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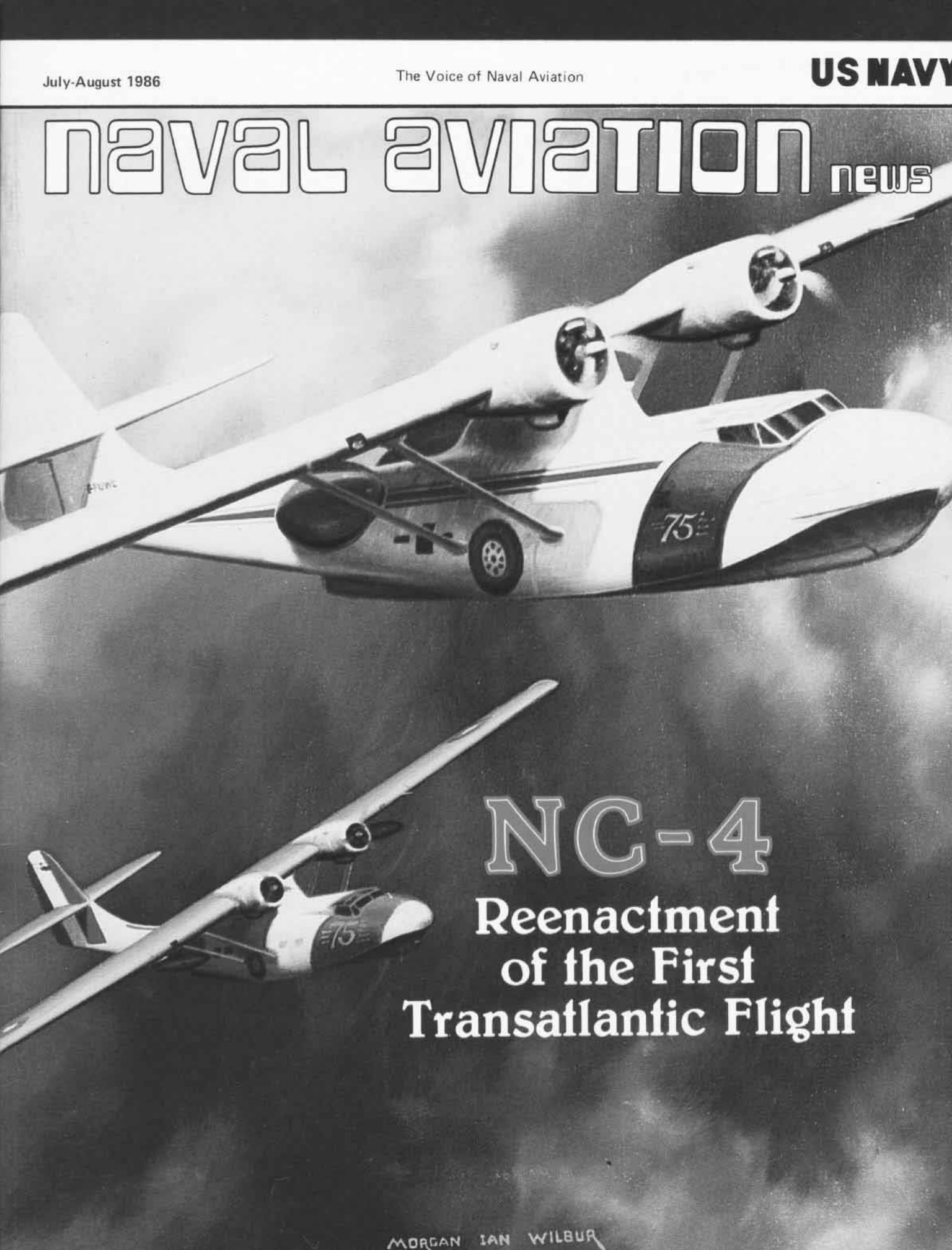

NC-4

Reenactment of the First Transatlantic Flight

naval aviation news

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FRONT COVER — The two PBYs that recently reenacted the first transatlantic flight, made by the Navy's NC-4 in 1919, are depicted by artist Morgan Wilbur, a naval reservist with VP-68.

BACK COVER — On behalf of friends of Naval Aviation, VAdm. Martin presents Bob Hope with a golf bag in honor of the entertainer's 83rd birthday during "Magic Week."

Features

Departments

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In May 1919, six men (five Navy and one Coast Guard) made the world's first successful transatlantic flight aboard the NC-4 flying boat. This year, crews aboard two WW-II vintage PBYs retraced this American triumph to help celebrate the 75th Anniversary of Naval Aviation. Read "Flight Into History," **page 4.**

Four years ago, Adm. James D. Watkins wanted to achieve three major goals while Chief of Naval Operations. He wanted to make the Navy more modern, ready and sustainable. It was an ambitious plan. But, Adm. Watkins achieved all three goals. **Page 10.**

In March, crews aboard three Libyan combatants thought they could launch their surface-to-surface missiles at the U.S. Sixth Fleet and escape under the cover of darkness. But they underestimated the capabilities of Naval aircrews, the FLIR-equipped A-6 *Intruder* and the proven *Harpoon* missile. **Page 12**

Striking a terrorist leader in Tripoli is nothing new to the U.S. Navy. Thomas Jefferson directed the Navy to attack a tyrant comparable to Colonel Qaddafi in the early 1800s. The use of force worked then, and it seemed to work well in April when Naval aircrews pounded terrorist-related targets in Libya. **Page 15.**

No citizen will ever receive higher honor than to be buried in one of America's national cemeteries. Read how BGen. Warren Sweetser received this honor, and how you, the veteran, are eligible for such distinction. **Pages 18 and 19.**

The Amphibious Warfare School in Quantico, Va., teaches Marine Corps officers how to plan and execute amphibious operations. AWS offers a challenging curriculum that fine tunes a student's decision-making capability so he is more adept at making judgments in combat. **Page 30.**

from the EDITOR'S NOTEBOOK "Magic Week"

Touted as the "cradle of Naval Aviation," NAS Pensacola was the site of the Navy's official week-long 75th birthday celebration May 3-11. It was celebrated on a grand scale and in fitting style. A class act from start to finish.

Captain Brad Butcher and Commander Chuck Porter, NAS Pensacola's commanding and administrative officers respectfully, Mrs. Edith Carter, the Deputy 75th Anniversary Project Officer, and their staffs, skillfully folded 75 years of Naval Aviation heritage, excitement and festivities into what they appropriately called "Magic Week" to the delight of thousands of visitors.

The week included reunions, sporting events, water landings by PBY *Catalina* flying boats, air station and ship tours, open house at surrounding training bases, air shows, the Association of Naval Aviation (ANA) convention, a gala stage show featuring top celebrities, and a lot of local television and radio coverage. The celebration offered seemingly limitless opportunities to enjoy and learn something about Naval Aviation's past and present.

Throughout the week, the USS *Lexington* (AVT-16) was the stage and backdrop for the taping of Bob Hope's 83rd birthday special which was televised May 26.

The week's first major event occurred May 3 when a WW II-vintage PBY dazzled onlookers with several "splash and dashes" on Pensacola Bay. Mr. Connie Edwards, owner of the PBY, stopped at Pensacola en route to Rockaway, N.Y., where he began the reenactment flight of the first aerial crossing of the Atlantic made by the NC-4 flying boat in 1919 (see "A Flight Into History," page 4). Edwards', whose PBY is painted in the original NC-4 colors, made the reenactment journey along with a PBY owned by Mr. Robert Franks. Franks' white aircraft was emblazoned with the words "Spirit of U.S. Naval Aviation." Both PBYs sported the 75th Anniversary of Naval Aviation logo, which was designed by *NANews'* art director Charles C. Cooney.

On May 4, the night before they departed Pensacola, the crews of both PBYs were honored at a reception hosted by Vice Admiral Edward Martin, DCNO (Air Warfare) at the Naval Aviation Museum.

Photo courtesy of NAS Pensacola Public Affairs Office

Bob Hope, Honorary Naval Aviator No. 17, is winged by his wife, Dolores, during ceremonies at the Pensacola Civic Center on May 8. Looking on are VAdm. Edward H. Martin, DCNO (Air Warfare), left, and SecNav John F. Lehman.

With the arrival of the Bob Hope cast and crew on May 5, *Lexington's* personnel experienced a week of rehearsals and taping sessions. Local news media buzzed with chance sightings of the show's cast of world-class stars which included Elizabeth Taylor, "Miami Vice's" Don Johnson, Barbara Mandrel, Jonathan Winters, Brooke Shields, Mac Davis, Sammy Davis Jr., Phylicia Rashad of the "Bill Cosby Show" and Bob Hope's wife Dolores.

A favorite stop for many of the celebrities was Trader Jon's, a downtown watering hole that has catered to Pensacola's Naval Aviation community since the early 1940s. Trader's is a cross between a family album of people snapshots and pictures, and a flea market of outrageous artifacts and flags all with one theme in common — Naval Aviation.

Meanwhile, the ANA in conjunction with several other smaller naval aviation special interest groups, held its annual convention at the new Pensacola Hilton Hotel and Civic Center.

On May 7, near NAS Pensacola's Survival Museum, a fish fry was sponsored by the community of Pensacola. Later that evening, the U.S. Marine Corps Drum and Bugle Corps and Silent Drill Team performed at the parade grounds.

The busiest 24-hour period was May 8, Naval Aviation's official birthday. The day kicked-off with the launching of a 1950s-vintage Navy helium-filled balloon from the lawn of the U.S. Navy Photographic School. Piloted by Lieutenant Bill Armstrong, USNR, it took off at approximately 1100 and landed two hours later in the back yard of a Pensacola resident near Saufley Field.

In the early afternoon distinguished guests and visitors gathered at the Naval Aviation Museum for the Hall of Honor enshrinement ceremony. Those honored this year were Major General Marion E. Carl, USMC; Fleet Admiral William F. Halsey, USN; Mr. Edward H. Heinemann;

(Cont'd on page 40)

Grampaw Pettibone

And How Was Your Day?

This one happened to our brothers in that other shade of blue. It could happen to you.

A USAF RF-4C was straight and level on a low attitude reconnaissance mission in southeast CONUS when the *Phantom II* pitched and yawed abruptly. The pilot depressed the emergency quick release lever and the motions stopped.

The weapon system operator (WSO), same as our RIO, saw fire and smoke emanating from a circuit breaker panel. The crew went to 100-percent oxygen and the pilot secured both generators while climbing to VMC conditions between cloud layers.

The WSO successfully battled flames in the rear cockpit while the pilot extended the ram air turbine (RAT). However, all electrical power, including battery and RAT, was lost. So, among other items, the crew had no navigational instruments, no attitude reference system, no fuel monitoring, no fuel transfer, no radios, no transponder and no external fuel tank jettison. They communicated by written notes and hand signals.

Circling in a clear chamber of airspace, the crew completed an emergency checklist but, when the pilot turned the generators back on, the WSO rapidly signaled that the fire had restarted. Generators were turned off.

The WSO was uninjured but was uncertain if he could eject safely. The *Phantom II* orbited for an hour as the crew worked without success on circuit breakers to restore some power. The RF-4C was still confined to a hole of clear space surrounded by clouds.

Concerned about the operability of the WSO's ejection seat, the pilot decided to land the jet on a 4,000-foot civilian strip spotted earlier.

On a precautionary low pass, the crew noted trees closely lining both sides of the runway, a steep cliff at the approach end and a severe drop-off at the departure end. The pilot elected a gear-up, no-flap landing, figuring he had no way of ensuring the gear were down and locked, due to inoperable position indicators and no chase aircraft to check them visually. Also, if the gear were lowered pneumatically, antiskid and nose gear steering features were lost. Plus, the runway was too short for the *Phantom II*. The crew recalled a recent successful gear-up landing during which the jet sustained minor damage.

The pilot made his approach and touched down 300 feet from the approach end. The RF-4C slid nearly 3,000 feet before coming to a halt.

Although fire erupted from spilled, trapped fuel in the centerline tank, it burned out shortly. The crew climbed out safely. The WSO suffered a mild muscle strain which resulted in one lost workday.

Electrical arcing in a cannon plug probably caused the fire. A wire bundle was burned through. The aircraft sustained structural damage to the left wing, control surfaces, and forward fuselage and canopies.

Grampaw Pettibone says:

It rains. It pours. These unlucky gents ran into a buzz saw of bad happenins one right after t'other. Goes to show how a flyer's day can turn into creepy crawlers — worms — in a hurry. Happily, the crew got the beast down and walked away from it in fair shape. What happened to them simply doesn't happen much in these modern days. But the incident got Gramps to thinkin'.

'Member the left-hand triangle, lost comm procedure if you got lost in the glue and couldn't tell anybody? And the navaids didn't work? Radar readers would, presumably, see the triangle on the scope and vector help to lead you down.

Turns out the Flight Information Handbook (FIH), which augments the En route Supplement, lists the procedure in the NATO/ICAO (International Civil Aeronautical Organization) section: The triangle should consist of two-minute legs at 300 knots or less, one minute if faster; right-hand if the receiver's OK, left-hand if it isn't; make two triangles, then proceed on course for 20 minutes before flying the pattern again. But the FAA section of the FIH doesn't address the "triangle." Experienced Navy ATC types tell me only half of our controllers nowadays are aware of the triangle procedure, so don't count on it. But if you get stuck like these guys, it wouldn't hurt to give the procedure a try.

Lights and Limitations

An SH-2F pilot was flying night deck landing qualifications and experienced difficulty in pressure-fueling. The ship was about 15 miles from land. Rather than shut the *Seasprite* down so that the crew could gravity-fuel the machine, he quickly loaded his practicing pilots and launched even though the fuel "low level" light, indicating less than 300 pounds, was illuminated. The copilot did not question the senior pilot who, in fact, was to become the commanding officer.

En route to the refueling station ashore, the aircrewmen and passengers

ILLUSTRATED BY Osborn

instinctively tightened lap belts and prepared to ditch. The pilot neither declared his low fuel condition to the tower nor did he request an entry into the pattern that would place the aircraft expeditiously over land. Instead, he accepted an overwater approach to the field, which required a sharp banking maneuver to execute. The fuel totalizer now indicated 100 pounds. The *Seasprite* landed safely.

Grampaw Pettibone says:

Another blood boiler! I bet the subordinates of this sortie breathed one horrendous sigh of relief when the SH-2F touched down on mother earth.

There's absolutely no mission in peacetime that calls for this brand of disregard for safety. NATOPS says that, in the Seasprite, 30 pounds of gas is unusable. It can't be drawn out by the fuel pumps. It's common knowledge in the community that the SH-2F's totalizer can easily be 100 pounds off. And you ain't supposed to make steep turns when you're as low on go-juice as this group was.

Any wonder that a number of people in this command requested not to be scheduled with the pilot of this nail-biter?

When it comes to fuel warning lights, don't push it, ladies and gents. You might end up pushing somethin' else, like flowers, from under the you-know-what.

Fumin' over Fumes

While examining cargo on a C-9B *Skytrain,* an inspector discovered: an engine-driven air compressor gas tank that had not been purged; a metal parts barrel sans lid containing hydraulic lines and a pool of about one pint of hydraulic fluid; and a stainless steel canister filled with liquid chloride poison packed in a cardboard box and not listed as hazardous cargo. Fortunately, takeoff was delayed until discrepancies were corrected.

Grampaw Pettibone says:

Dang blast it! I'm fast losin' patience with this hazardous cargo situation. This report is one more for the stack on my desk and that stack's gettin' higher and higher.

A junior, inexperienced crew loaded up this Skytrain. They needed proper supervision and didn't get it. An unpurged gas tank alone is a catastrophe waitin' to happen. These folks added a pool of hydraulic fluid for good measure. Toss a match in there and. . . .

I'm having nightmares lately picturin' a sleek and beautiful transport burstin' to shreds at altitude!

Everybody: Know what hazardous cargo is, pack it up right and imagine that you yourself are gonna be ridin' in the aircraft!

Flight Into History

Story and Photos By JOCS Kirby Harrison

(Left to right) VAdm. Edward Martin, DCNO (Air Warfare), and Mr. and Mrs. Connie Edwards share a laugh after christening one of the PBYs reenacting the first transatlantic flight at NAS Pensacola, Fla.

Take any 100 people off the street and ask them, "Who was the first man to fly the Atlantic?" Most will answer Charles Lindbergh. And they will be wrong.

Lindbergh was the first to fly "the pond" solo, non-stop, but at least 90 men flew the Atlantic before Lindbergh's dramatic 1927 crossing, and the first across was a U.S. Navy NC-4 flying boat with a crew of six.

On May 8 this year, two WW II vintage PBY flying boats left Rockaway, N.Y., on the first leg of a 4,000 mile flight reenacting that first transatlantic flight.

The two-plane reenactment began almost a year ago when Wilson "Connie" Edwards, from Big Spring, Texas, found himself intrigued by the story of the first transatlantic flight and by plans to recreate that flight as a privately-funded event to celebrate the 75th Anniversary of U.S. Naval Aviation.

By April, Edwards had prepared his restored PBY-5 *Catalina* flying boat for flight and she was unveiled in the same colors as the original NC-4. The bright yellow, 104-foot expanse of wings contrasted sharply with the gray hull and fuselage. On her nose was the 75th Anniversary of Naval Aviation emblem, and her red, white and blue tail bore the silhouette of the original NC-4.

Despite modern navigation and communication gear, flying the Atlantic is still no small thing. Although some 7,000 jetliners cross the Atlantic each month, this is little consolation for a pilot planning to fly 1,200 miles across an open ocean in a twin-engine, propeller-driven PBY.

When Robert Franks of Los Angeles, Calif., said he would like to accompany Edwards in a PBY of his own, the offer was quickly accepted.

A former Navy photographer's mate, Franks was no less enthusiastic than Edwards about recreating the 1919 flight. When he arrived at the rendevous point at Edwards' ranch in Big Spring, his plane also had new colors. The overall white was broken by red and blue stripes. The bow of the flying boat carried the 75th Anniversary of Naval Aviation emblem and name *Spirit of U.S. Naval Aviation*.

The aircraft were quickly nicknamed the *NC-4* and the *Spirit* and it seemed appropriate to use those names as radio call signs.

A Salute in Pensacola Bay

At NAS Pensacola, Fla., a sign at the gate informs the visitor that this is the home of Naval Aviation. It is the stepping off point for thousands of men and women whose aim is to *fly Navy*.

On the afternoon of May 3, hundreds of people lined the seawall overlooking Pensacola Bay. They watched as Edwards' PBY circled twice and turned into the wind to land. Less than 100 yards from the seawall, he brought the *NC-4* down in a spray of white water.

Edwards turned and circled for the crowd at the water's edge, then taxied down the bay to take off. Not since the Navy T-28 *Trojan* trainers disappeared from Pensacola had the rumble of big radial engines echoed across the air station.

The rumble changed to a roar as the *Catalina* shouldered aside the water to get on the step where she could skim across the surface and gain speed. At 70 knots the NC-4 broke free.

Gaining altitude, Edwards banked over the aircraft carrier *Lexington* and dipped his wings in salute to the Naval Aviators whose first arrested landing occurred aboard her.

Christening the NC-4 Edwards Makes a Splash

NAS Pensacola is the home of the Naval Aviation Museum. Across from the main entrance, near the rear of the main exhibition room is the star attraction of the reception held at the museum May 4 for the crews of the two PBYs. The original NC-4.

Edwards and Franks marveled at the sparsely furnished aircraft with its hard, leather-covered seats and instrument panel that would make the cheapest automobile on the road today seem better equipped to fly.

Franks was blunt in his admiration of the men who flew her across an ocean. "There is no comparison between what we are doing in reenacting their flight and what they did. This reenactment is the very least we can do to pay tribute to their courage."

With Franks was a small elderly woman who recalls the transatlantic flight very, very well. Bess Read's late husband, Lieutenant Commander Albert C. Read, commanded the NC-4.

More than 150 guests watched as she swung a bottle of champagne against the nose of the original NC-4 to christen the reenactment flight. Twice she banged the bottle against the bow and twice the bottle failed to break. Finally, Edwards leaned forward, and asked if he might help. With his hand wrapped around hers, Edwards swung hard. With a resounding smack, the bottle broke and champagne sprayed in a wide arc over airplane and guests alike, to the obvious amusement of Mrs. Read. Edwards later recalled with some chagrin. "Danged if I didn't christen the NC-4 and Mrs. Read at the same time."

Connie Edwards' PBY passes over the Statue of Liberty shortly after leaving Rockaway, N.Y., on the first leg of the reenactment flight.

A Race to be First

There is no longer an air field at the site in Rockaway, N.Y., where preparations were made for the original transatlantic flight. What was once a bustling air station is now a small waterfront park and parking lot.

