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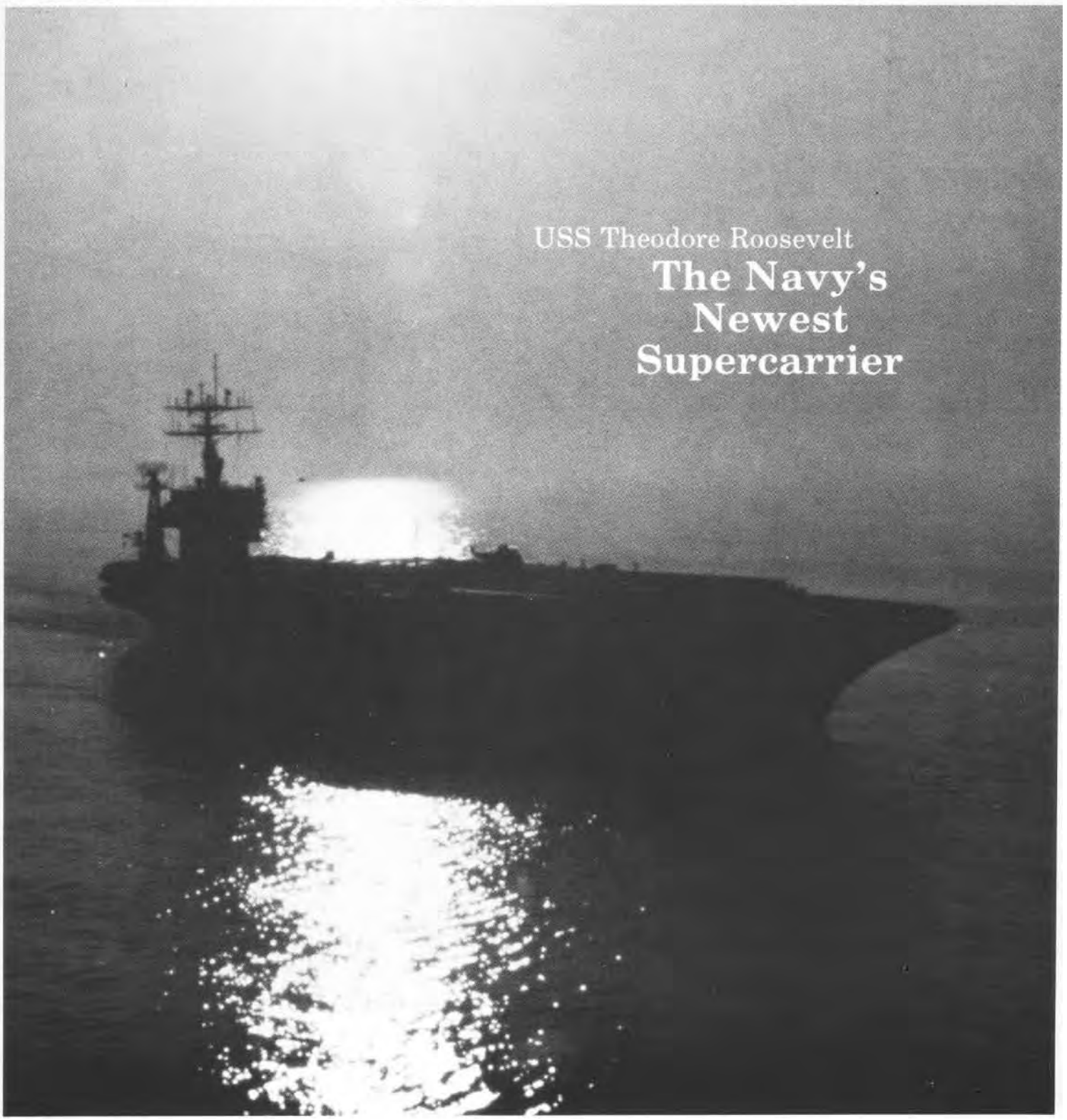

USS Theodore Roosevelt

The Navy's Newest Supercarrier

NAVAL AVIATION NEWS

Oldest U.S. Navy Periodical
Sixty-Ninth Year of Publication

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COVERS—Front: USS *Theodore Roosevelt* during her first at sea period in September 1986. Back: The ship's honor guard is statue-like during *Roosevelt's* commissioning on October 25, 1986.

Features

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On October 25, an estimated 20,000 people watched the U.S. Navy commission what the CNO called a "national monument." Read about the birth of *Theodore Roosevelt* (CVN-71), the Navy's fifth nuclear carrier. **Page 4**

The man largely responsible for creating the SBD *Dauntless*, AD *Skyraider* and A4D *Skyhawk* became Honorary Naval Aviator No. 18. Naval Aviation salutes Edward H. Heinemann. **Page 10**

The Naval Space Command is busy meeting a variety of tasks — including helping to maintain the security of the United States. *NANews* offers a brief look at this special command. **Page 12**

The Strike Ordnance Department at NAS Patuxent River, Md., makes it possible for Navy and Marine Corps planes to put bombs and missiles on target. The article beginning on **page 18** provides an insight into how this is done.

Movies like *Top Gun* provide only a glimpse of what it's really like flying aircraft. Ensign T. J. Roorda, a student pilot at NAS Meridian, Miss., sheds a little reality on the subject in his articles *Under the Bag* and *Flying in a Dark Closet*. **Page 20**

In June 1955 fishermen netted an F6F-5N *Hellcat* off Okinawa. In the aircraft were the remains of a young Naval Aviator whose life was cut short in an unfortunate accident during the last year of WW II. Read *Peril in the Air: The Story of a Navy Flyer*. **Page 26**

EDITOR'S NOTEBOOK

NANci: A High Tech Success

Lots of people interested in Naval Aviation own personal computers (PCs). That's no surprise during these high tech times. But when we put NANci on line a year ago, we figured that there would be at least enough interest among computer tekkies, hackers and buffs to make the electronic bulletin board work and worthwhile. We thought that relatively few users of modem-equipped PCs, if any, would be interested in Naval Aviation. We assumed that PC users and Tom Cruise types were lifestyle opposites.

Well, we were wrong. When *NANews'* electronic magazine/bulletin board began December 1, 1985, we underestimated its popularity. We discovered that PC users are not cybernetic nerds and many Naval Aviation buffs are avid personal computer users who are up with the times.

When NANci, the electronic version of *NANews*, was conceived, it was a gamble — although an inexpensive one. Known as DIANA back in early winter 1985, NANci carried information exclusively related to the Diamond Anniversary of Naval Aviation and a handful of public domain software programs. Now, it has over 800 free programs available and a growing number of *NANews* stories and historical information files, downloadable to the public.

With nearly 700 regular users, NANci has become the catalyst for a growing two-way network of people interested in Naval Aviation. Its users are finding out it is a quick and easy way to learn more about Naval Aviation and share their knowledge with others. Squadrons are discovering that it is an excellent way to get their latest happenings into the pages of *NANews* as well as to obtain software that makes their PCs more powerful at no cost.

NANci also is a way to gain direct and immediate access to the Naval Aviation History staff with questions such as a squadron's lineage or history. In this regard, the list of squadron lineage appearing on page 22 is available on NANci under the file name of LINEAGE.LST. Another list, which will be published in *NANews*, is the order of battle for carrier forces in WestPac and Vietnam from 1964 to 1975. On NANci, the file name is VIETDEPL.LST and it includes the air wing compositions and dates of deployments for the carriers deployed to the western Pacific during the Vietnam war.

This is a sampling of the people presently using NANci on a regular basis: a commanding officer of an East Coast fighter/attack squadron; an LDO aviator with a West Coast VRC squadron; a middle manager at the Naval Air Systems Command; a retired reserve Navy commander working at the Pentagon; a lieutenant commander on CNO's staff; a retired Marine Corps colonel who is a Selective Service System regional director in Texas; a chief yeoman from the southern Recruiting Command Headquarters; an aerospace engineering student at the University of Maryland; chiefs at Naval Air Maintenance Training Detachments, NAS Lemoore, Calif., and New Orleans, La.; an FAA instructor in Washington, D.C.; a gunnery sergeant at Headquarters, Marine Corps; a first class petty officer at AIMD, NAS Willow Grove, Pa.; a chief journalist from a southern recruiting district; a Navy supply officer at Kirkland AFB, N.M.; a doctor from a small town in Maryland; a flight surgeon at an East Coast naval air station; and hundreds of others.

If you have a computer with a modem, call NANci, log on and browse through its hundreds of electronic pages.

NANci can be reached at (202) 475-1973, autovon 335-1973. Use 7 bit/even parity/1 stop bit or 8 bit/no parity/1 stop bit at 300 or 1200 BAUD. Hours of operation are: Monday-Thursday 1700-0800; Friday, 1700-Monday, 0800; and intermittently Monday-Friday, 0800-1700.

This is a list of the NANews stories available on NANci as of December 1986:

A6ATTACK	A6F: Advanced 1990s Medium Attack Aircraft
ACE	Conversation with the number 1 Navy ace
AIRCREW	Enlisted flight crews
AIRFORCE	USAF pilots in Naval Aviation
AMPHIB	Navy's Amphibious Warfare School
ASSOC.LST	List of aviation associations
BROWN	First black Naval Aviator
CNOSPEECH	CNO speech at CVN-71 commissioning
CVN-71	USS *Roosevelt*, new super carrier
DRUGWAR	Drug Interdiction: A Naval Air War
E-6A	E-6A used to communicate with subs
F-21K	Israeli F-21 *Kfir*, dogfight trainer
FLATTOPS	Large vs. small aircraft carriers
GRENADA	Naval Air in Grenada: October 1983
GUIDE	Guide to log on DIANA
H-34	H-34 helicopter history/facts
HAMMONDS	Hammondsport, N.Y., Naval Aviation's birthplace
HARPOON	Harpoon Proves Its Tenacity in Libya
HLT	Helicopter training ship: "new"
LIBYA	Navy Strikes Tripoli's Terrorist
LINEAGE.LST	Squadron lineage list, Navy
MINEWAR	Mine warfare update
NANCI	NANci: The Paperless Magazine
NANCI	NANci: A High Tech Success
NASCUBI	NAS Cubi Point: how it came to be
NAVCAD	Earn aviator wings without a BA/BS
NAVMEM.REL	FRA gives $1M to Navy Memorial Foundation
NC-4	NC-4 Reenactment Flight, May 1986
ORION	P-3 *Orion:* antisubmarine patrol
PENSACOL.75T	NAS Pensacola's 75th Celebration
PERIL	Story of a WW II Naval Aviator (copyrighted)
SCHOOLS	Schools: Navy Trains to be the Best
SH-60B	SH-60B: ASW helo with antiship missiles
SOVIETCV	Soviet aircraft carrier: new CV
SPACE	First Human Satellite: Capt. McCandless
SPACECOM	Naval Space Command: update
SPACECOM.OVR	Naval Space Command: brief history
SPY	Technology transfer: we lose, they win
SUBMITT	Guide to submitting articles to *NANews*
TECHTRAN	Technology loss to the USSR
TOPGUN	Top Gun's real story
VIETDEPL.LST	Carriers/air wings during Vietnam war
VP-BUSH	VP Bush WW II experience is "sobering"

GRAMPAW PETTIBONE

Videos and Violations

In the course of duties which involved flying a T-34B, a Naval Aviator, against all regulations and without permission, transported a male civilian, to whom he was related, on two flights. A video camera was carried on these trips to film activities during the sorties.

On the day of the third flight, the pilot collected his relative at the latter's home and together they proceeded to the local airport, where they manned the *Mentor* and took off. The passenger filmed the majority of the flight sequences en route to a destination where the two had lunch with a relative and friend.

The T-34B launched again. On the way to the next stop the video camera was used to record flight over flat desert terrain at an altitude of about 50 feet. The flyers landed in midafternoon on an unattended, unprepared dirt airstrip. They then had dinner with other relatives before returning to the strip for a 1900 launch.

The *Mentor* proceeded north, then turned west, climbing to 1,500 feet. In the climb, the pilot asked for the camera and turned back toward the departure point. Completing the turn, the pilot began a shallow dive, gathering speed to perform a loop, which he initiated at 150 knots.

The loop was not completed. Instead the pilot executed an immelman, topping out at 1,200 feet above ground in a nose high attitude, with 65 knots air speed and 23 inches of manifold pressure. The pilot was apparently recording the maneuver with the camera which, at this point, fell to the cockpit floor.

The aircraft flew straight and level for two or so seconds, dropped off on the right wing, then entered a violent right-hand spin. After one revolution, the spin decreased into a right-hand spiral and the aircraft plummeted steeply toward the ground, striking the earth at about 160 knots. Both individuals were killed on impact. The tape was recovered and used in the subsequent mishap investigation.

Grampaw Pettibone says:

Ya know, I sit here in the rocker, simmerin' and sighin' and wonderin' what drives a person to do what this young Naval Aviator did. That fella we see on TV a lot these days, Bill Cosby, does a comedy routine about his kids and the "brain damage" that causes 'em to do crazy things. Things that drive mom and pop up the wall, down the wall and sideways. Well, brain damage ain't a funny matter. Cosby knows that and handles the subject in a way that listeners know he's not makin' fun of unfortunate folks who suffer from the real thing.

And I don't for a minute think this aviator or his relative had brain damage. But this episode sure boggles the brain cells. I can't figure why a fellow who had to have a lot on the ball to even earn a shot at gold wings (and who went through all the work and study that it takes to make the grade), goes up there, busts the rules — not once but several times — and wastes all the effort and determination it took to get into the cockpit in the first place.

In this case, it seems that the camera ain't at fault for jammin' the controls. The pilot just didn't have enough altitude to recover from what started as a loop and ended up somethin' else. Looks like he tried to film himself in action and fly at the same time. It cost him and his relative their lives.

I'm still simmerin' and sighin' and wonderin'. Are there others out there thinking along the same lines as this Naval Aviator? I sure hope not.

Final Fly-by

An SH-60B had completed underway manual deck handling tests aboard an FFG. The crew manned up for the return hop to shore, pilot in command (PIC) in the left seat, pilot at controls (PAC) in the right, and aircrewman in the sensor operator's seat. The ship's C.O. asked an officer from the *Seahawk* det "if the aircrew would fly around the ship, so [the crew] could see the aircraft in flight." The officer replied, "We have a little show all planned."

The *Seahawk* climbed out ahead of the ship. "Standby, we're coming around for a low fly-by," radioed the PAC to the ship. The crew made a level turn back toward the FFG. Then, wings level, the *Seahawk* entered a dive, developing a high descent rate from about 1,000 feet altitude.

Approaching the water, the crew initiated a level off but the *Seahawk* struck the sea, approximately a quarter mile off the FFG's starboard bow, tail wheel first, followed instantly by the tail section. The helicopter climbed to 200 feet, yawing right. Anticipating another impact, the aircrewman jettisoned his window and braced himself. This time the SH-60B hit 100 feet from the ship, slightly forward of the bridge, in a near vertical descent, nose low, left wing down. The aircraft sank immediately. The two pilots were killed. The aircrewman egressed though his escape window at an unknown depth, made his way to the surface, grabbed ahold of some floating debris and inflated his life preserver. The ship's whale boat retrieved him within 10 minutes.

Grampaw Pettibone says:

My blood's still boilin' over this one! What a waste! Showtime on the high seas translated to tragedy.

The investigators learned that this same crew, five days earlier, while operating from the helicopter landing trainer (HLT), performed some other unrequired maneuvers: right sideward flight past the HLT at 75-100 feet, 20-25 knots; rearward flight within the same parameters; a high-speed, low-level pass followed by a second one which prompted a "knock it off" call from the HLT.

That evening, the dangers of low-level maneuvering flight were discussed with the pilots.

Didn't do much good. These flyers

ILLUSTRATED BY

were talented and aggressive, but sound judgment and professionalism took a holiday. My shoulders are saggin' lower over that.

I'll sing the same song and hope he or she out there who may be otherwise inclined, resists the temptation: DO NOT FLAT HAT! EVER! NEVER! DON'T!

Midair in the Med?

A pair of C-1 *Traders*, on a VFR flight plan, launched from one shore station in the Mediterranean to home base at another. They joined in loose trail and proceeded on course. Forecast weather included a partial layer of clouds below their 9,500-foot cruising altitude and broken layers above it. The horizon was occasionally obscured by clouds. All crew members were properly qualified for the flight but they had been on duty for more than 11 hours. The aircraft did not make it to the destination.

Degraded telephone communications between launch and departure points delayed confirmation that the aircraft had actually departed as filed. Ultimately, it was decided that the planes were overdue at home field and a search began.

Next morning, a P-3 *Orion* crew spotted two life rafts and some debris in the water about 160 miles from the C-1s' departure point along their planned course. The damage of various survival items from the rafts reflected severe impact or deep submerged overpressure. It was concluded that both C-1s had crashed. All aboard, including six crew members and a passenger, were lost.

Grampaw Pettibone says:

This one frazzles the mind. There's a beginning and a murky end to the story, but no middle. And I don't like mysteries when it comes to accidents, especially fatal ones.

It had been a long day for the crews and there was a holiday dinner event scheduled at home base. Get-home-itis comes to mind. So does crew fatigue. Also, the crew filed VFR into a known period of darkness and to a facility that required IFR clearance at night. Also, formation training was not included in the FRS or squadron syllabus, although the C-1A NATOPS lists it as optional. So, the crew had some things workin' against 'em.

In my dreams — nightmares, really — big black question marks hover over the spot in the sea where the planes went down. Did the C-1s collide? Did one have mechanical trouble and the other inadvertently impact the water trying to maintain visual contact? Did weather do them in? If so, why?

Saltin' the wound is the fact that, in the past three years, six other Navy aircraft and their crews have been lost — all but one over water — without a trace. Real enigmas. We can only speculate.

SecNav is lookin' deep into procuring recoverable flight incident recorders for many of our planes. These may solve some puzzles and ultimately save some planes and people. All I can tell ya for now is, do whatever you can — and that means flyin' by the book — to avoid becomin' one of the mysteries.

Fifth Nuclear Carrier Joins the Navy

20,000 Observe Theodore Roosevelt Commissioning

By JO2 Timothy J. Christmann

A formation of Tomcats, Intruders, Hornets, Hawkeyes and Vikings pass low over USS Theodore Roosevelt (CVN-71) during the aircraft carrier's commissioning on October 25 at Newport News Shipbuilding, Va.

Almost two years after she was christened with a $5 bottle of champagne, *Theodore Roosevelt* (CVN-71) was commissioned October 25 at Newport News Shipbuilding, Va. She is the Navy's fifth nuclear carrier and 15th flattop, counting *Independence* (CV-62) which is undergoing a 28-month service life extension program (SLEP) at the Philadelphia Naval Shipyard, Pa.

Despite the rainy weather, an estimated 20,000 people attended the hour-long event that included remarks by Caspar Weinberger, Secretary of Defense; John F. Lehman, Secretary of the Navy; Admiral Carlisle A. H. Trost, Chief of Naval Operations; Congressman Herbert H. Bateman, (R-Va.); Edward J. Campbell, president and chief executive officer of Newport News Shipbuilding; Captain Paul W. Parcells, commanding officer of *Theodore Roosevelt*, and Barbara W. Lehman, ship's sponsor. All of them spoke to the crowd from a podium on the ship's No. 2 elevator.

Among those in attendance were descendants of the energetic 26th U.S. president, including Theodore Roosevelt III, IV and V, as well as other family members like cousin Aerographer's Mate Airman Fredrick James Roosevelt, Jr., a member of the ship's crew. Said Caspar Weinberger, "I'm told it is the largest gathering of the Roosevelt family in a generation."

Adm. Trost, who called *Roosevelt* a "national monument," told the audience that if it were not for the overcast, one of the Soviet Union's satellites would probably be watching them and the ship. He added that if a satellite were spying on the commissioning ceremony, some Soviets would probably wonder why so many Americans attended such an event in the rain.

