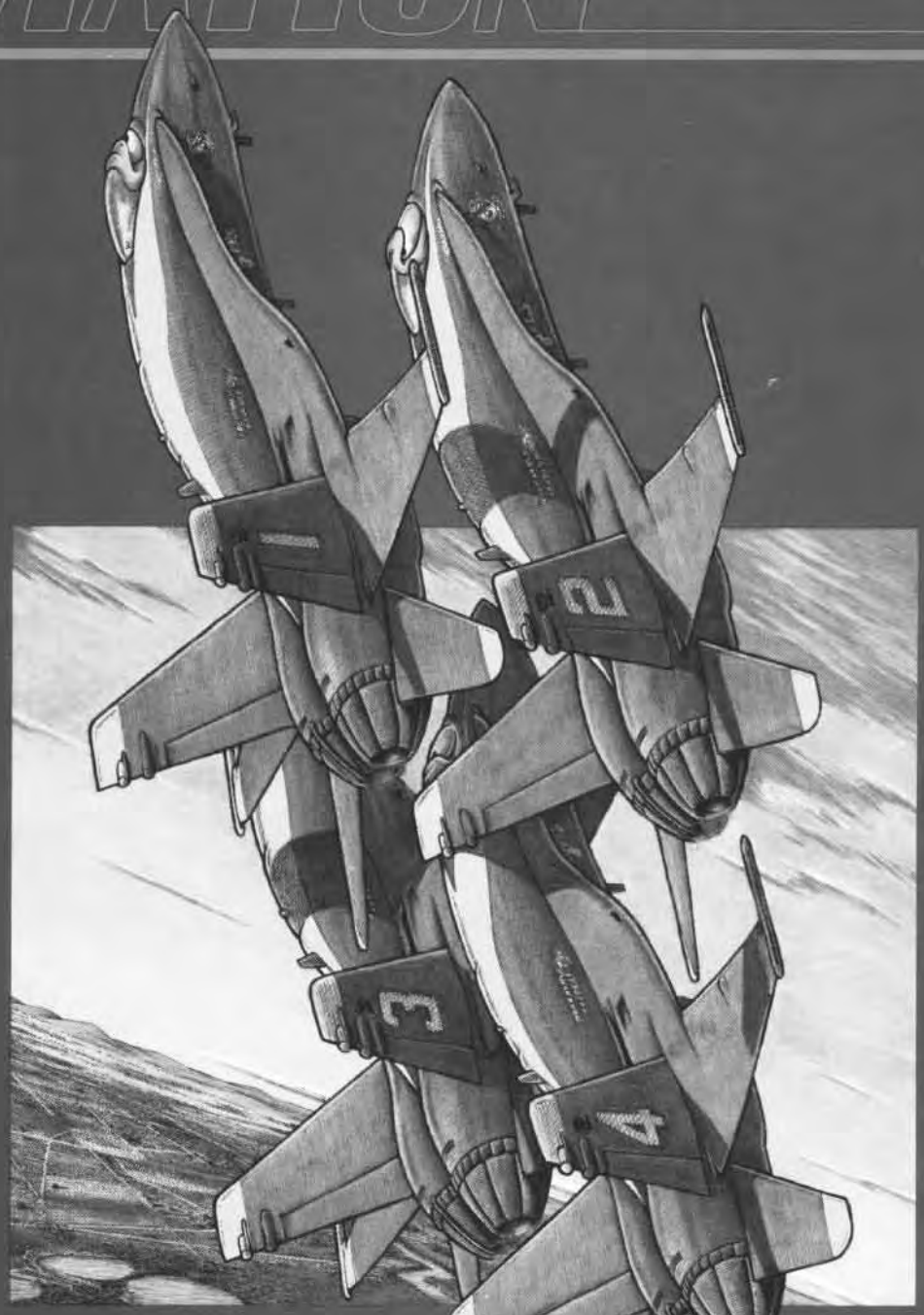
NAVAL AVIATION NEWS



NAVAL AVIATION NEWS

Oldest U.S. Navy Periodical
Volume 70, No.3
(USPS 323-310/ISSN 0028-1417)
Flagship Publication of Naval Aviation
Vice Admiral Robert F. Dunn Assistant Chief of Naval Operations (Air Warfare)
Published by the Naval Historical Center
under the auspices of the Chief of Naval Operations
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COVERS—Front, Hank Caruso depicts "The Ambassadors," the Navy Flight Demonstration Squadron, *Blue Angels*. (Reprinted with permission from the 1988 Aerocatures Calendar. Artwork copyrighted by Hank Caruso.) Back, the 1988 *Blue Angels* air show schedule.

Features

Departments

Naval Aviation News is the flagship publication of Naval Aviation. Its mission is to publish current and historical information which encourages pride and professionalism, enhances safety and advances the goals and objectives of the Chief of Naval Operations. Naval Aviation News is published bimonthly by the Chief of Naval Operations and the Naval Historical Center in accordance with Navy Publication and Printing Regulations P-35 (revised May 1979). Opinions expressed are not necessarily those of the Department of the Navy. Reference to regulations, orders and directives is for information only and does not by publication herein constitute authority for action. All material not copyrighted may be reprinted. Naval Aviation News offices are located in Building 159E, Room 512, Washington Navy Yard Annex, Washington, D.C. 20374-1595. Phone (202) 433-4407/8/9, autovon 288-4407/8/9. Annual subscription is available through Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Phone (202) 783-3238. Second-class postage paid at Washington, D.C., and additional mailing offices. POSTMASTER: Send address changes to GPO Order Desk, Superintendent of Documents, Washington, D.C. 20402.

The Naval Safety Center has made "safety first" more than a motto among Naval Aviators. In business now for 20 years, Peter Mersky takes an inside look at the programs and people that make the center work. **Page 4**

At the Smithsonian Institution's Paul E. Garber Preservation, Restoration and Storage Facility, "Preserving History is a Labor of Love." **Page 8**

NAS Sigonella is "The Navy's Busiest Air Station in the Mediterranean." Read about how the former air facility grew into a naval air station and how its mission continues to expand. **Page 14**

Capt. Richard Porter learned that there is no such thing as an orientation visit to the North Pole. Lost on the polar ice cap in rented Cessnas, Porter recounts "A Chilling Adventure." **Page 18**

From dining in the wardroom to launching *Super Entendards*, Lt. Robert Jex shares his cross-decking experiences with the French navy in "Aboard the Foch." **Page 22**

Naval artists have long graced the pages of *Naval Aviation News*. Naval Aviator Lt. Paul Goens, an instructor pilot with VT-2, is an "Artist in Disguise." **Page 26**

Reserves

The Naval Air Reserve — what shape is it in?

"Healthy" is the one word answer; healthier than ever.

Reserve Force Squadrons (RESFORONs) are ready now to expand the combat capabilities of the active force. These RESFORONs are like an indispensable insurance policy. It has a cost and you hope you never have to use it. But it's essential when you need it.

Squadron Augmentation Units (SAUs), flying and training in RESFORON and Fleet Readiness Squadron aircraft, will reinforce fleet squadrons at mobilization and contribute to peacetime active force training on a daily basis. SAUs are without their own aircraft in peacetime but these trained people will provide the manpower difference. If mobilized, they integrate with active squadrons to bring them up to the necessary wartime complement.

Importantly, the reserve is now nearly fully equipped with current frontline aircraft, which blend almost perfectly on a fully interoperable basis with their fleet counterparts. RESFORONs currently provide 13 percent of the Navy's total carrier-deployable air combat aircraft, 35 percent of the maritime patrol (VP) force, 100 percent of the CONUS-based, medium/heavy logistics support (VR), 100 percent of CONUS-based fleet composite (VC) squadrons, 100 percent of the light attack helicopter squadrons (HAL), 100 percent of the naval combat search and rescue (SAR), and 33 percent of helicopter airborne mine countermeasures (HM) capability.

Some specifics: In tactical air (TACAIR), all four Carrier Air Wing, Reserve fighter squadrons are flying F-14A *Tomcats*.

In the attack community, one squadron — VFA-303 — has all F/A-18s, another has half the assigned number with more coming, and two more, now operating A-7Es, will receive their new *Hornets* by 1991.

By the end of 1991, all reserve TACAIR squadrons will be equipped with aircraft that are virtually identical to those flown in the active fleet.

Although the Navy owns insufficient S-3 *Vikings* to outfit the Reserves, the Naval Air Reserve Force SH-3 inner-zone helos are a vital ASW asset. These aircraft are being upgraded with avionics improvements and better acoustical processing gear.

Naval Air Reserve C-9B *Skytrains* do most of their work within the perimeter of the U.S., yet detachments operate out of a number of overseas bases like Sigonella, Sicily, or Cubi Point, R.P. The Naval Reserve flies 27 C-9B/DC-9 aircraft. We need more. In fact, a study has indicated that 50 would be required should we go on a war footing. The constrained fiscal climate surely won't allow us to reach that number very soon. Meanwhile, the *Skytrains* are hauling people and cargo at a relentless pace.

Reserve LAMPS SH-2F *Seasprites* operate from reserve and USN destroyers and frigates. The *Seasprites* are receiving improved avionics gear, including improved on-board acoustical processing systems and new T700 engines.

Two other very important missions for rotary aircraft in the reserve are light assault and combat SAR. A transition is now taking place wherein HALs 4 and 5, and HC-9, are being consolidated into two squadrons, both of which will operate the HH-60H *Nighthawk* and will be ready for light assault and combat SAR assignments. These squadrons will handle riverine assault-type missions and in difficult areas will also be able to insert and extract special forces personnel.

Perhaps the brightest star in the Naval Air Reserve firmament is the maritime patrol force, which represents more than one-third of the Navy's VP force. These squadrons operate P-3A/B *Orions* and have just begun transition to the newer P-3C aircraft. Plans to transition to the improved P-3C Update III by the late 1990s are firm. VP Master Augment Units (MAUs) provide the additional wartime complement flight crews to active squadrons at mobilization. Meanwhile, RESFORONs are also included in the Long-Range, Air ASW-Capable Aircraft (LRAACA) procurement strategy, envisioned as the follow-up to the *Orion*.

Fleet composite/fighter squadrons, one on each coast, fly one and two-seat A-4 *Skyhawks* primarily in the adversary role. In addition, they provide various important support services to the air and surface forces.

As to the men and women who *are* the reserve, the quality has never been better. On the one hand, the skilled cadre of Vietnam veterans is fast diminishing. But they have been replaced by an equally talented group of flyers and support crews who have benefited from experience with current fleet aircraft and the unprecedented top-quality training systems that exist in Naval Aviation today.

There is a trend toward younger sailors in the TAR (Training and Administration of Reserves) corps and a reduction of officers in the senior grades of the Selected Reserve who require waivers to remain in these roles. The TAR force itself is strong and talented. Two TAR officers now command CVWR-20 and CVWR-30. This is a "first." Across the board, the quality of TARs is first-rate and retention among both officers and enlisted personnel is excellent.

At the same time, the Naval Air Reserve is short nearly 200 Naval Flight Officers. This means only about 25 percent of requirements are met. We must work on this. The enlisted force in the Selected Air Reserve is manned at 73 percent. This matter needs attention as well.

The Naval Air Reserve remains a healthy and flourishing force. The intent is to keep it that way and to continue to do everything possible to maintain it strong, capable and modernized. The Navy and the nation demand nothing less.■

Carrier Caper

The student Naval Aviator in a TA-4 *Skyhawk* made his final trap aboard the carrier and was told that he was qualified. It was also his last training command flight prior to designation. He received instructions to depart and return to home field. He was catapulted from the bow, proceeded three miles ahead of the ship and, at about 1,000 feet, executed an aileron roll. This unauthorized maneuver was observed by the LSO and the Air Boss.

As a result, the prospective Naval Aviator's designation was withdrawn and he did not receive his wings.

Grampaw Pettibone says:

Too tough a punishment? You might ask, 'Why waste a million dollars worth of training? Why not give the man another chance?'

Ladies and gents, we can't play it that way. The flyer executed an acrobatic maneuver in an area where it was prohibited. He was briefed before the flight that unauthorized maneuvers would not be tolerated. Tom Cruise can get away with it, but that's in the movies.

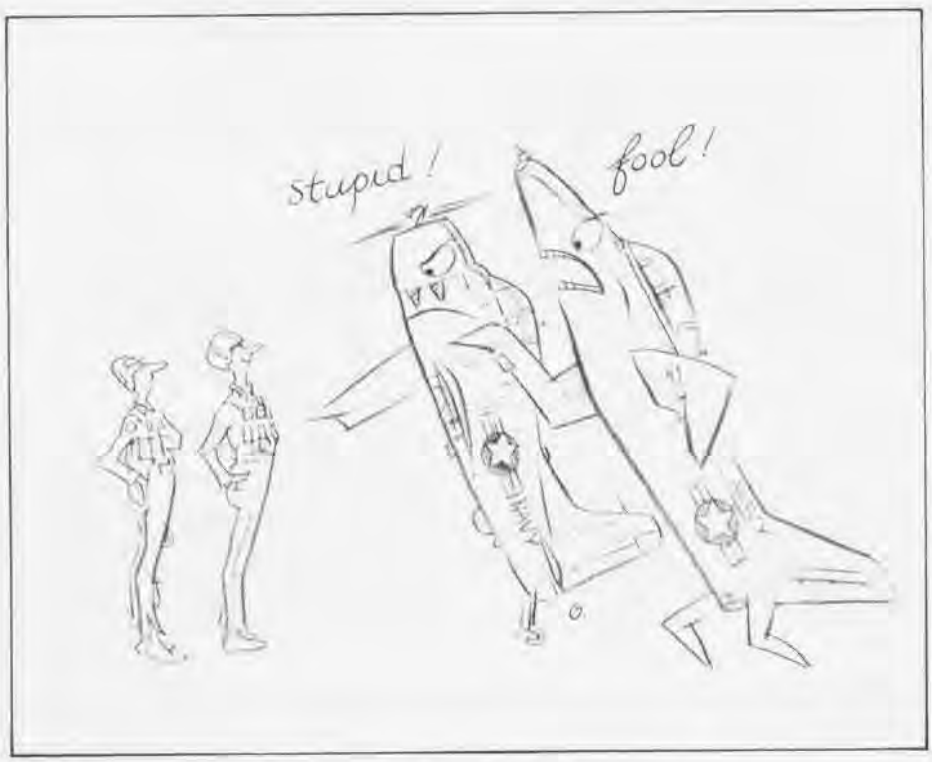
Admittedly, the pilot was excited over achieving a major milestone in the pursuit of gold wings and he felt compelled to perform the roll. But being excited under such circumstances is no defense for breaking the rules or for endangering himself and his machine.