It must have been very different in 1919 when the NCs 1, 3 and 4, under Commander John Towers, were being prepared for the flight. The rush to be the first to fly the Atlantic was gathering speed.

In St. John's, Newfoundland, the British were already preparing an attempt to cross the Atlantic in a two-man biplane, and a young lieutenant named Richard Byrd was convinced his blimp could do what heavier-than-air craft might not.

The race was on, and the U.S. entry nearly lost at the starting gate. Three days before the departure, a hangar fire had nearly destroyed the NCs 1 and 4. Only frantic efforts by firefighters saved the flying boats. Parts of the aircraft had been burned, but were quickly replaced by parts cannibalized from the NC-2.

The day before the departure, flight engineer Chief Special Mechanic E. Harry Howard lost his left hand when he inadvertantly thrust it into a turning propeller. According to historians, Howard walked to a nearby hospital, returned shortly after receiving treatment, and asked to continued on with the flight. Towers, regretfully, denied his request.

A Marker from the Past

It was a cool, gray day when Tower's three-plane flight took to the air from Rockaway, N.Y.. A chilly wind promised colder weather to come.

Edwards' *NC-4* and Franks' *Spirit* rolled down the ramp at Floyd Bennett Field, just across the bay from Rockaway, under blue sky and warm sun.

Unlike the original flight, the *NC-4* and *Spirit* were scheduled for a five-day stop at NAS South Weymouth, Mass., for maintenance. From there, the PBY crews planned a whirlwind tour of Cape Cod, including a stop at Chatham, where the NC-4 had stopped in 1919 with engine trouble.

The entire naval air station turned out in dress whites to meet the two aircraft. Bands along the way had learned the "NC-4 March," written in 1919 in honor of the first transatlantic crossing. And, at Chatham, Martha's Vineyard, Nantucket and Hyannisport, crowds gathered to view the PBYs and their WW II vintage P-51 *Mustang* escorts.

In Chatham, *Spirit* pilots Ray Bernard and Louis Petersen spent most of an afternoon looking for a small bronze plaque set in concrete in 1919, commemorating the flight. They found it at the end of a dead end road, looking out over the bay where Read had entered to have his aircraft repaired.

Set into a granite stone, it reads in part, "Here the Navy seaplane NC-4 put in for repairs after leaving Rockaway, Long Island, with two other NC's. After departing from Chatham with a crew of five on 14 May 1919, it came down at Halifax, Nova Scotia, caught up with the other planes at Trepassey, Newfoundland, reached the Azores on 17 May, Lisbon on 27 May and Plymouth, England on 31 May. The NC-4 was the only plane to complete this first historic crossing of the Atlantic by air."

There is no longer any sign of the air station, but the marker remains, a tribute from the Chatham Historical Society.

George Goodspeed remembers when the marker was placed, and much more. Sixty-seven years ago, Goodspeed was a mechanic on the NC-4.

On May 10, the frail, 88-year-old Goodspeed was driven to the Chatham airport to see the *Spirit*. In failing health and unable to leave the car, Goodspeed smiled as *Spirit* pilot Louis Petersen presented him a plaque bearing a wrench once used in making repairs to the original NC-4.

His Worship John Murphy, mayor of St. John's, and Robert Franks hold the flag of each other's country shortly after the PBYs arrived in Newfoundland.

Splash'n Dash In Trepassey Bay

The spring weather along the southeastern Atlantic coast of Canada is notorious as it is consistent as political promises.

The aviator who goes to bed under a clear sky, may wake up in a fog so thick it clings like a wet blanket. It was the kind of weather Read and the NC-4 had encountered.

Edwards, Franks and the crews of the *NC-4* and *Spirit* flew northeast to Halifax, N.S., in weather similar to a cool day in southern California. Within minutes of one another, the two PBYs landed and were tied to buoys less than 100 yards from the city hall at Halifax.

The layover in nearby Dartmouth was one night, and the next morning both *Catalinas* headed northeast.

Across the Gulf of St. Lawrence from Nova Scotia is Newfoundland. On a rocky peninsula looking out upon the North Atlantic is St. John's. On the other side of the peninsula, to the southwest, is Trepassey Bay. It was from this windy bay that the NCs 1, 3 and 4 took off.

As the two PBYs approached Trepassey, Edwards banked over the small fishing town that sprawls across the eastern shore.Edwards decided to go ahead with a scheduled landing in the bay for the townspeople.

What he and his copilot, Rear Admiral Howard Thorsen, USCG, had hoped would be a graceful landing turned into a "splash and dash." Emphasis on the "dash." The calm surface of the bay gave no indication of the winds that whipped over the steep hills on both sides of the bay and blew across the water in gusts and swirls. "Willy waas," Edwards called them later.

"We hadn't even touched the water and I knew we weren't going to land," said Edwards.

Seconds after the water spattered across the hull, Thorsen opened the throttles and the plane was back in the air. Edwards watched as the airspeed and altimeter readings crept slowly upward, and he watched the rocky hillsides on either side closing in.

He nodded to Al Brown, engineer and chief mechanic, who changed the prop control and gave both engines all the power available. With the sound of 2,900 horses resounding across the bay, the PBY cleared the hillsides and banked into clear sky.

Edwards would later tell His Worship John Murphy, the Mayor of St. John's, "Now I know why nobody's tried to land a flying boat in Trepassey Bay in 67 years."

It is difficult to determine whether anyone has landed a flying boat on Trepassey Bay since the original NC-4 and her sisters managed it in 1919. But Edwards will testify, in no uncertain terms, as to the foolhardiness of such a venture.

A student in Ponta Delgada, in the Azores, shows off her artistic impression of a PBY for pilot Randy Sohns.

Robert Franks' "Spirit of U.S. Naval Aviation" passes by the Cape Cod lighthouse during the reenactment flight.

En route to the Azores

Across the eastern sky, a blue glow announced the arrival of morning in Newfoundland. The small Canadian airfield at St. John's still lay in darkness. In the glare of floodlights, the *NC-4* and *Spirit* seemed strangely out of place among the modern commuter jets on the parking apron.

It was barely 0400 on May 16 when the crews of the two PBYs arrived, stretching in the early morning chill. The NC-4 carried a crew of six: Connie Edwards, flight commander and owner/pilot; Randy Sohn, copilot; Rear Admiral Howard Thorsen, copilot (from St. John's to Horta); Captain Art Ward, USNR(Ret.), copilot/navigator; Rear Admiral Sigmund Bajak, USNR(Ret.), copilot/documentary coordinator; Al Brown, engineer and chief mechanic; and three passengers.

The *Spirit* carried a crew of four: Robert Franks, owner/pilot; Ray Bernard, pilot; Louis Petersen, retired chief petty officer, pilot; and Doris Bindernagel, crew.

A few early risers watched as the two PBYs rolled out to the end of the runway to begin the longest leg of the reenactment, 1,200 miles of open ocean to the Azores island of Faial.

At 0515 the *NC-4* pointed her nose to the sky and left the ground. Minutes later the *Spirit* followed. As the *NC-4* gained altitude, the sun came up with her, a golden glow across the arc of the horizon. Down on the water, a mile off the coast, a low bank of fog stretched as far as the eye could see. As the *NC-4* banked, the *Spirit* came into view out of the port bubble canopy. Gleaming white against the dark headlands and darker sea, she seemed to float through the sky 1,000 feet below.

The sun did little to drive out the cold. There was laughter as flight suits came off and crewmen hastily donned warmer underwear.

Read and the men who flew the NC-4 67-years ago probably would have found this amusing. After all, they didn't have any heat aboard their aircraft. Worse, the NC-4's open cockpit provided a continuous draft. To combat the cold, they wore a regular winter uniform and heavy underwear underneath their leather coveralls. Some wore several sets of heavy underwear.

Edwards' and Franks' PBYs carried the latest in navigation equipment, and the communications gear was sophisticated enough to allow phone patches to anywhere in the United States via shore radio hookups. The NC-4, on the other hand, carried a short-range radio and a telegraph. When it worked, and if the NC-4 crew was lucky, the telegraph could transmit and receive information up to 200 miles.

There were no parachutes on the NC-4, but the flight engineer was still expected to perform engine repairs and maintenance while the flying boat was airborne. The NC designers had thoughtfully provided linemen's belts to prevent flight engineers from being swept off while climbing on the wings.

When Al Brown, flight engineer aboard Edwards' PBY, heard about this he just shook his head.

Edwards and Franks began the flight from St. John's at the same altitude as the NC-4, 3,000 feet. As weather information began to come in, they decided to climb to 5,000 feet and pick up a 30-knot tailwind. "It's enough to reenact the route of the flight," said one crewman, noting the fuel-saving advantage of a tailwind. "No sense making it as risky, though. If they had found a tailwind, you can bet your [life] Read would have used it."

An Escort to the Azores

Two-hundred miles from the Azores, disoriented and encountering heavy fog, the NCs 1 and 3 had landed on the water. Unable to takeoff again in heavy seas, the NC-1 sank while in tow by a passing freighter and the NC-3 was sailed into the Azores too damaged to fly again.

Two-hundred miles from the Azores, in clear skies, the two PBYs reenacting that flight were met by a U.S. Navy P-3C *Orion* from Patrol Squadron (VP) 23 flying out of NAF Lajes in the Azores. It seemed appropriate to be met by a modern patrol plane that is the direct descendant of the PBYs. In WW II, PBYs were the first aircraft to carry magnetic anomoly detection (MAD) gear to find submarines beneath the surface of the ocean. The MAD gear carried today by the *Orions* differs only in the degree of sophistication. The principle is the same.

The landing at Horta, on the island of Faial, brought out many of the island's people. Spectators lined the roof of the terminal building and the adjacent hillside as the crews of the *NC-4* and *Spirit* climbed out after more than nine hours in the air.

Escorted inside the terminal, Franks and his crewmember Doris were surprised by all the cheers.

"It was wonderful," Doris said. "I wouldn't have missed it for anything."

The reception at Horta offered a footnote to history. Years ago, more years than anyone seemed to recall, the sword belonging to NC-4 plane commander Read was presented to the U.S. Consul in the Azores. In a gesture of friendship marking the reenactment of Read's flight, Edwards and Franks presented the sword to His Excellency Senor Madruga da Costa "for the people of Portugal."

Connie Edwards' PBY flies by the USS Lexington at NAS Pensacola, Fla.

End of a Dream

Today it takes only two hours by plane to travel from Lisbon, Portugal, to Plymouth, England. For the crew of the original NC-4 in 1919, however, it was two days of difficult flying. With no automatic pilot and no hydraulic assist for the controls, the remainder of the flight from Lisbon to Plymouth was only slightly less difficult than crossing the Atlantic.

The harbor at Plymouth was overcast and rain splattered against the cockpit windows and bubble canopies as Edwards' PBY settled to the water. As she touched down, more than 5,000 spectators cheered. Hundreds of pleasure boats sounded their horns while dignitaries prepared for appropriate ceremonies at the same spot where the early settlers of the Plymouth Colony left England in the 16th Century.

A half-hour later the Franks' *Spirit* arrived and made her approach. To the horror of those watching, the PBY touched down, swerved to the right, caught her left wing float on a channel marker and spun to a stop in a wall of spray. The PBY sustained extensive, though repairable, damage.

One person received minor injuries from the accident and was treated and released at a nearby Royal Navy hospital within a couple hours.

Royal Marine boats were alongside the PBY within minutes, and helped the crew get out in case the *Spirit* sank.

A harbor craft towed the *Spirit* to a boat ramp where she could be hauled from the water. But, before the PBY reached the ramp it sank in about five feet of water.

When asked what he planned to do with the aircraft, Franks answered, "We're going to repair it and fly it out of here. The *Spirit* must live."

Franks, who was not on the flight deck during the landing, refused to speculate on the cause of the accident, or to assign blame to either of his pilots.

Reassured that no one else was injured, Franks found a lighter side to the unfortunate incident. "I knew it was supposed to be dangerous to travel to Europe this year," he said. "I didn't know it started the day you arrived."

The crew of the *Spirit* insisted that ceremonies scheduled for the arrival of the reenactment flight should go on as planned.

Edwards carried on, expressing appreciation on the part of his crew, the crew of the *Spirit*, the U.S. Navy and himself for the hospitality shown by the people of Plymouth. He noted, after all, "England is our oldest enemy, and by far our best friend."

Loss and Gain

It would be easy to let the *Spirit* accident overshadow the reenactment of the first flight across the Atlantic. But it should be remembered that during the original flight by the three NCs the NC-1 was lost.

"The loss of the NC-1 took nothing away from the triumph of the NC-4, and this unfortunate accident with my own aircraft takes nothing away from significance of the flight we made to commemorate the courage of the crews and importance of the first transatlantic flight."

Since completing the reenactment journey, Connie Edwards flew the *NC-4* back to the U.S. and plans to attend the fly-in at Hammondsport, N.Y., June 28, a date which marks the anniversary of the original flight of the Navy's first airplane. He also plans to appear at the rededication of the Statue of Liberty and International Naval Review on July 4, and will be at the world's largest fly-in at Oshkosh, Wis., in August.

Robert Franks' *Spirit* was pulled from the water the day after the accident. The PBY's avionics was removed and the plane's interior was flushed with fresh water. When the *Spirit* is flyable, she will be flown to Canada for further restoration and modification. ■

CNO Achieves

Navy is more modern, sustainable, and ready

Four years ago, Admiral James D. Watkins had three goals he wanted to achieve as the 22nd Chief of Naval Operations. He wanted to increase the Navy's readiness, sustainability, and modernization. When he was relieved June 30 by Admiral Carlisle A. H. Trost, Adm. Watkins could take pride in knowing all three goals had been achieved.

As far as combat readiness is concerned, the Navy has improved its surface fleet by 94-percent and aviation squadrons by more than 200-percent since the beginning of the decade. In 1980, for example, some Navy ships and squadrons weren't able to deploy on schedule because the fleet was only 91-percent manned. Today the fleet, which has increased by more than 65 ships, is 100-percent manned. In addition, the Navy personnel who populate ships and squadrons are more experienced, motivated, and better trained than they were four years ago, according to Adm. Watkins.

In 1982, for example, up to 60 civilian technicians were required to sail aboard aircraft carriers to repair sophisticated equipment. Not anymore. The number of civilian repair technicians is dwindling so rapidly that in FY 87 carriers are scheduled to deploy with only Navy technicians.

A key indicator of the proficiency of Naval Aviators and maintenance technicians is reflected in 1985's aircraft accident rate — which was next to the lowest in Naval Aviation history. For the second year in a row, Naval Aviation sustained less than four mishaps per 100,000 flight hours, and had the fewest number of its aircraft destroyed. This resulted in the saving of an untold number of lives and an estimated $234 million — enough to buy more than 10 F/A-18 *Hornets* or more than 200 *Harpoon* missiles.

Readiness has also been enhanced by the modernization of the Naval Air Reserve, which over the past six years has been steadily integrated into the active Navy's plans for fulfilling maritime strategy.

In the late 1970s, the reserves received mostly the aging aircraft that the active Navy phased out. Today, reserve Naval Aviators and maintenance personnel are flying and maintaining modern aircraft like the F/A-18 *Hornet*, F-14 *Tomcat*, A-6E *Intruder*, E-2C *Hawkeye*, S-3 *Viking* and SH-2F *Seasprite*.

Another contributor to the Navy's combat readiness is the decline in the desertion and unauthorized absence rate. The FY-85 desertion rate of 10.1 per 1,000 is the lowest the Navy's had since 1972, and is only a fraction of FY 77's level of 31.6 per 1,000. The FY-85 unauthorized absence rate of 32.7 per 1,000 was 25 percent better than FY 84's and 80.8 percent better than in FY 79.

AOCP

Although recruiting and retention goals in the Navy are up, one area will require constant attention in the future — the loss of junior Naval Aviators — according to Adm. Watkins.

"This shortage is now in excess of 1,100 pilots, with resignations continuing at about 500 annually," he said in his posture statement to the Senate Appropriations Committee earlier this year. "This could continue through 1990 as airlines continue to expand and replace retiring pilots. Compounding the problem is a relatively healthy economy which affords other employment opportunities as well."

Adm. Watkins said that the Navy has managed, since the early 1980s, to combat the lure of flying with civilian airlines with the Aviation Officer Continuation Pay (AOCP) program. AOCP, which Secretary of the Navy John Lehman calls "one of the most dramatically successful and cost-effective compensation initiatives in Navy history," has kept 1,008 pilots and Naval Flight Officers (NFOs) on active duty. Their retention saved the Navy $823 million — the cost necessary to train 1,008 new pilots and NFOs.

According to Adm. Watkins, however, the $36,000 AOCP bonus awarded to eligible Naval Aviators for extending six years is becoming less and less attractive.

"Value of AOCP has been eroded by inflation, concomitant Aviation Career Incentive Pay reduction, and Hazardous Duty Incentive Pay restrictions while under contract," he said.

Fearing that the high pilot losses of the late 1970s will return in the late 1980s, Adm. Watkins stated that legislative changes and improvements to AOCP are required to restore its effectiveness.

Op Tempo

A major contributor to retention problems among junior Naval Aviators is family separation caused by an operational tempo which has, over the years, been higher than it was during the Vietnam War.

To reduce the pace of operations, Adm. Watkins supports a plan that, among other things, will keep ships and squadrons home-ported 50 percent of the time between overhauls; restrict major deployments to six months;

Major Goals

By JO2 Timothy J. Christmann

maintain a nominal 25 flight hours per crew each month, and average an operational tempo of 50.5 days per quarter for deployed fleets.

"In addition to meeting our personnel needs, reducing deployed time will provide us an opportunity to conduct types of training in our home ports and home waters that is not possible when deployed," said Adm. Watkins. He added that reducing the operational tempo will lessen equipment wear and tear.

"The op tempo reduction program is only possible, given our worldwide commitments, because of a larger and qualitatively improved fleet," he said.

Adm. Watkins added that the Navy can only pursue such a reduced op tempo plan as long as "no significant additional commitments occur."

However, if the U.S. Navy responds to as many world crisis situations as it has over the past five years, the pursuit of such a positive operational tempo plan seems difficult. Since 1945, U.S. naval forces, America's chief instrument for responding to international emergencies, have been called on to answer more than 200 crises. And today the Navy confronts a limitless number of potential crises in a world that has become more violent and better armed.

"The major powers are technically at peace, yet violence [terrorism, armed conflicts between nations, civil wars, etc.] often dominates the international arena," Watkins said. "Much of this conflict occurs in the developing world [where] important U.S. interests are often involved."

He remarked that an increasing number of third world nations like Libya are buying modern weapons (i.e., antiship and antiair missile systems) that could possibly "complicate" the efforts of U.S. naval forces which are trying to fulfill America's strategic objectives. These objectives include keeping the seas free of belligerents who may attack the United States or its allies, and being able to project force in support of national security goals if America's deterrence fails.

Recent examples of the United States resolve to support these objectives were:

— Using Naval Aviation capabilities to intercept an Egyptian 737 airliner carrying Arab terrorists responsible for hijacking the cruise ship *Achille Lauro*.

— Using Naval Aviation capabilities to thump Libyan gunboats and other targets for attacks made against U.S. aircraft flying over international waters, and in response to terrorist attacks against Americans in Europe (see pages 12 through 17).

Sustainability

"Ability to fight a protracted conflict is central to maritime strategy," said Adm. Watkins. "Consequently, we constantly analyze the mix and amounts of ordnance required to support our strategy, through war-gaming simulation, doctrine reviews, projected combat sortie rates, and other analysis. Although we have not yet reached all goals in the area, sustainability has been and continues to be the fastest growing part of our budget."

For example, during the 1970s, the Navy didn't have enough missiles, bombs and ammunition to fill the magazines of its ships. It was presumed incapable of fighting a protracted war with the Soviet Union. Today, all ordnance stockpiles are 20 to 60 percent larger than they were in 1981, and some categories are expected to double by 1987.

"The possibility that a war could be protracted is a formidable deterrent to the Soviets, who emphasize achieving a quick, decisive victory," said Adm. Watkins.

In addition to having more weapons, today the Navy has more spare parts for its ships and aircraft, he added. What's more, the amount of time spent waiting for parts to repair major malfunctions has been cut 35 percent since 1981.

Modernization

For most of the 1970s, the Navy did not procure enough aircraft to replace the number lost through peacetime attrition. Over the past five years, however, naval aircraft procurement has nearly doubled. Two hundred and forty-four new aircraft were delivered in FY 85, including two of the newest weapon systems: the F/A-18 *Hornet* and SH-60B *Seahawk* LAMPS MK III.

Beginning in FY 87, the Navy hopes to embark on a five-year aircraft procurement plan that will include the purchase of more than 1,600 aircraft, including the A-6E/F *Intruder*, F-14 *Tomcat*, F/A-18 *Hornet*, AV-8B *Harrier* and SH-60F *Seahawk*.

