhill by a built-in tail wind towards the southern sun. We could barely slow her down long enough for the Oregon interviews. Then one last climb over the Siskiyou Mountains, past Mount Shasta and into California. Only a few interviews were left, in the Sierra foothills.

For winter operations, early *Neptunes* learned to ski. One man will stand for all time as her master ski instructor. He taught her on beginners' test slopes at Lake Bemidji, Minn., then took her to Alaska on supply missions for R4Ds landing geophysical scientists on Arctic ice floes. Later, still flying ski-equipped *Neptunes,* he commanded VX-6 and pioneered Antarctic flight to support expeditions which continue to this day. His adventures and exploits would fill a book. Still later, retired from the Navy, he guided the P-3's ASW gear through many generations of upgrading for Lockheed and the Navy. One of our last stops was a pleasant weekend with him and his wife at their home near Grass Valley. Perhaps the most thankless task of his career was to have been my first skipper, Commander V. J. Coley.

This trip became, for us, a life's dream come true. Indeed, the *Neptune* does have a soul. Beyond her guardianship of the seas, she has seen service evacuating refugees, cramming as many as 47 per flight into her nooks and crannies. She has found and directed rescuers to thousands of seafarers in distress. Dropping forage, she has saved blizzard-marooned cattle from starvation. During atomic tests at Christmas Island in the Pacific, she once saved a passenger vessel from being vaporized by a hydrogen bomb. In Europe, she established the first all-continent free delivery of medical serums and body-part transplants.

The formidable task ahead is to do her history, and her soul, justice in the writing. There's plenty of material for three books: one of tall tales, another of her historical beginnings and distinguished naval career, and a third comprising a big, glossy-paper, color pictorial for the coffee table at Christmas.

Speaking of Christmas, as our "Turtle" clambered onto her home rock in a gentle rain one evening last December, strapped securely atop her shell was a Christmas tree nearly half as long as the "Turtle" herself. True to her name, she had endured — and she had brought us home. ■

Lockheed-California Co.

Above, for a brief period in the late fifties, the Navy specified delivery of unpainted Dash 7s. Below, a P2V-4 flys offshore from the northern California coast.

Lockheed-California Co.

VX-4

A Leader in Fighter Weapons & Tactics

By Lieutenant Commander Bob Frantz, USNR-R

Combined CVW-3/CVW-6 air strikes at Lebanese Bekka Valley targets in December 1983 and F-14 photoreconnaissance missions flown during that period proved there was an urgent need for additional information regarding countering surface-to-air infrared missiles," explains Lieutenant Commander Steve Drake. Now assigned to Air Test and Evaluation Squadron (VX) 4, Drake was then a fighter pilot with VF-32 aboard *Independence*.

"Both the VF-32 C.O., Commander John Manning, a pilot, and our X.O., Commander Jim Sherlock, a Radar Intercept Officer (RIO), had served tours with VX-4," Drake says. "Perhaps it was their experience and firsthand knowledge of VX-4's reputation for fleet tactical support that influenced them to request the squadron's immediate assistance in providing additional information regarding the use of expendables to counter current and potential missile threats that could originate from beyond the ridge line."

Lieutenant Bill Mnich is VX-4's Operational Test Director (OTD) with responsibility for expendables countertactics. The former VF-51 RIO with 1,800 hours mostly in the *Tomcat* recalls, "The guys on the line were clamoring for information. They needed real-time updates."

Mnich explains, "Expendables fall into essentially three categories, consisting of flares, chaff and active decoys. We immediately went to work on evaluating some tactical refinements and made suggestions that the crews on the line could consider in their approach to countering the current threat as well as potential new threats."

Located on the picturesque Pacific Coast about 50 miles north of Los Angeles and, more importantly to many of the crews who flew F-14s at NAS Miramar, 180 miles north of San Diego, VX-4's home is NAS Point Mugu.

The Chief Operational Test Director (COTD), Commander Tom Perkins, is a veteran fighter pilot who has spent his entire career in F-8s and F-14s. He not so jokingly considers one of his more significant career accomplishments "surviving in *Crusaders* aboard 27 Charlies [the old small-deck, Essex-class carriers] at night."

Perkins, rolling to shore duty after a tour as ops officer with VF-211, sought the COTD job. "This is one of two commander billets in the squadron and a good department head job. You want to move to bigger things and, besides, I like flying and this is a good flying job," he says.

He describes the squadron's mission as having three components. "First, we conduct operational test and evaluation of Navy fighter weapons systems, air-to-air missiles, support systems and support equipment. Second, and this is becoming more and more important in a dynamic threat environment, we develop, evaluate and recommend tactics and operational procedures for fleet use. And, lastly, the squadron maintains liaison with the fleet through briefings and publications."

Perkins adds, "We are not only evaluating new equipment in an operational environment, but we continue to evaluate through follow-on test and evaluation existing equipment and tactics against new threats. We strive to conduct our evaluations in environments that simulate combat as much as possible."