A generation or two ago there was an officer on his final flight before designation day. He had successfully qualified aboard the flattop in the A-1 *Skyraider*. He was thrilled and joyous over his achievement as his flight of four headed for home ashore.

Unfortunately, he could not resist the temptation to display his aerial skills for an audience on a nearby beach. He executed an aileron roll but became disoriented, stalled and plunged into the sea. Next day, the commanding officer refrained from expressions of sympathy. He was, instead, filled with fury at the terrible and absolutely unnecessary loss of a prospective Naval Aviator and an airplane.

Everybody up and down the chain of command better get the message loud and clear. In these days of diminishing assets, human and hardware, there's no room for those who won't abide by the regulations.

And another thing. Gramps is aware that there may be a small minority of pilots out there who have broken the rules and gotten away with it by virtue — if that's the word — of their experience or seniority. Count your blessings — if that's the word — because you've still got those gold wings on your chest. Then ask yourself 'What kind of an example am I setting?'



Old Man Weather and a Valley

This was not a Navy/Marine Corps mishap, but it carries a lesson of value to all flyers.

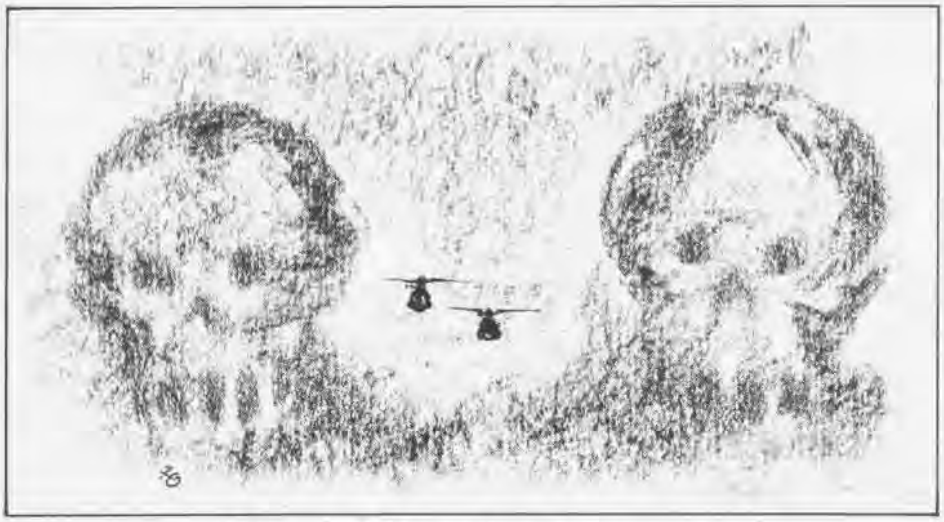
As part of a major exercise, a section of helicopters were on a planned five-hour, nighttime, low-level contour navigation flight using terrain-following radar and night vision goggles. They maintained 200 to 300 feet AGL. There was an en route stop along the way after which the aircraft were to proceed to a live firing range and execute an ''insertion/retraction'' of troops operation.

The first leg was uneventful and weather was satisfactory. During the stopover, neither crew updated the weather although, unknownst to them, thunderstorm activity was rapidly developing in the range area.

Because of the rain, authorities decided to close the range. The range was later opened in a ''cold'' status, precluding the live-firing portion of the mission. This information was passed to the helo crews at the stopover except that the reason for closing the range — weather — was not conveyed to them.

Due to the thunderstorms, several

ILLUSTRATED BY Osborn



Why didn't they TELL us!

weather warnings were issued to the network of activities involved in the operation but for various reasons they were not transmitted to the aircrews on this flight.

The helos launched for the range. Lightning was observed to the northeast, but its relative distance could not be accurately determined as the flyers were wearing the night vision goggles.

The formation continued and entered a valley where it encountered light rain and reduced visibility. Lead's radar indicated several intermittent obstacle warnings (OWs) with associated climb commands. The rain intensified and lead's radar again gave multiple intermittent OWs, rendering it unreliable for terrain following. Lead climbed and advised number two to use mountainous-terrain-lost-visual procedures, if necessary. Number two fell behind and the lead crew lost sight of the ground. At this time, lead received a constant OW and full climb command on his radar.

The wingman closed toward lead and at one point number two's main rotor blades overlapped lead's tail rotor. To avoid a collision, lead reduced his rate of climb while number two maneuvered to the left, high and abeam lead, in a nose-high attitude.

A crewman on the port side of lead's aircraft then saw number two impact the ground and burst into flames. Simultaneously, the lead crew sighted terrain and initiated an abrupt, evasive maneuver by applying full-aft cyclic and full-up collective to avoid impact. Lead, now in a high-nose up attitude, climbed, broke out of the clouds and declared an emergency.

Attempts to contact the downed helo were unsuccessful. Lead proceeded to home field. Darkness and weather thwarted immediate search and rescue efforts. Next morning, wreckage of the helo was located on the side of steeply rising terrain. There were six personnel on board. All were killed on impact.

Grampaw Pettibone says:

Weather was OK on the first leg of this hop. Maybe that contributed to the crew's not updating conditions. Nonetheless, rainshowers were abuildin' at the time. Also, it might have helped if, when the range was closed, the crew was given the reason why — thunderstorms. Weather warnings were incompletely disseminated to the network monitoring the operation and the crew didn't get the info. They did see the lightning, though.

Both aircraft commanders were responsibile for updating weather at the stopover. They didn't do it. Instead, they charged off as briefed only to be trapped by a valley, rain and poor visibility.

Maybe when the helo crews saw the lightning they should have given thought to setting down or reversing course.

Maybe the communications folks oughta check their procedures for getting the word out to those who need it most: the folks in the air.

Lot of "maybes" here.

Military flyers must be tough, aggressive and determined. They also have to realize that no matter how tough, agressive and determined they are, old man weather and deep valleys have a time-honored advantage over them. Don't push it, especially in peace time. There are days and nights when turnin' round and goin' home is the way of the wise.

Gramps Grab Bag

Grampaw Pettibone encourages safety-related inputs from all hands and all units. Stories can be "sunny" or "somber." The only requirement is that they be true. Please send your contributions to *Naval Aviation News*.

The following items are from *CALLBACK*, published by the Office of NASA's Aviation Safety Reporting System. They are "general aviation" items but can have military application.

Shortly after takeoff [on a balloon flight], my passenger and I had a pilot-light flameout when a quick-disconnect released inadvertently. The breeze was a little brisk. Approaching the river, another balloon and I "kissed" gently. I then flew through the top of a tree deliberately to make two "splash-and-go" landings in the river. As it seemed that we would cross the river again into the Indian reservation, I decided to land on the west side. We spotted power lines ahead so I added heat to rise. A combination of warm air near the ground, low fuel pressure [causing low flow rate], and a brisk breeze carried us into a set of home feeder wires. I was able to push the upper wire away from the balloon, but not before one of the suspension cables was partially burned through. We made a hasty, panicky, but safe landing in a field where a boy had marked out "LAND" with PVC pipe. The home owner's power flickered twice while I was arcing, but the power stayed on.

More from *CALLBACK:*

. . .I think it was so beautiful outside the aircraft that I just didn't pay close enough attention [to the clearance].

. . .I guess the human factor for error is doubled in a two-pilot operation. I never seemed to have this problem in single-pilot company. [Zero pilots = zero errors?]

[A pilot] checking a preflight sump drain was surprised and dismayed to note that the fuel appeared to be pink and thus incorrect for his aircraft. Relief came with the realization that he was wearing rose-tinted sunglasses, and that all was well.

The Naval Safety Center

20 Years of Making the Navy Safer

By Peter Mersky

The call to go can come anytime, and it can come by an OPREP 3 or by telephone, during the normal working day, or at 3 a.m. The destination can be anywhere in the world, a few miles down the local road, across the country, or 15,000 miles away.

The sequence is, unfortunately, always the same: an aircraft is down, maybe with loss of life. Perhaps the crew got out okay, but their plane is scattered in a deluge of twisted metal parts across a half-mile of desolate plain, or on the sides of unreachable mountain peaks. Or maybe it is deep-sixed beneath 100 fathoms of water. Whatever the initial events, as soon as the call comes into the Naval Safety Center, Norfolk, Va., specially trained mishap investigators (MIs) – both uniformed and civilian – will make their way to the crash site to try to piece the puzzle together by determining what happened and why, all to ensure that it won't happen again. The primary purpose of an aircraft mishap investigation is prevention by providing answers to keep the problem from reoccurring. A secondary, but important, purpose is to determine what engineering fixes can be instituted or what maintenance procedures need correcting. Education is a third consideration, to allow a crew to deal with the situation, should it happen again, and get themselves and their aircraft back.

LCpl. Steven P. Churchill took this photo, which won 1st Prize for Marine Aviation—and overall—in the 1987 Naval Imaging Command All Navy/Marine Corps Photo Contest.

The fire during this F/A-18A takeoff required major detective work by the Safety Center mishap investigator. Only when this photo, taken by a lance corporal, became available did all the pieces fall into place and the true nature of the mishap become apparent.

Until after WW II, safety in military operations, both peacetime and wartime, was often only a minor consideration. During the war, of course, safety took a distinct second seat to operational considerations. With the advent of the jet aircraft, advances in radar and weapons systems, and the growth of aircraft carriers as the principal naval weapon, the Navy and Marines saw a huge increase in the aircraft mishap rate.

In 1951 the Chief of Naval Operations (CNO) established the Naval Aviation Safety Activity, which was redesignated in 1955 as the Naval Aviation Safety Center. The Center was moved from Washington, D.C., to its present location on NAS Norfolk. During the following eight years, largely due to the Naval Air Training and Operating Procedures Standardization manual and its application, replacement air group training, and the Naval Safety Center, the mishap rate declined from 5.5 to 1.5 per 10,000 flight hours.

The loss of the nuclear submarine *Thresher* in 1963, along with her 129-man crew, refocused the Navy's attention on the need for a safety center for the "Silent Service." In 1964, the Submarine Safety Center was established in New London, Conn.

The Navy's two safety centers made significant progress in reducing accident rates. But major shipboard fires in 1966 and 1967 aboard the carriers *Oriskany* (CVA-34) and *Forrestal* (CVA-59) cost over 200 lives and over 100,000,000 dollars. These incidents combined with another submarine loss — the *Scorpion* and her 99-man crew — made the Navy realize that safety procedures from the two centers could be applied throughout the Navy, and not just in individual communities.

On May 3, 1968, the Secretary of the Navy established the Naval Safety Center, consolidating the Aviation and Submarine Safety Centers into one organization, with the individual aviation, submarine and surface communities existing as directorates. On June 2, 1973, CNO assigned the Commander, Naval Safety Center additional duty as the CNO Safety Coordinator (OP-09F) to exercise centralized coordination of overall Navy safety programs. Two years later, the Marine Corps provided a designated liaison officer to the Naval Safety Center. Other refinements followed, including new responsibilities in safety education, shore safety and system safety.

Today, housed in a new, three-story brick building, the Naval Safety Center has five directorates, one for each program — aviation, submarine, surface, shore and systems — and four supporting departments, including information management systems, statistics and mathematics, safety publications, and education and training.

Aviation safety is arguably the best-known of the Safety Center's concerns. Indeed, the center is probably most closely identified with its aviation publications: *Approach, the Naval Aviation Safety Review* and *Mech*, two "slick" magazines, and *Weekly Summary*, a news bulletin containing timely information and statistics on Naval Aviation.

The center's mishap investigators, comprising military and civilian personnel, are also well-known. It is they who appear on the scene of a crash or mishap — usually within 24 hours of the event — no matter where it takes place in the world. They conduct helicopter and turboprop investigations, but over 80 percent of their overall effort involves jet military aircraft and collisions with land or water. The seven MIs, who probably constitute the world's largest respository of high-speed jet engine mishap investigation experience, have unique responsibilities

and authority on a site. Although the MIs work closely with the Federal Aviation Administration and representatives of other military services, they retain complete control over the site and recoverable pieces which are vital for their investigation. It is, after all, the results of these investigations which determine the circumstances and causes of the mishap.

John Combs, an experienced mishap investigator, said, "We're the negative side of the Safety Center. People only see us if there's something wrong, or if people have been hurt . . . We go out when the safety program has failed."

Unfortunately, he is right. Mishap investigators only appear at the scene of an accident. These highly trained, experienced and dedicated specialists are at the heart of one of the center's primary functions. They live out of their suitcases for the time they are assigned to the center.

Obviously, for an individual to live that way, the MI must get something from his long, tiring, and at times frustrating, occupation.

Lieutenant Commander W. D. Bankart, now on his second tour as an MI, said, "We try to identify the weak links of the chain so they don't occur again."

Lieutenant Commander Chuck Scott commented, "People rarely violate NATOPS, but they don't always follow it." He cited the story of a recent mishap in which a young aviator had stopped halfway through the NATOPS procedures for relighting a flameout. He tried something else but could not restart the engine and crashed. He did not fully understand the procedures, and couldn't apply them properly.

The MIs also discussed failure to remember training — especially among more senior aviators who, at times, do not apply the lessons they have learned. The results can be a fatal crash or injury.

LCdr. Bankart said, "We identify deficiencies, many of which can be fixed easily and inexpensively using only a spring or a pin, but it can take time. Paradoxically, the most difficult and expensive changes are often made more easily."

Lieutenant Commander Rocky Deveer added, "None of the other services have such a diversity in operational areas, i.e., land-based, carrier-based, training and, of course, the Marines' specific requirements."

Some of the MIs' current concerns include: the A-4's engine oil system, electrical fires of unknown origins in A-6s, KAPTON wiring in the F-14, engine fires in the F/A-18, and the addition of an engine monitoring system and flight data recorders in all Navy aircraft.

Commander Dave Rucker, also an experienced investigator, heads the MI branch. "We create order out of disorder," he said, "and give a plan of action. The MIs bring knowledge and ingenuity to an investigation, from identifying parts to actually moving an aircraft from a precarious position."

During a recent investigation in the Philippines, Cdr. Rucker spent two weeks at the site, followed by two weeks in San Diego, Calif., waiting for the parts and coordinating their arrival. Shipment of parts can be a problem, he noted, especially if the cognizant clerks go on leave or are reassigned.

One of Cdr. Rucker's most satisfying investigations involved a recent catastrophic fire during an F/A-18's takeoff. The pilot ejected and the aircraft was destroyed. Arriving at the scene, Cdr. Rucker thought he had all the pieces of the puzzle, including a live pilot and members of the mishap board who had witnessed the abortive takeoff.