Besides having more modern aircraft, the Navy has grown from 479 to 523 ships in four years and is on track to reach 600 by the 21st century. Among the vessels currently under construction are three more 95,000-ton *Nimitz*-class aircraft carriers. USS *Theodore Roosevelt* (CVN-71) will be commissioned in October, and USS *Abraham Lincoln* (CVN-72) and *George Washington* (CVN-73) are scheduled to be delivered to the Navy in 1989 and 1991, respectively. The same year that *Lincoln* is due, the first *WASP*-class convertible amphibious V/STOL carrier is also scheduled for commissioning.

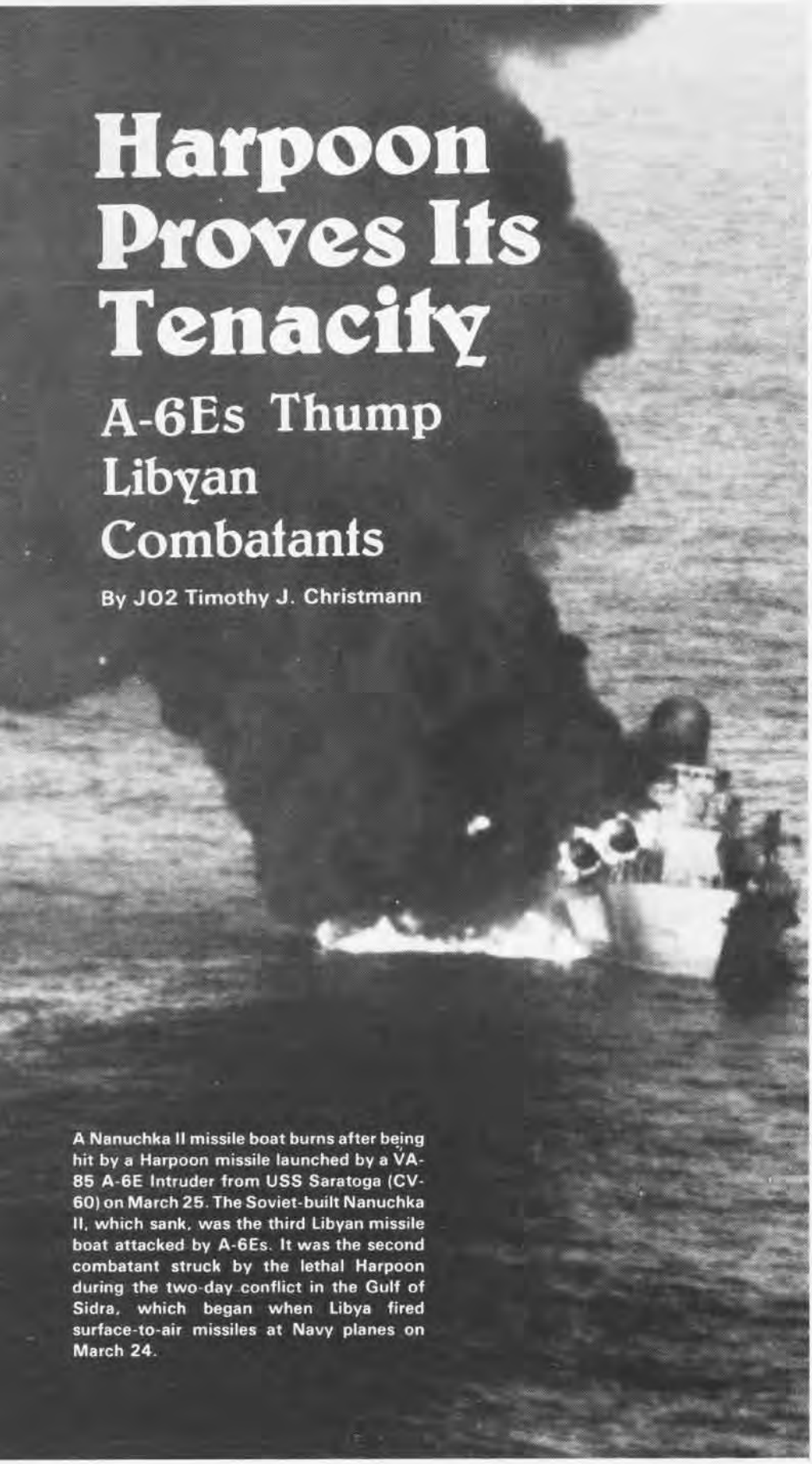
Adm. Watkins, who relieved Admiral Thomas B. Hayward in June 1982, told the Senate Appropriations Committee that he was leaving a Navy that was "more prepared" than at any time in recent memory.

"Because of our progress over the past five years, and our initiatives to reduce costs and increase efficiency, only modest expenditures are required to sustain and keep [the Navy] on the right course," said Adm. Watkins. "Working together with our allies and sister services, [we] will maintain the maritime superiority essential to our national security [for] years to come." ■

Harpoon Proves Its Tenacity

A-6Es Thump Libyan Combatants

By JO2 Timothy J. Christmann



A Nanuchka II missile boat burns after being hit by a Harpoon missile launched by a VA-85 A-6E Intruder from USS Saratoga (CV-60) on March 25. The Soviet-built Nanuchka II, which sank, was the third Libyan missile boat attacked by A-6Es. It was the second combatant struck by the lethal Harpoon during the two-day conflict in the Gulf of Sidra, which began when Libya fired surface-to-air missiles at Navy planes on March 24.

An hour an a half into their sortie, the A-6E *Intruder* pilot and his bombardier/navigator sighted the target. It was a Libyan *Nanuchka II*-class missile boat racing at more than 25 knots toward the 45-ship U.S. carrier task force in the Gulf of Sidra.

"We were expecting to find at least one of them," said the pilot from Attack Squadron (VA) 85, whose name cannot be released. "We had heard that several [Libyan combatants] were heading out toward the battle group."

When the Naval Aviators initially picked up the vessel on radar more than 30 miles away, it was just a blip on the screen. But as the A-6E got closer, it's forward-looking infrared radar (FLIR) identified the 197-foot boat in the early morning darkness with daytime-like clarity.

The Soviet-built combatant was delivered to Libya in the early 1980s as part of an extensive arms package with the U.S.S.R. to reinforce a Navy that is presumed to be more formidable than many third world nations. It is a Navy that sports six Soviet-built diesel submarines, one British-made 1,500-ton frigate, and an assortment of more than 20 missile boats of varying size and capability.

Although only 780 tons, the *Nanuchka II* carries enough firepower to seriously damage, and possibly sink, a warship many times its size. It is bedecked with four SS-N-2C *Styx* medium-range (25-mile), surface-to-surface missiles, one SA-N-4 surface-to-air (SAM) missile system, and two 57mm antiaircraft guns.

The SS-N-2C *Styx* is an updated version of a missile that the Soviet Union built in 1959 and the Egyptians used with deadly success during the "six day war" against Israel in 1967. During that conflict, two Egyptian missile boats each fired one *Styx* at the 1,700-ton Israeli destroyer *Elath* at a distance of 10 miles and sank it. But the missile's history hasn't been entirely successful. During the Yom Kippur war in 1973, the Egyptians launched more than 50 *Styxs* against Israeli vessels and all of them missed.

Still the 21-foot, 5,000-pound missile carries a 1,100-pound high explosive warhead which is twice the size of the one in the U.S.-built *Harpoon*. In addition, *Styx* adorns the decks of the Soviet Union's prized 37,000-ton VTOL aircraft carrier *Kiev* and 28,000-ton, nuclear-powered guided-missile cruiser *Kirov*. It is also used by more than 25

countries, including Egypt, East Germany, India, Poland and North Korea.

The *Intruder* pilot wasn't taking any chances. He knew that at least two Libyan guided-missile patrol boats had already been hit by A-6Es from VA-34 off USS *America* (CV-66) and VA-85 from *Saratoga* (CV-60) the night before, March 24. And he thought the *Nanuchka II* would probably try to avenge those attacks by launching *Styxs* at the first U.S. Sixth Fleet warship that it sighted.

Four A-6Es (two each from VA-34 and VA-85) sank the first patrol boat, a 160-foot, 260-ton *La Combattante II* at about 2030 (1430 E.S.T.) after thumping it with *Harpoon* and Mk 20 500-pound *Rockeye* bombs. The use of the *Harpoon*, which was fired by VA-34, demonstrated the lethality of the versatile, antiship missile for the first time in combat.

The strike was in response to six unprovoked Libyan surface-to-air missile attacks against carrier aircraft flying in the Gulf of Sidra, a 150,000-square mile body of water that Colonel Muammar Qaddafi claims is not international territory. U.S. forces have operated in the Gulf more than 16 times since 1981 — the year Libya last defended its territorial claim by sending two Soviet-built *Sukhoi*-22 fighters against two F-14 *Tomcats*. The Su-22s fired missiles and missed. The F-14s fired missiles and sent both planes into the Gulf.

A-6E aircrews also pounded the *La Combattante* on March 24 to thwart it from launching its four subsonic *Otomat* surface-to-surface missiles at American warships, which a Libyan general threatened to do in a message to the Sixth Fleet that day.

Unlike the *Nanuchka II's Styx* missile, the sea-skimming *Otomat's* 460-pound warhead can presumably hit a target more than 50 miles away. However, unbeknownst to the Libyans aboard the *La Combattante II*, their vessel was being tracked by an E-2C *Hawkeye** since it left the port of Tripoli. The *Intruders* sank it before it had a chance to reach optimum firing range.

The second Libyan combatant, a *Nanuchka II*, limped back to the port of Benghazi about 2230 on March 24 after two VA-85 *Intruders* pummeled it with *Rockeyes*. The extent of damage is unknown.

Eyeing the third Libyan missile boat (the second *Nanuchka II*) on the FLIR screen, the VA-85 A-6E bombardier/navigator radioed a nearby E-2C *Hawkeye* for permission to shoot the plane's lone *Harpoon*.

The E-2C, in direct contact with the surface warfare commander aboard *Saratoga*, replied, "Affirmative, you have clearance to attack."

Before the A-6E aircrew fired the missile, however, an *Intruder* from VA-55 aboard *Coral Sea* (CV-43) dropped several *Rockeyes* on the *Nanuchka II* in an attempt to slow her down and destroy her *Styx* missiles. But the warship continued to skip along the surface at high speed, and it was presumed her missiles were still launchable.

A *Harpoon* strike was necessary.

Within minutes, the bombardier/navigator aboard the VA-85 *Intruder* fed information pertaining to the target's position (i.e., attitude, speed, heading) electronically into the *Harpoon's* guidance seeker. Then the missile detached from a pylon on the plane's wing and propelled its 1,100-pound cylindrical body toward the *Nanuchka II* at 650 mph. It hugged the sea for more than 30 miles, then stabbed the missile boat in the hull. The *Harpoon's* 570-pound warhead detonated and the *Nanuchka II* erupted in fire, smoke and debris.

"The shot went real smooth," said the A-6E pilot, who had never fired a *Harpoon* before that moment. "The targeting and launch went just the way it was supposed to.... It went in pretty quick, and I doubt if the Libyans saw it coming."

Lieutenant Commander James D. Winter, who is assigned to the Surface Strike Warfare Branch in the Office of the Chief of Naval Operations, agrees.

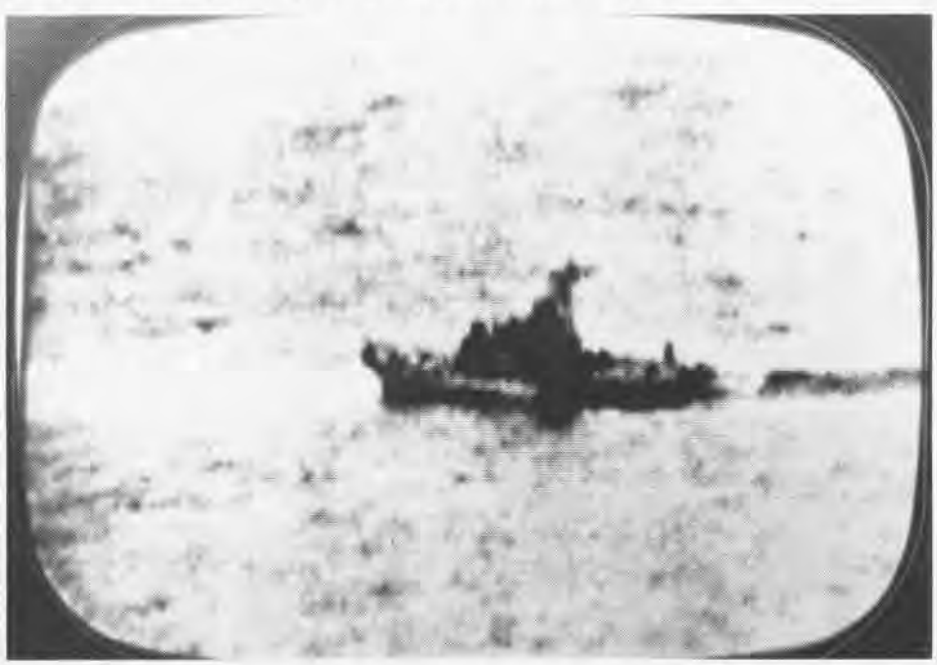
"[*Harpoon*] is detectable in the right scenario but if [the enemy] is not alerted to it, the probability of detecting it is greatly reduced," he said. "[The Libyans] may have seen *Harpoon* coming at the last minute. Anyway, I'm sure they figured out what it was."

Commander Bob Day, commanding officer of VA-85, said the Libyans could have defended themselves against *Harpoon* by using their two 57mm antiaircraft guns and SA-N-4 *Ganef* SAM battery. But he added that in order to stop

"It [Harpoon] went in pretty quick, and I doubt if the Libyans saw it coming."

— VA-85 *Intruder* pilot

*Three E-2C *Hawkeye* squadrons participated in the two-day conflict with Libya in March. They were VAWs 125, 127 and 123. They are assigned, respectively, aboard USS *Saratoga*, *Coral Sea* and *America*.



Despite the early morning darkness, a Libyan Nanuchka II missile boat is clearly identified miles away by a FLIR-equipped VA-85 A-6E Intruder. Minutes later, the A-6E sank the 780-ton combatant with a Harpoon missile.

"[The Libyans] thought they could ...shoot their missiles and run like hell. But we didn't give them a chance."

— Cdr. Bob Day, C.O. VA-85

Harpoon, a defender must have good operable equipment and a well-trained crew. He thinks the Libyans had a flaw in one or both of these requirements.

The A-6E pilot said that his *Intruder* was never in jeopardy of being hit by the *Nanuchka II's* radar-guided *Ganef* missiles, which can fly twice the speed of sound, because he remained outside the SAM's 35-mile range.

"That's the great advantage of having *Harpoon*," he said. "You can stay outside [an enemy's] gun or missile range and not be in any danger of getting shot at, yet still shoot and kill him."

The A-6E pilot added that he and his bombardier/navigator kept the *Nanuchka II* in sight on the FLIR as they watched the *Harpoon* go in. It hit the vessel dead center.

Afterward, the A-6E, flying about 500-feet off the ocean's surface with its lights out, passed over the burning missile boat. As the plane buzzed by, the pilot looked out the cockpit and saw "a bunch" of the *Nanuchka II's* 60-man crew leaping off the sinking vessel into waiting rubber lifeboats. Mission complete, he turned the *Intruder* toward *Saratoga*.

By then it was 0700 and the sun was climbing off the horizon.

"That morning was one of the clearest we had down there [in the Gulf of Sidra]," said the pilot. "In January and February, every time we went down to the Gulf [to exercise] the weather was terrible. It was windy, the sky was overcast, and the seas were high. But not that morning. Visibility was unlimited and after we hit the [*Nanuchka II*], we could see its column of smoke 20 miles away."

The pilot added, however, that inclement weather doesn't have an impact on the sea-skimming *Harpoon* or the A-6E *Intruder*. Both are all-weather systems that complement each other well. The A-6E, the Navy's only all-weather attack aircraft, has FLIR to identify ships at long range night and day; and the *Harpoon* has the range, firepower and enhanced avionics to hunt a ship over the horizon and snap its hull.

"*Harpoon* is deadly," said Cdr. Day. He added that, if the Navy didn't have the antiship weapon, Naval Aviators would have to resort to riskier tactics, like flying over an enemy ship to drop bombs or coming perilously close to launch other weapons. Today, modern missiles like *Harpoon* significantly lessen the risks that Naval Aviators face in combat, Cdr. Day remarked.

"We [Naval Aviators] feel good about the equipment we've got," said the A-6E pilot. "I'd much rather shoot a *Harpoon* [which has a range that exceeds 50 miles] then go inside [an enemy's] gun and SAM envelope."

Added Cdr. Day, "With *Harpoon*, we can conduct an attack with an extremely high probability of hit and kill."

Lt.Cdr. Winter agrees. "*Harpoon* is a super performer with a high success rate in fleet testing."

The 12.5-foot missile, which is a little over a foot in diameter, became operational in the Navy in 1977. Since then, *Harpoon* has been test-fired more than 200 times from aircraft, ships, and submarines and has scored direct hits on over 90 percent of its targets.

During a *Harpoon* firing exercise in the Caribbean in April, two attack submarines, the battleship USS *Iowa* (BB-61), cruiser USS *Josephus Daniels* (CG-27), an A-6E from VA-176 aboard USS *Forrestal* (CV-59), and a U.S. Air Force B-52 all scored hits. The six-for-six perfect score, which featured the first *Harpoon* firing from a B-52, prompted Vice Admiral Henry Mustin, Commander Second Fleet, to remark, "I think it sends a signal loud and clear to our would-be adversaries to watch out...we're ready."

Today, *Harpoon*, which is more reliable and easier to repair than most complex missile systems, can be fired from 12 classes of U.S. Navy surface vessels, three classes of attack submarines, the A-6E *Intruder* and the P-3C *Orion*. It soon will be available for the F/A-18 *Hornet* and S-3B *Viking*.

Aside from the U.S. Navy, which has thousands of *Harpoons* in its ordnance inventory, more than 12 countries — including Australia, Spain, Israel and Great Britain — use the weapon. Great Britain, in particular, learned a tragic lesson on the value of antiship missiles like *Harpoon* when Argentine aircraft sank three of her ships with *Exocet* missiles during the Falkland Islands war in 1982. The subsonic *Exocet*, which lacks *Harpoon's* range and lethality, is used aboard Libya's six French-built *Super Frelon* helicopters.

According to Lt.Cdr. Winter, the Commander Sixth Fleet is currently analyzing how well *Harpoon* functioned compared with how it was intended to function against Libyan missile boats in March.

"The shots may have all been perfect," he said. "In fact, based on the information I've heard, [the *Harpoons*] were all perfect. But I won't know until I see the results of the analysis in a couple months."

As far as Cdr. Day is concerned, however, *Harpoon* fared "extremely well."

"The *Nanuchka II* is a good sized patrol boat," he said, "and it only took one *Harpoon* to sink it."

Cdr. Day added that he found it interesting that Libya chose to attempt all its missile boat attacks at night and not during the day.

"All three of their attacks were planned to happen at night as though the Libyans thought darkness would give them an advantage," he said. "They forgot that night attacks are the primary mission of the [FLIR-equipped] *Intruder*."

Cdr. Day, who is proud of the "professional manner" in which *Intruder* pilots and bombardier/navigators executed their strikes, thinks Libya "badly underestimated" the capability of Naval aircrews, aircraft and weapon systems.

"[The Libyans] thought they could penetrate the battle group, shoot their missiles, and run like hell," he said. "But we didn't give them a chance." ■

Jefferson did the same in 1801

The Navy Strikes Tripoli's Terrorist

By JO2 Timothy J. Christmann

Although their presidencies are separated by 171 years, Thomas Jefferson and Ronald Reagan share something in common. Both used the U.S. Navy to punish tyrants in Tripoli for sponsoring terrorism and infringing on America's freedom of navigation.

Jefferson's antagonist was "Bloody" Yusuf Karamanli, a pasha who enjoyed using his pirate fleet to seize U.S. merchant vessels and hold their crews for ransom. When Yusuf wasn't holding American seamen for hundreds of dollars apiece, the United States was paying him more than $50,000 annually to leave its merchant fleet alone.

But Tripoli's head pirate was greedy and, by 1801, his intolerable demands forced Jefferson to order U.S. warships to the Mediterranean. The vessels altered Yusuf's real estate and sank a few of his pirate ships. Yet, more importantly, they proved that America would no longer endure Tripoli's terrorists acts.

The use of force worked. By 1805, peace was restored and afterwards Yusuf left U.S. shipping and seamen alone.