He very briefly describes the fighter weapons acquisition process. "CNO identifies the need, NavAirSysCom conducts the technical and developmental tests and we get it for operational evaluation (OpEval). Although there is a great deal of momentum in the system for the purchase by the time we get the product, the final buy decision isn't made until the completion of OpEval."

Perkins contrasts what VX-4 does compared to the Naval Air Test Center (NATC) at Patuxent River, Md., and the Pacific Missile Test Center (PMTC) which shares NAS Point Mugu with VX-4. "NATC belongs to NavAirSysCom, does developmental and technical tests and is comprised of almost all test pilots. PMTC tests missiles and has a very strong engineering flavor. Although we have billets for four test pilots, we basically use fleet aviators to test fleet aircraft in a fleet environment. We report operationally to Commander, Operational Test and Evaluation Force (ComOpTEvFor) in Norfolk, Va., who in turn reports directly to CNO. Administratively our boss is Commander, Fighter Airborne Early Warning Wing, U.S. Pacific Fleet (ComFitAEWWingPac) at NAS Miramar.

Perkins regards the most challenging aspect of his job "keeping the hard-charging, highly motivated OTDs from bumping into each other. These young junior officers are turned on by the highly sensitive projects they manage. The visibility by senior commanders is very high. It is not that unusual to see SecNav or CinCPacFlt out here discussing a project with his OTD."

"I'm like the traffic cop around here," Perkins says. "It's only natural for the OTD to want max assets for his own project, but I have to ensure that the overall asset utilization is maximized."

Air crews who seek duty with VX-4 upon completion of at least one fleet fighter tour must obtain their C.O.'s recommendation. Perkins elaborates, "If

A VX-4 F-14 Tomcat launches a Phoenix missile.

they have the community reputation as being hard-working, hard-flying fighter guys, then we'll know about it. We see the billet coming and we ask for the front runners. We look for inputs from squadron skippers, the fighter wing at NAS Oceana, ComFitAEWWingPac and the Naval Military Personnel Command.

"With the amount of briefing and report writing we do, good communication skills are required. No matter how well you fly or how much you know, unless you can effectively express that information, VX-4 would not be the place to be.

"That is rarely a problem with the guys we look at, though, Perkins continues. "It's as if you were to take the top one percenters and drop them here. Occasionally, I'll think of something that should be done, only to find out the OTD is already doing it or has done it."

A typical one-percenter is Lieutenant Commander Marty Chanik. A 1973 Naval Academy graduate in the top two percent of his class, he became one of the first nuggets to fly the F-14. After his first sea tour with VF-1, he went on to become an ACM instructor at the Navy Fighter Weapons School — Topgun. Chanik, already with 3,000-plus tactical hours (2,000-plus in the *Tomcat*), reported to VX-4 in October 1984 after another F-14 tour, this time as ops officer of VF-24. In 1984, Lt.Cdr. Chanik was named as the Pacific Fleet Pilot Tailhooker of the Year.

He recalls his first impression upon checking in at VX-4. Chanik says, "It felt like Topgun all over again. These are the exact same people, just with a different mission. The energy, enthusiasm, competence — the quality is identical."

Lt.Cdr. Chanik, currently VX-4's Quality Assurance Officer, explains the squadron's philosophy in indoctrinating new aircrew. "If at all possible, they try to put you in a standard squadron division officer of department head job for six months or so. That gives you a chance to look around and figure out how things work before being thrown into the fire with a project as OTD.

"In my case, it also gave me a chance to go up to NAS Lemoore to transition to the F/A-18. That, by the way, is one of the bonuses of being here. This is one of the very few places where a junior officer can be operationally qualified in two tactical aircraft." Chanik is scheduled to leave his job soon and move to the F/A-18 office to specialize in air-to-air tactics.

He considers leaving Miramar as the only real disadvantage in taking the VX-4 job. "I was spoiled by all the things to do in San Diego. However, I see many benefits to having the squadron at Mugu. The distance allows more objectivity. Being away from Miramar divorces you from previous prejudices and influences. Access to the missile range here is another benefit. And PMTC gives us access to tremendous brainpower in the form of some of the most talented engineers and scientists available."

Another member of the one-percent club would have to be Major Don Weiss, who fills one of the two VX-4 Marine Corps billets. A Naval Academy, Naval Postgraduate School and USAF Test Pilot School graduate, where he placed at or near the top in each case, Weiss has project responsibility as an F/A-18 OTD.

In addition to evaluating software changes in the operational flight program of the *Hornet's* mission computer, and conducting various projects relative to Marine Corps utilization of the F/A-18 in its fighter mission, Weiss, along with many of his colleagues, is involved in evaluating how the F/A-18 and F-14 can best be utilized together.

VX-4's Playboy insignia sporting F-4 Phantom in flight.