"Could it be that there is really an appreciation by the citizens of our great country for the need for a strong Navy?" Adm. Trost asked the crowd.

The crowd, most of them huddled under umbrellas, applauded.

"I think your presence here is proof of that belief," he said. "And I have no doubt that [*Roosevelt*] will cause concern in the minds of those who might challenge us at sea.

"*Theodore Roosevelt* is a national asset and all Americans and the entire free world can be a lot more secure as a result of the presence of ships like this," added Trost, who succeeded Admiral James Watkins in June 1986.

The CNO credited Newport News Shipbuilding, presently the only builder of U.S. aircraft carriers, for providing the fleet with a "superb ship." He also credited the Navy for selecting "some of the finest men in the country to man her.

"We've given them important responsibility, given them the best training we could and we've turned them loose," he said. "They are not all seasoned veterans of the Navy, or even of carrier duty. As a matter of fact, I'm told the average age of the crew is about 20. Sometimes that's 20 going on 35, depending on the challenge."

If *Theodore Roosevelt's* builder's sea trials last September were any measure of the crew's potential, the ship should have no problem preparing to meet its two major responsibilities: sea control and power projection. Many Newport News Shipbuilding officials remarked after *Roosevelt's* trials that the ship, thanks largely to her crew, performed better than her sister carriers did in their trials.

"We believe [*Roosevelt*] is predestined to be a great ship named for a great American," Capt. Paul W. Parcells told the crowd during his remarks at the ceremony's conclusion. "*Theodore Roosevelt* brings a distinguished legacy to the fleet, and it is up to us to turn that legacy into an equally distinguished reputation for performance. I am absolutely convinced that if this crew and the following crews of this great ship do their job and perform the way they are supposed to, *Roosevelt* will last 60 years."

Afterwards, Capt. Parcells, who was a test pilot and former executive officer of *Nimitz* (CVN-68), asked everyone to join him in three cheers for Theodore Roosevelt and three cheers for his 97,000-ton namesake.

"God willing, may [*Roosevelt*] never be required to launch a strike in anger," said Parcells, "but if required, may she be ready. Hip hip!"

"Hooray!" the crowd shouted.

Not long before Capt. Parcells proposed these cheers, he read his orders aloud and officially assumed command of *Roosevelt*. Afterwards, he ordered the setting of the ship's first watch, then told *Theodore Roosevelt* to "come alive!"

Three large groups of crewmen, wearing dress blues and standing in formation near the audience, responded "Yes sir!" and ran toward the ship in single file. As they scaled the steps and proceeded to man the rail, the Commander in Chief, U.S. Atlantic Fleet Band played "Anchors Aweigh" and an assortment of other hymns. The ship's fog horn blared. Radars on the island structure turned. The audience cheered.

While sailors took their positions on the flight deck and island structure, a formation of four F-14 *Tomcats*, four F/A-18 *Hornets*, four A-6E *Intruders*, two S-3 *Vikings* and two E-2C *Hawkeyes* passed once, low and slow, over the crowd. Heads tilted skyward. Fathers scooped children into their arms and pointed at the spectacle. Almost everyone clapped.

"Theodore Roosevelt is a national asset and the [free world] can be more secure as a result of [her] presence."

— Adm. Carlisle A. H. Trost

Completed 17 months ahead of schedule — a savings of some $80 million to taxpayers — *Roosevelt* will spend most of 1987 in the Caribbean on carrier training deployments. Once these are over, the ship's 3,000-man crew, which jumps to 6,000-plus when the air wing is aboard, should be proficient in all the jobs necessary to sail any sea and handle any combat situation.

"Today our maritime strategy should impress on all that we are exercising in peacetime what we may be required someday to do in conflict," said Caspar Weinberger, who gave the commissioning ceremony's principal address. "...but our prime objective is to remain strong enough so no one dares attack us and thus we will keep the peace — and that is the maritime legacy of Theodore Roosevelt."

Weinberger said that even though Roosevelt was one of America's most loved presidents, many people considered him an imperialist. But such a label seems unfair considering Roosevelt received the Nobel Peace Prize for helping to end the Russo-Japanese War in 1905.

"Theodore Roosevelt was a man of vision and a man of peace whose policies guided the United States toward the position that we now hold — the world's most powerful defender of freedoms," said Weinberger. "...nothing that we as a nation might do to honor Theodore Roosevelt's legacy more appropriately captures the strength of spirit and the force of liberty than this great ship."

Unlike many diplomats of his era, Roosevelt — who at 42 became the nation's youngest president — understood that peace could only be maintained through strength.

"The American people must either build and maintain an adequate navy or else make up their minds definitely to accept a secondary position in international affairs, not merely in political, but in commercial matters," he told Congress during his tenure. "It has been well said that there is no surer way of

JO2 Timothy J. Christmann

Capt. Paul W. Parcells leads the crowd in six cheers — three for Theodore Roosevelt and three for his 97,000-ton namesake.

courting national disaster than to be opulent, aggressive and unarmed."

As assistant secretary of the Navy and later president Roosevelt dedicated himself to the maintenance of a strong navy — which he considered the embodiment of national power. He instituted naval target practice and in 1898 he instructed Commodore George Dewey, then commander of the Asiatic Fleet, to sail his warships to Hong Kong in preparation for battle against the Spanish naval forces in the Philippines.

"During his Navy years, Roosevelt resisted every effort to take ships out of commission, and he pleaded with Congress for the construction of new ships," said Weinberger, who was given a 19-gun salute from the ship's saluting battery during the ceremony. "[As] president, Roosevelt continued to champion naval preparedness."

While chief executive, he rebuilt America's Navy from the fifth largest fleet in 1901 to one second only to the British Royal Navy by 1910. But he didn't just have ships built. Roosevelt used them to calm potentially dangerous international situations. Perhaps the premier example of his use of "big stick" diplomacy occurred in 1907-1909 when he ordered America's "Great White Fleet" on a round-the world, showing-the-flag mission. The voyage earned the U.S. Navy worldwide recognition and helped raise recruitment figures but, more importantly, it curbed Japanese adventurism in the Pacific.

Weinberger called the action a stroke of genius. Roosevelt, who greeted the fleet's return to Hampton Roads, Va., in the waning days of his administration, considered the deployment his "greatest contribution to peace."

Like her namesake, who almost died of disease in his youth, the *Theodore Roosevelt* almost died from a presidential veto in 1979. To the delight of large-deck carrier proponents, however, the veto was overturned by Congress and *Roosevelt's* construction began October 8, 1980. The fourth *Nimitz*-class carrier, the second such ship built during Ronald Reagan's presidency, will be followed by *Abraham Lincoln* (CVN-72) and *George Washington* (CVN-73) in 1990 and 1992, respectively.

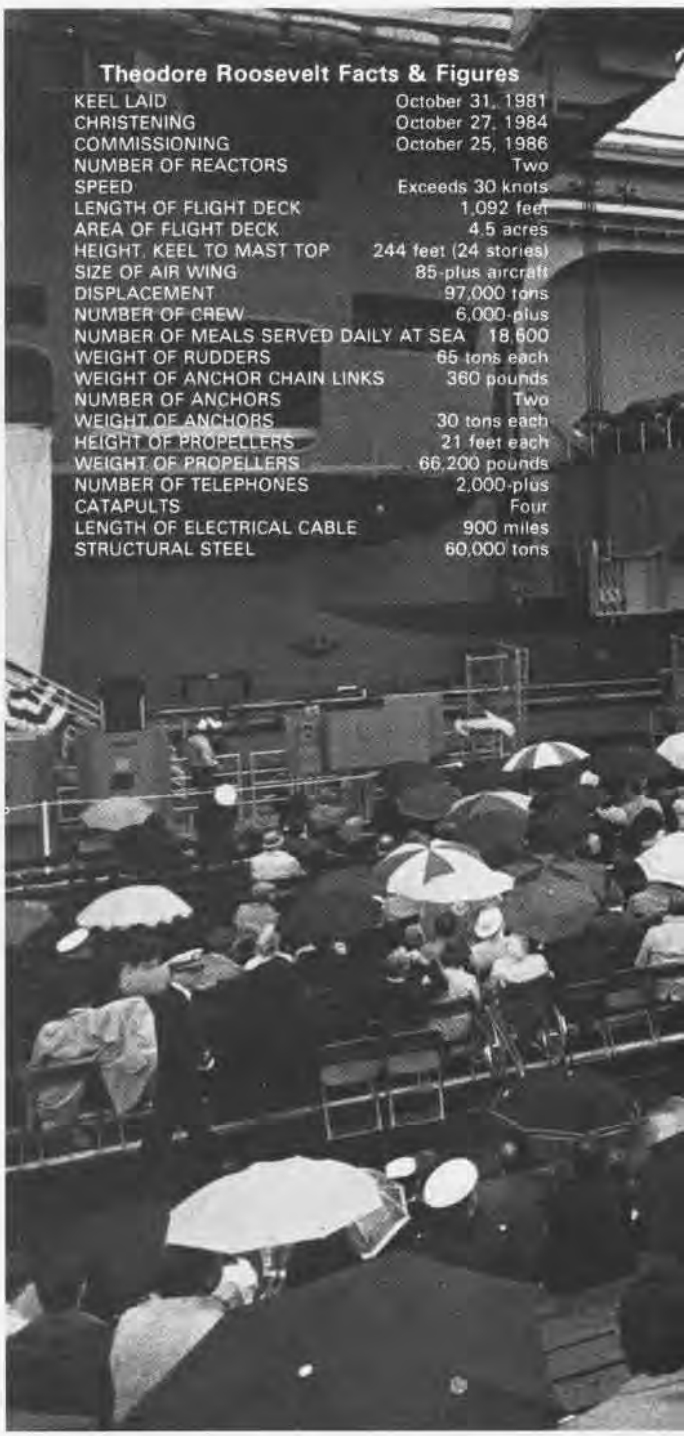
Once *Washington* joins the fleet, the *Coral Sea* (CV-43) will replace the training carrier *Lexington* (AVT-16), which by then will be 49 years old. The Navy hopes to begin constructing another carrier by the early 1990s to replace *Midway* (CV-41), which was commissioned in 1945. Eight conventional carriers will reach age 45 between 2000 and 2010, and replacements must be authorized in the 1990s if the Navy is to retain its desired minimum of 15 flattops.

Roosevelt, Lincoln and *Washington* are named after three of the four presidents whose faces are sculptured on Mount Rushmore, in South Dakota. It is too premature, however, to know whether the Navy will name CVN-74 after Thomas Jefferson, the last president whose portrait is carved on that national monument.

The Navy plans to request funds for CVN-74 in 1987 — an action that wil spark much debate in Congress. Such debate has been one of the longest in Naval Aviation history. In fact, ever since the construction of the 33,000-ton battle cruisers which were turned into the aircraft carriers *Lexington* (CV-2) and *Saratoga* (CV-3) in the 1920s, proponents for and against the large-deck carriers have argued the topic fervently. What's

Theodore Roosevelt Facts & Figures

KEEL LAID	October 31, 1981
CHRISTENING	October 27, 1984
COMMISSIONING	October 25, 1986
NUMBER OF REACTORS	Two
SPEED	Exceeds 30 knots
LENGTH OF FLIGHT DECK	1,092 feet
AREA OF FLIGHT DECK	4.5 acres
HEIGHT, KEEL TO MAST TOP	244 feet (24 stories)
SIZE OF AIR WING	85-plus aircraft
DISPLACEMENT	97,000 tons
NUMBER OF CREW	6,000-plus
NUMBER OF MEALS SERVED DAILY AT SEA	18,600
WEIGHT OF RUDDERS	65 tons each
WEIGHT OF ANCHOR CHAIN LINKS	360 pounds
NUMBER OF ANCHORS	Two
WEIGHT OF ANCHORS	30 tons each
HEIGHT OF PROPELLERS	21 feet each
WEIGHT OF PROPELLERS	66,200 pounds
NUMBER OF TELEPHONES	2,000-plus
CATAPULTS	Four
LENGTH OF ELECTRICAL CABLE	900 miles
STRUCTURAL STEEL	60,000 tons



more, arguments made by the original carrier critics are the same used today: they mainly concern the size, cost and alleged vulnerabilities of flattops.

Although many of today's critics reside in the U.S. Congress, there are active duty and retired naval officers who oppose constructing large (90,000-plus-ton) aircraft carriers.

One is Admiral Stansfield Turner. For many years, the former director of the Central Intelligence Agency has argued that the technology to defeat supercarriers is outdistancing technologies that can be used to defend them.

But during a Senate Armed Services Committee hearing in the early 1980s, Admiral Thomas Hayward, then Chief of Naval Operations, stated: "If we give up the aircraft carrier because of our concern over new technology [i.e., new missiles and weapons systems] rather than try to deal with the threat, we are going to give up control of the sea because the Soviets have a navy that is significantly larger than ours.... If we don't control those seas and the air over them by virtue of the kind of navy we build, we are going to turn over the control to the Soviets."

Added John F. Lehman during the same committee hearing,

Despite the rainy weather, an estimated 20,000 people — most of whom toted umbrellas — attended the commissioning.

JO2 Timothy J. Christmann

"Our carriers and their embarked air wings are still a major edge over the Soviet Navy."

— John F. Lehman

"...technology is moving more in the direction of making the large carrier more of an optimized weapon than in the other direction, because the very size and scale of the carrier enables the continual updating of active and passive defenses, electronic countermeasures and so forth. By its nature, the large carrier permits constant updating of the fleet of aircraft you put aboard, which is your real defense and offense. This would not be possible if you went to smaller platforms."

In his widely publicized speech at a change of command ceremony aboard *Nimitz* in 1982, Adm. Hayward said that "technology provides the Navy with the capability of confusing or deceiving any radar or electronic sonic device, or even optical systems as to which target at sea is the carrier, whatever its size."

Hayward said the true "sitting duck" is the fixed land base airfield, and not the mobile sea-based carrier that can move in excess of 34 mph and travel more than 600 miles in 24 hours. In addition, he stressed that ships like the 97,000-ton, 1,092-foot-long, 244-foot-high *Roosevelt*, which has over 4,000 compartments, weren't built big for bigness sake. "It was designed with survivability in mind," he said.

One of the best examples of this occurred in 1969 when nine 500-pound bombs exploded on the flight deck of the 87,000-ton *Enterprise* (CVN-65) — which is the equivalent of being hit by six Soviet cruise missiles. *Enterprise*, the Navy's first nuclear carrier, not only survived the blasts but was capable of launching and recovering aircraft several hours later.

More recently, a plane crashed on *Nimitz's* flight deck, setting many aircraft ablaze and causing a couple of missiles to detonate. Nevertheless, the conflagration was extinguished in two hours and the only damage the carrier sustained was a basketball-sized dent in her armor-plated deck.

A few years ago, a congressman asked Lehman his feelings about a statement made by a defense analyst who said that "carriers would be little more than an annoyance to the Soviet Union during a conventional war in Europe?"

Lehman retorted: "I would suggest that the defense analyst you quote understands little of carrier battle groups, the Soviet Union and its empire, or conventional warfare in Europe. However, the Soviets do not suffer such ignorance, which is the principal reason why the peace has been maintained in Europe for more than four decades, the longest in modern history."

Although many Soviet military leaders have criticized American-style aircraft carriers for many years, they are currently building a 65 to 75,000-ton flattop similar in size and design to USS *Midway* (one of the oldest and smallest carriers supporting one of the Navy's 15 battle groups). According to naval intelligence, the Soviet's first "supercarrier" will be catapult-equipped, have nuclear power, and should embark 35 to 60 high-performance aircraft (see *NANews* November-December 1985). The ship, which will presumably be called *Kremlin*, is being constructed at Nikolayev shipyard on the Black Sea and is expected to be fully operational by 1990.

After years of deploying less-capable, 37,000-ton *Kiev*-class carriers — built to handle vertical takeoff and landing aircraft — it would seem the Soviet Union understands the value of using bigger flattops.

JO2 Timothy J. Christmann

Toward the end of the commissioning ceremony, Capt. Parcells ordered the carrier to "come alive!" Roosevelt sailors barked "Yes sir!" and ran toward the ship in single file.

John Lehman, who was a large-deck carrier advocate years before he was appointed Secretary of the Navy, said that only the large-deck carrier, with her modern flexible air wing and offensive and defensive power to support surface and subsurface units, has a full range of capabilities to meet the entire spectrum of threats regardless of where or how they emerge.

Examples of aircraft carrier involvement in international crises abound since the 1970s — the most dramatic of which were combat operations over Lebanon, Libya and Grenada. Today, and for the past several decades, the president and the military hierarchy have depended on carriers to respond quickly to tense situations. In fact, an admiral once remarked that one of the first questions a president usually asks his military strategists during an international crisis is "Where are the carriers?"

"Our 600-ship Navy is centered around 15 carrier battle groups because the carrier remains the most potent tool in our nation's conventional forces," said Lehman. "Our carriers and their embarked air wings are still a major edge over the Soviet navy."

Lehman has argued that if war erupted between America and the Soviet Union, the U.S. Navy must be prepared to take

the offensive and "go into the highest threat areas" in the Barents Sea, Baltic Sea, eastern Mediterranean and Indian Ocean to defeat the enemy.

But Rear Admiral Eugene J. Carroll said to the House Armed Services Committee, while Deputy Director, Center for Defense Information in 1984, that "if this is the strike warfare option of the 600-ship Navy, 600 ships are not enough.

"Fifteen carrier battle groups are not enough," he stated. "I say this as a carrier aviator with more than 30 years in carriers, in every role from squadron pilot to task force commander. We cannot attack and attrite a major land-based power from sea bases as we did in WW II."

RAdm. Carroll added that the U.S. Navy can defeat the Soviet navy without question in the open ocean but, in their home waters, where they have the benefit of thousands of land-based aircraft, they will become a "fearsome defensive force."

He said that it's not necessary for the Navy to invade Soviet basins and engage in a war of attrition. "We need to use our strength where we are clearly predominant and deny the Soviets access to the open seas and defeat their real threat — their submarine force," said Carroll.

Instead of building more aircraft carriers, he believes the U.S. Navy would be better off procuring more mines, P-3C *Orions*, LAMPS helicopters and frigates.

"You get more sea denial capability, dollar for dollar, with a strong offensive mine warfare capability than any other way you can invest a dollar," he said. "Because of their geographic constraints, maritime choke points through which they must travel to the open sea, a strong program by the U.S. Navy would attrite their submarines very rapidly and deny them effective access to the open sea." (See *NANews* September-October 1986.)

But Admiral James L. Holloway III, a former chief of naval operations, said in an article published in *Wings of Gold* in 1983 that in a war with the Soviet Union, U.S. carriers would be attacked and some would be damaged, but few would be lost. He added that the Navy intends its carriers to deliver more punishment than they receive.

"If the carriers can't survive a war with the Soviet Union, then no surface ship can," said Holloway. "The carriers, with their heavy armor and overwhelming offensive power, are the most survivable ships afloat. The thin-skinned, unarmed merchant ships which must reinforce and resupply our allies are the most vulnerable. If we can't insure the survival of the aircraft carriers, then there is no hope for the convoys."

Adm. Holloway added that about 85-percent of the land areas of the world and 95-percent of the world's population lie within range of carrier aircraft operating in international waters.

John Lehman testified recently that a 600-ship, 15-carrier group Navy is "not the result of arcane theory or complex formula" but rather derived from three basic elements: geography of the world, vital interests of the United States, and the threat.

"The purpose of naval forces is to prevent the seas from becoming a medium of attack upon the United States, and to ensure that the United States has the unimpeded use of the seas where and when we must have use of them in war and in peace," he stated. "These are two principal reasons for maintaining naval power. The reality of the threat to our ability to carry out those responsibilities is the principal change in the world scene, from a military standpoint, since WW II; a change second only to the introduction of nuclear weapons."