Reagan's antagonist, Libya's Colonel Muammar Qaddafi, has been supporting international terrorism over the years and his chief target seems to be Americans. After evidence was unearthed linking Qaddafi to the bombing of a disco in West Berlin, which killed one U.S. soldier, a Turkish woman, and wounded 250 others (including 50 Americans) in April, Reagan's patience — like Jefferson's more than a century ago — ran out. And, like America's third president, Reagan directed the U.S. Navy to express his rage.

For 12 minutes in the wee hours of April 14, 12 A-6E *Intruders* from USS *America* (CV-66) and *Coral Sea* (CV-43) swept low over two terrorist targets in Benghazi (Benina airfield and the Benghazi military barracks) and dropped an assortment of 500- and 750-pound bombs. Three to four MiG-23 *Floggers* (one of Libya's best interceptors), two 747s, one F-27 transport, two MI-8 *Hip* helicopters, and a warehouse used for assembling MiG-23s were ruined. In addition, the *Intruders* severely damaged a second *Hip* and left the Benina runway so crater-ridden that the Libyan air force couldn't launch.

According to Commander Robin Weber, commanding officer of Attack

The F/A-18 Hornet, the Navy's newest tactical aircraft seen here catapulting off USS Coral Sea (CV-43), joined the A-7E Corsair — one of the fleet's oldest tactical aircraft — in suppressing Libyan SAM sites with HARM and Shrike missiles in April.

Squadron (VA) 55 — one of the squadrons that pounded targets in Benghazi — the *Intruders* were used (as opposed to surface-launched missiles) to minimize collateral damage and maximize accuracy.

While Naval Aviators were ravaging targets in Benghazi, about 20 U.S. Air Force F-111s used 500 and 2,000-pound free-fall and laser-guided bombs to pound two terrorist training sites near Tripoli. The F-111s also destroyed two, and crippled three, IL-76 *Candid* heavy transports in the military section of the Tripoli Airport. One of the Air Force jets was lost during the attack, but it is not known how the aircraft was downed (i.e., whether by mechanical failure, pilot error, Libyan surface-to-air missiles, etc.).

According to Pentagon spokesman Robert A. Sims, the F-111s — which flew 2,800 miles from England — were necessary because there weren't enough *Intruders* aboard *America* and *Coral Sea* to carry out the raid.

Although successful, it is presumed the April 14 attacks would not have been as effective if Naval Aviators hadn't initially suppressed Libya's extensive air defense network with the high-speed anti-radiation (HARM) and *Shrike* missiles. Both weapons are designed to home in on radar signals emitted from surface-to-air missile (SAM) sites and radar-directed antiaircraft artillery (AAA). Neither missile is intended to permanently obliterate a target, but rather to incapacitate it long enough so that attack aircraft can drop their payloads and evacuate.

Minutes before the A-6Es and F-111s bored down on Tripoli and Benghazi, six A-7E *Corsairs* from *America* and six F/A-18 *Hornets* from *Coral Sea* fired "dozens" of HARMs and *Shrikes* at an array of SAM sites, including SAM-2s, 3s, 5s, 6s and 8s.

Shrike, the older of the two missiles, was used extensively by U.S. forces in Vietnam, and by Israel in its campaigns against Egypt and other countries in the Mideast. Although it has proved its worth in combat, the 10-foot-long, 400-pound supersonic missile is not as diversified as HARM, according to Commander Richard J. Nibe, commanding officer of VA-83.

Cdr. Nibe should know. His A-7E *Corsair* squadron baptized HARM on March 24, after Libya fired SA-5 *Gammon* and SA-2 *Guideline* missiles at carrier aircraft flying in the Gulf of Sidra, below the 32-30 "line of death" Colonel Qaddafi claims is not international territory. VA-83, which deploys aboard USS *Saratoga* (CV-60), responded to the missile attacks by disabling an SA-5 site in Surt with HARM missiles.

"For us, HARM worked exactly as advertised," said Cdr. Nibe. "I think it's a great system."

Cdr. Weber agrees.

"I can't give any specifics [about HARM's use against Libyan targets]," he said, "But I was very pleased with its performance and I thought it was successful."

Although he was unable to elaborate on the intensity of SAM and AAA over Benghazi, Weber said there "was a reaction and we feel we successfully confined it [with HARM]."

HARM, which was delivered to the Navy in 1983, is replacing *Shrike* because it has improved velocity, sensitivity, flexible logic and range. HARM's range (which is classified) is noteworthy because it enables Naval

Aviators to attack radars without venturing too close to an enemy's SAM site. With *Shrike*, aircrews had to wait until they were about 10 miles away from a target before they could fire. Such a range was acceptable during Vietnam, but today it's dangerous due to the increased capabilities of Soviet-built SAMs.

HARM, which will soon be integrated on the A-6E and EA-6B *Prowler*, is 13 feet long, about 10 inches in diameter and weighs 800 pounds. It supports a 146-pound warhead capable of making spaghetti out of any SAM radar mechanism.

Considered the most sophisticated anti-radiation missile in the free world, HARM's superiority is its ability to be programmed for use in a variety of threat scenarios. One of the missile's capabilities enables Naval Aviators to "prebrief" HARM to hunt a specific type of SAM. For example, on April 14, a number of HARMs were programmed to locate and suppress radar emitted from SA-5s, which have a longer range then any other Libyan SAMs.

Stretching 54 feet in length and weighing 22,000 pounds, the *Gammon* is one of the largest SAMs ever built. It can fly three times the speed of sound, travel more than 150 miles, and climb in excess of 95,000 feet. It is extensively deployed in the Soviet Union because the SA-5's attributes make it ideal for shooting down high-flying bombers and reconnaissance aircraft.

Although the *Gammon* fared poorly during conflicts between Syria and Israel, and more recently against naval aircraft flying over the Gulf of Sidra, Vice Admiral Frank Kelso, Commander Sixth Fleet, called the missile "very fast and capable." He said the missile's ineffectiveness against Naval Aviators didn't reflect a flaw in the weapon's design as much as it reflected the skill of U.S. Navy aircrews.

In addition to suppressing and evading the SA-5, HARM and *Shrike*-toting naval aircrews had to counter the SA-2 *Guideline*, perhaps the most deployed SAM in the Libyan air defense network.

The SA-2, one of the oldest SAMs in the world, is a short-range (30 to 35-mile) weapon that has an established record. Capable of zipping at more than three times the speed of sound, the *Guideline* is responsible for shooting down Francis Gary Powers' U-2 spy plane in the U.S.S.R. in 1960. It also is credited with shooting down 150 U.S. Air Force and Navy planes during Vietnam, including the F-4 *Phantom* flown by aces Lieutenant Randy Cunningham and Lieutenant Junior Grade William Driscoll in 1972. Overall, however, the *Guideline* was unreliable during the eight years it was used by the North Vietnamese. And it is presumed that an average of 60 to 200 SA-2s were necessary to down one American plane during the war.

In addition to HARM and *Shrike*, three other elements contributed to the success of the April 14 attack.

First was timing. The 0200 raid surprised the Libyans, who weren't expecting such an impromptu pounding. Said Cdr. Weber, "The element of surprise worked in our favor."

Second, VAQ-35's EA-6B *Prowlers* from USS *America* used their electronic warfare weapon systems to confuse Libya's radar facilities. So, not only were some Libyans sleepy-eyed, but a number of their radars were inoperative.

Third, and perhaps most important, was the carrier task force's ability to lose shadowing Soviet vessels prior to launching aircraft.

Three years ago, when Naval Aviators bombed Syrian targets in Lebanon, it is presumed shadowing Soviet warships alerted the defenders manning SAM and AAA sites. By the time the *Intruders* and *Corsairs* reached their targets, the sky was filled with more than 40 SAMs and peppered with projectiles from 150 AAA batteries. Two aircraft were downed in the barrage; one Naval Aviator was killed and another captured.

"A lot of detailed planning went into [the raid on Libya]," said Cdr. Weber. "And a lot of concentration was involved in the mission itself. I was extremely pleased with the precision and success of the A-6Es, F/A-18s, A-7Es, EA-6Bs, E-2Cs.... It was the textbook team effort and everybody molded together nicely."

Admiral William Crowe, Chairman, Joint Chiefs of Staff, said on the *Today* show on April 16 that U.S. Air Force and Navy aircrews demonstrated in Libya that they can operate in an intense antiaircraft environment and do "extremely well.

"[They proved] we can carry out whatever mission we have to carry out," he said.

President Ronald Reagan described the attack on Libya as an act of American "self-defense." An action proportionate to the sustained and widespread use of terror against Americans by Col. Qaddafi's Libya.

No doubt Thomas Jefferson shared similar feelings about another Tripoli terrorist more than a century ago. ■

A HARM is on its way to achieving a direct hit on a target ship emitting radar signals during a missile exercise several years ago. HARM, which proved itself against Libyan SAMs in March and April, is Naval Aviation's best anti-radiation missile.

Memorial Day:

Keeping the Memories Alive

By Bob Moore

Bob Ward

Col. Jack Maas stands over the grave of his close friend, BGen Warren E. Sweetser, who is buried at Quantico National Cemetery.

Memorial Day is a time for remembering and keeping the memories alive. For retired Marine Corps Colonel Jack Maas, Executive Director, Marine Corps Aviation Association, this year marked another occasion for remembrances.

Two years ago in May, one of his closest friends was buried in Quantico National Cemetery, 25 miles south of Washington, D.C. Every year, Col. Maas visits the grave to reminisce about his friend's Marine Aviation career and their flying days together.

"But I'm not mourning his death," Maas said. "I'm here to celebrate his life."

In the early thirties, Brigadier General Warren E. Sweetser was assigned to the VF-9M *Red Devil* squadron at Quantico, Va.

During WW II, he was in the original PBJ (B-25) training group at Edenton and Cherry Point, N.C., and saw service in the Pacific in the Solomon Islands, Bougainville, the Philippines and Okinawa, with Marine Aircraft Groups 14, 15 and 24. Later, he commanded two Marine air groups during the Korean conflict.

Interred with full military honors, Sweetser was the first general officer to be buried in Quantico National Cemetery, which was dedicated in 1983.

"I thank God that Ned Sweetser lived," said Maas. "He served his country long and well."

Unlike Maas, most visitors do not elaborate on their emotions. They come to contemplate and reflect on the heroism and the cause. While none deny the high cost of war, or to whom the debt is owed, silent reckoning is the only tribute they offer.

Many tour the Marine Aviation Museum after visiting the cemetery. They learn that Quantico was used by the Navy of the Commonwealth of Virginia in 1775. Then it became a blockade point for the Confederacy, a training camp for Marines and an important airfield.

The Philadelphia Navy Yard may have been the birthplace of Marine Aviation, but Quantico was its cradle. The land leased in Reid, Va., was near the site where Dr. Samuel P. Langley tried unsuccessfully to fly the Aerodrome, the first powered, manned, heavier-than-air machine, in 1903.

During WW I, Quantico became a major training base which grew in importance after the Marine Corps' first flying field, in Miami, closed at the end of the war.

The Marines' first helicopter squadron was formed at Quantico after WW II. Tactical use of vertical envelopment was developed by HMX-1, which provides helicopter support for the President.

His support is equally constant. At the cemetery's dedication ceremony, President Reagan said:

"No citizen will ever receive higher honor than commitment to the hallowed ground at Quantico National Cemetery. No greater honor can be bestowed than to rest in the gallant ranks of those who struggled to preserve our spiritual and national values for all posterity." ■

National Cemeteries and the VA

In 1862, President Lincoln signed an act authorizing the establishment of national cemeteries for "soldiers who shall die in the service of their country."

Proclaiming May 30, 1868, as a time for Civil War veterans to pay public tribute to their departed comrades, General John A. Logan, Commander in Chief of the Grand Army of the Republic, declared: "Let no ravages of time testify to coming generations that we have forgotten as a people the cost of a free and independent nation."

America's 118-year Memorial Day tradition now honors both the 1.1 million veterans who paid freedom's highest price and the 14 million who are no longer able to share the benefits of their service.

All were heroes in their time — their foes stronger, their feats more awesome, their weapons more devastating than the bravest champions of legendary lore. Famed and forgotten, they now rest side by side in 109 serenely somber burial grounds.

The National Cemeteries Act of 1973 transferred the system from the Army to the Veterans Administration (VA) and gave its administrator authority to expand cemeteries or establish more.

At Quantico, cemetery representative John Ferris, program clerk A. J. Murphree or program assistant Ann Shiflett attends every funeral. As representatives of the Veterans Administration, they are available to answer any questions the families may have.

Shiflett explained that veterans, with other than a dishonorable discharge, are entitled to burial in any national cemetery with available space. Even in cemeteries without new spaces, dependents may be buried in reserved family graves.

"We provide free grave sites, markers, grave openings, closings and perpetual care," said Shiflett. The VA provided 275,000 headstones and markers last year.

Shiflett says veterans who wish to be buried in a national cemetery should mention it in their will. They should also keep their military records available to assist funeral directors in contacting cemeteries, determining eligibility and scheduling services.

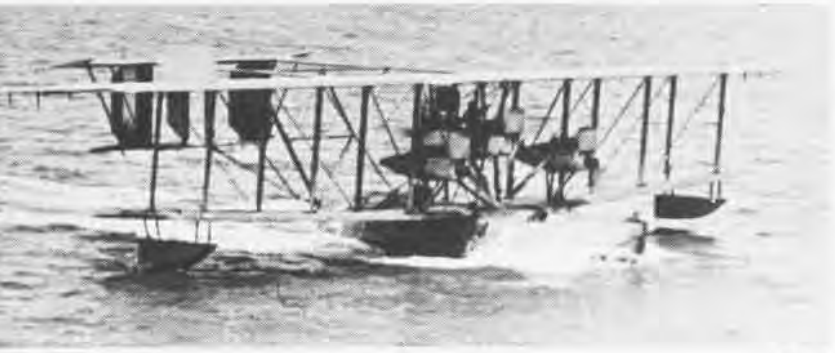
Once part of the neighboring Marine base, the 725-acre Quantico National Cemetery was transferred to the VA in 1977. It has less than 2,000 graves in its 98 developed acres. When fully developed, the cemetery will provide 350,000 interment sites.

For more information on national cemeteries and VA benefits, contact Mr. William Sawchak, Department of Memorial Affairs, Veterans Administration, Room 275G, 810 Vermont Avenue, N.W., Washington, D.C. 20420, (202) 389-5012. ■

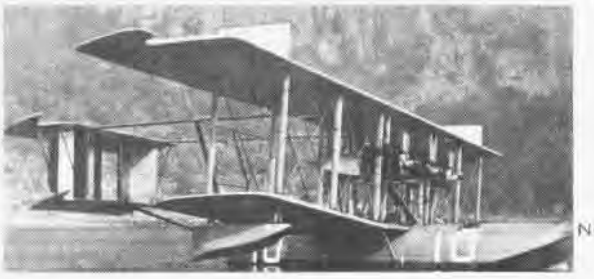
Bob Moore and Bob George are former staff members of Naval Aviation News.

Artwork by Bob George

NC-1



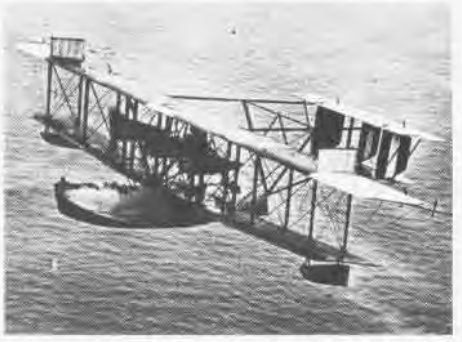
NC-4



NC-10

The NCs

By Hal Andrews



NC-9

Periodically over the years, the Navy's NC (Navy-Curtiss) flying boats have received their share of attention. One, the NC-4, is the centerpiece at the Naval Aviation Museum in Pensacola, Fla., having achieved fame for the first flight across the Atlantic Ocean in May 1919, flown by Lt.Cdr. A. C. Read and his five-man crew. Two others, the NCs 1 and 3, made up the rest of the three-plane Seaplane Division One which undertook the flight. Misadventures prevented their completing it with the NC-4. The story of disassembling the NC-2 and using its parts to repair the NCs 1 and 4 is also woven into the event of the first transatlantic flight. However, the six NCs built after the flight are rarely mentioned in the annals of Naval Aviation. Perhaps this is fitting – their operational careers were mostly brief. But they were part of the full story of the 10 NC boats.

Turning back to 1917 and the beginnings of the NC story, it's clear that the scope and challenge of the NC-boat program was an early day version of today's major pioneering aerospace projects. The Navy, principally the Bureau of Construction and Repair which was responsible for Navy aircraft (aircraft engines were under the Bureau of Steam Engineering), and the prime contractor Curtiss were an integrated team.

The Navy had overall design and management responsibility while Curtiss was responsible for the detail design and for building the initial NCs. Subcontractors were added to the team to build many of the major components. The design itself, and the engineering analysis used in developing it, were as advanced as could be found in the United States at the time, while design decisions applied appropriate conservation to assure a useful service flying boat.

After much deliberation in the early months of this country's involvement in WW I, it was finally resolved that Naval Aviation's major role would be in antisubmarine operations. A major deficiency in the existing flying boats used by our allies in Europe for this purpose was their lack of range and/or endurance. When proposals for larger aircraft were presented by Cdrs. J. C. Hunsaker and G. C. Westervelt to RAdm. D. W. Taylor, then Chief of the Bureau of Construction and Repair, in September 1917, he directed them to proceed with a flying boat capable of flight delivery across the Atlantic.

Working with Glenn Curtiss, whose company had the greatest experience with the design and construction of large flying boats in this country, a design capable of the transatlantic flight via Newfoundland and the Azores, using three of the newly developed Liberty engines, evolved. Generally, a typical biplane design of the period, its major innovation was a short hull with the tail carried on an outrigger structure. With SecNav approval of the project, a contract for design was signed in October. Under Navy supervision, Curtiss would execute the detail design work. Manufacture would not proceed until the detail design had been completed so that the performance of the NC, as it was designated, could be predicted with reasonable confidence – a practice not common in those days. Wind tunnel and towing tank, as well as component strength tests, were performed. These were essential to ensure the highest hydrodynamic and aerodynamic efficiency possible with minimum airframe weight – the only way the transatlantic ferry goal could be met.

Curtiss moved his design staff from Buffalo to a new plant for experimental projects in Garden City, L.I., N.Y., in December 1917. The Navy then began work on operating facilities at Rockaway Beach. With contracts for four NC boats signed, actual construction began early in 1918. The NC-1 was completed in September, making its first flight in early October. Its three Liberty engines were mounted as tractors in separate nacelles. As a patrol plane, it had a gunner's nacelle on the upper wing center section, as well as in the nose of the hull. The pilots cockpit was behind the engine in the center nacelle, with the rest of the

NC-2

NC-6

crew, and the main fuel tanks in the hull.

Early flights showed potential for greater performance than predicted and, as WW I reached its close in November, attention turned to the possibilities of a transatlantic flight as a special effort. A record flight with 51 crew and passengers on board was made in December. NC-2 flew in January, its center engine changed to a pusher, behind the pilots cockpit. While the transatlantic flight was being organized, modifications were made to the two completed NC boats and the final design of NCs 3 and 4.

NC-2 was the first fitted with four engines, in two tandem pairs with the pilots still in the center nacelle. The top gunner's position had been removed from NC-1, and larger wing-tip floats were built for all four NCs. Finally, the pilot's cockpit was moved down to the hull. Four engines with the two center ones in tandem were arranged as the final configuration for NCs 1, 3 and 4 and additional fuel tanks and other equipment installations made for the flight. This configuration was designated NC-TA.

The story of the flight preparation efforts – including the incidents that resulted in the NC-2 providing wing and tail components to repair the others – and of the flight itself are often told. The success of the NC-4 deserved the recognition it received at the time and the continued commemoration of this pioneering feat.

Two excellent references for more details on the NCs and the NC-4's historic flight are The First Flight Across the Atlantic May 1919 by Commander Ted Wilbur, Smithsonian Institution, 1969, and Design and Construction of the NC Flying Boats by Commander G. C. Westervelt, originally published in the September 1919 U.S. Naval Institute Proceedings and reprinted with additional photos in the Winter 1981 issue of the American Aviation Historical Society Journal.

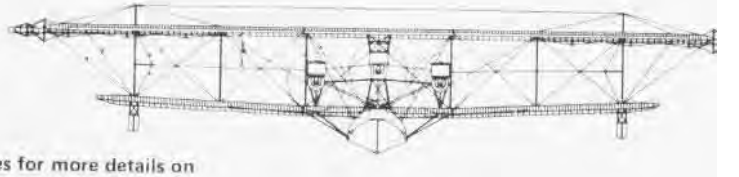
While the NC-4 came back to a public tour in 1919, the Navy turned to the Naval Aircraft Factory (NAF) in Philadelphia to build NCs for operational use, ordering four near-duplicates, NCs 5 through 8. These were completed in May-June 1920, differing mostly in detail from the first four, but equipped with only three engines, the center one as a pusher.