Capt. R. Vance, right, talks with Cdr. Vern Larson, far left, and Cdr. Tom Perkins.

Weiss explains, "We will be seeing more and more of mixed F-14/F/A-18 air wings and naturally we want to be able to capitalize on each aircraft's inherent strengths and minimize its weaknesses.

"It is important to remember that in maximizing the performance of the weapon systems, the backgrounds of the aircrews must be considered as well," Weiss adds. "The F-14 crews will be coming from a fighter background, but the F/A-18 folks, at least in the case of Navy squadrons, will be transitioning from A-7s with light attack backgrounds and the fighter mission will be new to them."

Maj. Weiss, who flies the F-4 and F-14 with VX-4 as well as the F/A-18, profiles the project methodology. "We start with a Test and Evaluation Master Plan. This comes to us officially from OpTEvFor. However, it is generated with a good deal of input from VX-4 as well as inputs from NavAirSysCom and OpNav.

"After the master plan, we develop a detailed test plan," says Weiss. "This is the OTD's responsibility, but naturally the command has an input. The test plan contains schedules, deadlines and all the detailed 'how to' specifics. Once the test plan is laid out, it really becomes the OTD's game. It is up to him to coordinate and drive the project. The entire squadron will fly in support of each project, but it's the OTD who has the responsibility to come up with the results.

"One of the real pluses of being here is that the OTD has a great deal of freedom and flexibility in running the project," Weiss continues. "He conceives, coordinates and evaluates. No one constantly looks over his shoulder and tells him how and what to do. The OTD sets his own schedule and sets his own tasks. He has the opportunity to be creative. He can work with his own ideas or those of others.

"In addition to having access to squadron assets and squadron sorties, he can schedule operations with Topgun, adversaries like VC-13 or VF-126 at Miramar, or with our USAF friends over at Nellis AFB, Nev., to name a few. The only constraint to running any project is, obviously, the availability of funding."

Weiss adds, "The result of the project or evaluation can have several outputs. In the case of an aircraft or weapons system it typically takes the form of what we call the 'final report.' Tactics developments are published in an Operational Tactics Guide. Occasionally, test results appear in both publications. We also disseminate information somewhat less formally through briefings and through our classified quarterly newsletter. Information appearing in the guide will be incorporated in the aircraft's tactical manual." In the case of the F/A-18, Weiss is responsible for its tactical manual. He must review and update it and coordinate fleet inputs. Additionally, he is responsible for conducting a fleet-wide, Navy and Marine Corps, F/A-18 Tactical Manual Conference very two years.

For Maj. Weiss, who has recently completed the application and interview process in Houston for the NASA astronaut program, VX-4 has enabled him to combine two interests. "It is the best of both worlds," he said. "I get to use my TPS training by test flying new equipment and new ideas, but it's done with a tactical purpose in an operational environment. And I get to fly plenty of ACM, which every fighter pilot loves, because an OTD must stay current in air combat skills so he can be an effective evaluator for weapons, aircraft and tactics that require those skills."

The flight surgeon at VX-4 is also unique. Lieutenant Commander Bill Scott is one of only 10 dual-designated flight surgeons. In addition to being a physician, Scott is a fully qualified F-14 fighter pilot and regularly flies in support of the squadron mission.

A former F-4 pilot with VF-41, Scott obtained his medical degree through the Navy scholarship program. He explains, "The billet doesn't specify that the flight surgeon here be an aviator, but it seems to be done that way by tradition."

In addition to his flying and medical duties, Scott also shares the project load. He describes his responsibility as "being involved with the human factors aspect. I am working with the Aircrew System Advisory Panel (ASAP) on developments in the F-14D. I am involved primarily with things like cockpit displays and life support systems."

Lt.Cdr. Scott has already met his payback obligation incurred as a Navy scholarship recipient. However, in exchange for an extension of his PRD at VX-4 to November 1987 (his tour began in December 1981), the flight surgeon has volunteered to remain on active duty. "These are very special people. I am privileged to care for them and their families," he explains.

The F-14D with its G.E. F110 engine, improved radar and avionics will bring increased *Tomcat* performance to the fleet in the next decade. Lt. Bill Mnich,

the OTD with F-14D project responsibility, describes VX-4's involvement in its development. "Although the F-14D is not scheduled for OpEval until 1989, VX-4 will send crews to the Grumman facility at Calverton, N.Y., in 1987 to fly the preproduction model. Right now the ASAP, consisting of five pilots and five radar intercept officers from the fleet replacement squadrons, NATC, PMTC and VX-4, meets at Grumman almost monthly.

Chief OTD Perkins comments that although VX-4's primary concern is operational evaluation, being involved with the F-14D at this stage is not incongruous. "If we get involved early enough in the project,...we can have a significant impact on the operational capability of the developed weapons system."