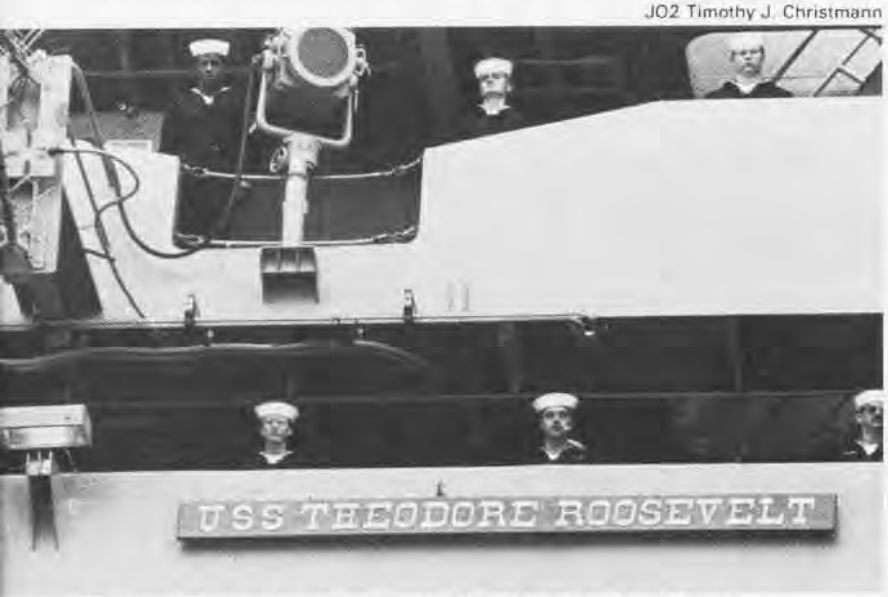
The U.S. Navy believes that without nuclear-propelled aircraft carriers like *Roosevelt* and their embarked air wings, *all* U.S. forces would become "unacceptably vulnerable to enemy attack." And, many of today's naval strategists believe that no other weapon being developed today can match the long-range, sustained and concentrated firepower of the carrier air wing. After all, the Navy's active and reserve carrier air wings can, among other things, detect, track and destroy enemy air, land, surface and subsurface targets hundreds of miles away; and they can deceive and jam hostile electronic transmitter and receiver devices.

Since the Soviet Navy has twice as many submarines and many more cruisers and destroyers than the U.S. Navy, American military strategists are happy that *Roosevelt* is commissioned, and they look forward to the completion of *Lincoln* and *Washington*.

At *Theodore Roosevelt's* commissioning ceremony, Congressman Herb Bateman echoed the opinions of these strategists.

"Aircraft carriers will remain the most versatile and durable weapons platforms in America's arsenal well into the 21st century," he said. "It is essential that ships of this class be available to fulfill the Navy's growing commitments. On to CVN-74!"■

JO2 Timothy J. Christmann



Theodore Roosevelt crewmen man the rail on the ship's island structure after Capt. Parcells ordered the carrier to "come alive."

Theodore Roosevelt considered the Navy an embodiment of national power.

Edward H. Heinemann
Honorary Naval Aviator No. 18

By Captain Maury Cagle, USNR-R(Ret.)

"Someone once called me a genius, which was certainly flattering. Frankly, I would rather be referred to as an innovator which, according to the dictionary, means 'one who makes changes or introduces new methods.' That translates into progress, and we surely achieved that." Edward H. Heinemann

Edward H. Heinemann became Honorary Naval Aviator No. 18 in a ceremony at the Navy League Ball in Los Angeles last October. It was one of the most appropriate ceremonies of the 75th Anniversary of Naval Aviation, honoring a man whose professional life has been dedicated largely to designing a superb series of carrier-based aircraft.

Heinemann belongs to a rare and vanishing breed of men whose likes aviation may not see again — men such as Willy Messerschmidt, Andrei Tupolev and Kelly Johnson. All had the talent to visualize an entire aircraft, and then translate that vision into workable reality.

Born in March 1908, Heinemann's life has spanned the golden age of flight. Armed with a burgeoning interest in aviation, an ability to determine what made things work and courses at a good technical high school, he started work as a draftsman for Douglas Aircraft in 1926 for $18 a week. As the 1920s ended and the depression gripped American industry, Heinemann worked for several aircraft firms in positions of increasing responsibility. In 1932, he joined the Northrop Corporation, which later became the El Segundo Division of Douglas. By 1936, he was chief engineer and became the focal point for a succession of important aircraft designs stretching over more than two decades, including the following:

SBD Dauntless. Thousands of these tough dive-bombers were flown in the Pacific theater during WW II by the Navy and Marine Corps. In addition, another 1,000 were operated by the Army Air Corps as A-24s. This aircraft, known as the "Barge" or the "Speedy D," was credited with sinking more combat tonnage than any other weapon during the war. Along with the Grumman F4F, it was the only carrier-based aircraft in use at the beginning and at the end of the war.

A-20 Havoc. An outgrowth of earlier designs for the Army and then the French Air Force, the A-20 was used extensively in the European theater in WW II, chiefly against ground objectives in low-level missions. It was known as the *Boston* to the RAF, where it was renowned for its ruggedness. One day, the following wire was received by Douglas from an RAF squadron leader: "Heaven bless builders of the *Boston*. Today our machine, after successful visit to French power station working for Germans, received direct hit from anti-aircraft artillery shell which exploded in root of port wing. Fairing blown away, main spar damage, oil cooler holed, port engine stopped. High-tension cable tore off three feet of port wing and fused to crankcase. Aircraft flew 199 miles on one engine. My crew joins me in thanking you for such grand aircraft."

A-26 Invader. A twin-engine, low-level attack bomber developed for the Army Air Force. The first bomber to use laminar-flow air foils and double-slotted wing flaps. The A-26, later redesignated B-26, was used extensively in Europe and also saw action in Korea and Vietnam.

AD Skyraider. Beloved single-engine attack-bomber, known as "Able Dog" and "Spad." Its basic design developed in a single evening, this aircraft was

This SBD was launched from USS Ranger in November 1942 during Operation Torch, the invasion of North Africa.

Ed Heinemann receives his honorary "Wings of Gold" from VAdm. Edward H. Martin, Deputy Chief of Naval Operations (Air Warfare).

operational until 1968. More than 3,000 were built and used for a wide variety of missions. On one occasion, an AD carried a load of 14,941 pounds.

D-558 Research Aircraft. The D-558-I *Skystreak* flew to Mach .99, and proved transonic and control principles to be incorporated in later combat aircraft. The D-558-II *Skyrocket*, both jet and rocket-powered, was the first aircraft to reach twice the speed of sound. It established an altitude record of 83,000 feet. A D-558-III was designed but never built. It had projected capabilities of Mach 9 and 700,000 feet of altitude.

F4D Skyray. Known in the fleet as the "Ford," the F4D was America's first delta-wing fighter and had an extremely high rate of climb, intended to intercept incoming enemy bombers. In one record flight, a Marine pilot reached 49,215 feet in two minutes and 36 seconds. Heinemann won the Collier Trophy for developing this aircraft. An advanced version, the F5D *Skylancer*, an all-weather supersonic aircraft with solid state electronics, was cancelled after four aircraft were built. Two were used by NACA (NASA's predecessor) as test beds.

A3D Skywarrior. First flown in 1952, the "Whale" is still in the Navy's inventory. Designed to carry the bulky first generation of nuclear weapons, the A3D was the largest jet bomber ever produced for carrier operations. It is one of Heinemann's personal favorites, since his design team came up with an aircraft weighing 68,000 pounds when officials expected that it would take 100,000 pounds to accommodate their specifications. It has been used as a tanker, a radar trainer, and as electronic and photoreconnaissance platforms.

A4D Skyhawk. The lightest, most efficient jet bomber ever produced. Its fundamental simplicity and strength contributed to its success — attested to by the fact that it has enjoyed the longest production run of any tactical aircraft in history. First flown in 1954, the A4D (dubbed "Heinemann's Hot Rod") was the standard attack aircraft in the Navy for a quarter of a century, and saw extensive service in Vietnam.

It is now over 60 years since Ed Heinemann first sat down at a drawing board. In those years, his work has gone from fabric-covered, open-cockpit aircraft to those capable of Mach 2, from radars with 300 vacuum tubes to solid-state electronics, from steel tubing to titanium. His design tools have evolved from sketches on the backs of envelopes to those assisted by computer.

Some promising designs never reached fruition because of politics or the economics of the day. Some designs were marginally successful. But most fell into the category of winners and were marked by a drive to produce aircraft which were as light and as uncomplicated as possible. Heinemann's perspective always was slanted toward the pilots and aircrews who would have to maintain and fly his designs.

He says, "...there is no denying that Navy planes had to be built to withstand greater workloads, as compared to land-based aircraft. Additionally, Navy flyers, in my view, had to give an extra degree of performance while operating from carrier landing platforms. I tried to keep these factors uppermost in my mind when designing for the seaborne service." A testimonial to his success is his nickname within the Naval Aviation community — "Mr. Attack Aviation."

Ed Heinemann today, at 78, is an impressive man. Walking with the aid of a cane in the aftermath of a massive stroke, he travels and speaks extensively. He is a tall, thin man, with a quick smile, and his conversation reflects a mind which has never lost its curiosity about its surroundings.

The list of his honors fills several pages. Among them are the Collier Trophy, the U.S. Navy Distinguished Public Service Award, the Guggenheim Medal, and the National Aeronautic Association's Elder Statesman of Aviation Award. He was enshrined in the National Aviation Hall of Fame, Dayton, Ohio, in 1981. In May 1986, he joined the exclusive list of enshrinees in the Naval Aviation Hall of Honor at the Naval Aviation Museum, NAS Pensacola, Fla.

In his citation to Heinemann, Vice Admiral Edward H. Martin, Deputy Chief of Naval Operations (Air Warfare), said, "In this 75th Anniversary Year of Naval Aviation, it is fitting that we honor the remarkable contribution you have made to air power at sea...you richly deserve to become the 18th Honorary Naval Aviator, and to wear the Wings of Gold, to which you have dedicated so much of your immensely productive life." ■

For readers interested in learning more about Ed Heinemann's fascinating life, read *Ed Heinemann, Combat Aircraft Designer*, by Edward H. Heinemann and Rosario Rausa.

Artist's rendering of the new Naval Space Command and Control Center now under construction at Dahlgren, Va. This facility will serve as the permanent headquarters for NavSpaceCom. It is scheduled for completion by the end of 1987.

Navy Expands Its Space Program

A significant milestone for the Naval Space Command (NavSpaceCom) was reached during ground-breaking ceremonies last June for a $20.7-million permanent headquarters. The new 250,000-square-foot building, located at the Naval Surface Weapons Center, Dahlgren, Va., will allow the NavSpaceCom to expand its role in managing Navy space programs and increase its capabilities as one of the service components of the U.S. Space Command (USSpaceCom), Colorado Springs, Colo.

On October 24, 1986, Rear Admiral Richard C. Macke became the third commander of the NavSpaceCom. During his change of command, he stressed the crucial role of space systems in the nation's defense. He also stated that the future holds many challenges for the command, including a scarcity of funds due to recent balanced-budget legislation. "Even though our [NavSpaceCom] organization is small in comparison to most headquarters staffs, we will still stay on course and fulfill our mission," RAdm. Macke emphasized.

The NavSpaceCom provides surveillance, command, control and communications support to Navy surface, subsurface and air strike forces. Established on October 1, 1983, it consolidates the Navy's two space activitives under one command, the Navy Astronautics Group, Point Mugu, Calif., and the Naval Space Surveillance System (NavSpaceSur), Dahlgren. This consolidation increases opportunities for space research that will enhance the Navy's ability to carry out worldwide maritime missions.

The Navy Astronautics Group is responsible for the Navy Navigation Satellite System, which conducts operations from four shore-based uplink stations. Frequent navigation updates and satellite telemetry, and tracking, controlling and maintaining navigation accuracies are a few of the services that the group provides to the fleet.

To support naval operating forces with information on space objects, the NavSpaceSur has three transmitter sites which provide uninterrupted surveillance of space out to approximately 8,000 nautical miles. This allows detection and tracking of launched space objects.

The satellite programs for which the Naval Space Command is responsible are:

Fleet Satellite Communications System (FltSatCom), a four-satellite system which provides UHF communications to naval forces deployed worldwide.

LeaSat, a Navy-leased satellite communications system, supplements FltSatCom. Operational since October 1984, the four operational LeaSat satellites will eventually be placed in geostationary orbits over the U.S. and the Atlantic, Pacific and Indian oceans.

The **NavStar Global Positioning System (GPS),** a satellite system currently in use, upgrades the Navy's capability to navigate on, under and above the ocean's surface. Presently, the GPS is composed of a handful of satellites and, when fully developed, it will have a total of 18.

The NavSpaceCom also supports the Navy Remote Ocean Sensing System (NROSS), which is in the developmental stage. This satellite is designed to produce oceanographic and environmental data in support of all naval warfare areas, and to aid in the safe passage of all vessels on the high seas.

Spreading the word about the Navy's involvement in space is one of NavSpaceCom's top priorities. According to Gary Wagner, protocol officer, "Most people in the fleet do not understand the many ways space helps them do their jobs. Providing courses [at Dahlgren] will hopefully fill this void."

NavSpaceCom personnel can become qualified to handle the ever-challenging field of space operations through several courses of instruction. Classes in aerospace engineering are available at the Naval Postgraduate School (NPS), Monterey, Calif. (see *NANews*, May-June 1985). NPS also offers master degree programs in space systems operations and space systems engineering subspecialities. The NavSpaceCom offers the Naval Space Short Course; and in Colorado Springs, Colo., a classified course is offered to battle group staffs. The NavSpaceCom

also sponsors a Space Research Chair in the Aerospace Engineering Department at the U.S. Naval Academy which helps students develop an early interest in the expanding naval space arena.

As a direct link to the Chief of Naval Operations and as a member of the USSpaceCom, the Naval Space Command's future continuously expands. In addition to its routine responsibilities, it is also tasked with providing training to a naval reserve unit which was established on October 1, 1984 — Naval Reserve (NR) 0166. As an astronaut, commanding officer Captain S. David Griggs contributes the expertise needed to fulfill the unit's mission. During the unit's two weeks of active duty for training in 1985, the members concentrated on mobilization requirements. Each member attended a special session of the Naval Space Short Course, the same training provided to the active duty force. NR 0166 was recently awarded a Meritorious Unit Commendation for its contributions to the NavSpaceCom's mission.

Former Chief of Naval Operations Admiral James D. Watkins summed up the Navy's position on space at the commissioning of the Naval Space Command: "Our maritime nation is critically dependent — economically, politically and for our security — upon free and unimpeded access to the world's oceans. With the advent of space-based satellite systems, we can no longer measure seapower by shipboard capabilities alone. Because of the capabilities which space-based systems provide a navy, sea control now means space control. The link is there — well forged and unbreakable."

U.S. Space Command

With the increased reliance of the U.S. military upon space systems in recent years, the need arose for a unified command to manage separate service space operations. The Department of Defense (DoD) established the U.S. Space Command (USSpaceCom) on September 23, 1985, to consolidate management of DoD space programs and to provide an operational framework for the employment of military space systems. Currently located in downtown Colorado Springs, Colo., with plans to relocate to Peterson Air Force Base, Colo., this year, the command comprises representatives from the Naval and Air Force Space commands, and the U.S. Army Space Planning Group.

A traditional symbol of American strength, the eagle and shield flanked by four stars represents the fusion of the four armed services into a unified DoD space command.

As the newest unified command, the USSpaceCom was formed to coordinate and more efficiently carry out missions vital to all military services. These include such functions as communications, navigation, surveillance, environmental monitoring and missile launch detection. The latter requirement is important to maintain our national policy of deterrence.

Vice Admiral William E. Ramsey, deputy commander in chief, U.S. Space Command.

According to Vice Admiral William E. Ramsey, deputy commander in chief of the U.S. Space Command, "We have two major mission areas — space operations and aerospace defense...but our ability to perform these missions in the future will change." The USSpaceCom, headed by Air Force General Robert T. Herres, will concentrate on utilizing space systems to effectively carry out these missions as well as support the theater commands.

USSpaceCom is involved in the planning and requirements development for ballistic missile defense. The command is also responsible for providing support to the North American Aerospace Defense Command (NORAD) in the areas of missile warning and space surveillance, and to commanders in chief who must be warned of ballistic missile or space attack in their theaters of operation. NORAD, colocated with the U.S. Space Command in Colorado Springs, provides cooperative defense planning between the governments of Canada and the U.S.

During a recent interview, VAdm. Ramsey commented on the importance of space systems to all services. "One of the things that I always like to reflect on is that there is no such thing as a parochial space system," he said. "A service may develop a space system to satisfy an operational requirement. Once it develops that system...the other services soon discover they have requirements that can be satisfied by [it]. So once the system gets up in space, it doesn't just satisfy the Navy or the Army or the Air Force, it satisfies everybody."

Appointed by the Joint Chiefs of Staff (JCS), VAdm. Ramsey is no stranger to the Navy's space program. He gained most of his knowledge while serving as the first director of Navy Space Systems (OP-943) in the Office of the Chief of Naval Operations. "The Navy is deeply involved in using space and we must continue to be active participants," Ramsey said. "Our space organizations are relatively new, and I foresee expanding roles and missions in support of our war-fighting commanders being defined in the not-too-distant future."

Educating the military personnel, in addition to the public, about the USSpaceCom's viability is a need that VAdm. Ramsey recognizes. Last year at the annual Tailhook Convention he received repeated applause when he showed how, during wartime, all aviation communities can be greatly aided through exploitation of the NavStar Global Positioning System.

The "unified" command concept is what VAdm. Ramsey emphasizes when dealing with his people. "He believes deeply in the need for a unified effort in space," explained Lieutenant Commander Doug Schamp, public affairs officer, U.S. Space Command. "He continuously ensures that people here think in unified terms and accept the fact that regardless of the color of the uniform you wear, once you enter the USSpaceCom, you put on your 'purple suit' and join a combined team of experts."

To help build the "one-group" attitude among the USSpaceCom personnel, VAdm. Ramsey influenced the command to adopt a traditional sea service idea — plank ownership.

"Any individual who *initially* filled an assigned U.S. Space Command billet qualifies as a plankowner of the command and will have his or her service commemorated by a certificate," said VAdm. Ramsey. In July 1986, the first plankowner certificate was presented to General Herres, commander in chief of the command, and was signed by Admiral William J. Crowe, Jr., Chairman of the JCS.

Sharing ideas, efforts and goals among all services decreases U.S. vulnerability. This is one of the most important goals of the USSpaceCom as it "reaches for the stars."■

Sherri Jones contributed to this article.