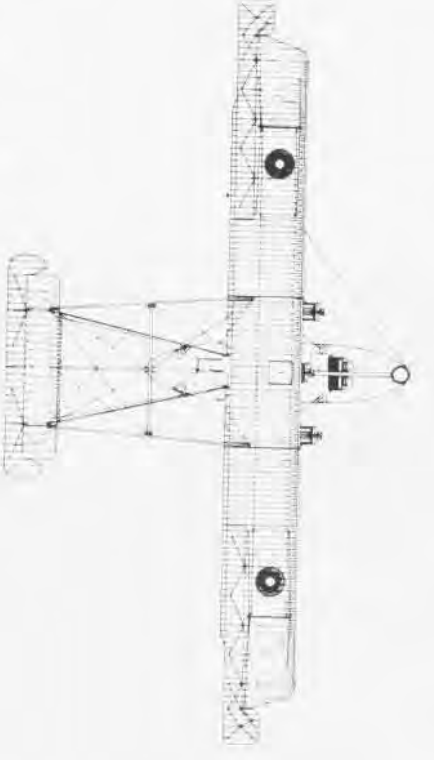
NCs 5 and 6 went by ship to San Diego, Calif., and into service in November. In successive forced landings in January 1921, both were lost after being taken under tow. NCs 7 and 8 faired better at Hampton Roads (Norfolk, Va.) operating with the Atlantic Fleet. Both were returned to NAF and fitted with a fourth engine in the transatlantic flight configuration in 1921. Two more NCs, 9 and 10, had been ordered and were also completed in the four-engine configuration; all four were in service with the Atlantic Fleet in May 1921.

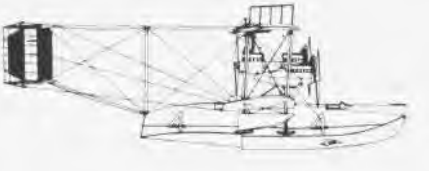
While NC-7 suffered a center nacelle fire in flight in July and was destroyed, the other three NCs carried on into 1922. Periods back at NAF for overhauls cut into their fleet use. NC-9 was the last to fly operationally in November 1922 when it was surveyed, requiring a complete overhaul that was not considered worth the expense.

The post-WW I NCs did contribute to early fleet experience with "big boats," but the restored NC-4 properly commemorates the outstanding accomplishments of this pioneering aircraft design as well as those involved in its conception, construction and operation. ■

NC







Length	68'2"
Height	24'5"
Span	126'
Gross weight	28,000 lbs.
Engines: Four Liberty 12 (three in some configurations)	400 hp
Performance:	
Maximum speed	85 mph
Service ceiling	4,500'
Maximum range	1,470 mi.
Crew	5/6

VF-74's F-14 Tomcats helped intercept an EgyptAir 737 airliner carrying hijackers of the cruise ship Achille Lauro. Below, USS Saratoga and CVW-17 were kept busy by training commitments and surprise international developments during their 1985 Mediterranean deployment.

1985 Year in Review

By Gwendolyn J. Rich

As Naval Aviation crested toward its 75th year, 1985 saw continued advances in both operational readiness and new technology. Emphasis on quality procurement and skilled personnel remained priorities as military spending was steadily scrutinized by Congress.

Even though budget requests were criticized and future cuts were expected, Naval Aviation continued to develop and its role in U.S. policy was evident by major events worldwide. Throughout the past year, routine operations of the Navy's aviation assets were interspersed with special taskings. This year's review of aviation in 1985 is focused on those taskings, which include drug interdiction, showing of the flag, and Naval Aviation responses to international terrorism. Each of these areas required action by elements of aviation but perhaps the most visible was Naval Aviation's involvement in the intervention of terrorist attacks during 1985.

Although existing world conditions during the past year were called "peacetime" by some, political tensions continued to escalate on a global scale. Related to those conditions were the repeated terrorist attacks directed toward U.S. citizens. While critics questioned the effectiveness of carrier battle groups, the rapid response of aviation assets was one area in which capability was successfully demonstrated. Both shore and fleet activities were instrumental in efforts to fight the "war against terrorism."

Terrorism, the use of terrorizing methods which dominate or coerce by intimidation, has been used in the past to force political change. Terrorist acts have been committed by various groups in the form of bombings, hostage seizures and hijackings and are nothing new. However, recently, such incidents have occurred more frequently and were more often targeted against U.S. interests or citizens.

In February 1985, *Independence* (CV-62) was just ending four months in the Indian Ocean/Mediterranean area. After operations in the North Arabian Sea, the ship and CVW-6 transited the Suez Canal on January 20-24 and headed for a six-day port visit in Palma, Spain, before returning to Naval Base, Norfolk, Va.

USS *Eisenhower* (CVN-69), with CVW-7 on board, was in port at Toulon, France, after completing a multinational exercise in the Eastern Mediterranean with *Independence*.

It was during this period, on February 2, that 23 members of VO-2 were injured in a terrorist bombing incident which occurred at a nightclub in Glyfada, Greece. Five of the squadron members were seriously injured by the bomb, which had been placed under a counter within the establishment. They were medevaced to Landstuhl, Germany, for further treatment. After its port visit to Toulon, *Eisenhower* conducted flight operations in the Central and Western Mediterranean during February. As tensions increased in Lebanon, *Ike* and CVW-7 were ordered on March 7 to steam to the Eastern Mediterranean. Operating with *Mississippi* (CGN-40), both ships represented a show of force as they conducted flight operations in the area until mid-April. The 15th to 19th of the month saw *Eisenhower* in port at Naples, Italy, before conducting a turnover with *Nimitz* (CVN-68) on April 21 and outchopping from the Mediterranean six days later.

Nimitz had begun the year by conducting training operations in the vicinity of the Panama Canal and Puerto Rican operating area. The carrier and its CVW-8 team participated in *Carib Swing 85* off the Panamanian/Nicaraguan coast to provide a general presence in the Central American region. *Nimitz* departed Norfolk on March 8 and was joined by USS *Kidd* (DDG-93) and USS *Underwood* (FFG-36) as she entered the Mediterranean and reported to the Sixth Fleet on April 17. From May 6 to 17, the carrier participated in a multinational exercise, Operation *Distant Hammer*, which was followed by a port visit to Haifa, Israel. After two ASW exercises were completed, *Nimitz* and CVW-8 looked forward to a port visit at Livorno, Italy. However, just 14 hours before dropping anchor, the visit was cancelled.

The carrier steamed at flank speed to the Eastern Med for national contingency tasking. TWA Flight 847 had been hijacked after it took off from the airport in Athens, Greece. Thirty-nine U.S. citizens were held hostage, including one Navy serviceman who was later killed. *Nimitz* remained on station in the Med until the first of August. Her presence played an important role in the negotiations which led to the release of the hostages in July. After participating in Operation *Bright Star 85* from August 4 to 9, CVW-8 was ready for in-port periods at Naples and Palma de Mallorca, and a turnover with *Saratoga* (CV-60) which was to follow. The much awaited turnover took place on September 10 but, immediately afterwards, *Nimitz* was again diverted to the Eastern Mediterranean for contingency operations off the coast of Lebanon. After a nine-day period, *Nimitz* and CVW-8 finally transited home via Gibraltar and Bermuda to arrive at Naval Base, Norfolk on October 4.

After workups in the Jacksonville, Fla./Puerto Rican operating area earlier in the year, *Saratoga's* CVW-17

embarked aboard the carrier on August 26 to begin a Mediterranean deployment. As they crossed the Atlantic, CV-60 and her air wing participated in Operation *Ocean Safari*. Inchopping to the Sixth Fleet on September 7, flight operations were conducted in the Western/Central Mediterranean while transiting to Augusta Bay, Sicily. *Saratoga* reached the area on November 10 and a training/anchorage turnover was conducted with *Nimitz* after it dropped anchor. Afterwards, Operation *Display Determination*, a joint NATO exercise, ran from September through the end of October in four phases. Each phase was separated by port calls in Toulon, France; Naples, Italy; and Dubrovnik, Yugoslavia.

On October 10, after receiving a "no notice" tasking by the President, CVW-17 aircraft intercepted an EgyptAir 737 airliner carrying hijackers of the cruise ship *Achille Lauro*. The 737 was directed to Sigonella, Sicily, by F-14 *Tomcats* from VFs 74 and 103. The air station gained global attention on October 11 when the EgyptAir 737 landed on the runway.

Sigonella had previously been involved in several other contingency operations as terrorism spread in the Mediterranean. Those operations included a hijacked TWA jetliner in Beirut as well as an Egyptian airliner that was hijacked to Malta. Sigonella's strategic location in the center of the Med made it a natural choice for staging contingency operations. Meanwhile, *Saratoga* transited the Suez Canal after a port call to Haifa, Israel. The ship cruised the Red Sea on November 15-16 and inchopped to the Seventh Fleet on November 17. Operations in the Arabian Sea/Indian Ocean were continued until December 11 when a port visit was made to Diego Garcia and Singapore. Flight operations followed and a second visit to Diego Garcia carried *Saratoga's* deployment into 1986.

Constellation (CV-64) began its deployment to the Western Pacific and Indian Ocean on February 20 with VFAs 25 and 113 on board, just one day after *Independence* returned to her home port. The two strike fighter squadrons, assigned to CVW-14 aboard *Constellation*, were the first to deploy the F/A-18 *Hornet*. Headed west via Pearl Harbor, several exercises and a few port visits later, the carrier and her battle group entered the Indian Ocean in late April. Two weeks later, a high point of the cruise occurred when VS-37 made contact with a Soviet submarine and tracked the vessel for the longest continued period that any U.S. battle group had ever achieved in the region.

Continuing westward across the Indian Ocean, *Constellation* was ready for a major weapons exercise which was to follow its port visit to Mombasa, Kenya.

But the carrier's exercise was cancelled when the battle group was ordered to patrol the Arabian Sea during the hostage crisis of the TWA flight 847. When the TWA passengers were headed home, CV-64 steamed toward the

Worldwide Trouble Spots

Greece	Members of a U.S. Navy squadron injured during the bombing of a pub in Glyfada, near Athens.
	TWA Flight 847 hijacked from Athens airport to Beirut. Forty U.S. citizens held hostage and one U.S. serviceman killed.
Central America	Conflicts continued between the Nicaraguan Sandanista regime and Contra rebels.
Lebanon	Increased political violence in the Med area as a series of car bomb incidents indiscriminately wounded and killed civilians.
Malta	EgyptAir airliner hijacked and its passengers systematically executed. An Egyptian rescue assault occurred later.
Egypt	Italian cruise ship *Archille Lauro* hijacked and one U.S. citizen killed.

1985 Carrier Deployments

Ship Name	Hull #	Deployment Date	Area	Air Wing
America	CV-66	24 Aug 85- 8 Oct 85	NorLant	CVW-1
Constellation	CV-64	20 Feb 85-24 Aug 85	WP/IO	CVW-14
Coral Sea	CV-43	1 Oct 85-19 May 86	Med	CVW-13
Eisenhower	CVN-69	11 Oct 84- 8 May 85	Med	CVW-7
		9 Jul 85-22 Aug 85	CentAm	CVW-7
Independence	CV-62	16 Oct 84-19 Feb 85	Med/IO	CVW-6
Kitty Hawk	CV-63	24 Jul 85-21 Dec 85	WP/IO	CVW-9

southeast. After 54 continuous days at sea, *Constellation* and her air wing relaxed at Perth, Australia, followed by an upkeep period at Subic Bay, Philippines. Having spent only 26 days in various ports, *Connie* headed home, completing a six-month deployment of the Navy's newest weapon system when she arrived at San Diego on August 24.

In mid-August, Western Pacific operations were passed to *Kitty Hawk* (CV-63). She departed San Diego on July 24 with CVW-9 on board to conduct routine operations in the Western Pacific and Indian Ocean. As part of Battle Group Bravo, she bypassed Hawaii and conducted a *Passex* with *Constellation* before entering Subic Bay on August 19. After entering the Indian Ocean, *Kitty Hawk's* turnover operations with *Midway* (CV-41) on September 4 marked the beginning of a 74-day ocean presence. The CV-63/CVW-9 team participated in *Beacon Flash 85*, and visited the ports of Mombasa, Kenya, and Colombo, Sri Lanka. They departed the Indian Ocean on November 17 for Subic Bay and Pearl Harbor, arriving at their home port, NAS North Island, Calif., on December 21. *Kitty Hawk* and CVW-9 had completed 150 days on deployment.

Naval Aviation operations in American home waters involved a variety of missions. One element of these operations dealt with the interdiction of drug traffic. Widespread illegal drug use has long been a major concern within the U. S. However, during the past two decades, drug abuse has reached serious proportions. In efforts to stop the flow of cocaine, marijuana and other drugs from Colombia and Caribbean nations, civilian law enforcement agencies enlisted the assistance of the Naval Aviation community. Since 1978, the aviation community has provided limited surveillance to help the U. S. Customs and U. S. Coast Guard apprehend air and maritime drug traffickers. In 1985, the Navy played a visible role in the "war on drugs." Operations such as *Blue Lightning* in 1985, together with an operation conducted earlier in 1984, resulted in the destruction of more than 70,000 pounds of marijuana and 8,000 pounds of cocaine and included 58 arrests.

During 1985, almost all of the active and reserve early warning squadrons of the Atlantic Fleet were involved in efforts toward drug interdiction. The E-2C *Hawkeye* operated by these squadrons proved invaluable in assisting law enforcement agencies and the U.S. Coast Guard in stopping drug traffickers. The airborne early warning aircraft provided a sophisticated command and control platform for use against drug traffickers by locating low-flying aircraft which may have been avoiding radar detection. The *Hawkeye* has greatly enhanced the readiness of the Naval Air Reserve. This was demonstrated by VAW-78 as they completed five deployments in support of Operation *Thunderbolt*. The squadron conducted missions from NS Roosevelt Roads, P.R.; Guantanamo Bay, Cuba; and several bases in Florida including McDill AFB.

Ship Name	Hull #	Deployment Date	Area	Air Wing
★ Midway	CV-41	Permanently forward-deployed	WP	CVW-5
		6 Jul 85- 4 Sep 85	IO	CVW-5
Nimitz	CVN-68	28 Mar 85- 8 Apr 85	CentAm	CVW-8
		9 Apr 85- 4 Oct 85	Med	CVW-8
Saratoga	CV-60	26 Aug 85-16 Apr 86	Med/IO	CVW-17
Carl Vinson	CVN-70	18 Oct 84-24 May 85	WP/IO	CVW-15

1985 Year in Review

During simultaneous missions from both Guantanamo Bay and southern Florida, the LINK 11 secure voice system was utilized to pass contacts detected by one aircraft to the next aircraft. Thus, the origin of the contact and the entire route of flight was known at all times. VAW-78's participation in Operation *Thunderbolt* and other exercises during the year afforded a maximum of operational flying in a minimum amount of time. Combat readiness of the reserve squadron was maintained at a high level through the diversity of the exercises.

VAW-88 staged drug interdiction missions throughout the year from NAS Miramar, Calif.; NAS Corpus Christi, Texas; NAS Whidbey Island, Wash.; and NAS Alameda, Calif. The missions resulted in 53 sorties and 233.4 hours of service with the E-2B, which provided indispensable use of its long-range search radar and close control for U.S. Customs Service operations. During 1985, the squadron reduced its aircraft complement to four E-2B *Hawkeyes* in preparation for its transition to the E-2C in 1986.

The *Seahawks* of VAW-126 were based ashore while

An F/A-18 Hornet launches off USS Coral Sea (CV-43) during the ship's busy 1985/86 Mediterranean Sea deployment.

1985 Chronology

January

7 The Navy selected the F-16N for its adversary aircraft program. The purchase of 14 of the new aircraft from General Dynamics included supporting material and services. These aircraft will simulate Soviet tactical aircraft during the Navy's air-to-air combat training for fighter pilots. Deliveries are scheduled for completion by 1987.

14 A prototype MH-53E *Sea Dragon* helicopter, displayed at the Pentagon helipad in Washington, D.C., appeared for the first time in its multimission configuration, which includes the airframe provisions and equipment for airborne mine countermeasures. The first production MH-53 is scheduled for delivery to the Navy in 1986.

24 VA-83 became the first fleet operational squadron to successfully fire an AGM-88 high-speed anti-radiation missile (HARM). The missile was launched by Lt.Cdr. John Parker who was assigned to a HARM detachment deployed to Naval Weapons Center, China Lake, Calif.

29 A prototype, reengined TA-7C trainer aircraft was delivered to the Navy by LTV Aerospace & Defense Corporation under a contract to replace the TF30-P-408 jet engines in 49 of the aircraft with higher thrust Allison TF41 engines. Other modifications scheduled for completion in 1986 include new ejection seats, automatic manuevering flaps and an engine monitoring system with forward-looking infrared radar (FLIR) and electronic warfare equipment to be installed in some of the aircraft.

30 The AV-8B *Harrier II* became the U.S. Marine Corps' newest tactical aircraft when it began operational service with combat squadron, VMA-331, at MCAS Cherry Point, N.C. The new AV-8B is designed to provide close air support for Marine ground troops.

February

1 VFAs 131 and 132 arrived at NAS Cecil Field, Fla., as the first operational F/A-18 *Hornet* squadrons on the East Coast, after completing their change of home port from NAS Lemoore, Calif. Assigned to CVW-13 in LAtWing-1, both squadrons received F/A-18 training from fleet replacement squadron, VFA-125, based at Lemoore. Previously, all Navy and Marine Corps operational F/A-18 squadrons were based on the West Coast.

2 Twenty-three members of VQ-2 were injured during a terrorist bombing incident which occurred at a pub in Glyfada, Greece. Five seriously injured squadron members were medevaced to Landstuhl, Germany, for further treatment. The explosion was caused by a bomb placed under a counter in the center of the pub where approximately 200 people, mostly Americans, were present.

16 The Navy's last operational C-118 *Liftmaster* aircraft, BuNo 131597, retired from service at NAS Atlanta, Ga. Last assigned to VR-46, the aircraft was flown to Davis-Monthan AFB, Ariz., where it was taken into custody by the Military Aircraft Storage and Disposition Center. Cdr. Terry Ward of VR-46 piloted the aircraft. VR-46 was scheduled to receive C-9B *Skytrains* to replace the retired C-118s. The Marine Corps continued to operate a C-118B, BuNo 131576, which was assigned to MCAS Cherry Point. In April 1985, the C-118B was removed from the naval aircraft inventory, making it the last C-118B to operate in Naval Aviation.

17 USS *Independence* (CV-62), the third carrier to undergo SLEP, arrived at the Philadelphia Naval Shipyard for a modernization and overhaul designed to extend her service life for an additional 15 years. *Indy's* flight deck systems will be improved to allow the recovery of high-performance aircraft while the ship travels at lower speeds. Major changes also include the overhaul of two NATO

Kennedy (CV-67) was in overhaul in 1985. During this time, the squadron was involved with the drug interdiction program in various locations throughout the southeastern United States. Operations from Guantanamo Bay in August were credited with aiding the interception of several suspected drug shipments.

VAW-127, based at NAS Norfolk, detached its aircraft to Homestead AFB, Fla., from April 25 to 29 for drug interdiction operations. As a result of missions flown by the *Seabats*, 60 bales of marijuana were confiscated and two suspects were arrested.

The *Bear Aces* of VAW-124, after returning to NAS Norfolk from an earlier high-tempo deployment in the Mediterranean, also provided assistance in the "war on drugs." During the last three months of 1985, the squadron sent two plane detachments to Guantanamo Bay and Corpus Christi in support of the drug interdiction program. While in Guantanamo Bay, VAW-124's detachment of *Hawkeyes*, working in conjunction with U.S. Customs Service aircraft, located and seized an aircraft carrying 700 pounds of cocaine. The Corpus Christi det was equally as successful by helping seize 430 pounds of marijuana, one aircraft and three individuals.

Assistance toward the drug interdiction program was also provided by Naval Aviation's patrol community. During 1985, VP-65 flew missions staged from Howard AFB in the Republic of Panama and was the first patrol squadron to begin surveillance and patrol operations from the area. Setting standards for other squadrons to follow, the *Tridents* participated in Operation *Close Look*, the code name for a joint Navy-Coast Guard operation. During the months of November and December, VP-65 air crews flew 333 hours in support of *Close Look*.

The *Liberty Bells* of VP-66 participated in Operation *Hat Trick II*, a coordinated operation with the Coast Guard in the war against illegal drug traffic. Three planes with three crews supported by a maintenance detachment flew daily surveillance missions from Roosevelt Roads during November. Tasking included general area surveillance and location of specific suspect vessels. Sightings were passed on to the Coast Guard, who then conducted the intercept if warranted. The squadron was instrumental in the apprehension and destruction of a drug smuggling vessel.