After working five weeks of seven 16-hour days, Cdr. Rucker could only come up with a *hypothetical* solution to the fire. The squadron C.O., however, remained unconvinced. The chance arrival of a detailed color photo taken by a junior enlisted man, unexpectedly confirmed Cdr. Rucker's findings which had come from many hours of involved detective work.

The photo showed a cloud of mist — actually atomized JP-5 jet fuel — enveloping the *Hornet's* wings and air intake. Cdr. Rucker determined that the loosely replaced fuel tank cap allowed the JP to be pushed out of the tank as the aircraft took off. (As the F/A-18 takes off, the weight-off-wheels triggers fuel tank pressurization which, in turn, would push the fuel out of the tank at 75 gallons per minute.) The vaporized fuel was then sucked into the intake and forced through the engine, resulting in engine failure and fire. Without the photo, the findings would have remained only educated guesswork.

The Naval Safety Center's directorates each have a specific responsibility. The Aviation Safety Programs Directorate is concerned with eliminating aviation-related mishaps and promoting safety throughout the Naval Aviation community. It includes four support divisions: Aircraft Operations, Aircraft Maintenance and Material, Aircraft Mishap Investigation, and Aeromedical.

The Submarine Safety Programs Directorate also includes divisions for Analysis and Education, Diving and Salvage, and Systems and Procedures.

Surface Ship Safety has divisions covering Damage Control and Firefighting, Combat Systems, and Engineering Systems.

Shore Safety covers Occupational Safety, Occupational Health, Traffic Safety, Explosives and Weapons Storage and Handling, Fire Protection, and Recreation.

The new System Safety Programs Directorate serves as the point of contact for coordinating system safety engineering and management for the development and retrofit of aircraft,

New techniques in aircraft construction require new investigation procedures. Investigators wear protective clothing and masks while looking over the crash scene of an F/A-18. Composites used in the Hornet's construction necessitate covering the body and face to avoid contact and ingestion of harmful material.

Disregarding all safety considerations, the pilot of this SH-60B presented an unauthorized air show after taking off from an FFG. The result: $13,000,000 worth of dead Seahawk and two fatalities. The mishap investigators and salvage crew raised the helicopter and transported it on a makeshift "aircraft carrier," consisting of a barge tied to a tug. The Naval Safety Center constantly strives to educate air crew in the hazards of ignoring established procedures and NATOPS instructions.

ships, submarines, weapons and shore facilities.

For many people, especially those in the aviation communities, the first contact with the Naval Safety Center comes from one of two activities: safety surveys or mishap investigations. The first is a distinctly more positive experience than the second.

Held under the auspices of the center's Air Operations Division, the survey is a visit by a team of analysts, including pilots and personnel from the Aircraft Maintenance and Material Division, to a squadron, ship or facility, anywhere in the world. Locally situated units — such as those at NAS Oceana, Va., and the surrounding Washington, D.C.-Cherry Point, N.C., areas — are more easily reached and do not require involved travel plans. But the center tries not to let distance curtail a survey.

The surveys are, after all, preventative and educational. They are designed to inspect a squadron's procedures and operations to determine if the squadron is, in fact, flying safely and in what areas it can better itself, thereby preventing mishaps.

Usually, the survey team leaves the squadron with a well-received list of areas which can be improved. Even though a squadron earns a high rating from a survey team, there are always places which can be changed or modified to the betterment of the operation.

If your squadron has not had the benefit of a visit from the Safety Center's survey team, you can request a survey and, allowing for distance and other commitments, the center will send a team at a mutually agreeable time.

In this period of anniversaries for Navy activities, 20 years may seem a fairly short time, but those two decades of service by the Naval Safety Center have seen many improvements in the Navy and Marine Corps safety records, and the momentum established is sure to continue. ■

Safety First

Rear Admiral Denis T. Schwaab is the Commander of the Naval Safety Center. A fighter pilot by trade, RAdm. Schwaab also commanded USS *America* (CV-66). He spoke about the Naval Safety Center, and aviation safety specifically, during a recent interview.

NANews: How do you see the role of safety in normal operations?

RAdm. Schwaab: The attitude concerning safety has not changed appreciably since I have been at the Safety Center. There is a deep understanding of the need for safety in the aviation community. Because of the potential for loss of life and the tremendous cost of replacement aircraft, safety has become a part of our daily routine. Operational capability, professionalism, and safety are not mutually exclusive terms. These three items must exist concurrently in the proper blend to achieve the sought-after mission results.

The aviation mishap rate has fluctuated in the last year. What has the Naval Safety Center done to stabilize and ultimately reduce the rate?

Great strides have been made over the years in the improvement of Naval Aviation safety. The curve has flattened out at just above the rate of 3.0 Class A mishaps per 100,000 hours. If we were in any other business, we would probably look at that curve, say it was as good as it was going to get, and move on to another challenge. Since lives and dollars are at stake, we must pour more energy into the problem to continue to drive the current rate down.

There has been a lot of talk about "fight like you train." How does the Safety Center view this go-for-it attitude versus the need for safety education and responsibility?

I don't see the concern about the philosophy of "train the way you fight. . . ." An operational loss is no more acceptable in combat than it is in a peacetime environment. We must learn to use our weapon systems to the maximum. But this does not mean we have to throw away the basic tenants of safety.

What is coming as far as Safety Center activities, like surveys, mishap investigations, and educational efforts?

The Safety Center has been actively involved in highlighting the need for improved safety in the operation of aircraft from air-capable ships. The fleet's response has been to make the ships safer platforms. During the past year, the center published two booklets on flight deck safety, one for fixed wing-CV operations, and another for LPH/LHA operations. These publications have been extremely well received and are used to indoctrinate new people to the hazards of working on the flight deck.

Finally, as Commander of the Naval Safety Center, what would you like to see the center focus on in the next year?

There has been a disturbing upward trend in pilot factor mishaps. Admittedly, the trend, in most cases, is just *slightly* upward; however, if we are to make real progress in breaking the so-called 3.0 barrier, this area should provide fertile ground. The Safety Center will direct its efforts in the coming year to studying those mishaps involving pilot factors under a microscope in order to provide the Navy's leadership with the tools to reverse this upward trend. ■

Paul E. Garber Facility

Preserving History

Story and Photos by JO1 Jim Richeson

Many forgotten relics of aviation's bygone days have survived neglect and mother nature's aging process through the skillful hands of a few men at the Smithsonian Institution's National Air and Space Museum (NASM). Since the mid-1950s, a handful of craftsmen, mostly aviation buffs and experienced aircraft mechanics, have poured thousands of man-hours and their labor of love into bringing back to life a number of the world's vintage aircraft.

The aircraft are NASM's treasured collections currently being stored at the Paul E. Garber Preservation, Restoration and Storage Facility in Suitland, Md., at 3904 Old Silver Hill Road.

Today, NASM has acquired more than 300 aircraft, from the first wood-framed planes with canvas wings to recent jets. About 75 are on display at the National Air and Space Museum and 153 are kept at the Garber facility. Other aircraft are on loan to more than 50 aircraft museums in the United States, including the Air Force Museum at Wright-Patterson AFB, Dayton, Ohio; the Naval Aviation Museum, Pensacola, Fla.; the San Diego Aerospace Museum; and museums in other countries.

The facility which opened its doors to the public in 1977 was named after Paul E. Garber in 1980. Garber played a significant role in acquiring a large portion of the Smithsonian's original aeronautical collection. He was successful in procuring the Wright brothers' flyer, the "Spirit of St. Louis" and test pilot Wiley Post's Lockheed Vega, "Winnie Mae," for the museum. He also acquired the Navy/Curtiss NC-4 flying boat, the first plane to cross the Atlantic, now on exhibit at the Naval Aviation Museum in Pensacola.

Garber, historian emeritus and Ramsey Fellow at NASM, joined the Smithsonian Institution in June 1920. He worked his way up from a $700-a-year job preparing exhibits for the Smithsonian to the museum's head curator and senior historian in 1952.

Situated on 28 acres of land, the restoration and storage complex has 25 buildings which store such rarities as the "Enola Gay," the Boeing B-29 *Superfortress* which dropped the first atomic bomb over Hiroshima on August 6, 1945. Work has begun to restore this long-range strategic bomber. As the plane's main fuselage lies disassembled in one of the facility's main restoration buildings, craftsmen like Dave Peterson painstakingly piece together the aircraft's equipment. The process is excruciatingly slow, but the task demands that the job be done right.

"It will take approximately seven to eight man-years in preserving this aircraft," said Richard Horigan, the facility's restoration branch foreman. "We restore the airplane from top to bottom. Everything on the airplane is part of history," he added.

Each year, nine craftsmen from the facility's restoration branch meticulously complete restorations of four aircraft. Horigan, who has been with the branch for the past 16 years, said that regardless of their background and specialty, a two-man team is assigned to work on each aircraft. One man restores the skin of the plane, scraping off paint and corrosion to uncover the aircraft's original markings, while the other tackles a similar task of preserving the inside, depending on the aircraft being restored.

Nearly 42 years ago, the "Enola Gay" and its crew members became part of history when the aircraft dropped the first atomic bomb on Hiroshima. Today, the B-29 Superfortress is slowly being pieced back together by craftsmen at the Garber complex.

is a Labor of Love

Every aircraft is completely dismantled. To fight corrosion, every part of the aircraft is thoroughly cleaned and treated with chemicals. Then comes the painstaking job of putting back all of the parts on the aircraft exactly the way they were when the airplane first rolled off the assembly line.

Some of the aircraft which have been preserved and completely restored are nearly airworthy, and with a few minor modifications, they could be flown again. But, NASM is not in the flying business, its aim has always been to maintain the best aeronautical collection in the world.

While the physical task of restoring a particular plane is under way, other staff members are digging into its history. They contact manufacturers to request technical assistance and talk to pilots to be sure the cockpit is as it should be.

"Our biggest problem is corrosion," aircraft technician Bob Padgett said. "But, once a plane is completely restored, it ought to last for more than 200 years."

The facility attempts to restore every aircraft to its original state — in every detail. But, occasionally, progress on a particular airplane comes to a screeching halt when a part has been lost due to corrosion or deterioration. Craftsmen then call on the services of Bill Stevenson, the branch's welder and fabricator.

Stevenson's skilled hands have reproduced pieces made of steel, wood, aluminum, glass and plexiglass to replace lost parts of many vintage aircraft. He compares his job to making pieces fit a jigsaw puzzle — a very delicate puzzle.

The duplicated parts are well-documented and stamped as duplicate parts, to preserve the plane's history. Upon close examination of the aircraft, one can easily distinguish which parts are original and which are of a more recent vintage. The facility has never abandoned its trademark of accuracy and perfection over the years.

To date, the Garber complex has restored more than 50 U.S. and foreign-built aircraft, satellites, missiles, rockets and other flight-related objects. Currently, there are three aircraft which are near completion. The North American SNJ-4 advanced trainer was used by both the Army Air Force and the Navy during WW II. The Arado Ar-234B, the world's first jet-powered bomber built by the Germans, was also a reconnaissance aircraft during WW II. Vought's OS2U-3 *Kingfisher* took more than four years to be restored. The *Kingfishers* were used as observation/scout planes, some of which were catapulted off the decks of heavy cruisers and battleships in WW II.

Horigan reemphasized, "It is very important to save the history of the airplane by saving the airplane itself because every part of it is a part of history."

It is the lure of history that attracts the thousands of visitors who frequent the facility each year. Others come not only to see these old aircraft being

Above, aircraft technician Bob Padgett attaches the main pontoon on the OS2U-3. Top right, making pieces fit a puzzle is William Stevenson's job as the facility's welder/fabricator. Right, the North American F-86A Sabre is one of NASM's treasured collections stored at the complex.

Left, Jacob Beser, the 509th Composite Group's radar officer, flew on both the Hiroshima and Nagasaki missions. While visiting the "Enola Gay," Beser talks with Ed Gendron (center) and visitors from the Naval Institute. Below, a modified Grumman F8F Bearcat is part of the facility's inventory.

Above, until just before press time, retired Naval Aviator Capt. Ralph W. Hart was one of 42 docents who guided visitors through the complex. Below, it took over four years to completely restore the OS2U-3 Kingfisher, a Navy observation/scout plane during WW II.

restored but also to rekindle memories of a forgotten era. Then there are people like retired Navy Captain Ed Gendron, who shares a common interest with some of the aviation buffs who visit the Garber complex each day — he loves to fly.

The Naval Aviator and former commanding officer of USS *Lexington* (CVT-16) has flown many naval aircraft, including the TBM *Avenger* and AD *Skyraider*. He also flew the A-4 *Skyhawk* from the deck of USS *Ranger* (CV-61) before retiring in 1972 with 31 years of naval service.

Gendron has been guiding various groups through the restoration compound every week for the past seven-and-one-half years. He and about 42 others, including lawyers, active duty and retired military members, and college professors — all aviation enthusiasts — volunteer their time as docents to the National Air and Space Museum.

Gendron became intrigued after his first tour of the facility and began as an understudy by following a number of the experienced docents around. The aviator said that he learned a lot of the historical background through osmosis and self-study. "It's an enjoyable occupation. You meet a lot of aviation buffs and I enjoy talking to them," Gendron said.

One might say that Gendron and his fellow docents are a vital link in relating to many visitors the historical significance of the aircraft stored in the buildings.

According to Gendron, each class of potential docents are interviewed and later receive 60 hours of formal training on the facility's artifacts. The prospective docents take two written examinations, one during the middle of the course and one at the end of their training. They are also required to follow experienced docents around while guiding visitors through the restoration complex, and when deemed to be ready, volunteers are evaluated by experienced docents.

Interested volunteers may call Mrs. Trish Long at the National Air and Space Museum's Office of Volunteer

Services, (202) 357-1504, for applications and more information on the program.

For aviation enthusiasts, the Paul E. Garber facility is a treasure chest of aviation history waiting to be discovered. It provides the chance to see skilled craftsmen labor over a vintage aircraft, and an opportunity to relive aviation's heydays through the informative accounts of Ed Gendron and his fellow docents.

Paul Garber paid the restoration branch's craftsmen the ultimate praise when he said, "I have special admiration for the crew at our facility. Every one is a superb craftsman. Some are also artists. Look at the beauty of the paint jobs on our aircraft, the fidelity with which original colors are reproduced, insignia are copied, the precise lettering and numbering matched, and the accurate placement of decorative or identifying details.