The Navy in Space

U.S. Space Flights with Navy and Marine Corps Pilots/Astronauts Aboard

Date	Mission Designation	Crew
5 May 1961	Mercury 3 First U.S. flight into space	Alan B. Shepard, Jr.
20 Feb 1962	Mercury 6 First to orbit the earth	John H. Glenn, Jr.
24 May 1962	Mercury 7	M. Scott Carpenter
3 Oct 1962	Mercury 8	Walter M. Schirra, Jr.
23 Mar 1965	Gemini 3	(Virgil I. Grissom, AF) John W. Young
21-29 Aug 1965	Gemini 5	(L. Gordon Cooper, AF) Charles Conrad, Jr.
4-18 Dec 1965	Gemini 7	(Frank Borman, AF) James A. Lovell, Jr.
15-16 Dec 1965	Gemini 6	Walter M. Schirra, Jr. (Thomas P. Stafford, AF)
16 Mar 1966	Gemini 8	Neil A. Armstrong* (David R. Scott, AF)
3-6 Jun 1966	Gemini 9	(Thomas P. Stafford, AF) Eugene A. Cernan
18-21 Jul 1966	Gemini 10	John W. Young (Michael Collins, AF)
12-15 Sep 1966	Gemini 11	Charles Conrad, Jr. Richard F. Gordon, Jr.
11-15 Nov 1966	Gemini 12	James A. Lovell, Jr. (Edwin E. Aldrin, Jr., AF)
11-22 Oct 1968	Apollo 7	Walter M. Schirra, Jr. (Donn F. Eisele, AF) Walter Cunningham*
21-27 Dec 1968	Apollo 8 First flight to the moon	(Frank Borman, AF) James A. Lovell, Jr. (William A. Anders, AF)
18-26 May 1969	Apollo 10	(Thomas P. Stafford, AF) John W. Young Eugene A. Cernan
16-24 Jul 1969	Apollo 11 First walk on the moon	Neil A. Armstrong* (Michael Collins, AF) (Edwin E. Aldrin, Jr., AF)
14-24 Nov 1969	Apollo 12	Charles Conrad, Jr. Richard F. Gordon Alan L. Bean
11-17 Apr 1970	Apollo 13	James A. Lovell, Jr. (John L. Swigert, Jr., civ) Fred W. Haise, Jr.*
31 Jan- 9 Feb 1971	Apollo 14	Alan B. Shepard, Jr. (Stuart A. Roosa, AF) Edgar D. Mitchell
16-27 Apr 1972	Apollo 16	John W. Young Thomas K. Mattingly II (Charles M. Duke, Jr., AF)
7-19 Dec 1972	Apollo 17	Eugene A. Cernan Ronald E. Evans (Harrison H. Schmitt, civ)
25 May- 22 Jun 1973	Skylab 2 First U.S. manned orbiting space station, all-Navy crew	Charles Conrad, Jr. Joseph P. Kerwin, MD Paul J. Weitz
28 Jul- 25 Sep 1973	Skylab 3	Alan L. Bean (Dr. Owen K. Garriott, civ) Jack R. Lousma
16 Nov 1973- 8 Feb 1974	Skylab 4	Gerald P. Carr (Edward G. Gibson, civ) (William R. Pogue, AF)
15-24 Jul 1975	Apollo-Soyuz Test Project	(Thomas P. Stafford, AF) Vance D. Brand* (Donald K. Slayton, AF)
12-14 Apr 1981	Space Shuttle Columbia (STS-1) First mission into space, all-Navy crew	John W. Young* Robert L. Crippen
12-14 Nov 1981	Space Shuttle Columbia (STS-2)	(Joe H. Engle, AF) Richard H. Truly
22-30 Mar 1982	Space Shuttle Columbia (STS-3)	Jack R. Lousma (Charles G. Fullerton, AF)
27 Jun- 4 Jul 1982	Space Shuttle Columbia (STS-4)	Thomas K. Mattingly II (Henry W. Hartsfield, civ)
11-16 Nov 1982	Space Shuttle Columbia (STS-5)	Vance D. Brand* Robert F. Overmyer (Joseph P. Allen, civ) (William B. Lenoir, civ)
4-9 Apr 1983	Space Shuttle Challenger (STS-6)	Paul J. Weitz* (Karol J. Bobko, AF) (Donald H. Peterson, civ) (Story Musgrave, civ)
18-24 Jun 1983	Space Shuttle Challenger (STS-7)	Robert L. Crippen Frederick H. Hauck (John M. Fabian, AF) (Sally K. Ride, civ) (Norman E. Thagard, civ)
30 Aug- 5 Sep 1983	Space Shuttle Challenger (STS-8)	Richard H. Truly Daniel C. Brandenstein Dale A. Gardner (Guion S. Bluford, AF) (William E. Thorton, civ)
28 Nov- 8 Dec 1983	Space Shuttle Columbia (STS-9)	John W. Young* (Brewster W. Shaw, Jr., AF) (Owen K. Garriott, civ)

Date	Mission Designation	Crew
		(Robert A.R. Parker, civ) (Ulf Merbold, civ) (Byron K. Lichtenberg, civ)
3-11 Feb 1984	Space Shuttle Challenger (41-B) First untethered walk in space	Vance D. Brand* Robert L. Gibson Bruce McCandless II (Robert L. Stewart, USA) (Ronald E. McNair, civ)
6-13 Apr 1984	Space Shuttle Challenger (41-C)	Robert L. Crippen (Francis R. Scobee, civ) (George D. Nelson, civ) (Terry J. Hart, civ) (James D. van Hoften, civ)
30 Aug- 5 Sep 1984	Space Shuttle Discovery (41-D)	(Henry W. Hartsfield, civ) Michael L. Coats (Judith A. Resnik, civ) (Steven A. Hawley, civ) (Richard M. Mullane, AF) (Charles D. Walker, civ)
5-13 Oct 1984	Space Shuttle Challenger (41-G)	Robert L. Crippen Jon A. McBride (Kathryn D. Sullivan, civ) (Sally K. Ride, civ) David C. Leestma (Marc Garneau, civ) (Paul D. Scully-Power, civ)
8-15 Nov 1984	Space Shuttle Discovery (51-A)	Frederick H. Hauck David M. Walker (Anna L. Fisher, civ) (Joseph P. Allen, civ) Dale A. Gardner
24-27 Jan 1985	Space Shuttle Discovery (51-C)	Thomas K. Mattingly II (Loren J. Shriver, AF) (Ellison S. Onizuka, AF) James F. Buchli (Gary E. Payton, AF)
12-19 Apr 1985	Space Shuttle Discovery (51-D)	(Karol J. Bobko, AF) Donald E. Williams (M. Rhea Seddon, civ) (Jeffrey A. Hoffman, civ) (S. David Griggs, civ) (Charles D. Walker, civ) (Sen. E. J. "Jake" Garn)
29 Apr- 6 May 1985	Space Shuttle Challenger (51-B)	Robert F. Overmyer (Frederick D. Gregory, AF) (Don L. Lind, civ) (Norman E. Thagard, civ) (William E. Thornton, civ) (L. van den Berg, civ) (Taylor G. Wang, civ)
17-24 Jun 1985	Space Shuttle Discovery (51-G)	Daniel C. Brandenstein John O. Creighton (Shannon W. Lucid, civ) (John M. Fabian, AF) (Steven R. Nagel, AF) (Patrick Baudry, civ) (Sultan Al-Saud, civ)
3-7 Oct 1985	Space Shuttle Atlantis (51-J)	(Karol J. Bobko, AF) (Ronald J. Grabe, AF) (Robert L. Stewart, USA) David C. Hilmers (William A. Pailes, AF)
30 Oct- 6 Nov 1985	Space Shuttle Challenger (61-A)	(Henry W. Hartsfield, AF) (Stephen R. Nagel, AF) James F. Buchli (Bonnie J. Dunbar, civ) (Guion S. Bluford, Jr., AF) (Reinhard Furrer, civ) (Ernst Messerschmid, civ) (Wubbo Ockels, civ)
26 Nov- 3 Dec 1985	Space Shuttle Atlantis (61-B)	(Brewster H. Shaw, Jr., AF) Bryan D. O'Connor (Mary L. Cleave, civ) (Sherwood C. Spring, civ) (Jerry L. Ross, civ) (Rodolfo Neri Vela, civ) (Charles D. Walker, civ)
4 Jan 1986	Space Shuttle Columbia (61-C)	Robert L. Gibson Charles F. Bolden, Jr. (Frank R. Chang-Diaz, civ) (Steven A. Hawley, civ) (George D. Nelson, civ) (Robert Cenker, civ) (Rep. Bill Nelson)
22 Jan 1986	Space Shuttle Challenger (51-L)**	(Francis R. Scobee, civ) Michael J. Smith (Judith A. Resnik, civ) (Ellison S. Onizuka, AF) (Ronald E. McNair, civ) (Gregory B. Jarvis, civ) (S. Christa McAuliffe, civ)

*Aviators, retired or separated from Navy/Marine Corps, assigned to the crew as civilians on space flights.

**Challenger exploded shortly after launch from the Kennedy Space Center, Fla., killing all seven crew members.

XF5B-1

By Hal Andrews

XF5B-1

Reflecting on pre-WW II monoplane fighters, the usual view is to think in terms of low-wing monoplanes. However, a number of European countries used high-wing monoplane fighters extensively, both in parasol and gull-wing configurations. In fact, the first U.S. monoplane fighter design to fly in the era that saw the transition from biplanes to monoplanes was a parasol design. Boeing built two of these pioneer all-metal aircraft in 1929, one for testing by the Army and one by the Navy. While neither service purchased production models, major new features of the design found their way into both services' Boeing biplane fighters of the early thirties — as well as paving the way for general adoption of these features.

During the twenties, Boeing became a major supplier of fighters to the Army and Navy. In most cases, prototypes were built at company expense and, after service tests, the prototypes and production quantities were purchased. Following this process, two prototypes of a compact biplane fighter, using the latest version of the Pratt and Whitney Wasp engine, were built for testing by the Navy in 1928. Their performance was so superior to existing service models that the Army and the Navy ordered production versions, initiating the F4B/P-12 series of fighters. They are remembered today as fine fighter planes by those who once flew them.

Meanwhile, two monoplane designs had been initiated by Boeing. One was Boeing's first all-metal design, ordered as the XP-9 experimental fighter by the Army in the spring of 1928. Its strut-braced high wing was shoulder mounted. It was intended to attain maximum speeds above those reached by other fighters, including those powered by the same 600-hp, water-cooled V-12 Curtiss Conquerer engine. The second monoplane, initiated later, was a parasol version of the F4B/P-12 biplane, using similar mixed metal and wood structure, largely fabric-covered.

As the two designs proceeded, Boeing decided to replace the parasol monoplane's structure with an all-metal design. Its semi-monocoque fuselage and metal-skinned wing were both based on those of the XP-9. Two prototypes were built: model 202 for testing by the Army and model 205, identical except for carrier arresting provisions and increased fuel capability, for Navy testing. Both flew in early 1930, before the XP-9. The 202, flying in January, was the first Boeing all-metal monoplane to fly. The 205 was flown directly to NAS Anacostia, D.C., in February, for Navy testing. Both were equipped with new supercharged Pratt and Whitney R-1340D Wasp engines, initially without a ring cowl; the 205's was fitted before the delivery flight.

As tests of the 205 proceeded, interest in purchasing the airplane as an experimental type led to assignment of the XF5B-1 designation. A taller vertical tail was delivered and installed at Anacostia. Flight tests were done with and without the ring cowl, establishing its benefit in increased performance. The R-1340D engine was temporarily replaced by a R-1340C during the course of the tests. The purchase contract was signed in May, and the Navy tests completed in June, after which the XF5B-1 was officially accepted.

Some tail wheel gear failures plagued the Navy tests, but they were otherwise quite successful. While top speed and visibility were found superior to other fighters, take-off distance, maneuverability and landing speed suffered, compared to the F4B-1, due to decreased wing area and increased structural weight. Concern was expressed over the effect of the ring cowl on carrier landing visibility, and the XF5B-1 was subsequently used for tests to further investigate the problem, beginning with removing the side cowl sections. Ultimately, the use of full rings prevailed.

While the all-metal fuselage, engine cowl and revised tail found their way into the later F4B-3 biplanes (and with further modifications, the F4B-4), the XF5B-1 was not followed by any production

XF5B-1

orders. It continued as an experimental type for armament and equipment tests, until both main gears collapsed during a landing following a high-altitude test flight in October 1931. The cost of repair was considered unwarranted.

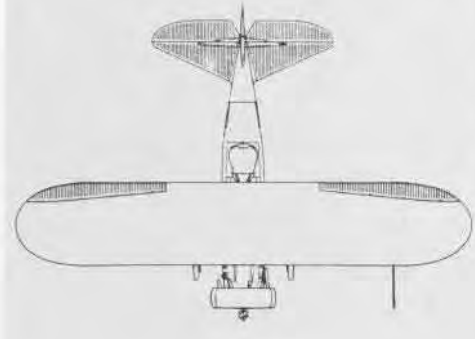
Tests of the "watertight" wing — ballasted with fuselage weight — adrift in a moderate sea, proved it not to be watertight. The airframe was then shipped to the Naval Aircraft Factory, Philadelphia, Pa., where it was used for structural tests and research for the next few years. ■

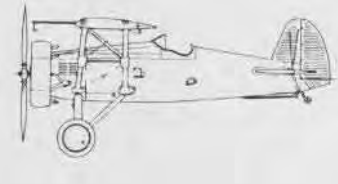
Span	30'6"
Length	21'0"
Height	9'4"
Power plant	
Pratt & Whitney R-1340D	500 hp
or R-1340C	480 hp
Maximum speed	183 mph
Service ceiling	27,100'
Maximum range	690 mi.
Armament	One .30 machine gun; one .50 machine gun; and one 500-lb. bomb.
Crew	One

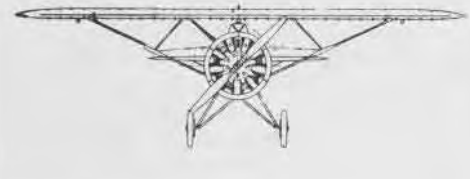
XF5B-1

XP-15

XF5B-1







Test pilots for Strike Ordnance must first be ordnance-qualified before they are allowed to fly potentially hazardous weapons delivery test hops.

Strike Ordnance

When It Absolutely Has to Get There!

By Hank Caruso

To the average citizen, the image of the test pilot has always conjured up glamour, risk and thrills. To some of his peers in fleet squadrons, the test pilot is sometimes regarded as being out of touch with the operational flying world.

While these views come from totally disparate communities, they have a common thread. Both assume that the test pilot's primary function is to evaluate how fast, far and quickly an aircraft can fly and maneuver. But every combat aircraft exists for only one reason: to deliver ordnance to a designated location on the sea, in the air or on the ground. No matter how impressive they may be, aircraft flying qualities and performance capabilities are only the means by which the end result of ordnance delivery is achieved. The organization responsible for ensuring that Navy aircraft can meet this goal with any of the increasing variety of airborne weapons is the Strike Ordnance Department at the Naval Air Test Center.

Based at NAS Patuxent River on Maryland's western shore, Strike Ordnance is a critical element of the Strike Aircraft Test Directorate. Every item of ordnance carried by naval aircraft — from guns, missiles and bombs to avionics pods, fuel tanks and expendables — must first be certified for operational use by Strike Ordnance. Certification has to be obtained before the more highly publicized operational testing and evaluation can proceed at Naval Air Stations Point Mugu or China Lake in California. This means that dozens of projects of varying magnitude and complexity must be supported annually, often under severe time demands and unpredictable schedules associated with the fleet's immediate need to solve problems or deploy new equipment. In addition to its own projects, Strike Ordnance also supports the Rotary Wing and Force Warfare directorates in testing stores carriage and ordnance delivery. Accomplishing this task requires a very unique combination of talent, dedication and experience.

Strike Ordnance is actually an amalgam of three distinct communities: enlisted ordnance handlers, civilian test engineers and, of course, the test pilots. The activities of these groups are coordinated by department head Lieutenant Commander Dave Kennedy and his civilian counterpart, chief engineer Russ Newberry. The department has no aircraft of its own. Instead, each project has one or two aircraft designated as primary ordnance evaluation aircraft. These have been instrumented to fulfill the specialized needs of weapons testing.

The engineers supporting Strike Ordnance programs belong to sections specializing in weapons compatibility, systems integration, air-launched ballistics, and systems safety. The 20 or so engineers assigned to the Weapons Compatibility Section report to section heads Nancy Neal and James Pickeral. These engineers evaluate separation characteristics, jettison envelopes, and carriage configurations to certify aircraft in their operating limits while employing various types of ordnance or stores, either alone or in combination with other types. In designing the flight tests to be performed, they must try to anticipate all of the permutations of stores configuration and aircraft tactical maneuvers that could compromise the crew's safety, the aircraft's capabilities or the stores' performance. And they must be familiar with the wide variety of sensing and recording apparatus needed to document the results of the weapons trials, including accelerometers, thermocouples, strain gauges, cameras and theodolites.

The Air Launched Ballistics Section, headed by John Brady, is responsible for producing ballistics tables for free-fall weapons and algorithms for new generations of weapons delivery computers. This process involves countless drops of weapons that are carefully tracked from release to impact by radar and video equipment at NAS Patuxent River's Chesapeake Test Range.

Curt Hamilton's Weapons Integration Section tackles the problem of introducing new weapons systems to existing airframes and avionics. This spans the spectrum of tasks from upgrading P-3 and SH-60 sonobuoys and adding *Sidewinder* missiles to the S-3's suite to integrating *Harpoon* into the F/A-18.

The Systems Safety group oversees Strike Ordnance operations with an eye toward anticipating and avoiding ordnance safety hazards, especially in detonation and fuse arming systems. Bob Davidson's safety troubleshooters work closely with other allied weapons organizations in the Navy, Army and Air Force.

Because safety is always of paramount concern, Strike Ordnance engineers must decide which data to monitor in real-time to ensure that potentially dangerous conditions are avoided. If necessary, the engineers have the authority to shut down a test if they don't feel that it is proceeding properly. This authority places a large burden of responsibility on the flight test engineer. If he or she is too cautious, valuable test time and resources will be wasted on false alarms. On the other hand, if the engineer misinterprets a trouble indication or waits too long to act, the safety of an aircraft and its flight crew could be jeopardized. The need to make decisions of this importance on a regular basis places the Strike Ordnance engineer in a very different world from the majority of his or her office-bound peers.

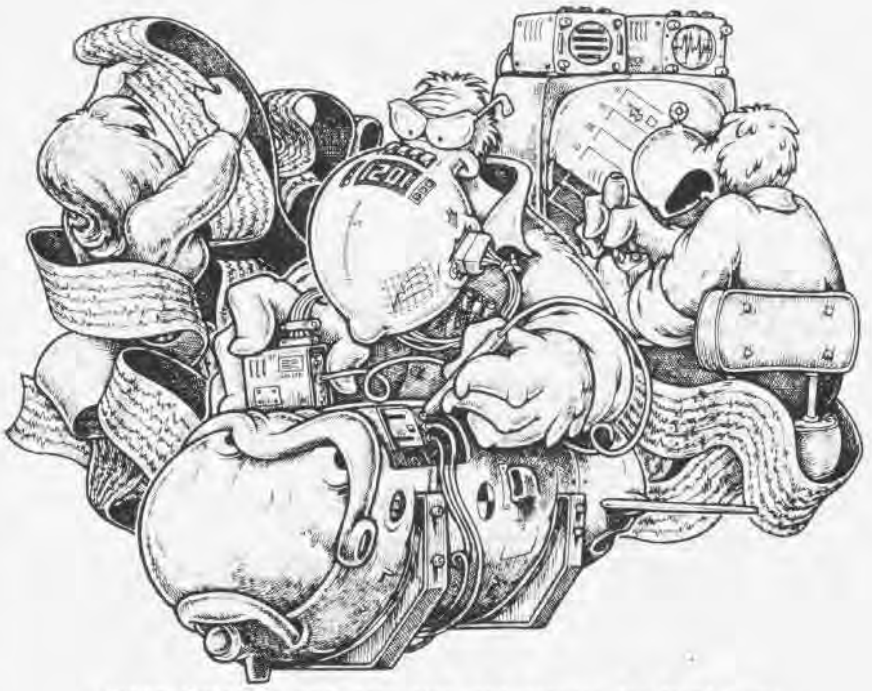
Once the engineers have determined

the nature and details of a test to be performed, the responsibility of maintaining and loading the required ordnance or stores on the carrying aircraft lies with the Armament Support Section. This unit includes the "ordies," led by CWO4 Billy "Gunner" Murphy, and the "tunnel rats," directed by retired Marine Joe Arnett. Often stereotyped as all brawn and no brain, the dangerous nature of the ordies' job contradicts this image. As one ordie put it, "If we were really as dumb as some people make us out to be, there wouldn't be too many of us left. In this job, anyone who makes his first mistake probably won't be around to make his second."