More events of the year are highlighted in the chronology.

Seasparrow missile launchers with two others to be installed along with three *Phalanx* close-in weapons systems. Other improvements will result in significant savings in fuel consumption for *Independence*.

21 The F/A-18 *Hornet* strike fighter and the light airborne multipurpose system (LAMPS), with the SH-60B *Seahawk* ASW helicopter, deployed overseas for the first time. Two of the Navy's newest weapons systems both operated as part of Battle Group Delta headed by USS *Constellation* (CV-64) in a routine deployment with the Seventh Fleet to the Western Pacific and Indian Ocean. The *Hornets* replaced A-7E *Corsairs* operated by two squadrons assigned to CVW-14, making CV-64 the Navy's first carrier to have F/A-18s assigned to her air wing. The SH-60B *Seahawk* helicopter operates as the air subsystem for the LAMPS MK III weapon system which was deployed aboard the *Oliver Perry*-class frigate USS *Crommelin* (FFG-37).

23 A Navy SH-60B *Seahawk* crashed approximately 400 miles northwest of Puerto Rico during an operational test flight. The helicopter was ditched by the crew members, two of whom were rescued by a second SH-60B LAMPS MK III helicopter and the others picked up by the frigate USS *Underwood* (FFG-36). Both helicopters were operating from *Underwood* as part of an operational test team attached to Air Test and Evaluation Squadron One (VX) 1 at Patuxent River. A board of inquiry was convened to determine the cause of the accident.

25 VAdm. Edward H. Martin assumed the duties of Deputy Chief of Naval Operations (Air Warfare), replacing VAdm. Robert F. Schoultz. Adm. Martin, born in Savannah, Ga., graduated from the U.S. Naval Academy in 1950 and was designated a Naval Aviator in 1955.

March

1 The Undergraduate Naval Flight Officer Training System Upgrade was introduced at NAS Pensacola when the first class of prospective NFOs began training on the Cessna T-47A *Citation*. As part of the new training system upgrade, T-47As replaced T-39D *Saberliners*, which had been used to train NFOs since 1965.

6 The Naval Air Systems Command and United Technologies' Sikorsky Aircraft signed a contract for full-scale development and production options for a carrier-borne version of the SH-60B *Seahawk*. Designated SH-60F, the variant is scheduled for delivery in 1987 and will be used to protect the inner perimeter of carrier battle groups from enemy submarines.

26 Paul Garber, historian emeritus and Ramsey Fellow at the National Air and Space Museum, Washington, D.C., was designated Honorary Aviator No. 16 at age 85. Garber has been intimately associated with aviation since his boyhood days when he watched an aerial demonstration by the Wrights in 1909. VAdm. Edward H. Martin presented honorary Wings of Gold to Garber for his significant contributions to Naval Aviation.

29 The Navy awarded a contract to the McDonnell Douglas Corporation for development of night attack capabilities for the F/A-18 *Hornet* aircraft. Starting with 1989 deliveries, about 750 F/A 18s will be outfitted with a navigational forward- looking infrared pod, a television-like heads up display, night vision goggles for the pilot, and other improvements. A prototype of the night attack-capable aircraft is anticipated for flight by 1987.

April

1 VP-68 completed its move from NAS Patuxent River, Md., to NAF Washington, D.C. Relocation of the reserve anti-submarine warfare squadron, which operates the P-3B *Orion*, was to make room for the JVX test program at Patuxent but also helped to balance base loading at NAF Washington. The V-22 *Osprey*, formerly the JVX, a multiservice, tilt-rotor V/STOL

(vertical/short takeoff landing) aircraft, is scheduled for testing at the Naval Air Test Center starting in 1988.

11 USS *Coral Sea* (CV-43) was damaged during a collision with Equadorian tanker *Napo* while conducting air operations during refresher training near Guantanamo Bay. A 30-foot hole was punched in the carrier's bow by the impact and electronics and communications on the carrier's starboard side were damaged. Commanded by Capt. Gene Tucker, the carrier was in training following a recent overhaul at Portsmouth Naval Shipyard, Va. Six days later, the carrier returned to her home port in Norfolk but was unavailable for participation in Exercise *Solid Shield* as a result of the collision.

12 VAQ-133 returned the last fleet EA-6B EXCAP aircraft, BuNo 159585, to Grumman Aircraft Corporation for ICAP II modification at the company's facilities on Long Island, N.Y. VAQ-133 began its transition to the ICAP II EA-6B in January 1985.

26 David Sinton Ingalls, Naval Aviator No. 85 and the Navy's only WW I flying ace, died at his home in Chagrin Falls, Ohio, after a stroke. Ingalls was a member of the First Yale Unit before he was ordered to the Royal Flying Corps and later assigned to Royal Air Force Squadron Number 213, located in Berguess, France. He shot down four enemy planes and one aerial balloon during the war and later served as Assistant Secretary of the Navy for Aeronautics during the Hoover Administration.

May

12 USS *America* (CV-66) completed a five-month selected restricted overhaul at the Norfolk Naval Shipyard, five days earlier than the scheduled date. The carrier entered the yard on January 18 for improvements which included installation of a nonskid material on the deck's surface.

20 USS *Forrestal* (CV-59) departed Philadelphia Naval Shipyard for NAF Mayport, Fla., after completing overhaul under a 25-month service life extension program which began in January 1983. The carrier had completed sea trials in February.

30 The keel was laid for USS *Wasp* (LHD-1) during ceremonies at Ingalls Shipbuilding in Pascagoula, Miss. First of a new class of amphibious ships, the LHD is designed to accommodate helicopters such as the CH-53E *Super Stallion* and SH-60B *Seahawk*, as well as the MV-22 *Osprey* tilt-rotor aircraft and the AV-8B *Harrier II*. Delivery of *Wasp* is scheduled for March 1989.

June

7 Naval pilots Lt.Cdrs. Michael A. Baker and Stephen D. Thorne and Naval Flight Officer Lt. Pierre Thuot were included among 13 new astronaut candidates selected by NASA.

8 USS *Ranger* (CV-61) returned to her home port in San Diego after completing a 13-month overhaul at the Puget Sound Naval Shipyard in Bremerton, Wash. Among other improvements, the ship's combat capability was increased with the addition of three *Phalanx* close-in weapons systems, new radars and improved communications equipment.

13 VA-37, the second Navy squadron to participate in the Marine Corps' unit rotation system, returned from a six-month deployment to MCAS Iwakuni, Japan. Based at NAS Cecil Field, Fla., the *Bulls* were the first squadron to work side by side with Marines in providing close air support as they performed with Marine fighter squadrons in a joint field environment in Taechon, South Korea.

14 USS *Nimitz* (CVN-68) was called to the coast of Lebanon for contingency operations in support of United States efforts to release American hostages held in Beirut.

19 The Navy announced the selection of *Goshawk* as the popular name for the T-45A trainer, which is a part of the T-45 training system (formerly VTXTS) scheduled to replace the T-2C and TA-4J aircraft operated by the Training Command. The name *Goshawk* was previously applied by Curtiss to the F11C-2 fighters which were manufactured for the Navy in 1933. Redesignated BFC-2 the following year they equipped one carrier dive-bomber squadron for several years.

19 The first reprocured C-2A *Greyhound*, No. 20, was delivered to NATC Patuxent River, Md., for three months of flight testing. Engines with more horsepower than those of fleet C-2As were installed in the aircraft, and the tests evaluated the effect of the updated engines on aircraft performance and flying qualities.

July

8 VAW-120, traditionally an E-2C training squadron, received its first reprocured C-2A *Greyhounds* for training replacement personnel. Initial operational capability of the aircraft was achieved on time following the delivery of five aircraft in October to VR-24, NAS Sigonella, Sicily.

13 Two A-4 *Skyhawks* of the Navy's aerobatic demonstration squadron, the *Blue Angels*, collided in midair while performing at Niagara Falls International Airport. Lt. Anthony P. Caputi ejected to safety after the tail of his aircraft was hit by an A-4 piloted by Lt.Cdr. Robert M. Gershon, who was killed in the accident. The Navy has scheduled the A-4s for replacement by F/A-18 *Hornets* in 1987.

15-17 The maintainability phase of the advanced medium range air-to-air missile (AMRAAM) was successfuly demonstrated at the Pacific Missile Test Center, Point Mugu, Calif. The missile was being tested and evaluated for both the Navy and Air Force by the Air Force Systems Command, Joint Systems Program Office, Elgin AFB, Fla. The demonstration, repeated several times a day for three days, was an attempt to load four AMRAAMs onto the wings of an F/A-18 *Hornet* in less than 15 minutes. Loading time is critical to the Navy in combat situations both ashore and on board aircraft carriers. Unloading procedures, which were not to exceed four minutes, were performed in an average of two minutes.

August

9 USS *Lexington* (AVT-16), the oldest active carrier in the Navy's fleet, departed for her home port in Pensacola, Fla., after completing a 9.5-month restricted overhaul at Philadelphia Naval Shipyard. During the overhaul, the carrier's decks were strengthened and 40 percent of her wooden flight deck was replaced with steel.

29 The Secretary of the Navy announced the decision to home port USS *Nimitz's* (CVN-68) carrier battle group at Everett, Wash., in the Puget Sound region. Scheduled as the home port for up to 15 ships including *Nimitz*, construction of the site is anticipated to begin in FY 86. The first ship is scheduled to arrive in FY 89 and the remaining ships in FY 91.

September

2 Reserve squadron HSL-84 completed its deployment of two detachments aboard reserve frigates which marked the first time in Naval Reserve history that a reserve LAMPS detachment was embarked aboard a ship for an extended period of time. While at sea for two weeks beginning August 16, Detachment One assigned to USS *Grey* (FF-1054) and Detachment Two assigned to USS *Lang* (FF-1060) operated as part of a five-ship all-reserve squadron.

October

1 VF-301, assigned to CVWR-30, became the first fully operational F-14A *Tomcat* reserve squadron when it completed its transition to the aircraft at NAS Miramar.

10 Four of seven Navy F-14s of VFs 74 and 103 launched from USS *Saratoga* (CV-60) intercepted an Egyptian 737 airliner in international waters and directed it to Sigonella, Sicily. The airliner was carrying four Arab terrorists who had earlier hijacked the Italian cruise ship *Achille Lauro* on October 7 and murdered Leon Klinghoffer, a U.S. citizen. During the operation, the F-14s were refueled by Navy KA-6D tankers. Other aircraft which assisted in the intercept were Navy E-2C *Hawkeyes* of VAW-125, EA-6B *Prowlers* and an Air Force C-135.

13 USS *Coral Sea* (CV-43) returned to the Mediterranean Sea for her first Sixth Fleet deployment since 1957. Commanded by Capt. Robert H. Ferguson, with CVW-13 embarked, it was also the first deployment of the F/A-18 to the Med. The aircraft were assigned to the *Kestrels* of VFA-136 and the *Knighthawks* of VFA-137.

15 A *Tomahawk* antiship missile was launched from USS *Norton Sound* (AVM-1) at the PMTC's Sea Test Range off the coast of California. The test successfully demonstrated the missile's vertical launch system as well as its ability to search for, find and strike a target at sea. Capable of carrying either a nuclear or conventional warhead, the *Tomahawk* vertical launch system is expected to be operational by mid-1987.

19 VFA-303, the first Naval Reserve squadron to transition the F/A-18, received its first aircraft during ceremonies at NAS Lemoore. Delivery of the eight aircraft ended two years of preparation at NAS Alameda, where the squadron was home-ported until its move to Lemoore in 1983 for training in the *Hornets*. Later, on October 31, Lt. Bram B. Arnold of VFA-303 landed aboard USS *Ranger* (CV-61), becoming the first reservist pilot to land an F/A-18 aboard an aircraft carrier and the first reservist pilot to make a night landing on board a carrier in 10 years.

28 The first prototype model of the S-3B *Viking*, an operational capability upgrade to the S-3A, arrived at NATC Patuxent River, Md., for developmental test and evaluation. The "B" configuration, extensively updated with state-of-the-art avionics and the *Harpoon* missile control and launch system, was developed to counter the threat of the new generation of sophisticated Soviet submarines and to enhance the aircraft's multimission capability.

30 The Navy and Grumman Aerospace Corporation reached an agreement to resume Navy acceptance of F-14s which included the strengthening of the F-14's fuselage to improve its service life. Acceptance of F-14 *Tomcats* had been halted in April after cracks were discovered in the bulkheads of fleet aircraft.

31 Cuts in deployment schedules were ordered by the Chief of Naval Operations to eliminate excessive at-sea periods for ships and aircraft squadrons. This was intended to enhance efficient use of the expanded Navy, and, at the same time, allow crews more time at home with their families. During an interview, the CNO announced major turnaround ratios of 2:1 or better, assuring sailors that battle groups would spend a maximum of six months at sea.

November

2 *Enterprise* (CVN-65) was damaged after it struck a shoal about 100 miles west of San Diego, while undergoing training workups prior to a scheduled deployment to the Western Pacific. A 60-foot gash in the hull and damage to one of the carrier's four propellers required the carrier to be placed in drydock on November 27-28 at Hunters Point Naval Shipyard where it remained through the end of 1985.

9-17 A detachment from VP-66 participated in *Operation Hat Trick II* operating out of NS Roosevelt Roads, P.R. It was a coordinated operation with the Coast Guard in the war against illegal drug traffic. The operation involved general area surveillance and location of suspect vessels.

December

3 Capt. Henry M. Kleemann, the former F-14 squadron commander who took part in the VF-41 shoot-down of two Libyan fighters in 1981, was killed while landing an F/A-18 at NAS Miramar. Capt. Kleemann was the C.O. of Air Test and Evaluation Squadron 4. He was arriving from the squadron's home port at NAS Point Mugu, Calif., when his aircraft skidded off the runway and flipped over while landing.

3 As a result of the Navy's action against General Dynamics Corporation, the company was suspended from new contracts following its indictments on charges of contract fraud. The suspension was later lifted after management changes were made by General Dynamics.

5 USS *Inchon* (LPH-12) arrived at NOB Norfolk after completing a 7.5-month overhaul at Philadelphia Naval Shipyard. The carrier received upgraded communications and fire-fighting systems and a new flight deck. The *Inchon* is a member of the *Iwo Jima*-class of ships which were the first designed to implement the Marine Corps' vertical assault concept.

13 VC-10 was tasked to fly cover for a U.S. warship exercising rights of navigation in international waters off the southern coast of Cuba. VC-10 provides air service for U.S. Atlantic Fleet ships and aircraft and air defense of Guantanamo Bay, Cuba.

Establishments/Disestablishments/Redesignations of Naval Aviation Commands, 1985

HS-74 redesignated HSL-74	1 Jan	NAS South Weymouth, Mass.
VA-45 redesignated VF-45	7 Feb	NAS Key West, Fla.
VA-195 redesignated VFA-195	1 Apr	NAS Lemoore, Calif.
VR-52 Det Detroit, Mich., disestablished	30 Jun	NAF Detroit, Mich.
VFA-136 established	1 Jul	NAS Lemoore, Calif.
VFA-137 established	1 Jul	NAS Cecil Field, Fla.
VR-62 established	1 Jul	NAF Detroit, Mich.
VA-122 Det Fallon, Nev., disestablished	30 Sep	NAS Fallon, Nev.
HSL-94 established	1 Oct	NAS Willow Grove, Pa.
VAQ-140 established	1 Oct	NAS Whidbey Island, Wash.
HSL-40 established	4 Oct	NAF Mayport, Fla.
NS Keflavik, Iceland redesignated NAS Keflavik	8 Oct	NAS Keflavik, Iceland

Amphibious Warfare School

An artist's concept of the MV-22A, the USMC version of the new tilt-rotor aircraft. Initial flight of the Osprey is set for 1988. The aircraft will improve the USMC's amphibious warfare capabilities.

Boeing Vertol Company

It's a place where "grunts" meet "airdales" and go to class together; a place where, as a team, they learn the finer points of amphibious warfare. More importantly, over the course of a tough 10-month curriculum, they develop a respect and understanding for each other that wasn't there when they began their mutual training.

It's the U.S. Marine Corps' Amphibious Warfare School (AWS) in Quantico, Va., situated in a plain, sturdy brick building on a verdant knoll overlooking the Potomac River, south of Washington, D.C. The setting of Geiger Hall, named after famed USMC General Roy S. Geiger, exudes tranquility but within its walls, in classrooms and auditoriums, minds toil in deep earnest, studying the far-from-tranquil art of warfare.

Says one instructor, Major Greg Johnson (whose father, incidentally, matriculated with the third class to attend AWS in 1946), "There's a melding of two elements here. Ground officers sometimes think aviators are very parochial. And aviators sometimes think ground officers are very parochial. Here, both exchange ideas and opinions and, in the process, learn how each other thinks. Although 85 percent of the course is ground-oriented, the flyers and their brothers in the trenches are forced to work with each other. Eventually, the barriers of misunderstanding fall. The people who call in for air strikes develop a special appreciation for the airman's problems and vice versa."

Colonel J. J. Carroll is AWS' director. He explains, "The school's mission is to prepare Marine Corps captains and other selected officers in the planning and execution of amphibious operations at the unit and brigade level. Primary focus is on operational aspects of amphibious activities. We emphasize the command and staff functions which are necessary to integrate all combat elements into an effective fighting unit." The student body of about 200 includes one-quarter aviation types, one-quarter combat service support officers, and one-half ground infantry personnel. Approximately 16 instructors permit an effective 12-to-1, student-to-teacher ratio.

"It is the deep immersion into total knowledge of amphibious warfare that distinguishes AWS from other career level schools," adds Carroll. "Our goal is to produce officers capable of successfully executing the Marine Corps' primary mission."

"We try to enhance the student's decision-making ability," says Carroll, "decisions that in real life must be made in a two-to-three second time frame. Overall, we want to stimulate the desire for professional growth in our officers."

Using a building block approach, the school addresses three major areas: combat itself, combat support and combat service support. The entire spectrum of threat capabilities, limitations and vulnerability is considered throughout.

Among the key elements of training is a battle studies program. It casts students into the world of military history. Modern day warriors gather on the once-bloodied fields of Gettysburg, Chancellorsville and the Shenandoah Valley where they retrace steps of their forebears-in-arms and analyze the whys and wherefores of decisions made by U.S. military men of the 1860s. Next, using the same terrain and maps, students develop modern offensive and defensive plans, with manual or computerized assistance. They "play out" those plans in a sort of war gaming exercise. They exercise command and staff functions and obtain a sense of the feasibility of the plan they created.

Students also execute in-depth studies of other battles from WW I and II, Korea and Vietnam. They commit their studies to paper and present formal briefings based on their interpretation of how and why the battles were carried out and what actions or decisions might have altered the outcome of the fighting.

AWS instructor, Maj. Greg Johnson, far left, explains combat scenarios to students using terrain mock-up and aircraft mounted on pointers.

Map exercises are a critical part of AWS' curriculum. The school's mission is to prepare Marine Corps officers in the planning and execution of amphibious operations.

A familiar acronym at AWS is TEWTs — tactical exercise without troops. First introduced into the curriculum in 1982, TEWTs is a teaching technique which involves study in the field as well as the classroom. Students are given problem scenarios and tasked with resolving them as if they had troops at their disposal. Again, the emphasis is on developing plans and decision-making techniques.

To assist in real-world contingency planning, additional exercises are geared toward potential trouble areas, such as Lebanon and Iran, and locales like Norway, Cyprus and Denmark.

The Combined Arms Staff Trainer (CAST) is a system of instruction utilizing miniaturized battlefield mock-ups and involving 15 or more officers, each of whom has a specified script to follow.

In fact, CAST literally involves the acting out of a battle problem with each officer assigned a specific role, be it as a forward air controller, close air support pilot, fire direction officer for an 81-millimeter mortar platoon, or a battalion operations officer. Participants maneuver the aircraft which are mounted on pointers, or tanks on the ground, "acting out" an operation from A to Z on a real-time basis with continuing narration according to what might be called a combat script.

AWS features classes in Nuclear Biological and Chemical (NBC) warfare, also. Included is a day during which students wear full NBC warfare battle regalia in order to gain an "appreciation" of what fighting would be like when so encumbered. They also undergo decontamination procedures in a realistic manner.

These are but a few of the elements of the training process of AWS, all of which translate into professional learning of the highest order. During the 10-month tour, the captains experience 1,200 hours of instruction, 500 in the field. "Importantly," says Col. Carroll, "80 percent of the graduates are assigned to operational units where they put what they have learned to immediate use."