"Beneath those exteriors, every unit of the structure is authentic to the day of its first flight. From the hands of our artisans, the historic and technically significant aircraft and spacecraft become alive again."■

"Wings & Things" Open House

The Paul E. Garber facility will hold its annual "Wings & Things" open house on April 23 and 24.

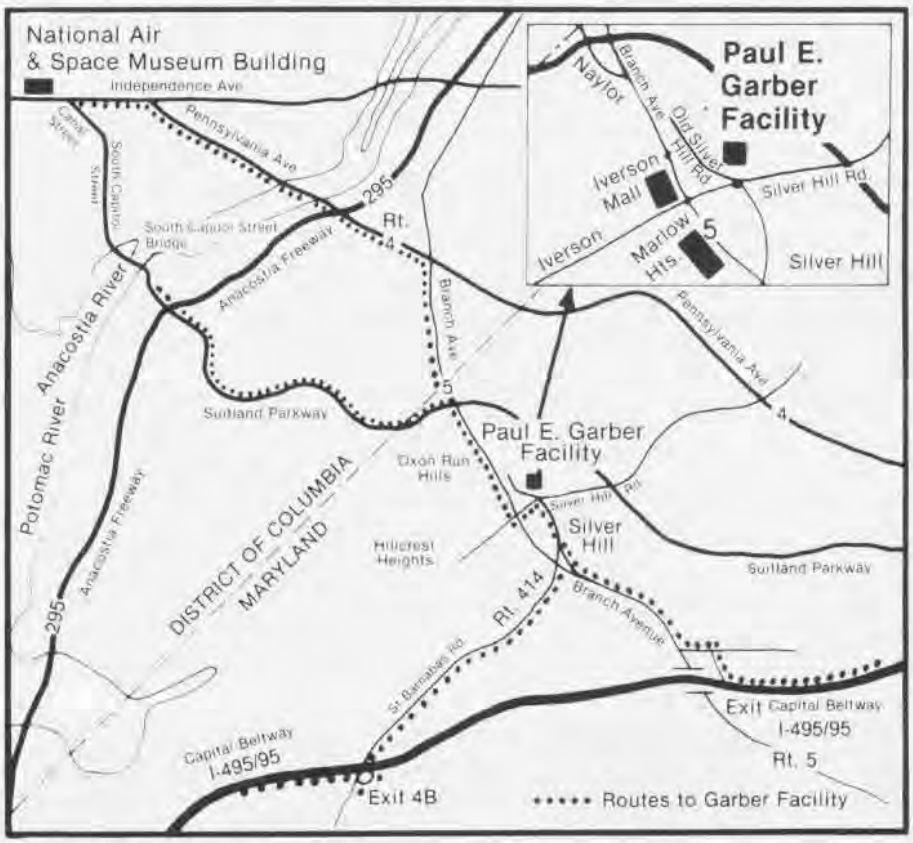
The complex is usually open for tours on a reservation-only basis but, during this weekend, it will be available to the public from 10 a.m. to 3 p.m. All activities are free. Tour the restoration complex at your own pace and view more than 140 historic air and spacecraft on display in five buildings. Staff members will be on hand to answer any of your questions.

Watch skilled craftsmen restore the WW II Boeing B-29 "Enola Gay," a Hawker *Hurricane* Mk. IIC "Hurribomber," and a WW I French *Caudron* G-4. Newly restored aircraft on display include a 1912 Gage tractor biplane, a WW II German Arado Ar-234B and a Vought OS2U-3 *Kingfisher*.

Get a behind-the-scenes look at how exhibits are made and watch model-airplane building demonstrations. Other craft and science demonstrations are also planned for this two-day event.

For a great photo opportunity, climb into the cockpit of a North American F-100 *Super Sabre*, pull on a helmet and have a friend take your picture. You can also don an aviator's scarf, goggles and leather helmet and stand beside the LTR14 *Meteor* that belonged to racing pilot Roscoe Turner. For more information, call (202) 357-2700, or for regular tour information call (202) 357-1400.

The facility conducts free tours Monday through Friday, starting from 10 a.m., and Saturday and Sunday at 10 a.m. and 1 p.m. Reservations for groups must be made in advance. Individuals are encouraged to make reservations to ensure that space is available on tours.



Individuals or groups of up to 40 are accepted for the guided tours, which last between two and three hours. Special tours for handicapped visitors are also available upon request. There is no heating or air conditioning in the warehouse-type exhibit areas, so visitors should dress appropriately.

Directions

From Washington, D.C.: Take Pennsylvania Avenue to Branch Avenue. Turn right on Branch Avenue and follow it 2.2 miles to Silver Hill Road. Turn left, go to first traffic light, and turn left. Facility is on the immediate right.

From Andrews AFB,Md.: Take Capital Beltway (I-495/95) to Branch Avenue, Silver Hill exit (Rt.5 North). Turn left at stop sign, go one block to traffic light (Jct. Rt.5), turn right, and follow Rt. 5 for one mile to St. Barnabas Road East (Rt. 414). Continue on St. Barnabas for one-half mile to the Garber facility, directly across the Silver Hill Road intersection. ■

The Navy's Busiest Air Station in the Mediterranean

By LCdr. E. H. Lundquist and JO1 Jim Richeson

Today, Sicily's Mount Etna stands calm and peaceful over the island's picturesque villages. The only rumbling noises that are heard come from the Navy's busiest air station in the Mediterranean — NAS Sigonella.

Located 10 miles west of Catania, Sicily's second largest city with more than 400,000 residents, the station is home to about 7,000 military personnel, civilians and their dependents.

What was once a tiny airstrip built by the Germans as a fighter base in WW II, and later occupied by the Italians after the war, has rapidly expanded its mission as the hub of naval air operations in the Med.

Admiral Carlisle A. H. Trost, Chief of Naval Operations, said, "Sigonella is the Navy's most important base in Europe."

Plans to build a naval air facility in Sicily were drawn up in the early 1950s as a result of an agreement between the U.S. and NATO. Sigonella became a more feasible alternative than the already overcrowded facility at Hal Far, Malta, where the Navy had planned to base squadrons of P2V *Neptunes*.

Captain Walter J. Frazier was the base's first commanding officer when Sigonella was designated a naval air facility on June 15, 1959. By September, nightly movies were being shown on the wall of the almost completed administration building, and most of the streets were partially paved.

By 1977, Sigonella had tripled in size because of its growing commitment to support Sixth Fleet operations in the Middle East. This rapid growth and the station's strategic importance to the United States prompted officials to redesignate the facility as a naval air station in July 1981.

The station currently has a budget of about $100 million, with some $30 million worth of construction presently underway, making Sigonella the fastest growing naval air station in the world.

The late Admiral Arthur S. Moreau, Jr., former Commander in Chief, U.S. Naval Forces, Europe, said, "The naval air station and the men and women who live and work here have been at the center of some of the most important military and diplomatic activity affecting the United States and the free world."

The commander of NATO forces in the southern region added, "NAS Sigonella is literally at the crossroads of the critical and demanding operations required to keep peace in the Mediterranean."

The station's significance to the region was highlighted in 1983 during the United Nations' multinational peacekeeping force's move into Beirut, Lebanon. Sigonella was the point of support for the U.S. Marine contingent of the peacekeeping force.

The air station also played a key role in the capture of the *Achille Lauro's* terrorists. On October 10, 1985, four Navy F-14 *Tomcats* from USS *Saratoga* (CV-60) intercepted an Egyptian 737

PH1 W. Pointer

airliner in international waters and directed it to NAS Sigonella.

Today, the facility is not only a bustling naval air station conducting round-the-clock operations, but it also serves as an Italian air force base and as a NATO maritime airfield. The U.S. Naval Air Station is itself a tenant command, which oversees more than 40 U.S. commands and activities on the base. These commands include the Mobile Mine Assembly Group Unit 5, a Seabee construction batallion and the Naval Communication Area Master Station Mediterranean detachment. Some other activities on the station are the largest Marine barracks in Europe, and a Navy broadcasting service detachment which provides the only English language radio and television station available to Sigonella's residents.

The air station is divided into two major components which are 10 miles apart. One side of the station is known as NAS I, where medical and dental facilities are located, as well as the exchange, commissary, base housing, DoD school, the radio and television station, and personnel support unit.

The operational side of the station, referred to as NAS II, is where the airfield is located. The airfield maintained approximately 60,000 evolutions last year, an increase of 50 percent over the previous year. Also aboard NAS II are the administration buildings, maintenance departments and the air terminal.

Sigonella's air terminal is the busiest in the Mediterranean and third most active in Europe — after Germany's Rhein-Main and England's Mildenhall AFB — in terms of moving cargo and passengers.

Three operational squadrons are based at Sigonella. Fleet Logistics Support Squadron (VR) 24 and Helicopter Combat Support Squadron (HC) 4 are home-ported at the station. A patrol squadron is deployed on board from CONUS at all times providing up-to-date antisubmarine warfare (ASW) information to Sixth Fleet units and NATO. East Coast patrol squadrons normally take turns operating for six-month periods out of Sigonella.

With its C-2A *Greyhounds*, VR-24 is well-suited to perform its mission of carrier on board delivery, providing high-priority logistics support to carrier battle groups at sea. Each of the squadron's aircraft can lift up to 10,000 pounds of cargo or mail, or 28 passengers. VR-24 also flies three CT-39G *Sabreliner* jets.

HC-4 flies the Navy's largest rotary-wing aircraft — the Sikorsky CH-53E *Super Stallion*. The three-engine, seven-bladed aircraft is used for vertical on board delivery missions, bringing heavy-lift and outsized loads to both carrier and smaller surface ships capable of receiving them.

The station's Supply Department carries over 35,000 line items of repairables and consummables to provide support to local customers, as well as various units of the Sixth Fleet. On a monthly basis, the department processes over 6,500 requisitions, makes over 4,500 issues, serves over 40,000 meals, pumps more than two million gallons of jet fuel, and moves about 2,300 tons of surface and air cargo in and out of the station.

Additionally, the station's Port Liaison Office services the needs of over 400 ships annually at seven major Sicilian ports. The command's Weapons Department handles more ammunition than most naval weapons stations. During FY 86, the department managed to load and offload more than 15,000 tons of ammunition.

Sigonella's fleet mail center is the postal receiving and issue point for all mail sent to and from the fleet. The center handles over 18,000 pounds of mail per day.

Despite the tremendous growth in size and its expanded mission, morale is high among Sigonella's sailors and retention is the best in all of Europe. The station has won the Commander in Chief U.S. Naval Forces, Europe's Golden Anchor Award for large commands during the last three consecutive years.

Normal tours for the air station are 18 months for unaccompanied members; 24 months for sailors who are accompanied by their families; and 36 months for air crew personnel.

What was once a tiny airstrip in the sleepy, little town of Sigonella has erupted into one of the most active naval air stations in the world. It will always be called upon to provide the needed support to ensure peace and stability in the Mediterranean.■

LCdr. E. H. Lundquist

Page 14, VR-24's COD mission includes transporting mail, cargo and personnel to carrier battle groups in the Med. Top, HC-4's CH-53s deliver outsized loads to many Sixth Fleet units. Left, a C-141 is only one of many aircraft that pass through Sigonella's busy air terminal.

BG-1

Over the years, a great many companies have designed and built aircraft for the Navy, many of which are long gone and largely forgotten. One of the more unusual of these companies, with respect to its origin, was Great Lakes. When Martin moved from Cleveland, Ohio, to Baltimore, Md., in 1928, newly formed Great Lakes took over its Cleveland plant along with subsequent production of the Martin T4M-1 torpedo-bomber design for the Navy, redesignated as the TG-1.

While Great Lakes was successful in developing a commercial sport plane design, only one of several new designs for the Navy reached production, the BG-1 dive-bomber. Soon after BG-1 production orders were completed in 1936, Great Lakes closed its doors.

The BG story begins with a series of experimental carrier aircraft ordered by the Navy in 1932. All were designed around two new twin-row radial engines in the 700-hp class, competitively sponsored by the Navy. Their smaller diameter than existing single-row radials of similar power, and the use of NACA streamlined cowls, promised both improved pilot visibility — especially for carrier landings — and increased performance. Other advances included complete elimination of wood structures, though fabric covering was still extensively used.

Two of these designs were competitive dive-bombers capable of delivering a 1,000-pound bomb. Both were biplanes, based on a BuAer design, and featured fixed landing gear and open cockpits for the pilot and crewman. Consolidated built one, the XB2Y-1, and Great Lakes built the other, the XBG-1. Generally similar, they differed considerably in detail.

Both aircraft started flight testing in 1933, the XBG-1 in late spring. In mid-June, it was flown to NAS Anacostia, D.C., for contractor demonstration and Navy trials. The demonstration got off to a bad start with failure of the upper wing trailing edge structure, in an initial dive test. Later, the landing gear also failed. After temporary repairs, it went back to Cleveland, returning late in July.

Navy trials started the first of August. Most of the attention was on the engine cowling to obtain the best speed and adequate cooling. Testing, including simulated carrier trials at Hampton Roads, went on until early December. The XBG-1 was then

BG-1

XBG-1

BG-1

By Hal Andrews

returned to Great Lakes for extensive changes, including replacement of the open cockpit by a canopy enclosure which, it was estimated, would increase the maximum speed by some four miles per hour.

By this time, the Navy had decided, based on the trials of both airplanes, that the BG-1 was the winner and a production order was placed for the usual one squadron plus spares (27). The revisions to the XBG-1 would include as many as possible of the planned production changes. Late in March the revised XBG-1 returned to Anacostia for further trials before going to Hampton Roads, Va., in June for accelerated service tests. One hundred and fifty hours were completed in late August, and the XBG-1 went back to Great Lakes once more to be readied for delivery for service use. It went to VB-3B in early November.

The first BG-1 had been delivered to Anacostia in late September for demonstration and trials. In November, the adjustable pitch propeller was replaced by a new controllable pitch one, which had been tested on the XBG-1. With this last major change, the BG-1 was ready for service use.

VB-3B, assigned to USS *Ranger*, was the squadron equipped with the BGs. Funding available from the National Recovery Act made possible the replacement of most older aircraft in Navy/Marine squadrons in 1934-35. BG-1s were ordered for the Marines and a total of 33 were delivered to equip VB-4M and newly formed VB-6M in 1935-36.

An unusual sidelight of the BG-1 story was that, in 1936 when Great Lakes closed down, the BG-1 design was sold to then-newly formed Bell Aircraft. Bell undertook Navy support and an export sales version, the latter without success.