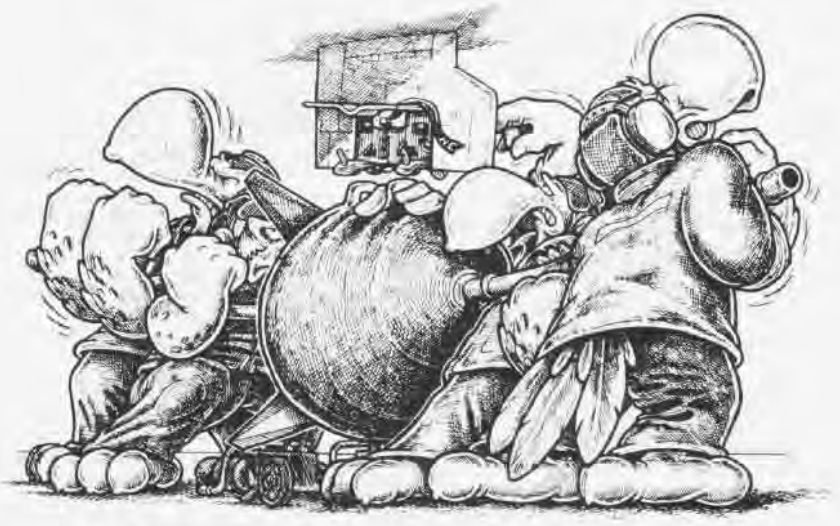
Lt.Cdr. Kennedy reinforces this attitude when he points out that the ordies at Strike Ordnance belong to a separate group that does not report administratively to a maintenance department, as it would in a normal squadron operation. This is because Strike Ordnance is a test operation and not business as usual. In many cases, operating procedures have not been established and must be developed and documented as part of the stores evaluation program. As Lt. Cdr. Kennedy states, "In a test situation, blindly following the book won't work. The ordies here have a sixth sense for the unusual or the potentially dangerous."

Finally, after the planning and preparation have been completed, the job of delivering 250,000 tons of ordnance each year falls to the test pilots. Oddly, Lt.Cdr. Kennedy is the only test pilot directly assigned to Strike Ordnance. All other pilots assigned to program offices come from a pool of test pilots. However, to fly ordnance hops for Strike Ordnance, a pilot must be ordnance-qualified. This means that he or she must be thoroughly familiar with the ordnance being carried as well as the ordnance-related safety and performance aspects of each aircraft on which the stores will be carried. This restriction means that probably less than one-quarter of the test pilots at NAS Patuxent River are available to fly ordnance delivery tests.

The hazardous nature of the stores being carried, and the unpredictability of their behavior in untested configurations and delivery scenarios, add a new element of risk to being a test pilot for Strike Ordnance. He or she must continually think ahead to all of the "what ifs" associated with live munitions, while at the same time flying realistic mission profiles with the precision required to obtain the critical data that the engineers need for their evaluations. The mission is demanding but professionally rewarding and vital to the Navy. "After all," says Lt.Cdr. Kennedy, "without the guns, bombs and missiles, the aircraft are only unscheduled airliners." ■



Strike Ordnance engineers plan and prepare for flight test activities, decipher data streams, and monitor flight tests in real-time to ensure effectiveness and safety.



When bomb loading carts aren't available or there's not enough space for their use, ordies must bomb up manually using the beloved "hernia bar."

"Tunnel rats" in the Armament Support Section are responsible for airborne gun systems compatibility tests in the section's firing tunnel.

Under the Bag

By Ensign T. J. Roorda

The image of Naval Aviation created by the movie *Top Gun* makes it difficult to convince the movie-going public that certain aspects of Navy flying are less than glamorous. Being a student Naval Aviator is certainly challenging, but not necessarily Hollywood material. Few people realize the amount of hard work that goes into becoming a pilot in the Navy. First of all, as a student, there is no beautiful female astrophysicist to critique you. And there is no "Goose" to help you from the backseat. It is you, the student, in a one-on-one situation, who must prove to the instructor on each flight that you are prepared and able to progress to the next flight safely. It's like a final exam each time you fly, only this exam tests much more than mental skills.

Consider that the very first flight in the advanced strike training syllabus is done under "the bag." The bag is a white vinyl sheet that can be stretched over the student's cockpit so that he or she can see nothing outside. The cockpit instruments are the only source of information available. The bag simulates flying through thick clouds, something any pilot must be able to do. This article follows a student through the first actual flight in the TA-4J *Skyhawk* and reflects some of the thoughts that run through his or her head.

You walk out to the airplane. You're not Tom Cruise. The plane you're approaching is not an F-14. You realize that it is you, a student pilot, who will take this aircraft off the ground, fly it through prescribed airspace, perform maneuvers with precise control of airspeed, altitude and direction, and then navigate back to your training base at NAS Meridian, Miss., for a ground-controlled approach. What's more, you'll do all of this with "the bag" over your cockpit.

There's an instructor going with you, because it's your first actual flight in the TA-4J. Sure, you've flown airplanes before — the T-34C *TurboMentor* in primary and the T-2C *Buckeye* in intermediate training. You've even landed the *Buckeye* on a carrier! So why the apprehension about flying this advanced trainer? Perhaps it is because changing from the *Buckeye* to the *Skyhawk* is like going from a wide-tire bicycle to a sleek-tire unicycle. The only difference is that the TA-4J accelerates a bit quicker than the unicycle. Nevertheless, you have spent many hours of instruction in simulators.

The *Skyhawk* looms in front of you, much taller than the T-2C. The instructor begins the preflight inspection of the plane. You walk around with him, nodding at the appropriate moment with a concerned face, as if you intimately know the function of each piece of equipment that he points out. The truth is that you can't hear a word he is saying because you are wearing a helmet designed to block outside noise, and the jet engines turning nearby drown out any verbal communication.

There's no turning back. Suddenly you're strapped into the ejection seat, watching the instructor as he settles into the front cockpit and teams up, via visual signals, with the plane captain on the ground. They're checking the aircraft systems as if they are reading each other's minds. Next, you're waiting at the end of the runway, putting the portable cloud — the bag — over your cockpit, and requesting clearance to take off. The tower clears you. The instructor taxies onto the runway, lines up the airplanes, revs up the engine and asks, "Are you ready to go?" (What are you going to say? No!?) You blink twice and the airplane's speedometer says it's going 80 knots. Amid the babbling that the instructor is spewing out, you hear those three words that simultaneously wrench your gut and challenge you: "You've got it."

Roger, sir, I've got it, you say. But you think, What do I got? A hurtling hunk of aluminum with a constantly exploding mass of gas and air shooting down a runway. And I can't even see outside! Your mind scrambles, then that one word which has saved you so many times before lights up in your head: Procedures. Yes, procedures: takeoff at 147 knots, gear, flaps. In a matter of seconds, you are manipulating the controls, scanning the instruments, performing what needs to be done to keep the machine aloft, and learning.

The routine under the portable cloud is arduous, demanding, instructive. And time passes quickly. The flight seems to have begun and ended quickly. According to your instruments, you're back at Meridian. The instructor takes control of the airplane. You peel the bag back. While the instructor lands the airplane, you verify by looking at the ground that you are back at the airport. You wonder whether the instructor, with tricks and mirrors, fooled you into thinking you were away. Regardless, the first flight is done, and it's an occasion to celebrate.

You celebrate by going home to prepare for the next day. You study, you practice armchair flying. But you know there is nothing like real flight. ■

Flying in a Dark Closet

By Ensign T. J. Roorda

Without a moon, flying high in a jet, the dark night sky can look like the ground below. The scattered lights on the ground in northern Mississippi often seem to be a mirror reflection of the star-spangled sky. Looking outside of the cockpit, it would be very easy to be upside down and not realize it. If you thought you were right side up and you were really wrong side down, it could be detrimental to life and limb. This flip-flop of reality is only one of the illusions which can affect a flyer at night.

An advanced jet training student will fly at night and learn the dangers and the illusions of operating an aircraft in the dark. On "night formation flight #4," as it is identified in the syllabus, you take a jet out by yourself and join up with an instructor who is circling over the area. You fly formation back to Meridian on his *Skyhawk*, five feet separating your wingtip from his. Imagine, for a moment, yourself as a student jet pilot.

You arrive at the hangar in time for your brief. It is late Friday afternoon. The brief takes place with the instructor who will be in the other plane, grading your every move. You answer his random questions about procedures, night illusions, and anything else he happens to be curious about. After this, there is some time before you walk to the plane. It

is a requirement that the sun be below the horizon for at least 30 minutes before takeoff. You glance outside and see the sun setting. Your mind wanders to what your buddies back home are doing tonight — probably getting ready for a night on the town. You decided to join the Navy and see the world so, instead of spiffing up for social adventures, you're here in Meridian getting ready for a sortie into the night.

As you walk out to the plane, you verify that there is no moon and that makes it a very black night. It's like being in a closet without a light. You click your flashlight on to look over the airplane, making sure there are no hydraulic leaks or bent parts. After starting up, checking aircraft systems and taxiing out, you move onto the runway and align the machine with the two rows of runway lights that reach forward and merge in the distance before disappearing. With your left hand, you apply full throttle. The engine noisily gulps gas and air. You scan the instruments while the surging acceleration of the airplane seems to take hold of you. You streak by the runway lights and gently pull back on the control stick, ungluing the plane from the ground, lifting yourself into the sky, the limitless closet without a light.

Harry Gann

This T-2C (center) and two TA-4Js from the training command bear the markings of the 75th Anniversary of Naval Aviation.

Somewhere out in that closet your instructor awaits, orbiting at a prebriefed position. You fly toward where he should be and contact him on the radio. You search the sky for those three special lights of the TA-4J *Skyhawk*. As soon as you think you see him, you begin your join-up.

Another night illusion involves depth perception. With any objects beyond 50 yards, it is virtually impossible to tell how close or far away they are. So the three lights you look for may be stars and planets arranged just so, enticing you to join up on them. But that doesn't happen this time. You draw closer to the triangle of lights and see the rotating anti-collision light on the upper back, or top fuselage, of the TA-4J. As you close in, the instructor turns this "anti-smash" light off, a procedural signal that you are near enough to cross under his aircraft. Securing the light is also a necessity because the blinking effect would be disconcerting when close in.

As you cross under, you can faintly make out the outline of the *Skyhawk* caught in the intermittent glow of your own anti-smash light, sweeping along the instructor's plane. His wingtip lights serve as guides. You maneuver your airplane smoothly and smartly, bringing it up to formation position five feet away. All the while, you have been hurtling through the deep blackness at 290 mph, watching only wingtip lights and the on-again-off-again red silhouette of his jet illuminated by the blinking anti-smash light. Once joined up, the instructor then breaks away and the whole process begins again. Night rendezvous practice is a must. The intense concentration drains you. You are tired. It may be Friday night, but you're still at work.

You fly back to Meridian, slow down in company with the instructor, and begin the precision approach sequence to the landing strip. The instructor flashes his wingtip lights two times, signaling you to extend gear and flaps. Better do it in concert or you'll shoot, embarrassingly, past him.

You work hard staying in position until, ultimately, you guide the TA-4J to a landing. You taxi onto the flight line and park the jet. Next, you must fill out the paperwork and debrief with the instructor. Only then is the rest of Friday night yours. But it is late and you are more fatigued than if you had gone out on the town. You elect to go to bed.

Somewhere deep inside you have proven to yourself that you can fly night formation. This builds confidence. You know such flights will be routine in the future. You also know there will be even blacker nights over the dark, cold North Atlantic, or the far Pacific. But this kind of training prepares you for it. ■

Tracing Squadron Lineage

The lineage and history of U.S. Naval Aviation squadrons has been a source of confusion since the birth of Naval Aviation in 1911. Much of this confusion arose from the terminology used by the Navy, the lack of a consistent policy in selecting the alpha-numeric designations for squadrons, and the many establishments, redesignations and disestablishments of aviation squadrons.

When dealing with a squadron's lineage, the only correct terms to use are establishment, disestablishment and redesignation. The terms *commissioning* and *establishment* have been used interchangeably for years and that is incorrect. Only ships are commissioned, decommissioned and receive commissioning pennants. Squadrons have establishment and disestablishment ceremonies.

A unit's history and lineage begins when it is established and ends at the time it is disestablished. Determining a squadron's "family tree" may seem cut and dried, but that is not the case. A squadron may undergo numerous redesignations during the period between its establishment and disestablishment. A newly established squadron bearing the same designation of a unit that had previously existed may carry on the *traditions* of the old organization but it cannot claim the history or lineage of the previous unit. The same is true of United States naval ships and, thus, the rationale for such a policy becomes apparent. For example, USS *Ranger* (CV-61) is the seventh ship to bear the name *Ranger* and may carry on the traditions of the previous six ships. USS *Ranger* (CV-61) is obviously not the same Continental Navy Ship *Ranger* commanded by Captain John Paul Jones during the War of Independence. The history of USS *Ranger* (CV-61) begins with its commissioning date, not with the commissioning date of the first *Ranger*.

The current Fighter Squadron One (VF-1), established October 14, 1972, is the seventh squadron in the Navy to be designated VF-1. This squadron is not the same VF-1 that used the designation for the first time in 1922. Designations, like ship's names, are reused but, if there is a break in the active status of the unit and its designation, there is no connection between the units bearing the same designation.

Another common problem area involves squadron insignia. The lineage or history of a squadron cannot be traced using only its insignia, because the same insignia may have been adopted and approved for official use by more than one squadron during different time frames. The insignia of a disestablished squadron may be adopted by another squadron with official approval, but this does not confer upon the new squadron the right to the previous unit's history and lineage. The following outline of the *Jolly Roger* insignia is an example of the confusion that results if one attempts to trace the lineage and history of a squadron insignia without considering other factors.

VF-17 was established on January 1, 1943, and during WW II it produced an outstanding record as a fighter squadron. The *Jolly Roger* insignia was adopted during this period. On November 15, 1946, all Navy squadrons were redesignated and VF-17 became VF-5B. Subsequently, it was redesignated VF-61 on April 28, 1948, and then disestablished on April 15, 1959. Commander Hoppe was the C.O. of VF-61 when it was disestablished. The *Jolly Roger* insignia had been used by

Current U.S. Naval Aircraft Squadron Lineage

as of 21 Nov 86

Squadron Designation	Changes in Squadron Designation	Date
	Helicopter Attack (Light) Squadron	
HAL-4	HAL-4 Established	1 Jul 1976
HAL-5	HAL-5 Established	1 Mar 1977
	Helicopter Combat Support Squadron	
HC-1	HU-1 Established	1 Apr 1948
	HU-1 Redesignated HC-1	1 Jul 1965
HC-3	HC-3 Established	1 Sep 1967
*HC-4	HC-4 Established (2nd sqd. to carry the designation HC-4)	6 May 1983
*HC-5	HC-5 Established (2nd sqd. to carry the designation HC-5)	3 Feb 1984
HC-6	HC-6 Established	1 Sep 1967
HC-8	HC-8 Established	3 Dec 1984
HC-9	HC-9 Established	1 Aug 1975
HC-11	HC-11 Established	1 Oct 1977
HC-16	HCT-16 Established	1 Nov 1974
	HCT-16 Redesignated HC-16	20 May 1977

Squadron Designation	Changes in Squadron Designation	Date
	Helicopter Mine Countermeasures Squadron	
HM-12	HM-12 Established	1 Apr 1971
HM-14	HM-14 Established	12 May 1978
HM-16	HM-16 Established	27 Oct 1978
	Helicopter Anti-Submarine Squadron	
HS-1	HS-1 Established	3 Oct 1951
HS-2	HS-2 Established	7 Mar 1952
HS-3	HS-3 Established	18 Jun 1952
HS-4	HS-4 Established	30 Jun 1952
HS-5	HS-5 Established	3 Jan 1956
HS-6	HS-6 Established	1 Jun 1956
*HS-7	HS-7 Established (2nd sqd. to carry the designation HS-7)	15 Dec 1969
*HS-8	HS-8 Established (2nd sqd. to carry the designation HS-8)	1 Nov 1969

* Denotes that the number has been used by a previous squadron

VF-17/VF-5B/VF-61 from 1943 until April 15, 1959.

On July 2, 1955, VA-86 was established and on the same day was redesignated VF-84. This squadron was equipped with the FJ *Fury* and adopted the nickname *Vagabonds*. An insignia consisting of a lightning bolt striking the world in the area of Norfolk, with a sword behind the bolt, was approved on September 27, 1955. The squadron operated under this name and insignia until it replaced the FJs with F8U *Crusaders* in 1959. Two days after the disestablishment of VF-61 — the *Jolly Roger* squadron — Cdr. Hoppe, the last C.O. of VF-61, assumed command of VF-84. He initiated the request to have VF-84 adopt the old *Jolly Roger* insignia, which was now no longer active. This request was approved by CNO on April 1, 1960. There is no direct connection between the former *Jolly Roger* squadron (VF-17/VF-5B/VF-61) and VF-84, which adopted the *Jolly Roger* insignia.

To further complicate a review of the records, there have been other squadrons with the designation VF-84. During WW II, a VF-84 was established on May 1, 1944, and disestablished October 8, 1945.

Naval Air Reserve squadron VF-921 was called to active duty February 1, 1951, and was brought into the regular Navy on February 4, 1954, with the designation VF-84. This squadron then became VA-86 on July 2, 1955. On the same day, the current *Jolly Roger* squadron was established as VA-86 and immediately redesignated VF-84. Neither of these two VF-84 squadrons had any connection with the original *Jolly Rogers*.

Thus, the present VF-84 operating with the insignia and title of *Jolly Roger* can lay claim to the *traditions* of VF-17, VF-5B and VF-61, if it wishes to do so, but can only claim a *history* which commenced on July 2, 1955, and is not a direct decendant of the original *Jolly Roger* squadron.

A squadron's history and lineage covers only the period during which a unit is officially declared active (established by CNO), has personnel assigned to it, and is listed in the Naval Aeronautical Organization. When a squadron is disestablished, its history and lineage ends. If a squadron is redesignated while it is active, the lineage and history of the unit is carried on by the newly redesignated squadron. The following is an example of what occurs when a squadron is redesignated and its lineage and history remain unbroken.

The current VFA-25 was originally established as Torpedo Squadron 17 (VT-17) on January 1, 1943. On November 15, 1946, VT-17 was redesignated VA-6B and carried this designation until April 27, 1948, when it was redesignated VA-65. On July 1, 1959, VA-65 was redesignated VA-25 and the unit remained Attack Squadron 25 until it was redesignated VFA-25 on July 1, 1983. The history and lineage of the present VFA-25 may be traced to January 1, 1943, because there was no break in active duty status of the squadron, even though its designation changed four times.

The current VFA-106 provides an example of what happens when a squadron is disestablished and then, years later, the same number is used again. This squadron was established at NAS Cecil Field on April 27, 1984. VFA-106 adopted the old insignia of VA-106 and had it *officially approved*. The squadron may carry on the traditions of the old VA-106, but it cannot trace its lineage and history back to VA-106. The list of commanding officers for VA-106 is *not* part of the list of commanding officers for VFA-106. The history of VA-106 came to an end on November 7, 1969, when it was disestablished and its personnel were transferred to other duty stations. At this time, VA-106 was removed from the active list in the Naval Aeronautical Organization. ■

Questions about squadron lineage should be addressed to the Naval Aviation History Office at autovon 288-4355 or (202) 433-4355.