Adds Carroll, "We consider AWS instrumental to ultimate Marine Corps success in the field. Quantico is considered the 'seat of wisdom' for officer education in the Marine Corps and we're proud to be part of what goes on here. We also recognize the criticality of keeping abreast of ever-changing technology and tactics. In that regard, the MV-22 aircraft, now in the developmental stage, is one we're looking forward to. It promises to add whole new dimensions to amphibious warfare as will the LCAC [air cushion landing craft]." The latter will enable Marines to reach 70 percent of the world's beaches. Presently, that rate is less than 20 percent.

Still, human beings must make the decisions that determine the winners and losers of battles — battles that, hopefully, will never come but which U.S. military units must be prepared for nonetheless. ■

Aerospace Engineering At Annapolis

A number of pioneering aircraft flights took place at Annapolis and some consider this Maryland site the birthplace of Naval Aviation. Indeed, an experimental station for aviation purposes was established at Greenbury Point, across the Severn River from the U.S. Naval Academy, in August 1911. In the years that followed a few of the giants of early Naval Aviation conducted operations there: Ted Ellyson (Naval Aviator #1), John Towers, Pat Bellinger, and the USMC's Alfred A. Cunningham were a few.

The aviation "connection" at Annapolis continues to this day, although the nature of it has changed considerably. The connection is the Aerospace Engineering program at the academy where state-of-the-art learning focuses on such matters as high-speed characteristics of the F/A-18 Hornet. *The following article provides a glimpse of the program at the academy.*

The course is demanding, exhausting, challenging, and in the end, totally rewarding. It is the aerospace engineering curriculum at the U.S. Naval Academy where a growing number of midshipmen pursue a major in this field, a major which promises to enhance their careers enormously.

Commander William L. McCracken (U.S. Naval Academy '67) chairs the Aerospace Engineering Department. In pure and simple terms he explains to midshipmen that "career opportunities for officers with extensive technical education are broader than opportunities for those not possessing such qualifications."

True enough. But they must master courses with erudite titles such as structural dynamics, aeroelasticity and gasdynamics along the way. Even so, Lieutenant Commander T. E. Kleiser (Shippensburg University), like McCracken, a Naval Aviator, points out that "evidence of the popularity of the curriculum is reflected in the fact that 69 midshipmen sought the major from the class of 1985, while the class of 1988 has 142 of its members enrolled. Of more than 400 enrolled in all classes, 10 are women (the academy student body totals 4,500). It's probably the most sought after major at the academy."

And why not? The department features 14 highly qualified instructors (five military, nine civilian, many with Ph.Ds and none with less than masters' degrees). It enjoys the sanction of the Accreditation Board for Engineering and Technology. The program is considered among the best of its kind in the U.S., if not the world.

The facilities are nothing short of magnificent. Laboratories abound. In the rotor lab, a blade 20 feet in diameter can be turned at a rate of 500 rpms. The performance of small jet, rocket and reciprocating engines are measured in a propulsion lab. In the high-speed aero lab, a transonic wind tunnel permits flow studies in the Mach 1 range while a supersonic tunnel achieves Mach 4. A pair of subsonic wind tunnels in the low-speed aero lab achieve 150 mph airspeeds. Various shapes and bodies are aerodynamically tested here.

In the structure laboratory aircraft components can be examined for their torsional bending and buckling strengths. The flight simulator lab features a variable stability flight simulator that can be configured to exhibit some characteristics of planes like the F/A-18 or 747 airliner. Then there is the real thing, a Beechcraft *Bonanza* that operates out of nearby Lee Airfield. In-flight work includes the gathering of stability and control data. The department also owns and maintains a hovercraft for training purposes.

The Curtiss seaplane being placed on the catapult launching car on the Santee dock at the U.S. Naval Academy in 1912.

The study of aerospace engineering requires establishment of a firm foundation in aerodynamics, vehicle performance and control, propulsion systems and structures. Although the department places primary emphasis on high and low speed atmospheric vehicles, courses relating to space systems are firmly entrenched in the curriculum.

In addition to primary areas there are other elective courses such as orbital mechanics, the aerodynamics of V/STOL aircraft, elements of flight test engineering, and aerospace vehicle design. Recently, the aerospace engineering major expanded to also include a space curriculum in order to meet the technical needs of the Navy in the space field. Included in this curriculum are introduction to space sciences and space laboratory, astrodynamics, spacecraft attitude

dynamics and control, spacecraft systems design, space environment and spacecraft vehicle design. This allows an aerospace engineering major to select an aeronautics or astronautics interest. Always available are a host of outstanding state-of-the-art computers to support such courses as computer-aided design in engineering, as well as other aerospace courses. Whatever the course selection, two hours of "hitting the books" is needed for every hour in the classroom. And, at a point downstream in their training, a student will develop a working knowledge of how to build, fly and test an aircraft.

"It's no secret that the need for aerospace engineering graduates will continue to exist and probably grow," says Cdr. McCracken. "Not only is there increasing interest in spacecraft and conventional airplanes, but also high-speed surface effect ships and the expanding application of structural techniques and jet engines for use in all manner of vehicles. The needs of the service are such that officers who can assist in the development of new aerospace oriented weapons systems and converse easily with technicians and other engineers will be a growing requirement."

McCracken is also quick to add that "many successful Naval and Marine Corps aviators come from a broad spectrum of academic backgrounds. The completion of an aerospace engineering major is certainly not a prerequisite for potential aviators."

In addition to fleet assignments, graduates can look to the fields of material acquisition and management, research and development and test and evaluation.

In fleet squadrons, good technical education is a big plus for the maintenance, quality control, avionics and weapons training officers.

At the type commander staff level, for example, some billets require strong technical backgrounds. These include the avionics, material, power plants, and antisubmarine warfare class desk officers who tend to be aeronautical engineering duty officers with aviation backgrounds. The Naval Air Systems Command (NavAirSysCom) has a continuing need for aerospace engineers to handle tasks ranging from research to logistics support, from material acquisition to test and evaluation. Perhaps the most demanding and rewarding positions in NavAirSysCom are those of the major program managers (PMAs). These officers, usually captains, are hand-picked for their demonstrated technical and managerial abilities. They are tasked with running such programs as the F/A-18 or the LAMPS Mk III antisubmarine warfare system.

"If a student is technically oriented, interested in aviation and headed for flight training, the aerospace engineering course is a great choice," says McCracken. "At the same time, for midshipmen whose interest are apart from aviation, aerospace engineering training provides excellent background for other career paths including the nuclear power program."

In any case, Naval Academy aerospace engineering graduates help form the core of the Navy's expertise in the aerospace field. ■

F/A-18 Hornet over MCAS El Toro, Calif.

Future of Naval Aviation?

How would you envision U.S. Naval Aviation by 2011, the year of its 100th anniversary? Naval Aviation News posed this question in its May-June 1986 issue to a variety of people who have contributed much to the community's growth and vitality. The following letter is another opinion concerning this development.

Adm. Thomas B. Hayward, USN(Ret.)
Former Chief of Naval Operations

If one is a pragmatist — a category with which I am intimately associated after many years of combat duty in Washington fighting fiercely for every marginal improvement in our naval warfare fighting capability — one is compelled to project a Navy in the year 2011 on the basis of what one judges might fall into the realm of the probable — not the desirable, not even the essential. Additionally, several major assumptions must be considered: that the U.S. and U.S.S.R. have managed somehow to avoid direct military conflict; that budgetary support for defense isn't going to exceed historical peacetime trends; and that third world crises will have induced the U.S. into the limited use of force at least once.

Given acceptance of these assumptions, then one must look hard at the Navy's current force structure, its growing obsolescence, the attendant need for replacements, new technologies and affordability limits.

- At the forefront of such an assessment, we are immediately confronted with the issue of block obsolescence of the big-deck carriers about the turn of the century. Through a variety of overhaul and modernization techniques, we will have extended their lives to almost half a century. We might well be compelled to stretch them indefinitely, much as we are doing with *Midway* today. Affordability has long been the major political obstacle to building more, an obstacle not easily circumvented. A principal disappointment has to be our inability to bring STOL and V/STOL technologies more effectively into Naval Aviation, thereby giving us a real opportunity to think about significant innovations in attack carrier designs. Most especially, I remain acutely troubled by our almost total dependence on the catapult, and to a lesser extent, the arresting gear. It is no longer possible for the U.S. Navy to be imaginative and inventive when it comes to the viability of our most important surface combatant asset? With the Royal Navy out of the attack carrier business, are we helpless?
- If historical trends prevail, by 2011, the carrier air wing will have undergone one full generation of modernization. Fortuitously, the aerospace industry continues to inspire some of our finest minds. The fight for survival in a highly competitive industrial sector also insures that the U.S. Navy will continue to be provided the finest tactical aircraft in the world. The more pregnant question is, "How many tactical airplanes will we own?" Affordability trends are not encouraging. Production rates have dwindled to the point that fewer and fewer aircraft are virtually preordained. Here, the Air Force suffers the same malady, which dictates a higher degree of coordination between the two services, while avoiding the TFX woes.
- Very smart weapons will be commonplace. Keeping up with the tactical challenge of exploiting them to the full measure of their capability will be a stimulus of exciting proportions.
- Space systems will have become a second-nature adjunct to naval warfare, especially as employed in highly sophisticated command and control networks. The information revolution has only just begun. The tactical commander who can optimize the use of this information and blend it into effective tactics will have the upper hand in battle.
- For certain, our adversary, the Soviet Union, will continue to invest massive amounts of his national resources into defense, thereby compelling the U.S. to struggle hard to stay even with the threat. It is not enough to be troubled about the numerical advantage which the Soviet Navy confronts us with today. Of even greater concern must be the narrowing of the technological gap, a trend that has been ongoing for several years and can logically be projected into the future. To the point of Soviet supremacy? God forbid!

One element will not change. In the environment of naval warfare, at whatever level of technology one wishes to speculate and whatever balance of power equation prevails, the human element will continue to be the dominant factor in judging the outcome of battle. Tactics will be the vital ingredient. Leadership — whose strong point in warfare is tactical competence — will be an overriding requirement, not excellence at managing new weapon systems, acquisition or other bureaucratic endeavors, however important such responsibilities are towards the achievement of an affordable naval force. Will Naval Aviation remain a predominant aspect of the U.S. defense posture? Almost assuredly.

Naval Aviators who know their weapons thoroughly, who have honed their personal skills to a sharp edge of excellence, who leave no stone unturned in their consummate drive to know, practice and execute naval tactics as a first order of priority, will always be in demand and will always be that vital element that will "make the difference." ■

Diamond Anniversary Celebration

Schedule of Events

July		
1	75th Anniversary of Naval Aviation	Hammondsport, NY
4	Open House	NAS Chase Field, TX
4	Statue of Liberty Dedication	New York Harbor, NY
4-6	V.P. Fair Air Show	St. Louis, MO
5	Sugarbush Air Show	Warren, VT
5-6	4th Fest Air Show	Rockford, IL
6-7	Open House	NAS Moffett Field, CA
7-12	Viking Week West	NAS North Island, CA
11-13	50th Anniv. of FAA	Leesburg, VA
12-13	Thunder on the Ohio	Evansville, IN
12-13	Air Show	Detroit, MI
12-13	Chicago Air and Water Show	NAS Glenview, IL
12-13	Air Show	Otis AFB, MA
12-13	Tri-Cities Air Show	Pasco, WA
13	Air Show	Keene, NH
16-19	NAS Meridian 25th Birthday	NAS Meridian, MS
18	Armed Forces Celebration	Amherst, MA
19	Open House	MCAS Beaufort, SC
19	Air Show	Pensacola Beach, FL
19-20	Air Fair	Muskegon, MI
24-27	Dayton International Air Show	Dayton, OH
26-31	Fly Navy West	NAS Miramar, CA
26	Intruder Ball/75th Anniv.	NAS Whidbey Island, WA
26-27	Air Show	McGuire AFB, NJ
27	200th Anniv. Columbia County	Hudson, NY
August		
1-2	Fly Navy West	NAS Miramar, CA
1-8	EAA Convention	Oshkosh, WI
2-3	National Air Show	Medford, OR
2-3	Air Show	Seattle, WA
3	Chamber of Commerce Air Show	Willimantic, CT
8-10	Vancouver World's Fair/Air Show	Abbotsford, BC
9-10	Air Show	Peoria, IL
9-10	Willow Run Air Show	Ann Arbor, MI
9-10	New England Air Museum Open Cockpit	Windsor Locks, CT
9-10	40th Anniv. S. Dakota ANG	Sioux Falls, SD
15-17	Gathering of Warbirds	Madera, CA
16-17	Air Show	NAS Moffett Field, CA
16-17	International Air Show	Cambridge, MN
16-17	International Air Show	Quonset Point, RI
16-17	N.W. Classic Air Race & Show	Richland, WA
16-17	Air Show	Offutt AFB, NE
16-17	Washington International Air Fair	Everett, WA
16-17	Air Show	South Bend, IN
22-31	Air Show	Sussex, NJ
23-24	Rickenbacker Memorial Air Show	Columbus, OH
23-24	Big Sky International Air Show	Billings, MT
23-24	Flight '86 Air Show	Schenectady, NY
23-24	Air Rendezvous	Springfield, IL
23-24	Air Show	Reading, PA
23-24	Inland Empire Air Fair	Coeur D'Alene, ID
24	Air Show	Sheppard AFB, TX
24	Air Show	Meridan, CT
30-31	National Air Show	Cleveland, OH
September		
1	National Air Show	Cleveland, OH
5-7	International Seaplane Fly-In	Greenville, ME
6	Air Show	Olney, IL
6	Air Show	Griffiss AFB, NY
6-7	Air Fair	Cedar Rapids, IA
6-7	Air Show	NAS Atlanta, GA
6-7	Tennessee Aviation Days	Nashville, TN
11	Air Show	Reno, NV
12-15	National Air Races	Reno, NV
13-14	Air Show	Quanah, TX
13-14	Western Colorado Air Show	Grand Junction, CO
13	75th Naval Aviation Celebration	NAS S. Weymouth, MA
20	Air Expo	NAS Patuxent River, MD
20-21	Air Show	Topeka, KS
21-22	Neptune Festival	NAS Oceana, VA
27-28	Westmoreland County Air Show	Latrobe, PA
27-28	Amigo Air Show	El Paso, TX
27-28	International Air Show	Middletown, PA
27-28	International Air Show	Pueblo, CO
27-28	Air Show	Sweetwater, TX
27-28	N. Florida Air Show	Lake City, FL
27-28	Wings Over Houston	Houston, TX
28	Air Show	Blytheville AFB, AR
October		
4-5	Air Show	Little Rock AFB, AR
4-5	International Air Show	Salinas, CA
4-5	S. Illinois Air Fair	Carbondale, IL
9-12	CAF Air Show	Harlingen, TX
10-11	Air Show	NS Treasure Island, CA
11-12	National Air Show	Lake Charles, LA
11	Air Show	Robins AFB, GA
18	Navy Birthday	NAS Meridian, MS
18-19	Children's Benefit Air Show	Galveston, TX
18-19	Air Show	NAS Point Mugu, CA
18-19	New England Air Museum Open Cockpit	Windsor Locks, CT
18-19	International Air Show	Fort Worth, TX
18-19	Atlanta Aerospace Expo	NAS Atlanta, GA
18-19	Jackson County Air Show	Pascagoula, MS
19	Air Show	Langley AFB, VA
23	Air Show	Tyndall AFB, FL
25-26	Deer Valley Air Show	Phoenix, AZ
25-26	National Air Show	Opa Locka, FL
31	Air Show	NAS New Orleans, LA
November		
1-2	Air Show	NAS New Orleans, LA
1-2	Florida State Air Show	Kissimmee, FL
December		
6	Army/Navy Football Game	Philadelphia, PA
12	The Annual Wright Banquet	Los Angeles, CA

awards

CNO Safety Awards

The following are the CY 85 winners of the CNO Aviation Safety Awards:

ComNavAirLant: VF-84, VA-12, VA-42 (second consecutive), HM-14, VP-49, VS-24, VAW-125, HS-5, VRC-40, VF-43, HSL-36 and VAQ-138.

ComNavAirPac: VF-21, VA-27, VFA-25, VA-165, VAQ-139, VS-33, VAW-112, VP-31, HS-8, HSL-37, VAW-110, VRC-30 (third consecutive), VA-127 and HC-5.

ComNavAirResFor: VF-301, VA-304, VP-91, HSL-84, VR-51 and VAQ-309.

ComNavAirSysCom: NavPRO Stratford, Conn.

CNATra: VTs 6 (third consecutive), 10 (second consecutive), 25 (second consecutive) and 19 and HT-8.

CG FMFLant: HMA-269, HMM-365, VMAQ-2 (second consecutive) and VMGR-252.

CG FMFPac: VMFA-323 (second consecutive), HMH-363, VMFA-212, HMM-163 (fourth consecutive) and VMA-513.

The 1985 CNO Readiness Through Safety Award went to Commander, Naval Air Force, U.S. Atlantic Fleet as the major command that contributed the most toward readiness, high morale and economy of operations through safety. The recipient of this award also receives the Admiral James S. Russell Naval Aviation Flight Safety Award.

Flatley Award

The 1985 recipients of the Admiral Flatley Memorial Award are USS *Kitty Hawk* (CV-63) and USS *Saipan* (LHA-2). Sponsored by Rockwell International, the annual award honors VAdm. James H. Flatley, Jr., and recognizes superior operational readiness, outstanding safety records and significant contributions to aviation safety during the preceding calendar year.

Marine Corps Aviation Awards

The Marine Corps Aviation Association presented the following awards in 1985:

Alfred A. Cunningham Aviator of the Year: Capt. Michael C. Albo.

Robert Guy Robinson Flight Officer of the Year: LtCol. Richard C. Kindsfater.

Aviation Ground Officer of the Year: Capt. Michael J. Cooper.

Air Controller of the Year: Capt. Randolph L. Hill.

Fixed Wing Aircrewman of the Year: CWO-3 Terry D. Ruhter.

Exceptional Achievement Award: MSgt. Timothy J. Brinton.

Plane Captain of the Year: SSgt. Lou Ann Rickley.

Silver Hawk of the Year: MajGen. Frank E. Petersen, Jr.

Helicopter Aircrewman of the Year: SSgt. David H. Dielman.

Bud Baker V/STOL Enhancement: Capt. Douglas Smith.

James E. Nicholson Enlisted Leadership: MSgt. Daniel Smith III.

Aviation Electronic Technician of the Year: GySgt. Donald L. Erickson.

James Maguire Enlisted Aviation Safety: SSgt. Anthony P. Borgstadt.

CMC Aviation Efficiency Award: HML-267.

Pete Ross Safety Award: VMFA-112.

LtGen. Keith B. McCutcheon Helicopter Squadron of the Year: HMM-163.

Robert M. Hanson Fighter-Attack Squadron of the Year: VMFA-212.

Lawson H.M. Sanderson Attack Squadron of the Year: VMA(AW)-332.

Edward S. Fris Award: 2nd LAAM BN, 3rd MAW.

National Aviation Hall of Fame

This Diamond Anniversary Year of Naval Aviation also marks the 25th birthday of the National Aviation Hall of Fame, in Dayton, Ohio, where many air and space greats are enshrined. The following is a listing of the Naval Aviation pioneers whose honor gallery plaques are displayed in the Hall of Fame:

	Contributions	Enshrined
Neil A. Armstrong	Astronaut/first man on the moon	1979
Bernt Balchen	Aerial exploration in the polar regions	1973
Richard E. Byrd	Flights over both poles	1968
Charles Conrad, Jr.	Test pilot/astronaut	1980
A. Scott Crossfield	Tested research aircraft exceeding Mach 3	1983
Theodore G. Ellyson	First Naval Aviator	1964
Eugene B. Ely	Demonstrated operational use of aircraft aboard ships	1965
Leroy R. Grumman	Engineering innovations that advanced military aircraft	1972
Harry F. Guggenheim	Life-long promotion of aeronautics	1971
Edward H. Heinemann	Design and development of military aircraft	1981
David S. Ingalls	Navy's only ace in WW I	1983
Albert C. Read	C.O. of NC-4 in world's first transatlantic flight	1965
Holden C. Richardson	Developed water and ship-based aircraft and devices	1978
Walter M. Schirra, Jr.	Astronaut in the *Mercury*, *Gemini* and *Apollo* space missions	1986
Alan B. Shepard, Jr.	First astronaut to be launched into space	1977
John H. Towers	Recognized air power as a vital naval doctrine	1966

STATE OF THE ART

Follow-on HARM Contract

The Navy recently awarded Texas Instruments a $27.6 million contract to produce 113 high-speed anti-radar missiles (HARMs), which is a follow-on to FY 85 contracts awarded in March 1985 for $60 million and in June 1985 for $462.1 million.