The BGs' service was routine in all three squadrons. VB-3B shifted to USS *Lexington*, then back to *Ranger* as VB-4 in mid-1937. As monoplane dive-bombers — SB2Us and BTs — entered service beginning in 1938, the fixed-gear biplanes were replaced. VB-4 turned in its BGs for SB2U-2s in early 1939; however, the expansion of Navy carrier forces in the late 1930s resulted in one more year of service for the BGs. They equipped newly formed VB-7, which was being readied for USS *Wasp*, from August 1939 to August 1940 when sufficient monoplanes were available to again replace them.

The two Marine squadrons similarly operated their BGs in a routine manner. VB-6M was redesignated VMB-1 and VB-4M became VMB-2 when the East Coast and West Coast Marine squadrons were standardized in Aircraft One and Aircraft Two, respectively. The Marines also operated BGs as command airplanes, including the XBG-1. With the expansion of 1939-40, they equipped a third squadron with BG-1s, VMS-1, as well as using them for initial equipment of new squadrons such as VMO-1 in 1940-41. VMS-1 turned in the last BG-1 in an operational squadron in June 1941.

In early 1941, the BGs were introduced to a new career — a final one in all respects. They were converted to drone operations, first at the Naval Aircraft Factory, Philadelphia, Pa., and later at San Diego, Calif. They were used as target drones and later as assault drones. Flown by VJ-5 at NAS Cape May, N.J., and VJ-3 at Pearl Harbor, Hawaii, they continued in this service until the last few were retired at the end of 1943.■

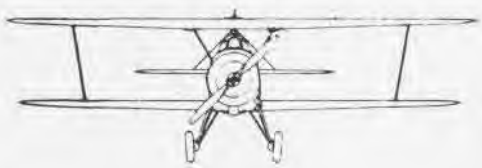
BG-1

BG-1

Span	**36'**
Length	**28'9"**
Height	**11'**
Engine	
P&W R-1535-66 or -82	**700 hp**
Maximum speed	**188 mph**
Service ceiling	**20,100'**
Maximum range (external tank)	**1,245 mi**
Crew	**Two**

Armament

One .50 or .30 machine gun, fixed; one .30 machine gun, flexible; and one 1,000-pound bomb.



Stranded at the North Pole

A CHILLING Adventure

By JO2 Julius L. Evans

Naval Aviator Captain Richard Porter, as a member of an orientation visit to observe the scientific activities on the arctic ice cap, arrived at Thule AFB, Greenland, one April day in 1983. The temperature was minus 20 degrees, an indication of what the weather would be like throughout the trip.

While Porter and his fellow travelers became acquainted, two Cessna 185 aircraft and their Alaskan bush pilots were hired to fly the team to the North Pole. A specially configured DC-3 would also support the team.

The Thule-based, tri-turbo (TT-3) — a DC-3 operated by Polar Research Laboratory, Inc., and outfitted with three turboprop engines — flew to ice station Cesar, a Canadian ice camp about halfway to the North Pole. The aircraft carried camping gear and aviation gas for the Cessnas, which had already arrived at Cesar.

The Cessna 185s were excellent aircraft for the arctic but short-legged. Since the distance from the North Pole to Thule was 800 nautical miles, the TT-3 was ideal. It had the range because it carried 1,922 gallons of fuel, burned 160 gallons per hour at 170 knots, and was still light enough to land on the ice.

On Easter Sunday, all three aircraft landed at the North Pole and ice station Crystal was established. The lightweight Cessnas landed first to test the surface and clear the runway for the heavier TT-3. The ice had to be at least 30 inches thick before the tri-turbo could land.

The camp at Crystal consisted of four manigans, or tents, three for sleeping, cooking and scientific work. The fourth tent housed the gasoline-powered, 2.75-kilowatt generator and served as the head shack.

The team used standard communications equipment consisting of a high-frequency radio, a satellite transceiver for communications with the United States, and a low-frequency beacon for automatic direction finding (ADF). A battery-powered radio direction finder (RDF) set determined the position of incoming aircraft relative to the camp. They also had hand-held walkie-talkies, which had a range of 80 miles, and a beacon for aircraft homing, with a range of 35 miles.

"Upon establishing the campground, we hoisted the American flag that Thule's commanding officer provided us," Porter explained. "The pilots hand-sewed an Alaskan state flag and hoisted it alongside the stars and stripes to officially commission the site."

Navigational aids were extremely important. The polar sea ice is constantly moving, driven by ocean currents and wind. This motion causes the camp's position to change. Sometimes the floes pull apart and leave open water, which quickly refreezes, forming what is called a refrozen lead. At other times, the ice floes collide, creating mounds of ice called pressure ridges. When this happens the ice groans and cracks like rifle shots.

After a couple of days in the arctic region, the team's routine became logistic resupply of the camp. All hands were needed to meet and offload the TT-3 when it brought supplies, and then install the scientific equipment which the tri-turbo delivered.

"An evolution that made us all begin to sweat was on the ninth of April," Porter recalled. "All the manigans were in danger of collapsing due to high winds. We reinforced the generator manigan first. Meanwhile, the equipment shelves came off the walls, throwing our equipment all over the place. The portable stove we used for heating had blown out, leaving the manigan almost completely filled with black, sooty smoke. Everything was a mess, but we eventually salvaged it. Breakfast was served at about 1430," he said.

The team had learned their lesson the hard way. From that point on, they knew to tie everything down while the weather was good because, sooner or later, it turned sour. They never left the equipment scattered around, because many hours might be wasted digging for it in the snow.

The weather finally broke with a rise in temperature, becoming a relatively warm day at five degrees above zero, 30 degrees warmer than the day before. But it was not quite shirtsleeve weather. Entertainment for the crew included such mind-expanding endeavors as listening to the wind, listening to fading voices on radio transmissions, and playing acey-deucey. One man flew a kite.

During the next several days, the crew conducted extensive flight operations, which included landing and inspecting locations near the North Pole in support of the overall mission. The operations became routine.

Opposite page, the tri-turbo lands on an ice floe. Above, the team set up a survival camp while they were lost near the North Pole.

At 0200 on April 23, the two Cessnas departed Crystal to locate and inspect a selected site. Since the trip was only 60 miles, Porter decided against taking his sleeping bag, which was standard equipment on any flight away from the campsite. Another crew member did not bring warm gloves, and one of the Cessnas was not topped off with fuel. In addition, the intended flight route was not thoroughly preflighted due to the short distance involved. At the time, it didn't seem that those small omissions would have any effect on the mission.

They landed at the planned site, conducted their business, and departed at about 0400. By 0500, they had not located Crystal, could not home in on its homing beacon, and the Cessnas became separated. Only one aircraft had a high-frequency transmitter, but could not raise Crystal and was unreadable to Thule.

To further complicate the team's problems, one Cessna contained all the survival gear. "That meant that one part of the team would be in big trouble if we didn't locate each other," Porter said.

"The other Cessna landed on the ice and, after an hour's search, we finally overflew it. We landed, talked about the situation and took off again," Porter explained. This time, they attempted to navigate by ice leads, which turned out to be another mistake because their shapes changed often.

At 0630, they established radio contact with Crystal. Unfortunately, the direction finder there was providing two bearings, both the correct one and its reciprocal. After much discussion, the crews decided that they were southeast of Crystal and chose to fly the reciprocal heading.

At 0920, both Cessnas landed again to talk over their position. "It was at this point," Capt. Porter said, "that I believe we passed our closest point of approach. One ADF had a point; but we didn't believe the reading to be true. We took off again at 0940. The Cessna which had failed to top off was low on fuel and needed to land within 30 minutes. By this time we had already passed Crystal and were actually heading away," he added.

By 1020, both aircraft were back on the ice. Unfortunately, one of the Cessnas hit a pressure ridge upon landing, disabling the landing gear. As luck would have it, it was the one that had the most fuel. The other plane was flyable, but had exhausted its fuel supply. And there was no means to transfer gas from one aircraft to the other.

They decided to set up camp there with a four-man mountain tent, building up snow around it to break the wind. The temperature was minus eight degrees. Although they didn't have much gear, they did have an ARGOS satellite transmitter and an emergency locator beacon (ELB), both of which were immediately activated. They still had radio contact with Crystal and, by this time, Thule was also apprised of the situation.

"We radioed Crystal and advised personnel there to contact the Polar Research Laboratory in California who could fix our position through the ARGOS satellite and pass our location on to Crystal. If that failed, we hoped that our ELB signals would be picked up by a passing aircraft or by a search and rescue satellite (SARSAT). It was planned that Crystal would then relay the team's position to the TT-3 which would fly out and rescue them.

"I tried to get some sleep, after being up for the past 28 hours, but without a sleeping bag I got progressively colder and could only sleep for short periods. Finally, I got up and walked around to warm up," Porter said. "After contacting Crystal, we learned that the search and rescue satellite system was operable and should be able to get a fix on our emergency locator beacon."

It was then the team discovered that the ELB which they had activated six hours earlier wasn't working. They activated a second one and, at 2000, they learned from Crystal that a SARSAT fix had been received and the TT-3 was ready to take off.

"Later, we learned from Thule's

Above, the Cessna 185s are parked at ice station Crystal near one of the manigans.

Below, the TT-3 is a welcome sight to the stranded personnel as it lands at the rescue site.

operations officer that it was a Soviet SARSAT that provided our position," Porter added.

At 2238 on April 23, the TT-3 found its way to the stranded men and landed on a nearby refrozen lead. The next morning, all personnel were evacuated, leaving both Cessnas behind on the ice to be recovered later. The team arrived at Thule at 0700 on April 24 and remained there through the next day.

On the 26th, mechanics, parts to repair the aircraft and test equipment were flown by the TT-3 to the site where the Cessnas were parked. By 0400, the downed aircraft was fixed, and both were refueled. Both Cessnas were then flown to the Canadian ice station Cesar, accompanied by the tri-turbo.

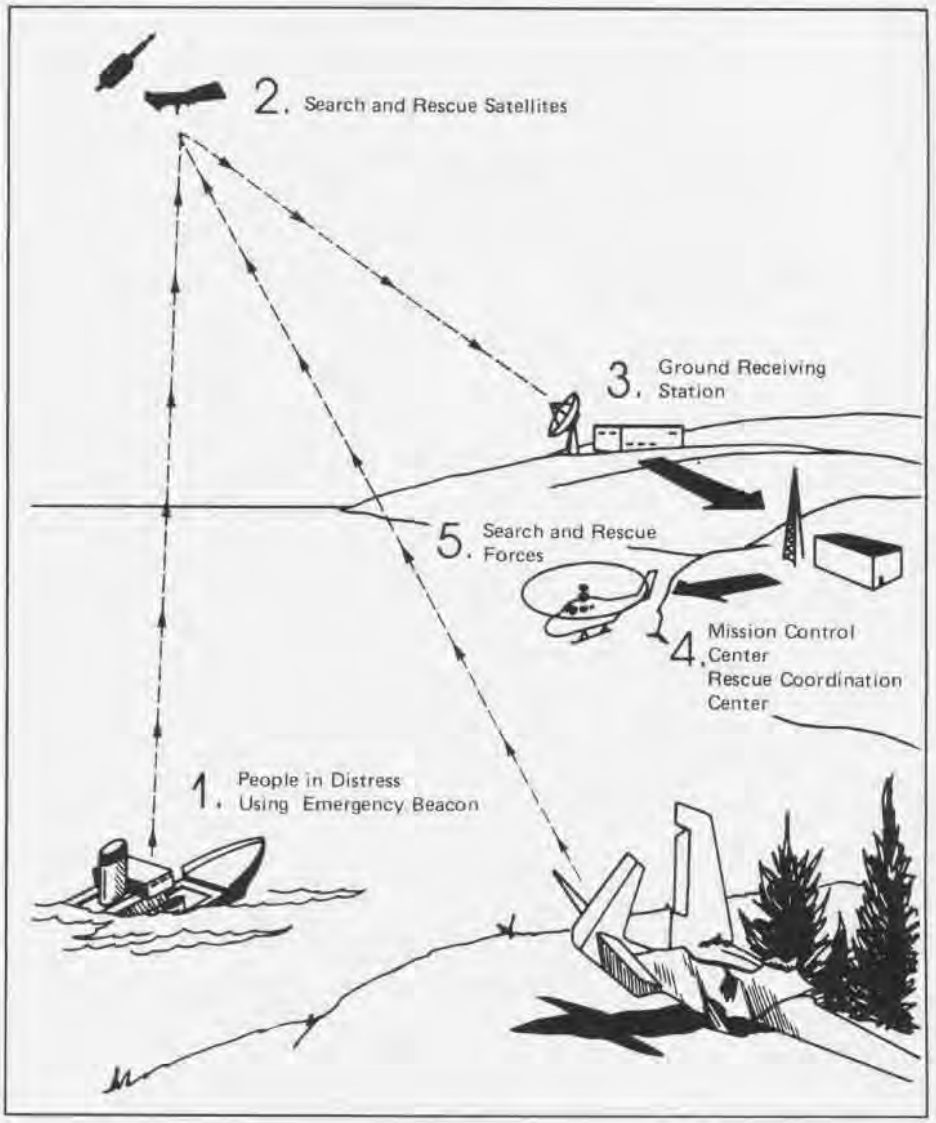
Twenty-six days after arriving at ice station Crystal, Porter departed for the last time. The installations of scientific equipment were complete and all systems seemed to be operable.

"I learned my lessons," Porter reminisced. "The most important one was not to be lured into complacency by good weather. Tie everything down when you first arrive. Pile equipment in one or two locations or you'll be digging the stuff out of the snow. Make sure you have proper gear for foul weather — arctic footwear is essential. Sleeping bags must be double-layered with a rubber pad in the bottom to insulate against the snow. And they must be with you wherever you go in the arctic.

"Navy aircrews flying in the arctic over the ice cap must have the proper survival gear, specifically tailored for sub-zero weather. That which is standard equipment on maritime patrol aircraft, for example, is designed for open-water survival, but is not suitable for an aircrew down on the ice. Arctic-grade sleeping bags, mukluks, thermal underwear, proper mittens and portable cooking stoves are absolute necessities, as well as insulated survival tents. I know, I was there," Porter stressed.

Since his first eventful experience in the polar region, Porter has used the lessons learned during four additional trips in as many years. Today, he is Director of the Arctic Programs Office in the Space and Naval Warfare Systems Command, Washington, D.C. Capt. Porter is again preparing to return to the arctic, where he expects to spend more than two months camped on the ice during Exercise *ICEX-88.* ■

SARSAT



Congressman Hale Boggs (D-La.) was on the light, twin-engine Cessna that crashed while en route from Anchorage to Juneau, Alaska, in October 1972. The aircraft was never found and the National Transportation Safety Board logged it as missing. The unsuccessful search and rescue evolution that covered a 325,755-square-mile radius presented a challenge to which the United States, France, Canada and the Soviet Union responded.