Since the primary air-to-air fighter weapon is the missile and since VX-4 is tasked with evaluation and development of tactical fighter weapons in an operational environment, it follows that crews here will have ample opportunity to fire these weapons. Without going into statistical comparison, it is undisputed at VX-4 that one of the benefits of being here is a significantly increased opportunity to fire these weapons.

Commander Vern Larson, VX-4's X.O., had one of his career's most noteworthy events occur during a *Phoenix* shot last year. Larson, interestingly and apparently coincidentally, like the command's other two most senior officers, its C.O. and COTD, brings to VX-4 a combination of extensive F-8 *Crusader* and F-14 experience.

The experienced fighter pilot, who hopes to continue in the research, development, test and evaluation or the weapons acquisition community, describes his AIM-54 *Phoenix* shot. "We had launched a drone F-4 out of San Nicholas Island. Since this was a telemetry-only, no-warhead shot we planned to recover the *Phantom* there as well. We use San Nicholas so we don't have to fly a damaged aircraft over populated areas near Mugu.

"The F-4 was head on at Mach .8 and 35,000 feet. We were straight and level at about .8 and 30,000 feet," Larson says. "We pickled the missile at 25 miles. It had to climb 5,000 feet and for about nine miles. I saw this dot that was the F-4 become a puff of smoke as the *Phoenix* hit it. I was amazed as I saw it start to flop around and I followed it down until it hit the water. I never expected to shoot down an F-4 with an unarmed missile."

As X.O. of VX-4, Cdr. Larson gets to fill in for the C.O. far more than he would in a fleet squadron. He explains, "The skipper, as did his predecessor, escorts the OTDs when they make their presentations to ComOpTEvFor. That and his other commitments leave me with the squadron very frequently. I still have the typical X.O. duties, but it's not as bad as sea duty since we don't have all the moves. Discipline, admin and first lieutenant duties still beckon. Subbing for the C.O. challenges me to be ready to step in and forces me to keep up to speed on everything that goes on."

Travel for the OTDs is also extensive. In addition to frequent visits to military and defense contractor facilities, the C.O. sets as a goal that each test director brief each fleet squadron at least once a year. That could include trips to the Med, WestPac or the I.O. He would prefer the briefs be twice per year but admits that is unrealistic because of the project load.

COTD Perkins comments, "Primarily to help reduce our travel expenses we maintain a rental contract for a fleet of Cessnas. We allow a group of our pilots to qualify in them in addition to their two tactical aircraft."

Test Director Mnich quips, "We have sort of a standard joke around here when a guy completes his tour and returns to a fleet squadron. We tell him one benefit of going back to the fleet is that at least he'll be home more often."

Flying two tactical aircraft operationally, firing missiles, high visibility and, to quote Mnich, "being on the leading edge of new developments in equipment and tactics and being part of the squadron that is recognized fleetwide as the voice of experience and knowledge in these areas" are important benefits to the OTDs. However, the most common thread in expressing the reward of being an OTD at VX-4 is the freedom, authority and responsibility to be enterprising, to be creative, and above all to "call the shots" in running his project.

Skipper Captain R. Vance feels very strongly that "You can't hang over these guys. We get the number one, two, or three man from the fleet squadrons. In addition to being outstanding fighter aviators, they are the kind of guys who thrive on the challenge of figuring out the 'how to' of things. They must have the willingness and tenacity to sit down and think a tough, and often frustrating, problem through."

Vance, an affable, easy-going pro with 5,000 hours, including three combat cruises in the F-8, concerns himself with "keeping it all moving in the right direction on time and on budget. I have to see to it that funding gets to the OTDs on time to keep their projects on schedule," he says.

The skipper, who commanded an AirPac fleet squadron (VF-24), an AirLant fleet readiness squadron (VF-101) and will soon move up the road to assume command of NAS Point Mugu, provides a simple description of what a complex squadron with a complex mission does. "Basically we answer questions in four areas. First, is it a good weapons system or tactic? Second, how well does it work in the environment where it will be used? Third, do we need it? Will it provide enough benefit over what we already have in the fleet to justify the funds required to acquire it? And, fourth, and very importantly, can the average sailor maintain it and can the average aircrew utilize it?" He explains, "We explore the edges of the envelope with the assumption that if it will work at the extremes, it will work in the heart."

People fortunate enough to spend time at VX-4 are bound to wonder how such a high-caliber organization with such a fascinating mission can maintain so low a profile. One recent aircrew addition from the East Coast appropriately calls VX-4 "the best kept secret in the fighter community."

Capt. Vance suggests, "The sensitivity of the projects, for instance in the area of threat countertactics, makes it very difficult to publicize squadron operations."

However, one small indulgence to being a bit colorful sits on the flight line among VX-4's eight F-14s, four F/A-18s and three F-4s. It is a jet-black F-4S *Phantom* that sports a white Playboy bunny symbol on its tail. Parked next to the nonreflective ACM gray fighters, it stands out like the proverbial fox in a chicken coop.