Since initial deliveries in 1982, HARM has deployed aboard several Navy carriers and is currently installed on A-7E and F/A-18 aircraft. The air-to-surface missile is designed to suppress or destroy present-day surface-to-air missile radars, early warning radars and radar-directed air defense artillery systems. It is the first expendable weapon system to carry a warranty in accordance with the FY 84 and FY 85 defense appropriation laws.

Modular Universal Laser Equipment

A versatile laser device that will enable the Marine Corps to pinpoint targets for laser-homing weapons, conventional artillery and naval gunfire has been delivered by Hughes Aircraft Company.

Called modular universal laser equipment (MULE), the device is the first of 380 such units to be delivered to the Marines. MULE can designate targets for all laser-guided weapons, including *Laser Maverick, Hellfire,* laser-guided bombs and cannon-launched, laser-guided projectiles. The device has the capability to combine azimuth, elevation and range information into a digital message that can be sent through a digital communications terminal to an automatic tactical fire-control center.

Hughes Aircraft Company

A Marine Corps AV-8B takes off from NAS Patuxent River, Md., on a test mission with an AGM-65E Laser Maverick under the left wing, to certify the laser-guided, air-to-surface missile for fleet use on the Harrier II. The Laser Maverick is currently carried on the Marine Corps' A-4M Skyhawks. Both of these aircraft are equipped with Hughes Aircraft Company's angle rate bombing set, a weapons delivery system whose dual-mode tracker is in the aircraft's nose.

PROFESSIONAL READING

By Commander Peter Mersky, USNR-R

The Naval Aviation Guide, 4th Edition. Ed., Capt. Richard Knott, USN(Ret.). U.S. Naval Institute, Annapolis, Md. 21402. 1985. Illustrated. Indexed. $17.95.

The fourth edition of this handy little reference has been totally redesigned into a format more suitable to its "handbook" intent. It should find ready acceptance by both researchers and Navy personnel. There is hardly an area or topic not covered in its pages – from aircraft to training, from aviation medicine to the reserves. A new ensign, hopeful of gaining his wings, can get a good look at what lies ahead in the first squadron and later tours. An enlisted member can get an overview of his role in the fleet.

Besides the text, there are tables on various topics of interest, such as squadron designations and nicknames. History and current operations are included, as well as chapters on aviation supply and safety.

This new edition represents several hours of browsing as well as a major source of information. A lot of time and effort has obviously gone into this publication, and each chapter and subject has been written by a specialist who is knowledgeable in that particular area of Naval Aviation. *The Naval Aviation Guide* should find a place in everyone's reference library.

Sullivan, Jim. *F-8 Crusader In Action.* Squadron/Signal Publications, Carrollton, Texas 75011-5010. 1985. 49 pp. Illustrated.

The second volume in this prodigious series way back in 1973 was one on the F-8, which was beginning to retire from fleet service at that time. Now, with only one Naval Air Reserve squadron operating the aircraft in the U.S. Navy, Squadron/Signal decided a fresh look at the *Crusader* was in order.

For the price, this book is a great value. Don Greer's color paintings and marking profiles continue to improve, and greatly complement the short text and photo captions. There are also line drawings covering specific airframe details from variant to variant, and every model of the F-8 is covered. However, the heart of this book is, by nature of the series, the photos – and the F-8 was one of the most photographed aircraft of the post-Korean era.

Beaver, Paul. *Encyclopedia of the Modern Royal Navy.* Patrick Stephens Ltd., Sterling Publishing Co., New York, N.Y. 2nd Edition 1985. 329 pages. Illustrated. $29.95.

There is considerable information in this book, complete with photos of most of the hardware. Since the demise of British carrier aviation, however, the Royal Navy has maintained only a limited number of aircraft whose most recent operational use was in the 1982 Falklands conflict in the South Atlantic. The performance of the *Harrier* and various helicopters was generally superb during the war.

There is a good deal of ready data on existing hardware, weapons systems and other support equipment to make this book a supportive reference for those interested in the Royal Navy.

Naval Air Reserve's 70th Birthday

As a result of the Naval Appropriations Act of August 29, 1916 – thereafter considered the birthday of the Naval Air Reserve – a Naval Flying Corps and a Naval Reserve Force, including a Naval Reserve Flying Corps, were established. The threat of war with Mexico caused college men to wonder how they could serve their country. Since flying had great appeal, some students started flying units.

The First Yale Unit, led by F. Trubee Davison, is the most famous of these early groups. Davison managed to find one Curtiss F flying boat, loaned by Rodman Wanamaker, along with the plane's pilot, David McCullough, as the sole instructor. The group of 12 Yale undergraduates learned to fly during the summer months. By June 1917, the Yale Unit had accumulated considerable flight time and was moved to Huntington, N.Y. The unit was assigned the responsibility of coastal patrol against submarines.

Looking like a mirror image, two VF-31 Tomcats display the aircraft's versatility and handling ease.

The personnel of VF-31 were presented the first annual Grand Slam Award by Cdr. C. Tillman, acting commander of Fighter Wing 1.

This honor, established by FitWing-1 and donated by Hughes Aircraft Corporation, is presented to the East Coast fighter squadron which has demonstrated the best performance in employing all of the F-14's air-to-air weapons during the past year.

Awards

On September 30, 1985, VAdm. Robert B. Pirie, USN(Ret.), became an Honorary Fellow in the Society of Experimental Test Pilots at the society's annual banquet held in Beverly Hills, Calif.

The following squadrons proved they have what it takes to win the prestigious "E" award for excellence: VA-86, VS-24, VF-41 and VA-55, ComNavAirLant; and VT-25, CNATra.

PH1 Gary Rice, PMTC, Point Mugu, Calif., won first place in the photojournalism category of the Thomas Jefferson Awards Contest. An all-service print and broadcast media competition, it annually recognizes professional excellence in journalism for the armed forces. He won second place in the 1984 competition.

Honing the Edge

VMFA-333 trained with Israeli-built *Kfirs* recently when VF-43 flew five F-21s to MCAS Beaufort, S.C., to act as the "aggressors" in VMFA-333's scheduled dissimilar air combat training exercise. VF-43 simulated Soviet tactics and formations against which the Marines flew intercepts.

Et cetera

This statue is becoming more familiar to Navy personnel as the Navy Memorial progresses towards completion. The Memorial's "Lone Sailor" design was sculpted by WW II whitehat Stanley Bleifeld. He was assigned duty as an illustrator for Navy training manuals. He never went into battle, but he helped train those who did. The statue is being built through donations.

For information on the Navy Memorial, call toll free 1-800-821-8892; in Virginia, dial 1-800-533-4079.

Bleifeld's model for the seven-foot-tall Lone Sailor statue.

When does USS *Ranger* look like *Enterprise*? During the last week of February, the cast and filming crew of *Star Trek IV* were aboard *Ranger* shooting scenes for the movie, tentatively scheduled for release at the end of 1986. The filming took place in the engine room and on the hangar deck of the aircraft carrier.

It looks like a U.S. Navy A-4 *Skyhawk* and it was, once upon a time. Today, it belongs to the Royal Malaysian Air Force. The Malaysian government purchased 88 mothballed Navy A-4C and A-4L aircraft which were in storage at the Davis-Monthan AFB "boneyard" in Arizona. The Grumman Corporation was

PH2 Ron Ambrosano

contracted to "remanufacture" 40 of the A-4s which are now named A-4PTMs.

These P-3 *Orions* (below) from California-based squadrons represent the oldest and newest versions of the anti-submarine warfare (ASW) aircraft built by Lockheed-California Co. In the foreground is a P-3A operated by reserve squadron VP-65, NAS Point Mugu. The P-3C Update III in the background is assigned to NAS Moffett Field's VP-40. Later this year, for the first time in the P-3 program, reserve squadrons will receive this newest model of the *Orion*. The P-3 is the U.S. Navy's only land-based, fixed-wing ASW aircraft and it is currently flown by eight other nations.

Applying his Marine training on board the Norfolk-based USS *Coral Sea* (CV-43), SSgt. Derek Dorsey, a jet mechanic, recently was the first Marine named as the carrier's supervisor of the quarter. Dorsey oversees 20 Marine and Navy jet mechanics in the ship's AIMD jet shop.

Dorsey is assigned to VMFA-314. Between carrier embarks with CVW-13, he returns with his squadron to MCAS El Toro, Calif.

Lockheed-California Co.

Change of Command

HMH-361: LtCol. Larry J. Bockman relieved LtCol. David A. Jones.

HMH-772: LtCol. J. P. Clark relieved LtCol. C. L. Beland.

HMM-162: LtCol. D. J. Seeley relieved LtCol. G. M. Karamarkovich.

H&MS-49: Maj. L. E. Bandy relieved LtCol. W. D. Gresslin.

HS-8: Cdr. D. A. Yesensky relieved Cdr. R. O. Abshier.

MABS-41: LtCol. W. D. Gresslin relieved LtCol. B. A. Heitz.

MWHS-3: LtCol. Roy J. Stocking, Jr., relieved LtCol. Paul Brown.

NavSpaceCom: RAdm. D. Bruce Cargill relieved RAdm. Richard H. Truly.

VA-66: Cdr. Richard L. Marquis relieved Cdr. Robert J. Kelsey.

VAQ-137: Cdr. Roy C. Christian relieved Cdr. Daniel C. Roper.

VAW-88: Cdr. Robert L. Schmitt relieved Cdr. John B. Johannesen.

VAW-120: Cdr. C. M. Kraft relieved Capt. J. W. Sprague.

VF-151: Cdr. Terrill S. Heath relieved Cdr. Russell M. Taylor II.

VF-161: Cdr. John F. Williams relieved Cdr. John C. Patton.

VF-302: Cdr. Jeffrey N. Punches relieved Cdr. John E. Kerr.

VMGR-352: LtCol. Edward J. Ritchie relieved LtCol. Thomas F. O'Malley, Jr.

VMFA-312: LtCol. E. B. Hailston relieved LtCol. Sydney Wade, Jr.

VP-6: Cdr. B. L. Tempel relieved Cdr. J. K. Sikes.

VP-67: Cdr. James E. Turner relieved Cdr. Douglas A. Siebert.

VR-56: Cdr. Thomas S. Stander relieved Capt. Frank S. Caldwell.

VR-57: Cdr. Allen W. Boyce relieved Capt. Robert A. Young.

VS-33: Cdr. Edward L. Swartz relieved Cdr. Harlan M. Durgin.

VT-2: Cdr. J. Scott McRoberts relieved Cdr. John M. Rose.

VT-9: Cdr. Larry J. Francisco relieved Cdr. Robert C. Nordgren.

VTC-22: Cdr. Neal W. Weisberg relieved Cdr. Dennis D. Anderson.

VXE-6: Cdr. Joseph D. Mazza relieved Cdr. Paul J. Derocher.

PH1 W. C. Fields

RAdm. James H. Flatley III, Director, Strike and Amphibious Warfare Division in the Office of the Chief of Naval Operations, recently witnessed his son, Ens. Joseph F. (right), receive his Wings of Gold. During 50 of the 75 years of Naval Aviation history, a Flatley has worn the coveted wings. In December 1985, RAdm. Flatley pinned them on his older son, James.

(Cont'd from page 1)

Gunnery Sergeant Robert B. Robinson, USMC; Rear Admiral David S. Ingalls, USNR; Captain Donald B. MacDiarmid, USCG; Vice Admiral Robert Pirie, USN; and Vice Admiral Fredrick M. Trapnell, USN. This was the first enshrinement that included individuals who are still alive. These are Carl, Heinemann, and Pirie. Secretary of the Navy John Lehman was the featured speaker at the ceremony.

Later that evening, at the Pensacola Civic Center, the sold-out Gala got underway with concerts by the Naval Air School's Command Choir and the U.S. Navy band. This was followed by an address by Admiral James B. Busey IV, the Vice Chief of Naval Operations, and the winging of the newest members to join the Naval Aviation community. Those winged were: Second Lieutenant Link Ermis, USMC, NFO; Ensign Morgan Furlong, USN, pilot; Ensign Dave Menna, USN, NFO; Ensign Prisca J. Perrault, USN, pilot; Lieutenant Junior Grade James W. Seeman, USCG, pilot; and Aviation Structural Mechanic Third Class Elton Williamson, USN, aircrewman.

The second half of the Gala was the Bob Hope stage show with appearances of several of the stars featured in his TV special, followed by a classic Hope monologue and a song and dance routine. At the end of the show, VAdm. Martin, assisted by Adm. Busey and John Lehman, made Bob Hope Honorary Naval Aviator #17 and presented him with a custom golf bag (pictured on the back cover) as a birthday gift.

It was business as usual early on May 9 with graduation of Aviation Officer Candidate School Class 41-86. Amid the familiar flapping flags and marching music, the graduation and pass in review formation was presided over by Adm. Busey and VAdm. Martin. Right on cue, two T-2 *Buckeye* trainers in close formation flew over as the colors crossed in front of the grandstand.

That evening, the Mustin Beach Officers' Club was the scene of a standing room only "flight suit party" complete with water fountains and rock music. It was shoulder-to-shoulder with flight students, instructors, and fleet Naval Aviators sporting the new blue flight suits, and retirees and guests all exchanging "there-I-was" war stories.

The Air Shows on May 10-11 wrapped up the week's events. The featured ground displays and flights of vintage aircraft such as the N3N, N2S, SNJ, T-28 and TBM, as well as current operational aircraft such as the CH-53E, P2V-7, F-14, F/A-18 and a British *Sea Harrier*. The Bell V-22 *Osprey*, which hovered like a helicopter and made high-speed passes like an airplane, was a highlight of the airshow. Also performing for the more than 80,000 spectators was a U.S. Air Force F-15 *Eagle*, the popular Bud Light 200 stunt plane (flown by seven-time U.S. National Aerobatics Champion Leo Loudenslager), and the Christen Eagle I sport biplanes flown by the "Eagles" aerobatic flight demonstration team.

While the Pensacola's Magic Week was certainly the largest event of the Anniversary year, it is only one of many opportunities scheduled to celebrate Naval Aviation's diamond anniversary around the world. Check the list on page 35 or, if you have a modem-equipped personal computer, log on DIANA, the 75th Anniversary Program's 24-hour a day public access electronic bulletin board, by dialing autovon 335-1973 or commercial (202) 475-1973. Use 300 or 1200 baud; 7 bit, even parity or 8 bit, no parity; and 1 stop bit. ■

One of the most photographed aircraft of 1986 has to be Mr. Connie Edwards' PBY Catalina, which reenacted the historic NC-4 flight of 1919. Aviation buff Greg Gleason of East Aurora, N.Y., captured the "NC-4" (see article on page 4) coming up the seaplane ramp at Floyd Bennett Field, Brooklyn, on May 8.

PH3 David Kellerman

Crewmen aboard USS America (CV-66) and embarked CVW-1 salute the Diamond Anniversary of U.S. Naval Aviation. The more than 1,000 ship and air wing personnel positioned the aircraft and formed the "75th Fly Navy" slogan during a break in simulated wartime activity in the Caribbean, which was part of Fleetex 1-86 last February.

FliGHT BAG

75th Anniversary

The Naval Aviators of the Argentine Navy extend our best wishes and sincere congratulations on the occasion of the 75th Anniversary of U.S. Naval Aviation.

Our Naval Aviation recently celebrated its 70th anniversary, since it was established by presidential decree on February 11, 1916.

During all these years, the aviators of both navies have worked together. In 1916, the U.S. Navy invited three Argentine officers to receive flight training in Pensacola: Lieutenants Ricardo Fitz Simon, Ceferino Pouchan and Marcos Zar. After graduation, they became part of the North American Expeditionary Forces in Europe during WW I, participating in patrol and antisubmarine actions until the end of the conflict.

They were followed by many other officers and petty officers, some of whom were trained as pilots and many more who took courses in improving naval air activities, particularly those related to aircraft carrier operations, as the Argentine Navy has operated these vessels since 1958.

But our professional relationship does not stop with personnel training. Most of our past and current aircraft are of American origin, and our Navy modeled its air arm after U.S. Naval Aviation.

This relationship has helped us to improve our operational capacity and to make friends and bring our families closer together, achieving deeper mutual understanding.

Happy Diamond Jubilee.

RAdm. Hector Albino Martini
Commander of Naval Aviation
Argentine Navy

Patches Wanted

I would like to receive patches from any F-4 *Phantom II* squadrons in the Navy or Marine Corps.

Johnny Signor
3418 Carolyn Lane
Cocoa, FL 32926

Corrections to NANews, May-June 1986:

Page 45, "Et cetera" — The T-39D Sabreliner that was retired from service on January 13, 1986, was VT-86's last T-39D not the last T-39 in the Navy.

NC-4 Reenactment

In June 1944, we picked up a PBY-5A in Norfolk and headed for Port Lyautey, North Africa. One leg of the trip was from Newfoundland to the Azores, the same as the NC-4.

After looking at our log, a man in Azores operations said a plane came through there 25 years before that did better time than we did. When I read your article stating that the NC-4 flew at 78 knots, I knew that the guy was pulling my leg, because we cruised at 90 knots and had a tail wind. We waited for one week in Newfoundland before going on. Anyway, I told the story many times that the NC-4 beat us on that leg of the journey.

According to the article, the PBYs used in the reenactment have a range of "3,500 miles on a single tank of gas." That's about three times the range of the WW II version. Our patrols were generally 10 hours at 90 to 100 knots. We covered 1,000-plus miles and landed light. Even the Pacific *Black Cats* with added fuel tanks stayed out 20 hours but didn't do much better than a range of 2,000 miles, as I remember.

I have to figure that there's been a dramatic change to that beautiful, lumbering, wings-flapping-in-the-wind *Catalina*.

Charlie McBride
NWS Earle
Colts Neck, NJ 07722

Locator

Administrator of estate soliciting information on whereabouts of Naval Aviator Ltjg. John Joseph Phelan, Jr., service 1946-1953 at Boca Chica and Pensacola, FL, and San Diego, CA. Last known address Coronado, CA, 1953. Contact attorney Robert W. Horrell, 521 Lake Ave., Lake Worth, FL 33460, (305) 582-7464.

Reunions, Conferences, etc.

EAA International Fly-In Convention and Sport Aviation Exhibition, August 1-8, Oshkosh, WI. For information, contact John C. Burton, EAA Aviation Center, Wittman Airfield, Oshkosh, WI 54903-3086, (414) 426-4800.

Naval Air Transport Squadron, Inc. reunion, August 17-22, Sheraton National, Washington, DC. Contact Victor Kish, 12716 Silver Ln., Sugar Creek, MO 64050.

VMB-413 reunion, October 9-12, Dallas, TX. Contact Earl Bratton, 4N941 Crane Rd., St. Charles, IL 60174, (312) 584-2583.

VPB-44 Black Cats of Green Island 1944-45 reunion, October 22-25, San Diego, CA. Contact G. S. Bogart, 3009 Stevenson Dr., Pebble Beach CA 93953.

Banana Fleet Marines reunion, October 23-26, Savannah, GA. Contact Hank Thalgott, P.O.B. 95, Oxford, FL 32684, (904) 748-2587.

Dayton International Airshow and Trade Exposition, July 24-27. For information, contact Dayton International Airshow and Trade Exposition, Terminal Building, Room 214, Dayton International Airport, Vandalia, OH 45377, (513) 898-5901.

Task Group 77.4.3 (Taffy III) Battle off Samar, Philippines, October 25, 1944 reunion, July 18-20. For information, write Dick Nichols, 216 Taft Ave., Endwell, NY 13760.

Fly Navy West symposium, July 26-August 2, San Diego, CA. Contact Cdr. Bob Pinnell, ComNavAirPac (Code 018), San Diego, CA 92135-5100, (619) 437-7432.

VP-93 reunion, August 16, Selfridge ANGB, Mt. Clemens, MI. Contact AVCM Steve Underwood or AWC Mike Gorman, VP-93, NAF Detroit, MI 48043-5056, autovon 273-5053 or (313) 465-6958.

NAS Twin Cities reunion, August 23, Minneapolis-St. Paul International Airport. Contact Kirk Johnson, 7325-14th Ave., S., Minneapolis, MN 55423, (612) 866-7194.

National Stearman Fly-In, September 3-7, Galesburg, IL. Contact Ted McCullough, 2310 Monmouth Blvd., Galesburg, IL 61401, (309) 342-2298.

USS Saginaw Bay (CVE-82) reunion, September 5-7, Seattle, WA. Contact R. P. Treister, 516 W. Chapman Ave., Placentia, CA 92670, (714) 993-1070.

VC-78 reunion, September 5-7, Seattle, WA. Contact Earl J. Homman, 4220 Old Mill Rd., Lancaster, OH 43130, (614) 654-1651.

USS Hancock CV/CVA-19 Association reunion, September 18-20, Chicago, IL. Contact Marshall M. Squire, 149 Berkley Ave., Elmhurst, IL 60126.

Photo courtesy of Pensacola News Journal Gary McCracken