In a joint international effort in 1980, the four nations signed a memorandum of understanding to deploy search and rescue (SAR) packages aboard existing polar-orbiting weather satellites. The SAR mission was to detect activated emergency locator beacons.

A Soviet Union SAR satellite (SARSAT), went into orbit in July 1982. The U.S. launched its SARSAT a year later. But it was the Soviet satellite that played a vital role in the rescue of the exploration team stranded at "Crystal," a Navy-sponsored ice station near the North Pole, in 1983.

Aboard the Foch:

Bonne Chasse!

By Lieutenant Robert E. Jex

How really good is the U.S. Navy's air arm? While all of us knows it's the best, it also helps to compare with others — as this American airman had a chance to do in Summer 1987.

In the blink of an eye, I was whisked off to Toulon to meet the French aircraft carrier *Foch*. The French were to be participants in a series of intense exercises known as *National Week*. The exercises represent a test of the contingency plans of three different air wings — *Kennedy's, Nimitz's* and *Foch's*.

As one would imagine, a great deal of very close coordination is necessary for smooth flight operations. Fortunately, *Kennedy* and *Foch* had prior experience working with one another during Exercise *Display Determination* earlier in the cruise.

As liaison officer, it was an honor for me to see the people and aircraft of the *Foch* from an insider's perspective. On board were several other Americans including Captain Dye, in charge of liaison, and Lieutenant Jeff Briggs, an exchange pilot from the A-7 community who is flying *Super Etendards* with the 17th *' Flotille. Foch* is one of two *Clemenceau*-class *' porte-avions ''* currently operational with the French navy. With a crew of 2,000 and a full complement of approximately 35 aircraft, she is considerably smaller than her U.S. counterparts, with a corresponding trade-off in the operational diversity taken for granted in a U.S. carrier air wing.

The chance to observe another country's military forces in action led me to seize every opportunity to sit in on briefings, talk with various people, and see the different phases of flight ops.

Catapult steam swirls around a French F-8 as it launches from Foch.

My host extended a warm welcome.

Several differences between the *Foch* and a U.S. carrier were immediately apparent. Eating on board was more like eating in a restaurant, though there was no menu per se. Food is served one course at a time. Appetizer, entree, cheese, then dessert. And, *Toujours le Vin*. There was a bottle of wine on the table each time we went to eat. Pilots can and often do drink in moderation before flying. There is no pressure to drink; it is strictly a matter of individual preference.

Thursdays at lunch, ship's company officers have a sit-down affair in the wardroom, this time with two or three different wines. There is also an O-Club right across the passageway where everyone meets for aperitifs. You name it, they've got it — including tunes on a stereo!

One also finds three women on board — a doctor and two secretaries. They would be on board in a wartime situation, too. Frenchmen do not consider themselves especially privileged to have them, although any American sailor would. House rules: Hands off! — professional relations only. Women have been on board combatants like the *Foch* since about 1981, so the idea is fairly new — actually more of an experiment than a fixed practice. There are only two women doctors who deploy with the French navy. Their pay is the same as it would be for a man. Deployment obligation is two years. The doctors do not fly, not because they are women, but because their orders do not permit it — yet.

The French navy's way of doing things seems much less restrictive overall than the U.S.'s. The presence of wine and women only highlights the impression. With a scaled-down concept of operations, they have managed to streamline many of the routine and tedious tasks to which U.S. aircrews have grown accustomed. For example, the SDO records takeoff and land times only each flight; one sees nothing like the familiar yellow sheet.

In terms of flying, there isn't quite the level of concern with landing interval, nor anything close to the competitiveness for landing grades. To be sure, each pilot is debriefed, yet the annual ranking of the 80 or so naval pilots has little bearing on one's career. The real competition among the flyers is for flight qualifications, such as section leader, flight leader, strike leader, night pilot, etc.

In each jet squadron, only about one-third to half of the pilots are qualified to fly at night. Here, one does not have the sophisticated ACLS or ICLS equipment that would make the task of landing at night much safer. Instead, a night recovery is a standard CV-1 TACAN approach, the last three miles of which are controlled completely by voice communications and radar, to comprise what we would call a surveillance or ASR approach. The pilot is talked onto the ball all the way from the tipover point three miles astern.

French naval aviation, or *Aeronavale*, is closely patterned after its U.S. counterpart; there was even an aged copy of the CV NATOPS manual in each ready room! (As readers know, the NATOPS program is the governing set of rules for all of U.S. Naval Aviation.) The deviations observed were trivial. One finds in *Aeronavale* the same concern for flight safety as in the U.S. In fact, many of the familiar safety training films have been translated into French and are widely known among the crew.

On board *Foch* are three types of jets — the *Super Etendard* for attack missions, the U.S.-built F-8E (FN) interceptor and older standard *Etendard IVs* modified for photoreconnaissance. For anti-submarine warfare, the *Alize* turboprop provides exceptional endurance. The *Alizes* also bring the mail. Two types of rescue helicopters are carried aboard: the *Lynx* and *Allouette III*, call sign "Pedro."

French aircraft like the *Super Etendard* typically fly a one and one-half hour sortie; the limiting factor is, of course, fuel. A *Super Entendard* tanker nicknamed "Nounou" is always on alert but, with only 2,200 pounds of fuel to give away from the buddy store, it is held in reserve on deck or overhead for emergencies only. During *National Week*, the crews practiced tanking on U.S. KA-6Ds. They also had several opportunities to "turn and burn" with our fighters. Conduct of the various missions is much the same as on a U.S. carrier. One often sees on the flight schedule such tasking as ship-controlled GCI, war-at-sea practice, SSC, etc.

The French emphasize alertness for the unexpected. What we know as "Indian Country" or "MiG Alley" is always activated around the ship, over the ship and over home turf. Indian Country is, of course, designed to allow dissimilar aircraft to dogfight with one another. Here, any aircraft can "attack" any other, and at any time, subject to various rules briefed beforehand. Pilots are forced, even from their very first training flights, to maintain their lookout doctrine. On overland, low-level strikes through the Alps, it is not uncommon to get "jumped" along the route, and the only "deck" is the earth itself! The attitude is like the old phrase, "You fight as you train, so train like you're going to fight."

Lt. Jex is an NFO assigned to VAQ-140, NAS Whidbey, Wash. In 1987, he was selected to serve aboard the French carrier Foch as liaison officer.

Aeronavale is largely VFR-oriented and would probably remind a more seasoned reader of what must have been the good ol' days of U.S. Naval Air, when there were far fewer regulations, airspace restrictions, route structures — and smaller carriers. The underlying reason for such a liberal policy is clear when considering the fact that French military forces would almost certainly be involved in any European conflict between the eastern bloc countries and NATO.

It is now night aboard the *Foch*. The weather was quite nasty two hours ago, but has cleared up considerably and now a full moon is out. Four *Super Entendards*, two F-8s and an *Alize* are scheduled to recover. They orbit in a marshal or holding stack as flights of two, awaiting "push" time to commence their approach. Every two minutes another aircraft pushes from the stack, tracking inbound from almost dead astern the carrier. Controllers on the ship watch each plane very carefully and, at prescribed distances, the optimum altitude is radioed to the pilot; miles, feet and knots are used. At about three-fourths *nautiques*, the pilot is challenged to verify the ball, just as in the U.S. Navy. The response includes the word *mirroir* and the amount of fuel aboard. Occasionally a plane's first pass is his bingo pass. More often there is fuel enough for only two or three passes, but it's enough.

Now the landing signal officer (LSO) takes over for the radar controller to terminate the approach. LSOs here do a great deal more coaching on an approach than do their U.S. counterparts, but their function is the same. The pilot uses his heads-up display, or HUD, to assist with the landing. With the customary fistful of sparks, a *Super Etendard* snags the No. 1 wire — that's normal at night — and comes to a stop in about 250-300 feet. On the ship, a spotlight illuminates the rollout area; it is turned off momentarily when a plane traps to avoid blinding the pilot.

Next, the jet taxis up the bow where it is chocked and shut down. Two feet of each wing tip are foldable; the ground crews do this manually. Jets are packed in nose to tail and are quickly respotted to the stern after the recovery. Ground crewmen are very young, as they are in the U.S. Navy. At an average age of 19 or 20, they have responsibilities that seem beyond their years.

A few words about France's six LSOs. They are in most cases ex-fleet pilots with experience in many models, who now specialize in the traditional LSO role. They have a lot of seniority and independence. There is some talk of shifting over to a U.S.-based system in which a squadron pilot would be eligible to be an LSO. But for now, the LSOs enjoy a rarefied atmosphere that appears almost godlike. A few will even return for squadron tours.

With all its antennas alert, a Soviet Kashin "tattletale" appears on the scene.

Pilots go back to their *salle d'alerte* to debrief maintenance and intel personnel and, in turn, to be debriefed by the LSO. One does not find the customary pilot landing aid television system; a face-to-face debrief is the only feedback available. After flying hours, if one is not busy, he will meet his comrades at the bar or at a movie in the wardroom. As in the U.S. Navy, aircrew members have ground jobs, but in most cases they do not need to work long hours.

We have been sailing with a French *Duquesne*-class escort ship, the *Suffern*. In preparation for *National Week*, the *Foch's Super Etendards* staged mock attacks on *Suffern*. One could see the strikes at a distance. Even at ranges of about 10 miles, the attackers seem to zip across the horizon at impressive speeds and low altitudes. Just prior to going overhead the target ship, the flight of four breaks off and turns for her wake, disappearing out of sight in seconds. Two days later, the *Suffern* is joined by a Soviet *Kashin* "tattletale." Some things never change. This is just a glimpse at how the French conduct their naval air force, *Aeronavale*. Although patterned after the U.S. example, their program has been modified to suit their needs and seems to work quite well. For the future, a new and larger carrier, the *Richelieu*, should make her debut in the mid-1990s with at least one new aircraft on board, the *Raffale*, now undergoing flight testing. There is a rumor about importing the F/A-18, as well.

On the lighter side, the crew of the *Foch* hopes to sail to the U.S. some day. With any luck at all, they will. Meanwhile, we welcome the opportunity to continue working with the French in years to come. *Bonne chasse*! ■

The Super Entendard is a transonic, single-seat strike-fighter flown from Clemenceau-class aircraft carriers.

This article was reprinted from the Winter 1987 issue of *Wings of Gold*, with permission.

Famous Last Words

By AWCS L. R. Wall

"Skipper, we have a problem back here." Are these the famous words from Scotty, Chief Engineer of the Starship *Enterprise?* No, it's disturbing news too often heard on cargo and passenger airlifts. The scene that follows has become so common that the final act can almost be predicted.

"What is it, Petty Officer Smith?"

"There's something leaking from the cargo pallets" or "I have fumes here, Skipper."

"Smith, check the manifest and find out what it is."

"Skipper, I just checked. Nothing indicated. I'm checking the cruise boxes for hazardous material labels and 'dash-twos.' This stuff is getting worse."

"Come on, Smith, move it! I want to know what those fumes are! Describe the smell."

"Skipper, still checking. Smells like lacquer and my eyes are burning."

"Smith, put the passengers on oxygen and get a mask and bottle for yourself. Keep looking! All crew go to oxygen; we are descending below ten thousand and returning to base. Stand by for smoke and fume removal procedures. SMITH, FIND THAT LEAK!"

This melodrama has been reenacted again and again. The final outcome is not predictable. It could include an aircraft crash with total loss of aircraft, crew, passengers and cargo. Other incidentals could be added: reduced combat readiness, loss of trained assets and possible death or injury of innocent citizens. A nightmare of this magnitude is preventable!

More and more frequently, squadron personnel have been innocently packing hazardous material with inert cargo for air shipment, not realizing the associated detrimental impact. Lack of knowledge about hazardous material classification, packaging and regulations has become a primary cause in this growing problem.

Fleet Aviation Specialized Operational Training Group, Atlantic Fleet (FASOTraGruLant) was tasked to counter this increasingly lethal situation by providing a short course designed to inform and educate personnel on the dangers of shipping hazardous material. To meet this tasking, the "Aircraft Cargo Hazardous Materials Awareness for Squadron Personnel" course was created by and is currently being taught at FASOTraGruLant Detachments Cecil Field, Fla., and Brunswick, Maine. In March, this course will be available at all FASOTraGruLant detachments.

The course is designed to aid a squadron's training and awareness program and acquaint individuals with the handling, identification, classification and compatibility of common hazardous materials. The four-hour course also meets NAVSUP PUB 505 annual hazardous-material handlers' training requirements and all type command and wing material-handling instructions.

The course was created with the intent of instilling a touch of paranoia mixed with curiosity about materials being packed. It also provides answers to questions that squadron personnel have when an item is unknown or unfamiliar. "What is this stuff?" "Should it go here?" "Does it need a hazardous material label?" "Must I put it on a 'dash-two'?" "Can I transport this material and passengers on the same flight?" "Where can I find the answers?"

Classes taught to date at FASOTraGruLant Det Cecil have received many favorable critiques, stressing the need for such training at the squadron level. Course content has been right on target and fleet attendance has encompassed E-3 through 0-4 personnel, as well as local station safety professionals.