Squadron Designation	Changes in Squadron Designation	Date
*HS-9	HS-9 Established (2nd sqd. to carry the designation HS-9)	4 Jun 1976
HS-10	HS-10 Established	1 Jul 1960
HS-11	HS-11 Established	27 Jun 1957
HS-12	HS-12 Established	15 Jul 1977
HS-14	HS-14 Established	10 Jul 1984
HS-15	HS-15 Established	29 Oct 1971
HS-17	HS-17 Established	4 Apr 1984
HS-75	HS-75 Established	1 Jun 1970
HS-85	HS-85 Established	1 Jul 1970
	Helicopter Anti-Submarine Squadron Light	
HSL-30	HU-4 Established	1 Jul 1960
	HU-4 Redesignated HC-4	1 Jul 1965
	HC-4 Redesignated HSL-30	1 Mar 1972
HSL-31	HC-5 Established	1 Sep 1967
	HC-5 Redesignated HSL-31	1 Mar 1972
HSL-32	HSL-32 Established	17 Aug 1973
HSL-33	HSL-33 Established	31 Jul 1973
HSL-34	HSL-34 Established	27 Sep 1974
HSL-35	HSL-35 Established	15 Jan 1974
HSL-36	HSL-36 Established	26 Sep 1975
HSL-37	HSL-37 Established	3 Jul 1975
HSL-40	HSL-40 Established	4 Oct 1985
HSL-41	HSL-41 Established	21 Jan 1983
HSL-42	HSL-42 Established	5 Oct 1984
HSL-43	HSL-43 Established	5 Oct 1984
HSL-45	HSL-45 Established	3 Oct 1986
HSL-74	HS-74 Established	1 Jul 1970
	HS-74 Redesignated HSL-74	1 Jan 1985
HSL-84	HS-84 Established	1 Jul 1970
	HS-84 Redesignated HSL-84	1 Mar 1984
HSL-94	HSL-94 Established	1 Oct 1985
	Helicopter Training Squadron	
HT-8	HTU-1 Established	3 Dec 1950
	HTU-1 Redesignated HTG-1	Mar 1957
	HTG-1 Redesignated HT-8	1 Jul 1960
HT-18	HT-18 Established	1 Mar 1972
	Attack Squadron	
VA-12	VBF-4 Established	12 May 1945
	VBF-4 Redesignated VF-2A	15 Nov 1946
	VF-2A Redesignated VF-12	2 Aug 1948
	VF-12 Redesignated VA-12	1 Aug 1955
VA-22	VF-63 Established	28 Jul 1948

Squadron Designation	Changes in Squadron Designation	Date
	VF-63 Redesignated VA-63	Mar 1956
	VA-63 Redesignated VA-22	1 Jul 1959
VA-27	VA-27 Established	1 Sep 1967
*VA-34	VA-34 Established	1 Jan 1970
VA-35	VB-3B Established	1 Jul 1934
	VB-3B Redesignated VB-4	1 Jul 1937
	VB-4 Redesignated VB-3	1 Jul 1939
	VB-3 Redesignated VA-3A	15 Nov 1946
	VA-3A Redesignated VA-34	7 Aug 1948
	VA-34 Redesignated VA-35	15 Feb 1950
VA-37	VA-37 Established	1 Jul 1967
*VA-42	VF-42 Established	1 Sep 1950
	VF-42 Redesignated VA-42	1 Nov 1953
VA-46	VA-46 Established	24 May 1955
VA-52	VF-884 Reserve sqdn. to active duty	20 Jul 1950
	VF-884 Redesignated VF-144	4 Feb 1953
	VF-144 Redesignated VA-52	23 Feb 1959
*VA-55	VA-55 Established	7 Oct 1983
VA-56	VA-56 Established	4 Jun 1956
	VA-56 Disestablished	31 Aug 1986
*VA-65	VT-74 Established	1 May 1945
	VT-74 Redesignated VA-2B	15 Nov 1946
	VA-2B Redesignated VA-25	1 Sep 1948
	VA-25 Redesignated VA-65	1 Jul 1959
VA-66	VF-671 Reserve sqdn. to active duty	1 Feb 1951
	VF-671 Redesignated VF-81	4 Feb 1953
	VF-81 Redesignated VA-66	1 Jul 1955
VA-72	VBF-18 Established	25 Jan 1945
	VBF-18 Redesignated VF-8A	15 Nov 1946
	VF-8A Redesignated VF-72	28 Jul 1948
	VF-72 Redesignated VA-72	3 Jan 1956
*VA-75	VB-18 Established	20 Jul 1943
	VB-18 Redesignated VA-7A	15 Nov 1946
	VA-7A Redesignated VA-74	27 Jul 1948
	VA-74 Redesignated VA-75	15 Feb 1950
VA-81	VA-66 Established	1 Jul 1955
	VA-66 Redesignated VF-81 on same day	1 Jul 1955
	VF-81 Redesignated VA-81	1 Jul 1959
VA-82	VA-82 Established	1 May 1967
VA-83	VF-916 Reserve sqdn. to active duty	1 Feb 1951
	VF-916 Redesignated VF-83	4 Feb 1953
	VF-83 Redesignated VA-83	1 Jul 1955
*VA-85	VA-859 Reserve sqdn. to active duty	1 Feb 1951
	VA-859 Redesignated VA-85	4 Feb 1953
*VA-86	VF-921 Reserve sqdn. to active duty	1 Feb 1951
	VF-921 Redesignated VF-84	4 Feb 1953
	VF-84 Redesignated VA-86	1 Jul 1955
VA-87	VA-87 Established	1 Feb 1968
VA-93	VF-93 Established	26 Mar 1952
	VF-93 Redesignated VA-93	15 Sep 1956
*VA-94	VF-94 Established	26 Mar 1952
	VF-94 Redesignated VA-94	1 Aug 1958
*VA-95	VA-95 Established	1 Apr 1972
VA-97	VA-97 Established	1 Jun 1967
*VA-105	VA-105 Established	4 Mar 1968
VA-115	VT-11 Established	10 Oct 1942
	VT-11 Redesignated VA-12A	15 Nov 1946
	VA-12A Redesignated VA-115	15 Jul 1948
	VA-115 was in an inactive status from Aug 1967 to 1 Jan 1970. It was not disestablished during this time frame and had a very limited number of personnel assigned to the squadron which was located at NAS Lemoore during the inactive period.	
	VA-115 Reactivated	1 Jan 1970
VA-122	VC-35 Established	25 May 1950
	VC-35 Redesignated VA(AW)-35	1 Jul 1956
	VA(AW)-35 Redesignated VA-122	29 Jun 1959
VA-127	VA-127 Established	15 Jun 1962
VA-128	VA-128 Established	1 Sep 1967
VA-145	VA-702 Reserve sqdn. to active duty	20 Jul 1950
	VA-702 Redesignated VA-145	4 Feb 1953
VA-146	VA-146 Established	1 Feb 1956
VA-147	VA-147 Established	1 Feb 1967
VA-165	VA-165 Established	1 Sep 1960
*VA-174	VB-81 Established	1 Mar 1944
	VB-81 Redesignated VA-13A	15 Nov 1946
	VA-13A Redesignated VA-134	2 Aug 1948
	VA-134 Redesignated VF-174	15 Feb 1950
	VF-174 Redesignated VA-174	1 Jul 1966
VA-176	VA-176 Established	1 Jun 1955
VA-196	VF-153 Established	15 Jul 1948
	VF-153 Redesignated VF-194	15 Feb 1950
	VF-194 Redesignated VA-196	4 May 1955
VA-203	VA-203 Established	1 Jul 1970
VA-204	VA-204 Established	1 Jul 1970
VA-205	VA-205 Established	1 Jul 1970
VA-304	VA-304 Established	1 Jul 1970
VA-305	VA-305 Established	1 Jul 1970
	Tactical Aerial Refueling Squadron	
VAK-208	VAQ-208 Established	31 Jul 1970
	VAQ-208 Redesignated VAK-208	1 Oct 1979
VAK-308	VAQ-308 Established	2 May 1970
	VAQ-308 Redesignated VAK-308	1 Oct 1979
	Tactical Electronic Warfare Squadron	
VAQ-33	VC-33 Established	31 May 1949
	VC-33 Redesignated VA(AW)-33	2 Jul 1956
	VA(AW)-33 Redesignated VAW-33	30 Jun 1959
	VAW-33 Redesignated VAQ-33	1 Feb 1968
VAQ-34	VAQ-34 Established	1 Mar 1983
VAQ-129	VAH-10 Established	1 May 1961
	VAH-10 Redesignated VAQ-129	1 Sep 1970
VAQ-130	VW-13 Established	1 Sep 1959
	VW-13 Redesignated VAQ-130	1 Oct 1968
VAQ-131	VP-931 Reserve sqdn. to active duty	2 Sep 1950
	VP-931 Redesignated VP-57	4 Feb 1953
	VP-57 Redesignated VAH-4	3 Jul 1956
	VAH-4 Redesignated VAQ-131	1 Nov 1968
VAQ-132	VAH-2 Established	1 Nov 1955
	VAH-2 Redesignated VAQ-132	1 Nov 1968
VAQ-133	VAQ-133 Established	4 Mar 1969
VAQ-134	VAQ-134 Established	17 Jun 1969
VAQ-135	VAQ-135 Established	15 May 1969
VAQ-136	VAQ-136 Established	6 Apr 1973
VAQ-137	VAQ-137 Established	14 Dec 1973
VAQ-138	VAQ-138 Established	27 Feb 1976
VAQ-139	VAQ-139 Established	1 Jul 1983

Squadron Designation	Changes in Squadron Designation	Date
VAQ-140	VAQ-140 Established	1 Oct 1985
VAQ-209	VAQ-209 Established	1 Oct 1977
VAQ-309	VAQ-309 Established	1 Feb 1979
	Carrier Airborne Early Warning Squadron	
VAW-78	VAW-78 Established	1 Jul 1970
VAW-88	VAW-88 Established	1 Jun 1970
VAW-110	RVAW-110 Established	20 Apr 1967
	RVAW-110 Redesignated VAW-110	1 May 1983
*VAW-111	VAW-111 Established	1 Oct 1986
VAW-112	VAW-112 Established	20 Apr 1967
VAW-113	VAW-113 Established	20 Apr 1967
VAW-114	VAW-114 Established	20 Apr 1967
VAW-115	VAW-115 Established	20 Apr 1967
VAW-116	VAW-116 Established	20 Apr 1967
VAW-117	VAW-117 Established	1 Jul 1974
VAW-120	RVAW-120 Established	1 Jul 1967
	RVAW-120 Redesignated VAW-120	1 May 1983
VAW-121	VAW-121 Established	1 Apr 1967
VAW-122	VAW-122 Established	1 Apr 1967
VAW-123	VAW-123 Established	1 Apr 1967
VAW-124	VAW-124 Established	1 Sep 1967
VAW-125	VAW-125 Established	1 Oct 1968
VAW-126	VAW-126 Established	1 Apr 1969
VAW-127	VAW-127 Established	2 Sep 1983
	Composite Squadron	
*VC-1	VU-1 Established	20 Jul 1951
	VU-1 Redesignated VC-1	1 Jul 1965
*VC-5	VU-5 Established	16 Aug 1950
	VU-5 Redesignated VC-5	1 Jul 1965
*VC-6	VU-6 Established	1 Mar 1952
	VU-6 Redesignated VC-6	1 Jul 1965
*VC-8	GMSRON-2 Established (Guided Missile Service Squadron 2)	1 Jul 1958
	GMSRON-2 Redesignated VU-8	1 Jul 1960
	VU-8 Redesignated VC-8	1 Jul 1965
*VC-10	VJ-16 Established	1 Dec 1943
	VJ-16 Redesignated VU-10	15 Nov 1946
	VU-10 Redesignated VC-10	1 Jul 1965
*VC-12	VC-12 Established	1 Sep 1973
*VC-13	VC-13 Established	1 Sep 1973
	Fighter Squadron	
*VF-1	VF-1 Established	14 Oct 1972
*VF-2	VF-2 Established	14 Oct 1972
†VF-11	VF-43 Established	1 Sep 1950
	VF-43 Redesignated VF-11	16 Feb 1959
	VF-11 adopted the insignia used by the previous VF-11 which had been disestablished on 15 Feb 1959. The newly designated VF-11 (16 Feb 1959) carried on the insignia and traditions of the *Red Ripper* squadron dating back to 1 Feb 1927, but not the lineage.	
†VF-14	Air Detachment, Pacific Fleet Established	Sep 1919
	Became VT-5, an element of AirDet,PacFlt	15 Jun 1920
	VT-5 Redesignated VP-4-1	7 Sep 1921
	VP-4-1 Redesignated VF-4	23 Sep 1921
	VF-4 Redesignated VF-1	1 Jul 1922
	VF-1 Redesignated VF-1B	1 Jul 1927
	VF-1B Redesignated VB-2B	1 Jul 1934
	VB-2B Redesignated VB-3	1 Jul 1937
	VB-3 Redesignated VB-4	1 Jul 1939
	VB-4 Redesignated VS-41	15 Mar 1941
	VS-41 Redesignated VB-41	1 Mar 1943
	VB-41 Redesignated VB-4	4 Aug 1943
	VB-4 Redesignated VA-1A	15 Nov 1946
	VA-1A Redesignated VA-14	2 Aug 1948
	VA-14 Redesignated VF-14	15 Dec 1949
*VF-21	VF-81 Established	2 Mar 1944
	VF-81 Redesignated VF-13A	15 Nov 1946
	VF-13A Redesignated VF-131	2 Aug 1948
	VF-131 Redesignated VF-64	15 Feb 1950
	VF-64 Redesignated VF-21	1 Jul 1959
*VF-24	VF-211 Established	Jun 1955
	VF-211 Redesignated VF-24	9 Mar 1959
*VF-31	VF-1B Established	1 Jul 1935
	VF-1B Redesignated VF-6	1 Jul 1937
	VF-6 Redesignated VF-3	15 Jul 1943
	VF-3 Redesignated VF-3A	15 Nov 1946
	VF-3A Redesignated VF-31	7 Aug 1948
*VF-32	VBF-3 Established	1 Feb 1945
	VBF-3 Redesignated VF-4A	15 Nov 1946
	VF-4A Redesignated VF-32	7 Aug 1948
*VF-33	VF-33 Established	12 Oct 1948
*VF-41	VF-41 Established (This is the 4th VF-41 squadron)	1 Sep 1950
*VF-43	VF-74A Established	1 May 1945
	VF-74A Redesignated VF-74	1 Aug 1945
	VF-74 Redesignated VF-1B	15 Nov 1946
	VF-1B Redesignated VF-21	1 Sep 1948
	VF-21 Redesignated VA-43	1 Jul 1959
	VA-43 Redesignated VF-43	1 Jun 1973
*VF-45	VA-45 Established	15 Feb 1963
	VA-45 Redesignated VF-45	7 Feb 1985
*VF-51	VF-1 Established	15 Feb 1943
	VF-1 Redesignated VF-5	15 Jul 1943
	VF-5 Redesignated VF-5A	15 Nov 1946
	VF-5A Redesignated VF-51	16 Aug 1948
*VF-74	VBF-20 Established	16 Apr 1945
	VBF-20 Redesignated VF-10A	15 Nov 1946
	VF-10A Redesignated VF-92	12 Aug 1948
	VF-92 Redesignated VF-74	15 Jan 1950
*VF-84	VA-86 Established	1 Jul 1955
	VA-86 Redesignated VF-84 (Established and Redesignated on same day)	1 Jul 1955
VF-101	VF-101 Established	1 May 1952
	First squadron to carry the designation VF-101. There was a VF(N)-101 during WWII but no VF-101.	
*VF-102	VA-36 Established	1 Jul 1955
	VA-36 Redesignated VF-102	1 Jul 1955
	It should be noted that on the same day, 1 Jul 1955, the old VF-102 was redesignated VA-36. This unit is separate from the VA-36 that was established on 1 Jul 1955 and then immediately redesignated VF-102.	

(Continued in NANews, March-April 1987)

* Denotes that the number has been used by a previous squadron

Peril in the Air

The Story of a Navy Flyer

By Harold E. Wilson, Jr.

In late June 1955, some fishermen were drawing in their nets about 500 yards off the point of Chinen Misaki, a peninsula on the southeast coast of Okinawa protruding into Buckner Bay. As the nets were pulled in, they caught on an underwater object. Instead of risking a tear, one of the fishermen dove into the water to free the net. What he saw shocked him.

Later, as the winch of a Coast Guard ship pulled, an image began to appear through the calm sea. When it broke into the sunlight, it was clear that it was an American war plane which had met tragedy at least a decade earlier. Its tail section had two white squares against a deep blue background, which indicated it had flown off USS Hornet as part of Air Group 17. Also on the tail, in the upper of the two squares, was the serial number 71768.

Wendell Harrington grew up on a small farm north of Westerville, Ohio. Like any other child who lived during the depression years, life was hard, but still full of simple pleasures.

Two of Wendell's closest boyhood friends were Carl Fritsche and Bill Shepard. Bill's father owned a Travelair biplane and flew it to and from his job in Columbus. Everyday the three boys watched Mr. Shepard fly the old plane and wondered what it would be like to fly. They were so enthralled with the flying machine that they built a replica, large enough for them to sit in, in the Fritsche barn. There they spent countless hours imagining that they were flying over the most exotic locations in the world.

In later years, while attending Westerville High School, Wendell pursued the same interests as many boys. He was a member of the football team and had an after-school job delivering groceries. Following graduation, in June 1939, he joined his father and older brothers working at Jeffrey Mining and Manufacturing in Columbus. Later, the Harringtons moved to a house near the Ohio State University campus. Within three years, Wendell was foreman of Department 19, inspecting machined cast iron moldings.

When the Japanese attacked Pearl Harbor on December 7, 1941, the United States was plunged into WW II. Thousands of young men signed up to fight. Day by day, the country's work force was being decimated as more and more men were either drafted or joined the service. But out of the carnage of the Japanese attack, an opportunity presented itself to Wendell that otherwise may never have come — the chance to learn to fly.

After registering for the draft on February 14, 1942, Harrington discovered that a few things held him back from his dream of flying. At a height of 5 feet, 9.5 inches and a weight of 200 pounds, he was a little heavier than was acceptable for flight training. In addition, he suffered from a breathing impediment due to a deviated septum caused by an injury during a high school football game. He joined a gym where he trained everyday after work to lose weight. Then, when he had saved enough money, he checked into a local hospital to have his nose repaired. Nothing was more important to him than to be able to fly.

Throughout the spring and summer of 1942, the war effort in the U.S. was in full swing. Planes and armaments were turned out by the thousands daily.

In September, Harrington went to the Naval Aviation Cadet Selection Board in Columbus to enlist. Everything that he could do to be eligible was done. He had lost 17 pounds, had nose surgery and had gotten three necessary letters of recommendation. Two weeks earlier, he had been reclassified 1-A by the local draft board. The Navy recruiter accepted him and he was assigned to inactive duty in the U.S. Naval Reserve.

Harrington was called to active duty on January 14, 1943, and reported to the University of Grand Rapids in Michigan for elementary pilot training. Upon completion, he received his student license and was sent to the Naval Aviation Pre-Flight Training School in Iowa City, Iowa. After 10 weeks there, he went on to Naval Air Station, Ottumwa, Iowa, to begin flight training.

"We get our flying jackets and helmets today," Harrington wrote in July. "The planes sure are honeys. They look real nice and are a lot bigger than the ones we flew [before]. The horsepower is about 200. There are 400 or 500 cadets but it isn't quite as crowded as Pre-Flight. We work 10 days, then get 48 hours' leave. That is all right, only I don't think there are many places to go. The base is about eight miles from town."