Cdr. Perkins explains, "It came about back in the late sixties when the command was testing various paint schemes for visibility and radar reflectivity. It was at the time Playboy was flying its people around in a jet-black airliner. Before you knew it, VX-4 had a jet-black aircraft, too, with a letter on file from Playboy giving the squadron permission to use the bunny logo. Although the official squadron name is *Evaluators*, all VX-4 aircraft sport the bunny symbol, subdued of course in low visibility tones.

Capt. Vance notes, "As less and less Navy and Marine Corps squadrons fly the *Phantom*, the F-4 will soon be phased out of VX-4's inventory and I wouldn't be surprised to see a shiny all-black *Tomcat* on the line before too long." ■

Awards

The 1984 Naval Air Systems Command Aviation Safety Award winners were announced in the following categories: research, development, test and evaluation – Pacific Missile Test Center, Point Mugu, Calif.; naval plant representative office – NAVPRO Stratford, Conn.; and naval air rework facility – NARF Cherry Point, N.C.

VTC-11 was awarded the 1985 ComNavSurfPac Battle E. This award, covering an 18-month period, marked the first time TACRONs have been included in the competition. This squadron deploys in support of Amphibious Squadrons 3 and 7 and supports the ComTacGru-1 Det located with Commander, Amphibious Force, Seventh Fleet. Home-ported at Naval Amphibious Base, Coronado, Calif., the squadron is currently composed of 22 officers, including two USMC and two U.S. Army officers and 49 enlisted personnel.

The personnel of the MCAS Yuma Crash/Fire/Rescue Department were presented the 1984 Allen G. Ogden Award by Brig.Gen. William A. Bloomer, Commander, Marine Corps Air Bases, Western Area. This honor is awarded annually to the most outstanding crash crew department throughout the Navy and Marine Corps. Some of the factors considered are training, community services, airfield support and the number of responses the unit made.

Lt.Cdr. Steve Weatherspoon, VF-74, was recently named the Atlantic Fleet's Fighter Pilot of the Year. The *Be-devilers'* maintenance officer was cited for his work on the development of the AIM-54C missile and his current candidacy for NASA's space shuttle program. He has accumulated over 1,800 hours and almost 500 traps in the F-14.

Established

VFA-137 is the newest F/A-18 squadron and the first to be established at NAS Cecil Field, Fla. Once all personnel are fully trained, they will join CVW-13 for deployment aboard Coral Sea. The Kestrels' insignia was recently approved.

Honing the Edge

Top Gun class 3-85 is projected to be the last "all F-4 *Phantom* class" to graduate from the Navy Fighter Weapons School at NAS Miramar, Calif. There are only four remaining Navy fighter squadrons flying F-4s – VFs 151, 161, 201 and 202 – and these will gradually fade out of the active duty and reserve inventories by the end of 1986. The Marine Corps' long use of the F-4 as its front line tactical fighter aircraft is also diminishing due to the introduction of the F/A-18 into the fleet.

Rescue

A dual effort by VS-29 and HS-4 contributed greatly to a successful search and rescue mission in March.

Lt. Mike Boyd, VF-111 pilot flying an F-14A, had just taken a wave-off for a fouled deck when his aircraft developed hydraulic problems. After extensive in-flight troubleshooting, Lt. Boyd was diverted to Masirah, Oman, for an emergency landing. At the same time, the SH-3H crew left its ASW mission and headed toward Masirah in case of possible ejection by the *Tomcat* crew.

Honing the Edge

No, this is not an air show. It's 22 F-14As from VFs 142 and 143 returning home from a seven-month Mediterranean deployment aboard Eisenhower. This is believed to be NAS Oceana's largest fly-in, which took place on May 6.

Approximately 80 miles from *Carl Vinson,* Lt. Boyd and his RIO, Lt. Mike Demuch, were ordered to abandon their uncontrollable aircraft. VS-29's executive officer, Cdr. Dan Hacker, flew to the site of the downed aircraft and dropped a sonobuoy so that HS-4 personnel could locate the survivors. The well coordinated team effort that exists between *Vinson* and the elements of CVW-15 effected the rescue and safe return of two shipmates.

Et cetera

The C-118 *Liftmaster,* one of the Navy's oldest transport aircraft, retired from military service at NAS Atlanta after more than three decades of flying personnel and cargo worldwide. VR-46 was the last C-118 squadron to transition to the newer C-9 jet transport aircraft.

The Navy C-118B was a stretched version of the DC-6, the first Douglas production transport to adopt cabin pressurization. In the last 15 years of the the C-118's life, it was flown primarily by the Naval Air Reserve on active duty and reserve missions. Specifically, it was

PH2 Steve Waldon

The last C-118 in the military, BuNo 131597, begins its final flight to the "boneyard" at Davis-Monthan AFB.

used to fly to the Mediterranean in support of the Sixth Fleet, in South America during *Unitas* missions, Africa for West African training cruises and in the Western Pacific.