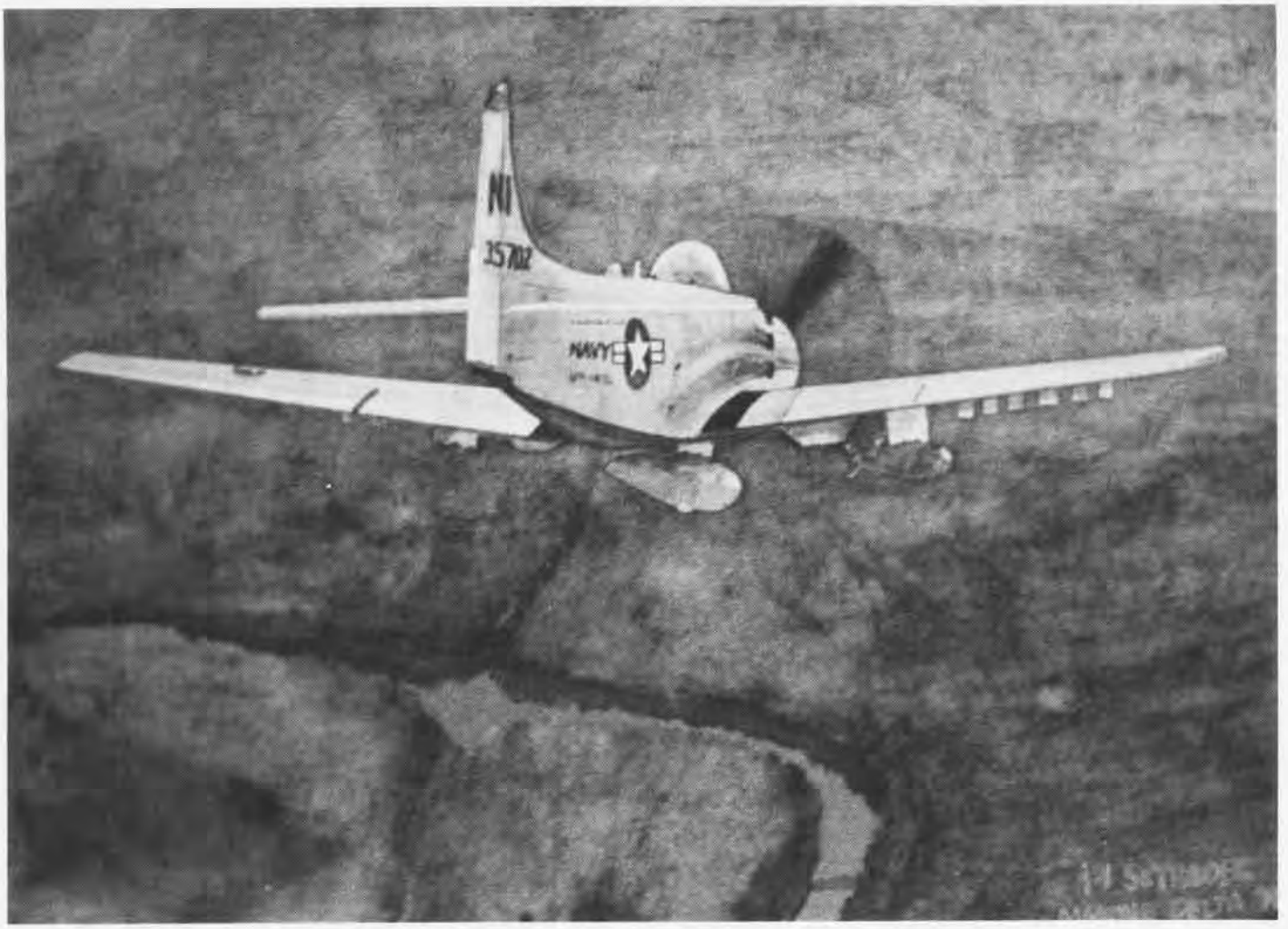
Utilizing high-visibility graphics and comprehensive student handouts, this course has been structured extensively from ready-made sources such as the naval postgraduate thesis "Lack of Hazardous Cargo Certification Procedures by Naval Aircraft Squadrons," by Lieutenant Commander P. W. Costen, USN, and Lieutenant E. S. Blunt, Jr., USN; research materials provided by Commander D. R. Gehr, USNR, and data provided from the USAF course "Airlift of Hazardous Materials." The material has been condensed into a four-hour format and tailored to meet specific squadron problems. Students learn what material should be separated, how to identify it for shipment, and whether materials are compatible with each other or with passengers.

The goal of this course has been directed toward saving lives and material assets by ensuring that our sailors know the rules and are aware of the dangers. Don't catch yourself saying, "It will never happen to me" or "I didn't know, nobody told me" — both of which fall under the category of "Famous Last Words."

For more information on this course, contact AWCS Wall at FASOTraGruLant Det Cecil Field, Fla., autovon 860-5260, commercial (904) 778-5260. ■

JOCS Kirby Harrison

A C-9 from VR-59 is loaded with cargo prior to takeoff. FASOTraGruLant's course, "Aircraft Cargo Hazardous Materials Awareness for Squadron Personnel," informs and educates personnel on the handling, identification, classification and compatibility of common hazardous materials.



An Artist in Disguise

By JO1 Jim Richeson

Few people have ever heard of Paul G. Goens, Naval Aviator and artist, and not very many have ever seen his paintings. Unlike the great masters, Goens' artwork has never been displayed at any of the most prestigious galleries in Paris or New York.

Most of the 30-year-old lieutenant's works of art adorn his former squadrons' ready rooms. Lt. Goens, an instructor pilot with NAS Whiting Field's Training Squadron (VT) Two in Florida, is an artist in disguise. Goens began painting as a hobby, 12 years ago, while attending Purdue University in Indiana. "I decided one day to go ahead and try it because I've always wanted to paint," Goens said. "I basically taught myself how to paint through reading and experimenting on my own." The young aviator does not think of himself as an artist. Goens said that he continually strives for realism through his works, which he considers to be technical reproductions.

After earning his bachelor of science degree in psychology, Goens went after his Wings of Gold in 1981. As a Naval Aviator his brush has steadily stroked bold images of many naval aircraft during their missions. Today, Goens' latest rendering — T-34C *Turbo Mentors* — is on display at the Naval Aviation Museum in Pensacola, Fla.

Though Lt. Goens' artistic talents still remain hidden from many naval aircraft art lovers, those who have flown with him have seen his paintings and know that he is an artist in disguise. ■

Page 26, as a Naval Aviator, Lt. Goens first painted an A-1 Skyraider on patrol over the Mekong Delta. Top, his latest endeavor, T-34Cs as seen from the rear cockpit of another Turbo-Mentor, was recently donated to the Naval Aviation Museum in Pensacola, Fla. Left, Goens' version of a P-3C Orion focused through a submarine's periscope. Above, an old T-28 Trojan and a T-34 from VT-27 fly side by side.

Women in Naval Aviation

In December 1987, SecNav James H. Webb, Jr., approved a recommendation to open aircrew assignments to women with the Navy's two shore-based fleet air reconnaissance squadrons. Navy women will not be assigned to patrol squadrons because VP aircraft have an offensive capability and combat missions.

Aircrew positions aboard EP-3 aircraft in VQs 1 and 2 were opened to women after SecNav approved a new definition of a combat mission. It states that VQ shore-based aircraft with only a reconnoiter mission and no offensive capability or active combat role are determined not to have a combat mission. As a result, more than 100 officer and over 230 enlisted aircrew billets are now open to women.

Sikorsky Aircraft

HSL-41 flies its SH-60B Seahawks out of NAS North Island, CA.

Reactivation

HMT-302 was reactivated as part of the tactical reorganization of the 3rd Marine Aircraft Wing at MCAS Tustin, CA. HMT-301, which formerly trained CH-46 and CH-53A/D/E pilots, was divided into two squadrons. HMT-301 became a CH-46 training squadron, while HMT-302 was tasked with conducting training on the CH-53.

Coast Guard

Adm. Clyde E. Robbins, Chief of Operations of the Coast Guard, dedicated U.S. Coast Guard Air Station, Borinquen as an HC-130H operational base and announced plans to expand its surveillance activity across the Caribbean Basin. The station is located on part of the former Ramey Air Force Base on the northeast coast of Puerto Rico.

Disestablishment

The Chief of Naval Operations announced that the Navy will maintain only 13 active carrier air wings. CVW-10 is scheduled for disestablishment by the end of FY 88. CVW-10 comprises the air wing staff, VFs 191 and 194, VFA-161, VA-155, VAW-111, VS-35 and HS-16.

Anniversaries

The Navy's first LAMPS MK III squadron celebrated its fifth birthday in January. HSL-41, commanded by Cdr. Michael R. Clapsadl, provides initial training requirements for personnel operating and maintaining the SH-60B *Seahawk* aircraft which is part of the light airborne multipurpose system shipboard weapons system. HSL-41 has also accumulated over 29,000 class-A/B mishap-free flight hours.

Awards

Selected from among 300 instructors, Lt. Jonathan D. Winters of VT-2 was chosen Primary Flight Training Instructor of the Year for TraWing-5. Lt. Winters, who flew 960 hours and 541 sorties in 1987, was designated by CNATRA as a master training specialist with instructor qualifications in familiarization, basic instrument, precision aerobatics and formation.

Cdr. Charles W. Moore, C.O., VFA-131, and Cdr. Michael G. Mullen, C.O., USS *Goldsborough* (DDG-20), were the 1987 recipients of the VAdm. James B. Stockdale Award for inspirational leadership. This unique fleet award was established to recognize officers who exhibit the highest standards of excellence in personal example and leadership. It is presented annually to two commissioned officers on active duty below the grade of captain who are in command of a single ship, submarine or aviation squadron at the time of nomination. Candidates are nominated by peers who themselves must be eligible for the award.

After winging 172 Naval, 97 Marine, 11 Coast Guard and 11 allied aviators, HT-8, NAS Whiting Field, FL, received the Chief of Naval Air Training Excellence Award for helicopters for 1987. During the award period, HT-8 flew 47,006.9 hours, 22,125 training sorties and met its pilot training requirement deadline 10 days ahead of schedule. Additionally, HT-8 marked 10 years and 274,385 hours of mishap-free flying.

Rescues

Last fall, the *Dragonfires* of VS-29 proved to be more than an ASW squadron during operations off the San Diego coast aboard USS *Carl Vinson* (CVN-70). VS-29 received a call to locate an overdue A-6 *Intruder* from VA-52. Launching into an overcast night, the aircrew searched near Santa Catalina Island, where the craft was assumed downed. After unsuccessful attempts to communicate with the aircrew, the *Dragonfires* homed in on the emergency locator transmitter which activates automatically during ejection. The S-3's flawless avionics package allowed the aircrew to locate the sole survivor and

vector Navy and Coast Guard helicopters to a lifesaving pickup.

Records

The following units marked safe flying time: Naval Research Laboratory Flight Support Detachment, 37,000 hours and 25 years; VT-23, 51,000 hours and 2 years; VF-126, 37,000 hours and 7 years; HSL-43, 30,000 hours; VAW-114, 17 years; HMM-266, 5,000 hours; HSL-10, 63,400 hours and 11 years; and HT-18, 350,000 hours and 7 years.

Honing the Edge

Despite having two of three aircraft put out of commission in the first two days of training, the *Cottonpickers* of VAW-88 beat the odds during the annual CVWR-30 migration to NAS Fallon, NV. In fact, they completed their most beneficial and productive annual active duty period in their 17-year history. The *Cottonpickers* received threefold rewards for their operations at Fallon. VAW-88 aircrews honed their crew coordination and command/control skills. Other aviators deployed at Fallon got a first-hand look at the reserve squadron's newly acquired E-2Cs, which replace its retired E-2Bs. Finally, the *Cottonpickers* received recognition from their air wing brethren for outstanding air control and mission support.

All for one and one for all could best describe VF-31's air-to-air guns detachment to NAS Key West, FL. The *Starfighters* spent 10 days increasing aircrew proficiency in air-to-air employment of the F-14's 20-mm cannon. Each pilot's firing run was recorded on the heads-up display (HUD) camera. HUD tapes were viewed by all aircrews at the end of the day. The viewings provided the necessary feedback for each pilot to improve his performance and allowed all aircrews to critique and improve on each pilot's technique.

The *Augger-Doggers* of VAW-1086 completed their annual active duty for training cruise, participating in Exercises *Solid Shield* and *FleetEx*. The squadron's primary mission is airborne early warning and air control. VAW-1086 flew the E-2C *Hawkeye* in controlled dissimilar aircraft training exercises, conducted a mock assault on a carrier battle group, and provided direct support to fleet units during the training.

Et cetera

Reserve squadron VA-0689, NAS Whidbey Island, WA, took first place in the night bombing competition held in Boardman, OR. The annual derby tests aircrews' abilities to fly a strictly controlled route where crews and planes have to achieve the highest possible scores in day and night bombing and simulated carrier landings. Cdr. Dixon Smith, C.O., VA-0689, and pilot Lt. Harry O'Nan scored higher than any other single aircrew during the derby.

PH3 Wayne Edwards

A Marine Corps AV-8B Harrier taxies into position on USS Coral Sea's flight deck during Fleetex 4-87. Personnel of CV-43 demonstrated their ability to effectively support USMC aircraft involved in the naval amphibious assault training exercise.

PH2 Michael Lanthorn

In keeping with tradition, CPO Jerry Sprague (left) and AR Billy Joe Davis, Jr., the oldest and youngest sailors aboard NATTC Lakehurst, N.J., shared the duties of cutting the cake at the Navy's 212th birthday celebration. The two sailors are separated by 81 years of age. Sprague enlisted in the U.S. Navy in 1911. Davis enlisted in July 1987.

The Navy dedicated its flight simulator center at NAS Whidbey Island, WA, in memory of former Grumman chief test pilot and retired Marine Corps LCol. Charles A. Sewell. He was killed in a plane crash in 1986 in Connecticut. The Bishop Wright Air Industry Award, presented annually by the Protestant/Ecumenical Chapel at J.F.K. Airport, was also awarded to commemorate Sewell's outstanding contributions to aviation.

VP-62, NAS Jacksonville, FL, became the first Naval Air Reserve squadron to transition to the Navy's newest maritime patrol aircraft, the P-3C Update III. The updated version boasts a *Harpoon* air-to-surface missile capability, homing torpedoes, depth bombs and high-velocity rockets. The newest antisubmarine warfare aircraft will help to expand the role of the Naval Reserve forces.

Change of Command

CarGru-3: RAdm. David N. Rogers relieved RAdm. Edward W. Clexton, Jr.

HMM-163: Maj. Thomas A. Caughlan relieved LCol. Edward D. Smith.

HS-7: Cdr. Michael E. Persson relieved Cdr. Thomas C. Davis.

VAW-123: Cdr. Donald S. Luebbecke relieved Cdr. Wade D. Holbrook.

VF-24: Cdr. James D. McArthur, Jr., relieved Cdr. George V. Sottile.

VF-111: Cdr. Raymond R. Rose relieved Cdr. Lloyd E. James.

VFA-86: Cdr. Howard A. Petrea relieved Cdr. J. Michael Johnson.

Top WW II Marine Ace Dies

Colonel Gregory "Pappy" Boyington, USMC(Ret.), died in January at the age of 75 from cancer. He was a maverick from the beginning, with a military career as flamboyant as his own personality. He was a pilot with the "Flying Tigers" in China, the top WW II Marine Corps ace credited with shooting down 28 Japanese aircraft while C.O. of VMF-214's *Black Sheep*, a Japanese POW, and a Medal of Honor winner.

Pappy Boyington and the *Black Sheep* were legendary for their war records and were immortalized in the TV series *Baa Baa Black Sheep*, also the title of Boyington's book chronicling his experiences.