On September 27, 1943, Harrington reported to Naval Air Station, Pensacola, Fla. The workload there was intense. Half of the day was spent in classrooms learning the intricacies of aerodynamics, radio operation, armaments and other necessary subjects. The rest of the day was spent in the air, honing skills and putting into practice what was learned in the classrooms.

During the later stages of Harrington's training at Pensacola, word came of the latest heroics of a member of the Navy's most famous flying family, the five Crommelin brothers of Wetumpka, Ala.

The current family hero was Commander Charles L. Crommelin, a 1931 graduate of the U.S. Naval Academy in Annapolis. Cdr. Crommelin had been conducting a strafing run over an enemy airfield on Mille Atoll in the Gilbert Islands when his plane received a direct hit by enemy antiaircraft fire. The windshield and instrument panel exploded, driving over 200 pieces of glass and metal into Crommelin's face and body. Partially blinded by the blast, he was led back to USS *Yorktown* by his wingman, Ensign Murray H. Tyler, and made a perfect carrier landing. After *Yorktown* docked at Pearl Harbor, Crommelin directed the ambulance attendants who took him to the base hospital to stop at the officers club. He walked, unassisted, to the bar and had a drink with members of his air group. "I just wanted to show those kids that it's not so tough to be shot up," he said afterward.

Fate would later bring Crommelin and Harrington together during the course of their flying careers.

On March 7, 1944, Harrington earned his wings and was commissioned an ensign in the U.S. Naval Reserve, earning $75 per month. Following short stints at several naval air stations, he was sent to his last training school, one that would prepare him ultimately for duty in the Pacific.

The Navy Photographic Reconnaissance School was located at New Cumberland Field just outside Harrisburg, Pa. The 22 flyers who reported along with Harrington on

Ens. Harrington poses with one of the Hellcat training planes at the Photo Reconnaissance School, Harrisburg, Pa., in August 1944.

August 1 constituted the stalwarts of the Navy's photographic reconnaissance units in the Pacific during the last year of the war. Within the group was a young officer from Los Angeles named Willard Shasteen. Harrington and Shasteen hit it off from the start and established a close friendship that would last for the rest of their lives. After three weeks, they all received orders.

Harrington headed for the West Coast, but first it was home to Columbus for a few days of leave. After his plane touched down, it rolled past the huge Curtiss-Wright aircraft plant next to Port Columbus Airport. It was here that the Navy's premier dive-bomber, the SB2C *Helldiver*, was being built. Though it felt good to be back home again, the plant was a grim reminder that the war still beckoned.

Wendell spent his time with family and friends. Those five days were happy ones in the Harrington house. All the sons that were in the service were home on leave. The two daughters, now married, were also there and the family was together for the first time in a long while. Plans were made for the future when the war would be over but, as time wore on, it became apparent to Wendell that this may be the last time he would ever see these people again.

On the morning of August 29, 1944, the family saw Wendell off. As the train to the West Coast pulled out, Wendell made his way to the rear platform to get one last glimpse of his loved ones, and waved a last goodbye until they were out of sight.

Harrington was assigned to VF-98 at Ventura County Airport in Oxnard, Calif., for flight instruction in combat tactics with pilots fresh from the fighting in the Pacific. Nearly 3,000 miles away, at the Grumman Aircraft Corporation plant in Bethpage, Long Island, N.Y., a new F6F-5P rolled off the assembly line. On October 14, 1944, the fighter, bearing serial number 71768, was delivered to the Navy.

On November 2, Harrington received his orders to report to San Diego where, a week later, he boarded a troop ship bound for Pearl Harbor. On November 17, Harrington and the other members of his class at the reconnaissance school reported to VF-100, at Barbers Point. A group of six flyers from the squadron, including Ensigns Harrington and Shasteen, formed Photo Reconnaissance Unit (Photo Recco) #3.

"There isn't any news out here that I can tell you about," Harrington wrote home from Hawaii in January 1945. "I just received your third box and, boy, was that cake good. All the boys ganged around and, flash, it was gone. Thanks a lot."

At the beginning of March, the six pilots were flown to the island of Ulithi in the Carolines to report for duty with Carrier Division 5 — the admiral's staff of Task Group 58.1 — and Air Group 17 aboard *Hornet*, the admiral's flagship.

During the afternoon of March 4, the members of Photo Recco #3 saw what must have been an awesome sight. Shortly after 1:00 p.m., the 34 ships of Task Group 58.1 came through the channel into Ulithi Harbor. The following day Photo Recco #3 reported aboard *Hornet*. For the next 10 days, the ships of TG 58.1 remained in the harbor to replenish supplies and allow their crews to take full advantage of the facilities on Mog Mog, a liberty island nearby.

"We have nothing to do but sit around for awhile," Harrington wrote on March 8. "I hope the war in Germany is over before long. Then maybe the married men can go home and take care of their families. Of course, I'd like to get home, too. Who knows, I might want to start a family of my own."

Though the task group was in a friendly port, the war was still close at hand. On March 11, *Randolph*, a carrier attached to TG 58.2, was fully lighted while taking on ammunition in the birth off the port bow of *Hornet*. At 8:13 p.m., a Japanese suicide plane passed astern of *Hornet* and crashed into the fantail of the lighted target. Flames lit up the dark sky as men raced to their battle stations. With numerous casualties and severe damage, *Randolph* was knocked out of commission for a month. The incident brought home to the members of Photo Recco #3 the cold fact that they were in the thick of the war.

After things settled down, a large liberty party left *Hornet* for Mog Mog on the afternoon of March 13. At 9:36 the next morning, *Hornet*, with task group commander Rear Admiral J. J. "Jocko" Clark aboard, pulled out of Ulithi Harbor along with the rest of TG 58.1 and into the open sea. Also aboard was the commander of Air Group 12 from *Randolph*, Cdr. Charles Crommelin, who was now assigned to the Carrier Division 5 staff aboard *Hornet*.

As the task group steamed away from Ulithi, they headed out to strike the southernmost island of the Japanese mainland, Kyushu. At 5:00 p.m., TG 58.1 rendezvoused with the other units of Task Force 58 and headed towards Japan.

On the morning of March 17, the air group commanders from the carriers *Wasp*, *Bennington* and *Belleau Wood*

landed aboard *Hornet* for a conference concerning the upcoming operations against Kyushu. Anticipation was running high throughout the ship. The next day started early.

At 4:50 a.m., four F6F-5N *Hellcat* night fighters were catapulted from *Hornet* to attack Kanoya Airfield on Kyushu, the principle target for the day. Two minutes later, the task group began radical changes of direction to throw off the enemy who would be searching for them. By 5:30 a.m., *Hornet* was being attacked by Japanese planes that would harass the carrier frequently throughout the day and late into the night.

At 1:16 p.m., Harrington climbed into a *Hellcat* and flew off *Hornet* towards Kyushu on his first combat mission of the war. His F6F-5P was 1,000 pounds heavier than a standard *Hellcat* due to the photographic equipment that it carried in addition to its normal armaments. After photographing the attack and damage at Kanoya, Harrington landed at 5:04 p.m. and headed directly to the ready room for debriefing while his film of the day's action was processed.

The next day, March 19, 1945, back in Columbus, Harrington's father sat down to compose a letter to his son. It was full of love and news from home. Wendell's oldest brother was home on leave. A family friend was taken into the lodge, and his father was looking forward to the day when "this thing" would be over so he could bring his sons in as well. On the following Sunday, his parents were going out to dinner and a show to celebrate their 31st wedding anniversary. His family's thoughts and prayers were with him and they hoped he'd be coming home soon.

By March 23, TG 58.1 had turned south and was working over the Ryukyus, an island chain southwest of Japan stretching almost to Taiwan, in preparation for the invasion of Okinawa, to take place on April 1. The next morning, Harrington participated in a photo run over Ie Shima with other members of Photo Recco #3. The photos taken that morning were of such quality that the unit received a commendation with 13 endorsements. Later in the day, Harrington made another photo run, this time over Kerama-retto to the southwest of Okinawa. During the day's fighting, two torpedo planes from VT-17 were shot down by the enemy. The next day Harrington, involved in the search for the two downed pilots and their crews, pushed his plane to its limit during a flight that lasted 5 hours and 18 minutes. Luckily, he had 48 hours of rest before his next mission.

Shortly after dawn on March 28, the 23-year-old pilot headed to the ready room with other pilots of VF-17 to be briefed for the morning's mission. The target was Chinen Misaki. Eight *Hellcats* were to escort six SB2C dive-bombers from VB-17 and six TBM torpedo planes from VT-17 to a rendezvous with a similar group from *Bennington*, then proceed to Okinawa to conduct air strikes in support of the upcoming invasion. After participating in the strike, Harrington was to photograph beach installations to aid in the invasion planning.

When Harrington walked out onto the flight deck and climbed into his *Hellcat*, the blue sky was scattered with large white cumulus clouds foretelling a storm approaching to the southeast. At 8:54 a.m., aircraft #71768 roared down the deck of *Hornet* and off into the distance.

When the group arrived at the target area, they reported to the air coordinator, Cdr. Crommelin. After receiving their assignments, the group attacked gun emplacements and caves used by the enemy on Chinen Misaki. They then hit enemy barracks in the town of Kudeken and the nearby coastal installations. Leaving both burning, the group headed home to *Hornet*. Harrington, however, had one more job to do.

After rendezvousing with his wingman, Lieutenant Junior Grade George M. Covelly, about 10 miles east of the target, Harrington turned to make a photo run over the beaches of Chinen Misaki. They approached the shore approximately three miles southwest of the peninsula, then turned northeast toward the point at an altitude of 1,000 feet. With his wingman keeping an eye open for enemy planes, Harrington concentrated on the task at hand.

During the attack, reports reached *Hornet* that the 85,000-ton Japanese battleship *Yamato* had been sighted just north of TG 58.1's location. RAdm. Clark immediately ordered Cdr. Crommelin back to *Hornet* to lead the attack on the super-battleship. Crommelin, who was also conducting photo runs over the peninsula, requested permission to make one more run over the target. RAdm. Clark reluctantly agreed.

At the conclusion of his run, Harrington made a sharp turn to the east directly over the point of the peninsula. Covelly looked down just in time to see the other two planes hit wing tips. Harrington's starboard wing was sheared off as was the port wing of Crommelin's. Both planes spun into the bay in flames about 500 yards off the point of Chinen Misaki and sank immediately. There were no survivors.

Early on Friday, April 13, 1945, there was a knock on the Harringtons' door at 97E. Patterson Avenue in Columbus. Carl Harrington was at home that day due to President Roosevelt's death the day before. When he opened the door, the

This was the last photograph ever taken of Ens. Harrington, arriving at his parents' home just weeks before his death.

Western Union delivery boy handed him the telegram that every parent feared throughout the war. It read, "The Navy Department deeply regrets to inform you that your son, Ensign Wendell Schurse Harrington, USNR, is missing in action while in the service of his country."

Two days later, at 4:30 p.m. on April 15, while flying a photo run over enemy positions on Kikai Shima, Willard Shasteen was killed when antiaircraft fire blew the tail section off his plane. A few weeks later, a family on South McBride Street in Los Angeles also received a telegram. Of the six members of Photo Recco #3, only the two friends did not make it home.

Years later, on Sunday, August 14, 1955, Carl and Lillian Harrington were getting ready for church when two naval officers came to their door. The officers informed the couple that, after 10 years, their son's remains had been found.

At 4:50 a.m. on Monday, September 12, 1955, Wendell Schurse Harrington returned home. The casket was met by Wendell's parents at Union Station, only a few feet from where they had said goodbye to him a little over 11 years earlier.

"It's simply a miracle," his father said. "What happened or who sent us that miracle we'll never know. But it means so much to bring him home...."

A large crowd attended the military funeral held on September 14. As a Navy honor guard fired a last salute, Wendell was laid to rest in the Ohio countryside near Alton, where his father was born, just west of Columbus. His long journey was over. ■

Awards

Mr. George V. DiBiase, a chief engineer at NAEC Lakehurst, N.J., recently received an award for designing a new aircraft catapult. His design not only saves the Navy an estimated $350 million in the lifetime cost of each new nuclear aircraft carrier, but the catapult is also the most powerful. For his contribution, Mr. DiBiase was presented with the Navy Superior Civilian Service Award, the Navy Special Achievement Award and a monetary award.

According to VAdm. J. B. Wilkenson, ComNavAirSysCom, the new catapults are scheduled to be installed on USS *Abraham Lincoln* (CVN-72) and *George Washington* (CVN-73), which are currently under construction.

The Seaplane Pilots Association recently honored Mr. W. Connie Edwards, Big Spring, Texas, as the Pilot of the Year for his participation in the reenactment of the Navy's first transatlantic flight. Flying his own PBY, he retraced the exact flight of the NC-4 as part of the 75th Anniversary of Naval Aviation.

The members of VP-40 were awarded the Coastal Command Trophy for their superb performance in both the Atlantic and Pacific oceans and during *RIMPAC '86,* and for their smooth transition to the P-3C Update III aircraft.

An all-hands effort contributed directly to HSL-42 receiving the Coast Guard Unit Commendation for its participation in the space shuttle *Challenger's* recovery operation. During the 11 days, the squadron amassed over 185 flight hours, flew 47 sorties and had maintenance crews working around the clock. The *Proud Warriors* and four SH-60Bs proved to be invaluable assets for providing complete sector coverage.

AMCS Robert Hogge, VA-55, was selected as Medium Attack Wing One's Chief Petty Officer of the Year for 1986. He was cited for making "the most significant contribution toward the increased operational readiness of his unit" and for "those traits of leadership and integrity which have made the Chief Petty Officer the backbone of the Navy."

Rescue

There is no such thing as a "standard" SAR mission, as the crew of HC-1 aircraft #725 found out when a call for help came over the wires. A Marine jeep on night maneuvers had overturned, pinning three men underneath.

Pilot Ltjg. Bobby Hewlett offered the services of his H-3 crew. Copilot Ltjg. Stuart Farnham checked the terrain elevation charts, while aircrewmen AMS2 Donald Sirek and ADAN Andrew Williamson readied the afterstation for casualty transport.

A ground rescue party lit the area with truck headlights to direct the helo. The helo first landed in a spot too far away from the victims for them to be transported with neck and back injuries. The crew lifted off and slowly air-taxied to a new zone about a half mile away.

Even though they used a technique known as a no-hover landing to minimize flying debris from the rotor wash, the pilots' visibility of the ground was still obscured. AMS2 Sirek gave verbal directions from the cargo door during the last few feet of descent.

After placing the casualties aboard the helo, the *Fleet Angels* crew headed to Balboa Hospital.

Established

The 1st Low Altitude Air Defense (LAAD) Battalion was established on October 1, 1986, at MCAS Futenma, Japan. Replacing the 1st Forward Area Defense Battery, LAAD will provide close-in air defense participation for Marine Air-Ground Task Force assets in the field.

Anniversary

Thirty-nine years old and still going strong, USS *Coral Sea* celebrated her anniversary on October 1, 1986, while undergoing repairs at Norfolk Naval Shipyard.

Et cetera

The Navy pays for money-saving ideas. PR2 Annette Dorval, VX-4, received $960 for her idea involving a parachute container for the F-14 *Tomcat*. Dorval's suggestion of replacing the highly corrosive rivets on the side of the parachute assembly with removable fasteners saves the Navy approximately $1,900 per parachute assembly. Additionally, she developed a prototype container to present her idea.

The brown shoe is back in the Navy. Effective April 1, 1987, all aviators, qualified flight surgeons, aviation physiologists, aviation experimental psychologists and enlisted aviation ratings E-7 and above are required to wear brown leather shoes and khaki socks with the khaki uniform, subject to availability within the supply system.

The only authorized brown shoe is a low quarter, plain toe, brown leather dress shoe. No alternatives are authorized and any form of boot is prohibited.

The mandatory wear date of brown leather shoes and khaki socks with the aviation working green uniform is also April 1.

Change of Command

ComNavSpaceCom: RAdm. Richard C. Macke relieved RAdm. Denny B. Cargill.

ComResPatWingPac: Capt. Jerry F. Huss relieved Capt. Robert Fletcher.

HMH-363: Lt.Col. D. McKnight relieved Lt.Col. W. B. Oldfield.

HSL-43: Cdr. George V. Galdorisi relieved Cdr. Michael R. Clapsadl.

MATSS-902: Maj. Joseph E. Sturtevant, Jr., relieved Maj. William A. Pepper.

NAR San Diego: Capt. Herbert E. Hermann relieved Capt. James D. Curry.

NAS Atlanta: Capt. Bruce L. Frye relieved Capt. Charles A. Stephan.

NAS Dallas: Capt. Don A. Sharer relieved Capt. Robert J. Naughton.

N&MCRC Dallas: Capt. James J. Harrington relieved Capt. Kenneth D. McClanahan.

NR NAF Lajes, Azores 0473: Capt.

Glenn A. Boston relieved Capt. Thomas F. Riley.

NR RedCom 11: Capt. Leonard L. Manderfield relieved Capt. George F. Lockeman, Jr.

NR PatWing 0186: Capt. William D. Ewing relieved Capt. Walter S. Coleman.

VA-35: Cdr. Louis P. Lalli relieved Cdr. Ronald S. Pearson.

VA-85: Cdr. Robert A. Tolhurst, Jr., relieved Cdr. Robert W. Day.

VA-105: Cdr. L. E. Osborn relieved Cdr. G. G. Johnson.

VAW-124: Cdr. Stephen T. Wesselhoff relieved Cdr. Houston R. Russell, Jr.

VF-41: Cdr. Craig V. Campbell relieved Cdr. John A. Seddon, Jr.

VF-103: Cdr. Eric Briggs relieved Cdr. Roger Myers.

VP-40: Cdr. Jesse A. Prescott III relieved Cdr. James I. Munsterman.

VP-46: Cdr. Philip F. Swain relieved Cdr. William D. Woodfill.

VP-50: Cdr. Gregory M. Zorbach relieved Cdr. Denis F. Beaugureau.

VP-91: Cdr. Thomas Spink, Jr., relieved Cdr. James P. Schear.

VS-21: Cdr. Thomas D. Barnes relieved Cdr. George W. Kolarov.

STATE OF THE ART

MH-53E Sea Dragon

The Naval Air Test Center (NATC), Patuxent River, Md., recently completed phase II developmental testing of the MH-53E *Sea Dragon.* A derivative of the Marine Corps CH-53E *Super Stallion,* the MH-53E is designed to enhance the airborne mine countermeasures (AMCM) defense posture. The aircraft incorporates state-of-the-art improvements, including two 3,200-gallon composite fuel sponsons, composite tail rotor blades, a composite tow boom, a redesigned tow hook capable of handling up to 30,000 pounds of tension, and an advanced digital automatic flight control system tailored for the AMCM mission.

Approximately 150 hours of flight tests were conducted at various sites, including NATC; the Naval Coastal Systems Center, Panama City, Fla.; and HM-12, NAS Norfolk, Va. Upon completion of developmental flight testing, the prototype was sent to the contractor for instrumentation package removal and final preparation for operational evaluation by HM-12. The first production MH-53E is scheduled for delivery this year.

Remotely Piloted Vehicle

As Marine Corps Aviation soars to new heights with advancements such as the F/A *Hornet,* a smaller but equally important aircraft has appeared on the horizon. The remotely piloted vehicle (RPV), which is capable of undetected penetration of enemy lines, will provide field commanders with real-time tactical intelligence directly from the battlefield. The RPV can operate at a distance of 100 nautical miles and at an altitude of 10,000 feet.

The Marine Corps began operating the 1st RPV Platoon at Camp Lejeune, N.C., in June 1984 with the Israeli-built Mastiff III RPV system. In late 1986, the unit transitioned from the Mastiff III to the newly-acquired Pioneer system contracted from AAI, Baltimore, MD. A complete Pioneer RPV system consists of two portable control stations for conducting launches and landings, a ground control station to monitor in-flight RPV operations, and a fleet of eight RPVs.