The last C-118 from VR-46 was flown to Davis-Monthan AFB in Tucson, Ariz., where it will be put in mothballs.

Arrested landings are a common event for Navy personnel in the daily operations of an aircraft carrier. However, for Air Force personnel, they are unique.

On April 1, an all Air Force crew landed a VF-124 *Tomcat* aboard *Kitty Hawk.* The pilot, Capt. Ron Johnston, said, "It was a pretty overwhelming feeling when I landed on the carrier. In the Air Force when you lower the tailhook it is usually an emergency situation." Capt. Johnston and his RIO, Capt. Brian McClean, stayed overnight on *Kitty Hawk* to gain further insight into a Naval Aviator's life at sea.

Change of Command

ComASWing-1: Capt. R. M. Sanford relieved Capt. James C. Roy.

ComCAEWWing-12: Capt. John W. Bookhultz relieved Capt. John R. Condon.

ComFAirWestPac: Como. Inman Carmichael relieved Como. W. Ivan Lewis.

ComTacWingsLant: Como. G. L. Riendeau relieved RAdm. Ted C. Steele.

HAL-5: Cdr. E. G. Marsyla relieved Cdr. T. V. Weckworth.

H&HS Tustin: Maj. Patrick Gallagher relieved Maj. Warren North.

H&MS-13: Lt.Col. Edward Schriber relieved Lt.Col. James Hart.

H&MS-31: Lt.Col. Walter L. Domina relieved Lt.Col. George W. Kralovec.

HMH-362: Lt.Col. John P. Kline, Jr., relieved Lt.Col. Noris L. McCall.

HMH-363: Lt.Col. William B. Oldfield, Jr., relieved Lt.Col. R. C. Slack.

HMM-161: Lt.Col. Robert E. Yeend relieved Lt.Col. Gary R. Albin.

HS-2: Cdr. Harry J. Zinser relieved Cdr. William C. Vivian.

HS-7: Cdr. Robert L. Christenson relieved Cdr. Carl M. Peterson II.

HS-10: Cdr. Mack A. Thomas, Jr., relieved Capt. Joseph S. Walker.

HS-12: Cdr. John K. Marshall II relieved Capt. William A. Roop.

HSL-32: Cdr. Walter J. Cummings relieved Cdr. John A. Grove II.

MABS-29: Maj. James E. Pruden, Jr., relieved Lt.Col. Richard H. Kunkel, Jr.

MAG-31: Col. Robert L. Pappas relieved Col. Frank A. Huey.

MCAS Beaufort: Col. David A. Richwine relieved Col. P. J. Jones.

MCAS(H) New River: Col. Bill D. Waddell relieved Col. Donald A. Hodgen.

MCAS(H) Tustin: Col. David L. McEvoy relieved Col. Robert G. Mitchell.

Midway: Capt. Riley D. Mixson relieved Capt. H. P. Kober, Jr.

NAEC: Capt. Donald R. Eaton relieved Capt. F. B. Boice.

NARF North Island: Capt. Thomas R. O'Connor relieved Capt. Philip A. Monroe.

NAS North Island: Capt. Buddie J. Penn relieved Capt. Russel N. Blatt.

NAS South Weymouth: Capt. Robert A. Perrault relieved Capt. James R. Titus.

NATTC Lakehurst: Capt. Needham H. Lowery relieved Capt. Dale S. Brown, Jr.

PatWingsLant: Como. S. Frank Gallo relieved Como. William T. Pendley.

Ranger: Capt. Walter J. Davis, Jr., relieved Capt. Arthur H. Fredrickson.

3d MAW: Maj.Gen. John I. Hudson relieved Maj.Gen. Clayton L. Comfort.

VA-12: Cdr. Harry M. Connor relieved Cdr. M. W. Samuels.

VA-115: Cdr. Richard J. Rhoades relieved Cdr. William A. Gouslin.

VA-146: Cdr. George N. Crim, Jr., relieved Cdr. Paul C. Campbell.

VAQ-133: Cdr. Richard W. Bennett relieved Cdr. William Birkmaier, Jr.

VAW-114: Cdr. Pence Parsons relieved Cdr. William T. Broadhurst.

VAW-120: Cdr. J. W. Sprague relieved Capt. L. N. Oden.

VF-32: Cdr. Alan M. Gemmill relieved Cdr. James C. Sherlock.

VF-41: Cdr. John A. Seddon relieved Cdr. David M. Williams.

VF-45: Cdr. P. W. Gibson relieved Cdr. J. J. Ryan.

VF-51: Cdr. Charles F. Zullinger relieved Cdr. Craig G. Honour.

VF-114: Cdr. J. Patrick Kilkenny relieved Cdr. Lyle G. Bien.

VF-126: Cdr. Randy Cunningham relieved Cdr. Nick Criss.