In later years, when called a hero, Pappy commented that "many of the things I did were done because I was a competent old pro. I knew the odds; I knew the consequences."

JO1 Jim Richeson

Above, young Marines carry the casket of famed Black Sheep leader, Col. Gregory "Pappy" Boyington, whose body was flown into NAF Washington, D.C., on January 14.

Below, a caisson transports Boyington to Arlington National Cemetery where he was buried, surrounded by family and friends, on January 15.

At the Yakima Valley, Wash., Air Fair in 1986, Boyington (left) met, for the first time, the highest scoring Japanese ace to survive WW II, Saburo Sakai.

JO1 Jim Richeson

STATE OF THE ART

USCG HU-25A Air Interceptor

Drug smugglers will soon have more to worry about than filing their tax returns. On April 15, the first U.S. Coast Guard modified HU-25A will join the war against drugs.

The National Drug Enforcement Policy Board authorized the Coast Guard to modify eight HU-25A *Guardians* into air interceptors, which can intercept an aircraft, classify it by type and follow it covertly. A contract was let in April 1987 and the first of eight new HU-25As will be delivered to the Coast Guard this April.

Modifications include the AN/APG-66 fire control radar which can detect an aircraft from distances of 80 nautical miles, the WF-360 forward-looking infrared system with state-of-the-art digital electronics, and a secure communications upgrade. Physical differences from the standard Coast Guard *Guardian* are a basketball-sized protrusion from the interceptor's belly, just ahead of the wings, and a slightly longer nose.

F-14D and A-6F Simulators

The Naval Air Systems Command awarded Grumman Electronics Systems Division a full-scale development contract for F-14D *Tomcat* and A-6F *Intruder* flight simulators. The initial award of $135 million is for development and production of four training units, the first to be delivered in late 1990. The Navy will use the simulators to train aircrews in flight operations and tactics, including carrier operations, emergency procedures, weapons delivery, electronic warfare, and navigation.

First Modified S-3B Delivered

On December 17, 1987, the first S-3 *Viking* modified to the new S-3B configuration entered active Navy service with VS-27, NAS Cecil Field, Fla. The aircraft received the first fleet installation of a Lockheed kit with major weapon systems improvements, including a new acoustic processor, new electronic support measures system, target imaging radar, the *Harpoon* missile, and an electronic countermeasures system. The modification greatly increases the *Viking's* ability to handle multiple missions, which is important with the demands placed on today's carrier fleet.

LRAACA Competition

Lockheed Aeronautical Systems Company selected the GE38 engine as the propulsion system for its modern technology turboprop aircraft in the Navy long-range, air ASW-capable aircraft (LRAACA) competition. The LRAACA will replace Lockheed's P-3C *Orion* land-based antisubmarine warfare aircraft.

WEATHER FRONT

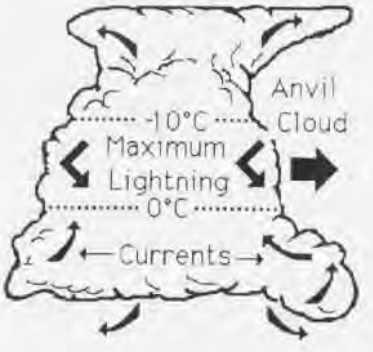
Lightning

It has been computed that worldwide there are as many as 1,800 thunderstorms at any one time producing up to 150 lightning strokes each second. There are 90 million cloud-to-earth lightning strikes a year in the U.S. alone. Typically, lightning begins to flash at a rate of once or twice per minute increasing to about five flashes per minute.

The greatest number of lightning incidents occur during the summer months, but they can occur in any season. On March 26, 1987, for example, a $78 million NASA Atlas Centaur rocket and its $83 million communication satellite were destroyed shortly after launch when hit by four strikes coming from a single flash.

region of highest lightning activity occurs in the area where the temperature is between the freezing level and minus 10 degrees Celsius.

It appears that aircraft are most susceptible to lightning strikes when flying below 12,000 feet. Prolonged operations beneath that level in areas of electrical activity should be, if possible, held to a minimum.



Lightning can be found at all levels in a thunderstorm cloud, with cloud-to-cloud lightning the most commonly observed. The

PROFESSIONAL READING

By Commander Peter Mersky, USNR-R

Francillon, Rene and Edward Heinemann. *Douglas A-3 Skywarrior*. Aerofax, Inc., Arlington, TX. 1987. 136 pp. Illustrated. $19.95.

This is a fine book with appeal on several levels. It is the first in-depth treatment of the ubiquitous A-3 *Skywarrior* whose career will rank as among the longest of any military aircraft. The author is well-known for other books and, of course, Ed Heinemann, the designer of the A-3, enjoys the highest reputation among living aircraft designers.

This latest of Aerofax's highly detailed series covers every aspect of the A-3's service, from earliest bomber operations to its ultimate roles as ELINT platform and airborne tanker, the role for which it will probably be best remembered by many grateful flight crews staggering back to their ship with battle damage.

There are details of all the variants of the A-3, and drawings from various NATOPS manuals and engineering drawings which will be valuable to modelers. There is a fine set of scale drawings, side elevations and marking layouts on gatefold pages, and a list of the careers of every one of the nearly 300 A-3s produced which, along with the many photos of the "Whale," complete this valuable look at an equally valuable naval aircraft.

Heatley, C. J., III. *Forged in Steel: U.S. Marine Corps Aviation*. Howell Press, Charlottesville, VA 22901. 1987. 207 pp. $37.

With an introduction by Senator John Glenn, one of today's most distinguished and well-known Marine Aviators, this book is a fitting companion to Heatley's earlier effort, *The Cutting Edge*, also published by Howell. While largely a color photography treatise, this volume also includes a short history of Marine Aviation which places the modern photography in its proper perspective.

The color photos are impressive. Heatley loves low sun angles which give a dramatic staging for his subjects. (A few of the F/A-18 photos are of Navy aircraft from VFA-25.) The reader and casual browser will not be disappointed by this photo essay on today's Marine Corps Aviation.

Uhlig, Frank, Jr., ed. *Vietnam: The Naval Story*. U.S. Naval Institute, Annapolis, MD 21402. 1987. 496 pp. Illustrated. $28.95.

The steady flood of Vietnam books continues. However, this volume contains a lot of basic source information, especially on the riverine war in the South Vietnamese delta. The Marine amphibious operations, particularly *Jackstay*, are treated in depth for the first time. U.S. Coast Guard involvement in the interdictive *Market Time* is also described. Naval and Marine Aviation are covered in the chapters "Task Force 77 in Action Off Vietnam" and "Marine Aviation in Vietnam 1962-1970," both written by the principal flag officers commanding the respective components at the time.

Unfortunately, the book's chronology ends at 1970. But the book is of sufficient historical and operational value to warrant its purchase by those with an interest in the events of the war from 1960-1970.

Guenther, Ben, Jay Miller and Terry Panopalis. *North American X-15/X-15A-2*. Aerofax, Inc., Arlington, TX 76012. 1986. 64 pp. Illustrated. $9.95.

The latest volume in the highly-detailed series of Aerofax monographs, this softcover book traces the career of one of America's most successful X-planes, the stub-winged rocket plane designated the X-15. First rolled out in October 1958, the X-15s flew until 1968, covering a wide range of research areas which paved the way for many aircraft of the 1980s.

The photos, color and black and white, are worth the price of the book, as are the various drawings showing the progression of the original design, and the X-15 itself. The plane is fully detailed, inside and out — including control systems, power plants, instruments and ejection seats, and even the original black paint scheme which eventually gave way to the all-white coloring late in the X-15's career.

This is a fine effort in historical reporting and, if you have an interest in America's experimental aircraft, this book is an important addition to your library.

Hardy, Michael J. *Sea, Sky and Stars: An Illustrated History of Grumman Aircraft*. Arms and Armour Press, Ltd. 1987. 160 pp. $24.95.

This is not the first book on the history of Grumman but, as a quick reference, it has value. It is a reasonable account of one of the giants of the aviation industry.

Though the author obviously had help from Grumman's prodigious photo files, the result might have been greatly aided by the inclusion of more photos showing fleet aircraft, rather than company planes in national markings. Some photos, if not new, are rare, such as the shot of a *Goblin*, the British name for a Canadian-assembled version of the FF-1 biplane fighter of the 1930s, and a view of a *Goose* experimentally fitted with Edo hydrofoils in 1963.

Historical Trivia

One event in aerial-refueling history was accomplished by two civilians, but the flight originated from Key Field, Meridian, Miss., present home of the busy naval air station.

Al and Fred Key departed in their Curtiss *Robin* monoplane – dubbed "Ole Miss" – at 1232 on June 4, 1935. The flight was completed at 1806 on July 1 after nearly one month in the air. Support was provided by another Curtiss *Robin* during 113 flights and 484 midair transfers. With the exception of space flight, this accomplishment stands as the longest sustained aircraft flight.

In order to service the Wright Whirlwind engine, a metal scaffold was constructed around the front of the fuselage so that Fred Key was able to physically service and lubricate the engine. On top of the aircraft, behind the trailing edge of the wing, was a door which was opened to allow the refueling hose to be lowered internally for the transfer of over 6,000 gallons of gasoline.

The historic flight of 653 hours and 34 minutes presented several obstacles for the Keys and their support crew. During one incident, Fred suffered a near-fatal accident. As he stepped out on the scaffolding and attempted to buckle his safety belt, a sudden gust broke his hands from the railing and sent his restraining harness airborne. The only thing that saved him from a 3,000-foot freefall was the fact that his own strength kept his feet secure on the scaffold struts.

Battle of Coral Sea

We want to contact anyone who would like to join our project of restoring a TBD as a memorial to the Battle of the Coral Sea. Parties interested in raising funds, locating and/or restoring an aircraft, please contact: The Coral Sea Association, P.O. Box 1039-B, Rockville, MD 20850, (301) 762-7490.

Kudo

The January-February 1988 issue of *NANews* just arrived, *after* I received the first response to the notice you ran in "Flight Bag" for me regarding a WW II PBY "Dumbo" rescue of a B-25 crew! Bob Cressman, Ships' History Branch, Naval Historical Center, who obviously receives the magazine on an expedited delivery schedule, called to tell me that he identified the PBY plane commander as Milton R. Cheverton, who retired as a Navy captain in 1959. We hope to locate him and put him in touch with the B-25 plane commander.

This is certainly a fine endorsement of the excellent results to be obtained through an advertisement in *NANews*! I trust that we will be as successful with the VP-72 and VC-5 reunion notices which also appeared in that issue.

I know that I speak for my associates also when I thank you for such prompt and productive action on our request.

Capt. W. E. Scarborough, USN(Ret.)
45 N. Port Royal Dr.
Hilton Head Island, SC 29928

Fred Key services the engine of "Ole Miss" during the record-breaking sustained flight in 1935.

Corrections to NANews, January-February 1988:

Page 29 – In "Rescues," VP-31 is homeported at NAS Moffett Field, CA, vice NAS Cecil Field, FL.

Page 32 – In the name of Rene J. Francillon, author of Japanese Aircraft of the Pacific War, the "r" was inadvertently omitted.

U.S. Naval Aircraft Designations poster – The C-1A Trader carrier on-board delivery transport should have been listed under "CARGO TRANSPORT."

Battle of Midway Symposium

The Naval Aviation Museum Foundation and the U.S. Naval Institute will jointly host a symposium in Pensacola, FL. Six new members of the Hall of Honor will be enshrined on May 5 at the Naval Aviation Museum. They are Capt. Washington I. Chambers, USN (deceased); Dr. Jerome C. Hunsaker (deceased); Gen. Keith B. McCutcheon, USMC (deceased); Capt. David McCampbell, USN(Ret.); Adm. Thomas H. Moorer, USN(Ret.); and Adm. Alfred M. Pride, USN(Ret.).

On May 6, retired U.S. Navy and Japanese personnel will panel the discussion, "Battle of Midway and Its Implications," at the Civic Center. The afternoon session will feature updates on Persian Gulf operations by a panel of active duty flag officers, with VAdm. R. F. Dunn, ACNO (Air Warfare), as moderator.

For more details, call the Foundation at (904) 453-2389 or (800) 327-5002.

Reunions, Conferences, etc.

Navy Helicopter Assoc. symposium, March 23-26, Town & Country Convention Center, San Diego, CA. Contact Naval Helicopter Association, P.O. Box 460 Coronado, CA 92118.

VP-69 reunion, April 30, Seattle, WA. Contact AVCM Joe N. Beam, 610 Robbi Robbins Rd., Nordland, WA 98358, (206) 385-3712 (evenings), or LCdr. Christianson (206) 939-7396.

USS Long Island (CVE-1) reunion, May 20-22, Chicago, IL. Contact Haydn G. Rees, Box 161 Ogden Dunes, Portage, IN 46368, (219) 762-3582.

American Helicopter Society 44th Annual Forum & Technology Display, June 16-18, Washington, DC. Contact Mark Paris, American Helicopter Society, 217 N. Washington St., Alexandria, VA 22314, (703) 684-6777.

1988 Blue Angels Schedule

March	
19	NAF El Centro, CA
26-27	Luke AFB, AZ
April	
2	Lafayette, LA
9-10	NAS Cecil Field, FL
16	NWC China Lake, CA
17	NAS Lemoore, CA
23-24	MCAS El Toro, CA
30	MacDill AFB, FL
May	
1	MacDill AFB, FL
5	NAS Kingsville, TX
7-8	NAS Corpus Christi, TX
14-15	Charleston AFB, SC
20-21	Andrews AFB, MD
23	Naval Academy, MD
28-29	Newport, RI
June	
4-5	Westfield, MA
11-12	Portland, OR
18-19	Scott AFB, IL
25-26	Grand Forks AFB, ND
July	
2-4	Traverse City, MI
9-10	Billings, MT
16	Pensacola Beach, FL
23-24	Eau Claire, WI
30-31	Bergstrom AFB, TX
August	
6-7	Seattle, WA
9-10	NAS Whidbey Island, WA
13-14	Abbotsford, Canada
20-21	NAS Miramar, CA
27-28	Springfield, IL
September	
3-5	Cleveland, OH
10-11	Boise, ID
17-18	NAS Oceana, VA
24-25	Denver, CO (Front Range)
October	
1-2	Houston, TX
8-9	NAS Point Mugu, CA
12	NAS Fallon, NV
15	Reese AFB, TX
22-23	Harrisburg, PA
29-30	Nashville, TN
November	
2	NAS Key West, FL
5-6	Opa Locka, FL
12	NAS Pensacola, FL

NAVAL AVIATION NEWS