If the RPV program is approved at the end of the development and testing period in September 1987, each Marine Amphibious Force will be provided with a complete RPV unit, made up of Marines from the artillery, intelligence, communication and aviation fields.

AWARDS

American Helicopter Society Awards

The Boeing Vertol H-46 Team and the Naval Air Systems Command won the first Harry T. Jensen Award for safety, reliability and maintainability. Instituted in 1985 by Sikorsky Aircraft, the award recognizes outstanding contribution to the improvement of helicopter reliability, maintainability and/or safety through improved design brought to fruition during the preceding year. It honors Harry Jensen, a long-time engineer and former vice president at Sikorsky.

Lt.Col. Russel M. Stromberg, USMC, received the Paul E. Haueter Award for his work as operational test director and officer in charge for the operational evaluation of the AV-8B

Harrier II. The award is presented annually for "significant contributions to the development of vertical takeoff and landing (VTOL) aircraft other than helicopters." It honors an aeronautical engineer, devoted public servant and former American Helicopter Society officer who was instrumental in fostering the early development of VTOL aircraft in the U.S.

AOC Joint Service Medal

The Association of Old Crows (AOC) selected two Naval Aviators as the 1986 recipients of the AOC Joint Service Medal. Lt.Col. Frank A. Yahner III, USMC, was recognized for his exceptional leadership, skill, resourcefulness and perseverance while commanding officer of VMAQ-2, MCAS Cherry Point, N.C. Capt. Mark Oetinger, USN, received the award for his management and leadership of the Joint Electronic Warfare Center, San Antonio, Texas.

The medal is presented annually to a member of the association who demonstrated outstanding efforts in the resolution of electronic warfare interoperability problems between two or more services. The AOC is an organization comprised of individuals engaged in the science of electronic warfare.

LAMPS Safety Awards

USS *Kirk* (FF-1087) received the 1985 Admiral James H. Flatley Memorial Award for Naval Aviation Safety, LAMPS Ship Operations, in the LAMPS MK I category. The frigate will display a large bronze plaque which moves on to the next winner after one year.

USS *Crommelin* (FFG-37) was the 1985 winner of the new Chief of Naval Operations LAMPS MK III Safety Award, which is sponsored by IBM.

In addition to obtaining one-year custody of this trophy, winners receive a small bronze plaque for permanent display.

Military Astronautics Trophy

Vice Admiral William E. Ramsey, deputy commander in chief to the U.S. Space Command, Colorado Springs, Colo., was awarded the 1986 Military Astronautics Trophy by the American Astronautical Association. Established in 1982, the award recognizes outstanding leadership in the application of astronautics to the development of space systems for national defense.

Prior to his present appointment, VAdm. Ramsey was the first director of the Navy Space Systems division in the office of the Chief of Naval Operations. Working to consolidate the Navy's space activities, he was instrumental in founding the Naval Space Command, now located in Dahlgren, VA.

Marine Corps Aviation Awards

The Marine Corps Aviation Association presented the following awards in 1986:

Alfred A. Cunningham Aviator of the Year: Maj. Ivan M. Behel, VMFA-314.

Robert Guy Robinson Marine NFO of the Year: Lt.Col. Joseph C. Garbrous, VMAQ-2.

Aviation Ground Officer of the Year: Capt. Ernie L. Ellis, MAG-41.

Aviation Electronic Technician of the Year: SSgt. Karl E. Duggin, MAG-41.

Air Controller of the Year: Capt. Kelvin K. Womack, H&HS-38.

Bud Baker V/STOL Enhancement: Lt.Col. John W. Capito, VMAT-203.

Special Category (Individual): Maj. Joseph E. Noble, MAWTS-1.

Fixed Wing Aircrewman of the Year: CWO-3 Edward J. Delehant, VMGR-352.

Helicopter Aircrewman of the Year: Sgt. Michael H. Schmitt, SOES, CP, NC.

Plane Captain of the Year: Cpl. Joseph D. Gamble, VMA(AW)-533.

James Maguire Enlisted Aviation Safety: SSgt. Robert E. Williams, HMH-362.

James E. Nicholson Enlisted Leadership: MSgt. William R. Griffith, VMFA-323.

Commandant's Aviation Efficiency Trophy: VMAT-203, 2d MAW.

Robert M. Hanson Fighter Squadron of the Year: VMFA-323, 3d MAW.

Keith B. McCutcheon Helicopter Squadron of the Year: HML-269, 2d MAW.

Lawson H. M. Sanderson Attack Squadron of the Year: VMA(AW)-242, 1st MAW.

Edward S. Fris Command and Control Unit of the Year: MACS-2, 1st MAB.

Special Category (Unit): MAWTS-1.

Silver Hawk: Lt.Gen. Frank E. Petersen, Jr., CG, MCDEC, Quantico, Va.

Pete Ross Safety: VMA-142, MAG-42, 4th MAW.

PROFESSIONAL READING By Commander Peter Mersky, USNR-R

Coonts, Stephen. *Flight of the Intruder*. U.S. Naval Institute, Annapolis, Md. 21402. 1986. $15.95.

The second novel from the Naval Institute, and its first piece of aviation fiction, *Flight of the Intruder* tells the story of the early 1970s' line period in Vietnam as seen through the eyes of a young A-6 pilot, Lt. Jack Grafton. Flying from the fictional carrier USS *Shiloh*, Grafton is a composite of all the junior officers who flew the hazardous missions of Southeast Asia combat.

The personalities which make up the carrier and its air wing are included, also. The squadron C.O., struggling to remain a friend while working as a combat leader; the ship's captain and assorted ship's company, including the flight surgeon; the air intelligence officer, predictably por-

trayed as wearing eye glasses, who plays a key role in the planning and discovery of the clandestine mission; and, of course, the pilots and B/Ns in the fictional A-6 squadron. Events ashore and on the line are well detailed since the author was an A-6 pilot in Vietnam.

It's all here — the combat, the anger of the flight crews, the hopeless drive to find meaning and justification for the unsupported combat missions they fly, and the effects on the characters in the novel. The author, using his own combat experiences, has given this work the authenticity that many similar military novels lack.

NANews Writer Leaves

In January, *NANews* bids farewell to associate editor JO2 Timothy J. Christmann, who leaves the staff to pursue a writing career in the civilian world.

Petty Officer Christmann's creative mind, enthusiasm, positive attitude and energy have made many significant contributions to the magazine. As one of the most well-rounded associate editors *NANews* has had in recent years, Tim excelled in writing, editing and typesetting. He was a key figure in maintaining the high quality of *NANews* while minimizing production costs.

His brilliant writing talent was recently recognized when he received the 1986 Chief of Information Merit Award in the Departmental and OSD Joint Service Writing category. He plans to maintain an association with the Navy by joining the Naval Reserve.

JO2 Christmann aboard USS Roosevelt during builder's trials.

During off-duty hours, JO2 Christmann completed his bachelor's degree in journalism at The American University last December.

The *NANews* and Naval Aviation History staffs wish him all the best, and smooth sailing and following seas.

FLIGHT BAG

75th Anniversary Essays

NANews asked sixth graders at the Louise Archer Elementary School in Vienna, Va., what they thought about Naval Aviation on its 75th anniversary. Their teachers — Benjamin Neff, a retired USAF colonel and aviator, and Myrna Strickland — tasked their charges to convert thoughts to essays. Excerpts from those essays follow and reflect the youths' interest in the future.

Well done, Louise Archer sixth graders!

John Johnson: . . . it has been 75 years since the first airplanes became part of the Navy. These planes started as wood nailed and bolted to fly and not so powerful engines. Since then, the Navy has further developed the airplanes. For instance, the F-14 *Tomcat* travels at speeds up to Mach 2.

. . . I think the Navy will develop planes which travel at unheard of speeds. They will be sturdy enough and powerful enough to travel in space as well as in our atmosphere. It will take three or four men to control these awesome planes.

I also think these planes will take off from aircraft carriers in the ocean as well as carriers in space. The ones in space will probably be stationary like space stations. The carriers will also have special defenses to take care of nuclear missiles and many other weapons.

This is what I think Naval Aviation will be like in 75 more years.

Andrea Shullaw: What do you think the U.S. Navy will be like in 2061? Perhaps it will be something like this. . . .

The supersonic jets will have more accurate instruments for increased safety of the crews. These planes will fly faster and be better equipped for targeting enemy ships, planes and bases.

Everyday, space shuttles will be launched with destinations to many different space stations in the universe. Crews on these shuttles will have rotational duty at these stations with one week on, one week off.

Giant aircraft [carriers] with huge landing areas will make launching and landing planes easier and safer.

Ultramodern facilities will be provided to families who accompany servicemen to Navy bases around the world. Family transportation and all transition costs to be paid by the U.S. Navy. Unaccompanied personnel will be housed in single modern apartments with maid service provided.

All these improvements will make joining the U.S. Navy much more inviting than it was in 1986.

Ayn Grant: In this time, there have been many deaths and many victories. For instance, the sad deaths of the pilots who fell out of the planes without seatbelts to the wonderful victories of many Navy men who fought in the wars of the world.

Steve Hagen: Every week, a new Naval Aviator [from a space station] would go to earth in a huge space truck and bring oxygen to people. The Naval Aviators would also be like the police. So, in the future, I think the Naval Aviators would play a big part in civilization.

Leila Jaafar: I have always dreamt of living on the moon. There would be space stations on the face.

. . . what I would like to happen in the future is for women to be able to do things in the armed forces that they are not able to do now.

Arbi Sookazian: I think that Naval Aviation, 75 years from now, would consist of more modernized and sophisticated vehicles and weapons. One such thing could be remote-controlled jet-fighters launched from aircraft carriers. This way it would be very simple and no one would have to worry about tragically losing their life. Of course, you must realize the cost of this would be outrageous but it is always better than losing an important part in the Navy, a naval officer.

Andy West: In 75 years there will be things like regular space shuttle trips to the moon. People will be living in space in houses like the ones on *The Jetsons*. The cars of the future will be like hovercraft. The food will be grown underwater or underground and people will have their own space luxury condominimums [*sic*]. There will be trips to all the closest planets and moons.

Kara Michele Gingerelli: Maybe more women will want to become pilots. Maybe the Navy will invent a plane that can float. If you're in the air and something is wrong with the plane, and you have to land right then and there, you will be able to land in the water without sinking.

Daria Ivan: There will never be as much progress as when men . . . had so much courage to "FLY," even over the highest mountain. . . .

Stephanie Christie: I believe that aviation will be around for a *very long* time!

75th Anniversary

During 1986, I exhibited a "Wings of Gold" display as a public awareness program. The display was placed in the Brevard County, Fla., schools and public libraries. Thousands of youths were exposed to the exhibit, which consists of models, pictures, books, patches, etc.

Even though the 75th Anniversary of Naval Aviation is winding down, the "Wings of Gold" display (in photo) is scheduled through 1987.

Richard A. Geschwind
913 Kensington Dr.
Cocoa, FL 32922

Mine Warfare Book

JO2 Timothy J. Christmann's article on mines in *NANews*, September-October 1986, was very informative and certainly appreciated. Mine warfare is one of the less glamorous but most important issues of modern naval tactics.

Our interest in mine warfare at Battleship Cove is strictly historical but, in researching the subject, I found an interesting book on the use of mines during WW II.

Seventeen Seconds by Ivan Southall (MacMillan Publishing Co., New York, 1973) describes the Luftwaffe's use of sea mines against ground targets in Great Britain during the war. Using sea mines, the Luftwaffe intended to destroy urban areas of England. These mines had standard electric bomb fuses with a 17-second delay to permit the mine to penetrate roofs/upper floors and detonate inside the target. The efforts of special mine disposal units are also detailed. If there was ever any doubt of the flexibility of mines in war, this book should absolve it.

Mark Newton
USS Massachusetts Memorial Committee, Inc.
Battleship Cove, Fall River, MA 02721

NavCad Program

In *NANews*, November-December 1986, Sherri Jones wrote about the "new" NavCad program. Unless it is different from the "old" program that I went through in 1961-62, the single bar was won after completion of your first solo flight and the double bar was awarded after your first carrier qual. They were not used to differentiate (NavCads) from AOCs and officers. No big deal. Just a note to set the record straight.

Lt.Cdr. M. J. Pianka
SY 70P, NATC
NAS Patuxent River, MD 20670

Ed's note: The intent of Ms. Jones' article was to explain that NavCad is a "reestablished" program and not "new" to the Navy. The bars were mentioned simply to point out that NavCads are not commissioned at the same time as AOCs, yet they still wear the same uniform.

Mine Warfare Info Wanted

NANews' JOCS Kirby Harrison and JO2 Timothy J. Christmann are compiling information on mine warfare from personnel who have been involved with minelaying and mine hunting/sweeping since 1938. In particular, we want to interview people who participated in minesweeping operations in Wonson, Haiphong and the Red Sea/Suez Canal. Write or call us at *Naval Aviation News*, Room 512, Bldg. 159E Washington Navy Yard Annex, Washington, DC 20374-1595, (202) 433-4407/8/9 or autovon 288-4407/8/9.

Reunions, Conferences, etc.

USS Minneapolis (CA-36) reunion, May 1987, Norfolk, VA. Contact Donald Bovill, 2804 Gene Ln., Arlington, TX 76010.

VPB-52 Black Cats reunion, May 1-3, Ramada Hotel, Memphis, TN. Contact Saul Frishberg, 1021 Jeffrey Dr., Southampton, PA 18966, (215) 357-6829.

USS Lexington CV-2 Club reunion, May 13-16, Tacoma, WA. Contact Walt Kastner, 466 Ivy Glen Dr., Mira Loma, CA 91752.

USS Fanshaw Bay (CVE-70) reunion, June 19-21, Colorado Springs, CO. Contact Duane D. Iossi, 310 Edwards St., Ft. Collins, CO 80524, (303) 482-6237.

Miami University NROTC Alumni reunion, April 3-5. The unit is also establishing an alumni association. Any alumni not in receipt of correspondence from the unit, contact Lt. Dan Bowdler, NROTC Unit, Miami University, Oxford, OH 45056-1698, (513) 529-3700.

Association of Naval Aviation Symposium '87 May 20-24, San Francisco, CA. Contact Orten Rudd, P.O. Box 15489, Arlington, VA 22215, (703) 892-1400.

The following reunions will coincide with this meeting.

Flying Midshipmen. Orten Rudd, P.O. Box 15489, Arlington, VA 22215, (703) 892-1400.

Skyraiders (AD/A-1). Doug Francis, 9761 Hatmark Ct., Vienna, VA 22180, (703) 938-1361.

A-4 Aircraft. Bob Thomas, P.O. Box 570, Dearborn, MI 48120, (313) 271-9225.

Tailhook Association. Ron Thomas, P.O. Box 40, Bonita, CA 92002, (619) 566-6019.

SB2C Aircraft. A. R. Chinn, 2558 Blaze Trail, Diamond Bar, CA 92675, (714) 861-8792.

VPB-116. Jack Gentz, P.O. Box 440, Groveland, CA 95321, (209) 862-6297.

PBM Aircraft. Spud Lambing, 62 Country Club Gate, Pacific Grove, CA 93950, (408) 372-5812.

VP Aircraft and VP-9. Warren Vosseler, 1826 Baldwin Dr., McLean, VA 22101, (703) 821-6834.

VB-11. Ed Wilson, 126 Pfeiffer St., San Francisco, CA 94133, (415) 956-1518.

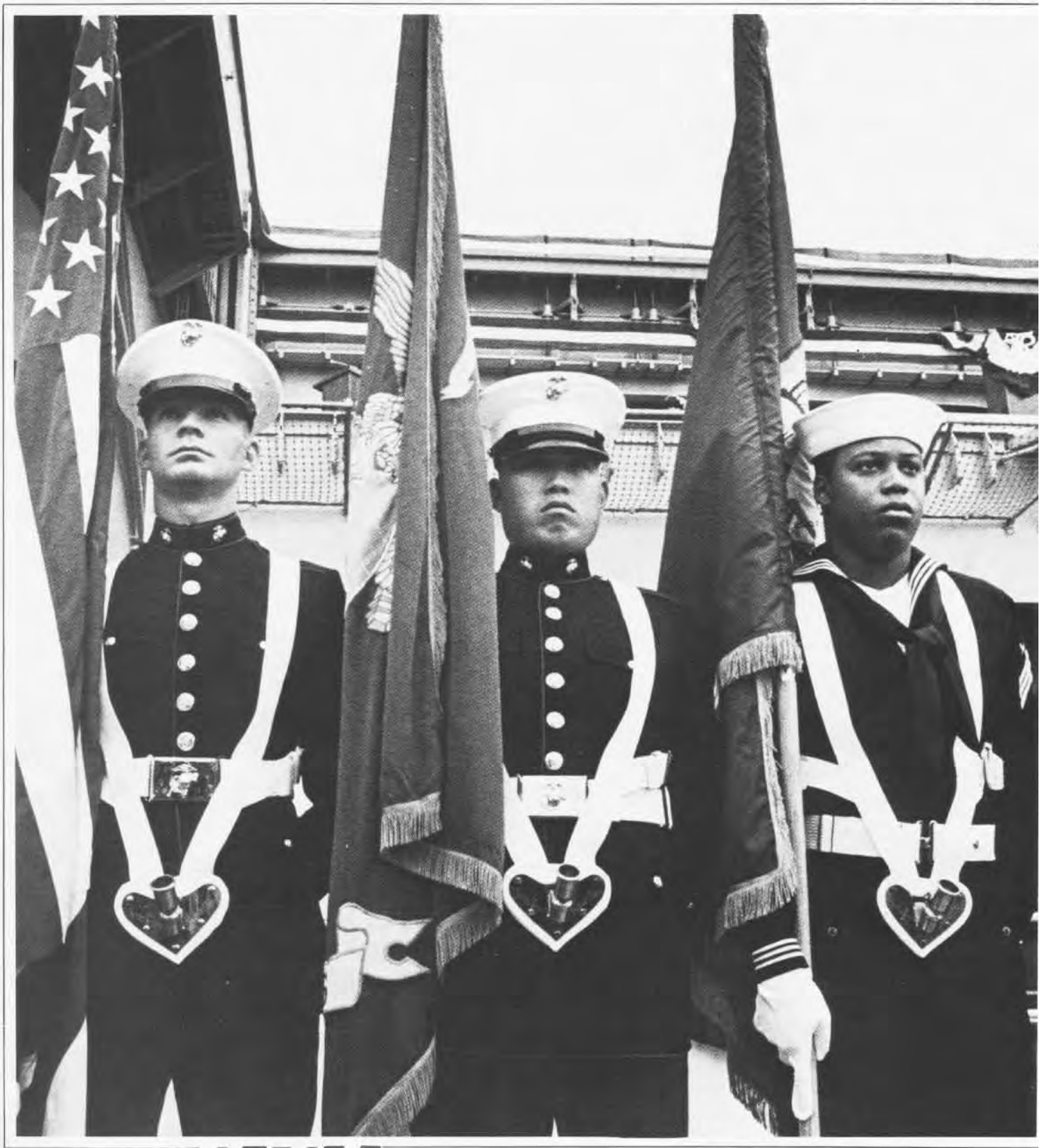
Command Histories Due

Command history reports for calendar year 1986 are due in March 1987. A major revision to the command history instruction has been approved as OPNAVINST 5750.12D dated 12 November 1986. Any questions concerning the submission of the report may be directed to the Naval Aviation History Office at autovon 288-4355/58 or commercial (202) 433-4355/58.

Correction to NANews, November-December 1986:

Page 11 — The identification of the 1986 Sailors of the Year should read: Left to right are ATC Johnson, AEC(AW) Knauth, ETC(SS) Lado and QMC(SW/DV/PJ) Williams.

Photo by JO2 Timothy J. Christma



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