VFA-132: Cdr. John B. Nathman relieved Cdr. Robert E. Lakari.

VMFP-3: Lt.Col. Larry D. Rannals relieved Lt.Col. James E. French.

VP-24: Cdr. Mike Bruner relieved Cdr. Larry Johnson.

VP-46: Cdr. W. D. Woodfill relieved Cdr. A. C. Konczey.

VP-2473: Cdr. Howard F. Rundell relieved Cdr. Ralph A. Hotton.

VR-60: Cdr. Richard Graner relieved Cdr. C. C. Tucker.

VRF-31: Cdr. Donald J. Broderick relieved Cdr. Stephen H. Larrabee, Jr.

VS-22: Cdr. Robert E. Montgomery relieved Cdr. James W. Jones.

VT-3: Cdr. Frank W. Dahlinger relieved Lt.Col. William C. Henning.

VT-21: Cdr. D. P. Erickson relieved Cdr. P. G. Habel.

VT-24: Cdr. Daniel J. Stone relieved Cdr. Gerald E. Mittendorff.

VXE-6: Cdr. Paul J. Derocher relieved Cdr. Dwight D. Fisher.

PROFESSIONAL READING

By Commander Peter Mersky, USNR-R

Modern Warfare. ARCO Publishing, Inc., New York, N.Y. 1985. 249 pp. Illustrated. Indexed. $19.95.

The prolific ARCO Publishing concern is responsible for some of the more impressive compendiums and encyclopedic efforts in military and aeronautical publishing today. This latest volume considers every phase of military confrontation from the traditional air, sea and land arenas to the topical urban warfare, such as terrorism and political assassinations. Supported by copious photographs, diagrams and schematic illustrations, the text addresses such details as firearms and ammunition, the use of modern electronics and computer technology on the battlefield, warfare in space, and atomic and nuclear weapons.

While the more traditional chapters such as those dealing with hardware are predictable in content, the chapters on special forces, counter-terrorist units and their weapons make for interesting reading. Decidedly slanted toward the European reader, the book gives insight into such heretofore little-known units as Britain's SAS forces, which were responsible for the daring raid on the Iranian embassy in London in 1980. The Soviet-Afghan struggle is also discussed.

All in all, this is an interesting book which offers several hours of enjoyable browsing as well as quick references to various arms and military and paramilitary organizations in the modern world.

Eshel, David. *The U.S. Rapid Deployment Forces.* ARCO Publishing, Inc., New York, N.Y. 208 pp. Illustrated. $19.95.

Terrorism is one of many problems that has given rise to the rapid deployment force (RDF), a combat team that can bring men, material and weapons to designated regions of the world to defend the interests of the United States.

This relatively expensive paperbound book is a general history and survey of the new form of military operation which addresses the problem of how to get a well-equipped, highly trained group of men to a trouble spot, no matter where or when it is needed.

Focusing on events in the Mideast and Arabian Gulf, this book begins with a fictional scenario depicting a sequence of events which bring the RDF into the Arabian Peninsula/Persian Gulf area. It's an effective write-up, occupying the first 50 pages of the book and makes good use of photos, maps and diagrams to illustrate the imaginative war. Following sections deal with the development of the U.S. rapid deployment force – including the aborted Iranian hostage rescue of April 1980 – and how units within individual U.S. military service branches train for RDF functions.

This is an interesting volume which might have use as a quick reference for researchers and modern war-gamers.

awards

Towers Award

VT-9, NAS Meridian, Miss., received the 1984 Admiral John H. Towers Flight Safety Award. It is presented annually to the training squadron of the Naval Air Training Command judged by the Chief of Naval Air Training to have the most outstanding record in flight safety. The award honors Adm. Towers as one of Naval Aviation's foremost pioneers.

Orville Wright Achievement Award

Lieutenant Junior Grade Donald G. Hazen received the Orville Wright Achievement Award as the outstanding undergraduate pilot of the Naval Air Training Command for the period January-June 1984. Presented biannually to the outstanding graduates of the U.S. military undergraduate pilot training programs, the award recognizes the student's flight proficiency, academic achievement and officer-like qualities. The award is sponsored by the Daedalian Foundation, a nonprofit organization of military pilots.

ANA Awards

The Association of Naval Aviation announced the 1984 winners of Outstanding Achievement Awards in the following categories: Tactical Aviation, VMA(AW)-533, MCAS Cherry Point, N.C.; Helicopter Operations, Lt.Cdr. Benjamin J. Stoppe, Jr., Lt. Michael G. Wallace (second award), AE1 Christopher E. Stanley and AE3 Mark T. Evans, CGAS Cape Cod, Mass.; Maritime Patrol, Lt.Cdr. Charles S. B. Young, VP-16, NAS Jacksonville, Fla.; and Special Mission and Fleet Support, VQ-1, NAS Agana, Guam.

The awards are presented to Naval Aviators, aircrewmen or aviation units in the Navy, Marine Corps and Coast Guard for outstanding combat or operational action or technical achievement, during the previous 12-month period, which contributes significantly to capability or safety.

Russell Award

The 1984 Admiral James S. Russell Naval Aviation Flight Safety Award was presented jointly to the Naval Air Systems Command and Fleet Marine Force, Atlantic. The award is given annually to the U.S. Navy flying unit determined by CNO to have the most effective flight safety accident prevention program.

Conway Trophy

NAS South Weymouth, Mass., was awarded the Edwin Francis Conway Memorial Trophy for 1983-84. Established in 1936, the award is presented biannually by Commander, Naval Air Reserve to the reserve naval air station, naval air facility or naval air unit judged to be the most effective in the performance of its primary mission.

FLIGHT BAG

75th Anniversary Documentary

If you are part of U.S. Naval Aviation history, you should share it with all of America. We are producing a public television documentary for the Association of Naval Aviation commemorating the 75th Anniversary of Naval Aviation. Pilots and crew, strategists, historians, designers or anyone with a story to tell and/or home movies and stills from 1911-1985 are wanted. Write Joanna Allen, Varied Directions Inc., 63 Elm St., Camden, ME 04843.

Athletes Wanted

NANews is continuing to compile a list of active duty, reserve and retired Naval Aviators and aircrewmen who made significant accomplishments as athletes for a future feature article. If you were a successful athlete in football, basketball, baseball, boxing, hockey, swimming, wrestling, track and field, etc., please send *NANews* a letter describing your achievements. In addition to the letter, also include any newspaper clippings recording your efforts and, if possible, any B/W photographs (preferably sports or Naval Aviation-related). Send all correspondence to JO2 Timothy J. Christmann, *Naval Aviation News,* Bldg. 159E, Washington Navy Yard Annex, Washington, DC 20374-1595.

Vietnam Book

I am writing a book about the Vietnam air war and would like to contact any Navy or Marine Corps pilots or aircrew who served in SEAsia, especially in the reconnaissance, strike or search and rescue roles.

Philip D. Chinnery
70 Carnarvon Drive
Hayes, Middlesex UB3 1 PX
England

C-2A Greyhound

We wish to thank you for the fine article announcing the return to service of the Grumman C-2A for carrier on board delivery (*NANews,* May-June 1985, page 1). We are especially proud to point out that the test pilot for the maiden flight of the "reborn" C-2A was our own Cdr. Jerry Haser, USNR-R, who is a civilian test pilot for Grumman. We know you will agree that the Naval Reserve is fortunate to have men of his caliber.

Capt. M. J. Martin, USNR-R
NAVPRO Grumman
Bethpage, NY 11714

Saratoga

Regarding the "Year in Review" in your May-June 1985 issue, we would like to point out an inaccuracy concerning the carrier deployment chart depicted on page 35. USS *Saratoga,* with CVW-17 embarked, was in fact deployed to the Mediterranean Sea vice Western Pacific for the period indicated. We might also add that a fine deployment it was.

AT1 Gray/AQ2 Bixby
VF-103
FPO New York, NY 09501-6117

Ed's note: Our printer will have to bite the bullet on this one. Our camera-ready copy of the chart that we sent to the printer was correct. However, the solid bar indicating Sara's location in the Med was lost somewhere in the shooting process before printing.

Reunions, Conferences, etc.

Yankee Air Force Founders Day Celebration, September 21-22, Willow Run Airport, Ypsilanti, MI. Features Warbirds fly-in and military aircraft display. Contact Wilbur Sanders (313) 322-5197, Audrey Ray (313) 336-1040 or Y.A.F. Hangar (313) 483-4030.

VMF-312 (1943-45) reunion, September 19-22, Seattle, WA. Contact Frank Watson, 2104 Alki Ave., S.W., Apt. 402, Seattle, WA 98116.

VPB-33 Black Cats reunion, November 3-6, San Diego, CA. Contact Larry Bunce, 300 7th St., Coronado, CA 92118, (619) 435-8089.

MAG-25 and SCAT Veterans of WW II reunion, September 26-29, Hyatt Regency Hotel, 815 Main St., Fort Worth, TX. Contact William K. Snyder, 12451 Tudor Way, Tustin, CA 92680.

World Traveller's Ball, September 28, NAS Patuxent River, MD. All former *Blue Eagle/World Traveller* officers interested in attending, contact Lt.Cdr. Chris Myers or Lt. Frank Jackman, VXN-8, NAS Patuxent River, MD 20670, (301) 863-4562/4150 or AV 356-4562/4150.

VX-3/HU-1/HU-2 and all descendant squadrons reunion, September 13-14, Pensacola, FL. Contact Capt. R. E. Jones, 4005 King Arthur Dr., Pensacola, FL 32514, (904) 477-8520, or AV 922-2195/ (904) 452-2195.