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The nostalgia of flying an open-cockpit U.S. Navy N2S-2 Stearman is captured by *NAVNews*' art director, Charles C. Cooney, in this original painting on canvas with acrylics.

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Your "Link to a Proud Tradition" is at the archives of the Naval Aviation History Office, Navy Yard Annex, in S.E. Washington, D.C. The program's director and historians nurture Naval Aviation's enduring legacy, and are making it better and more accessible. Page 4.



Speaking of Naval Aviation history, some of it is being retold, restored, re-lived and "reflown" each year at the Stearman Fly-Ins. This year's Galesburg, Ill., gathering drew about 70 (of the less than 2,000 in existence) mint condition N2S Stearmans, the Navy's first flight trainers. See page 8.



The Navy's Tailhookers made their annual pilgrimage to Las Vegas last September for the now traditional professional symposium, meetings, briefings and awards banquet. The word put out at the symposium is worth reading, beginning on page 12.



The most important thing for a Naval Aviator is flying. Capt. Bruce McCandless II did it the hard way—without an aircraft. He became the "First Human Satellite" during the space shuttle *Challenger's* STS-41-B mission last February. In fact, he helped design the backpack he flew, page 17.



Subspecialty development may not be the highest priority for many career-planning Naval Aviators, but it should be given thoughtful consideration says ChNavPers and DCNO(Air). *NAVNews* has outlined two "Codes for Success," CCC and ASW, beginning on page 22.



CVN-71, the sixth *Nimitz*-class super-carrier, bearing the name of one of Naval Aviation's earliest and strongest supporters—Theodore Roosevelt—was launched last October 27 at Newport News. Secretary of Defense Caspar Weinberger called it "A Shield of Deterrence," on page 26.

High Road to China

SecNav Looks at Chinese Navy

An eight-day visit to the People's Republic of China by Secretary of the Navy John F. Lehman last August has paved the way for future relations and technical cooperation between the U.S. and Chinese navies, and for navy-to-navy staff talks, with the possibility of visits by ships of the U.S. Seventh Fleet to Chinese ports.

Secretary Lehman said that the meetings were extremely productive. "The talks offered both nations an opportunity to engage in forthright discussions of the international maritime situation" and to develop plans for future cooperation.

While in China, the Secretary of the Navy toured surface, submarine and aircraft units, and naval facilities. He also met with Premier Zhao Zihang, Defense Minister Zhang Aiping and Commander of the Chinese Navy Admiral Liu Hauqing. ■



Secretary of the Navy John F. Lehman tries on a Chinese aviator's helmet as he sits in a new Chinese-built F-8 fighter at Tsing Dao Naval Airfield.

Secretary Lehman, left, is introduced to the pilot and crew of a Chinese Navy F-6 fighter-bomber. Bottom left, SecNav checks the cockpit of a Chinese F-6 at the Tsing Dao Naval Airfield. Below right is another view of the F-6, which is a Chinese-produced version of the 1952-vintage Soviet Mikoyan-Gurevich MiG-19 Farmer.



GRAMPAW PETTIBONE

Orion Siesta

An *Orion* pilot felt run-down before a scheduled 11-hour tactical ASW mission. He had little to eat that day and drank a can of soda before launch. While two other aviators flew the P-3B, the fatigued flyer slept during most of the sortie. Eventually, he was called to the flight station. While walking to the front of the aircraft, the pilot became dizzy and momentarily blacked out. He was administered oxygen and came around. After landing, he received medical attention and was released.



Grampaw Pettibone says:

Scorch my bacon! Don't know if this fellow was burnin' the candle at both ends or was tuckered out from long, hard hours of Navy duty. Either way he wasn't much of a crew member on this hop. The squadron C.O. noted that "each member of the team is responsible for maintaining his own



high standards of readiness." No quarrel with that. This pilot should've realized he had no business being on the flight. What good's a quarterback if he can't call the signals; a pilot if he can't alertly work the controls?

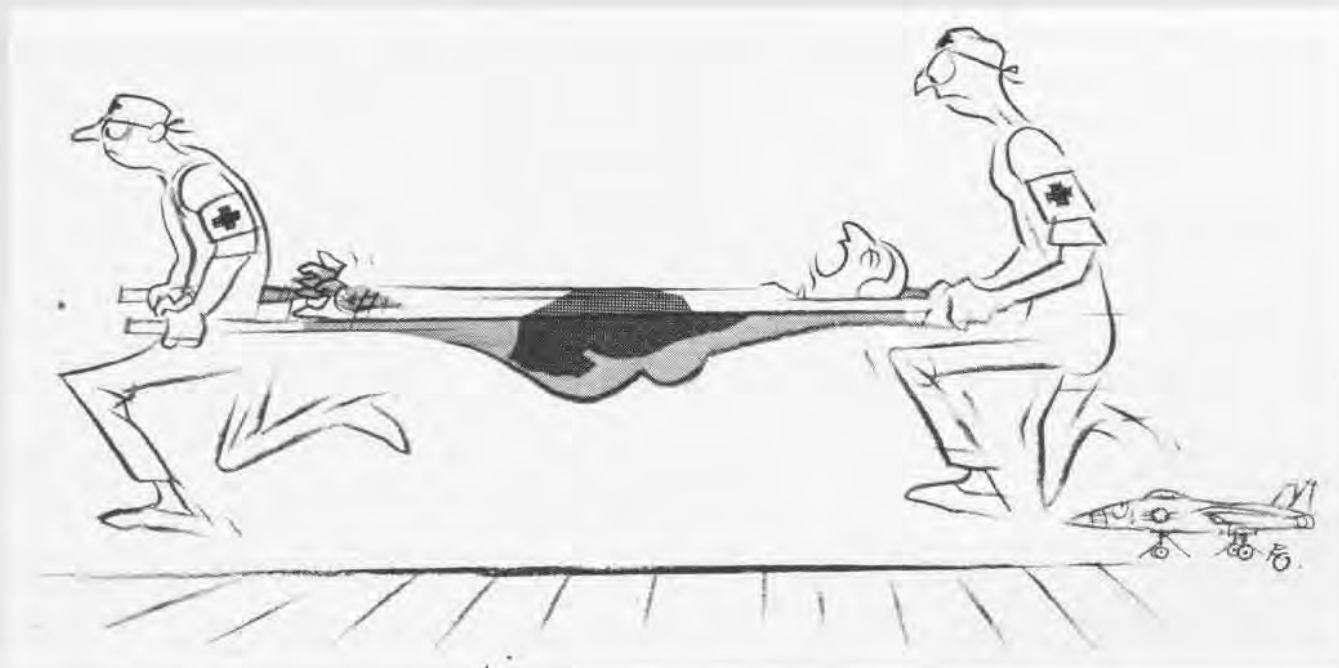
Troops, take every single flight seriously. There's no room in Naval Aviation for folks who don't believe that. If you can't give 100 percent, stand down until you can.

Odors and Boners

On climbout from a western NAS, the C-9B's loadmaster detected acrid fumes emanating from a pallet loaded with cruise boxes. He saw fluid pooled on the pallet and began sopping it up with towels. The loadmaster soon felt faint but shipmates revived him with oxygen. Upon landing, crewmen opened the cruise boxes and discovered a leaking container of "break-free" (MIL-L-63460B). It was neither packaged nor labeled properly.

Break-free is a petroleum distillate used for weapons maintenance, has a minimum flash point of 150 degrees F., and is designated a flammable liquid by NAVSUP 505 (*Preparation of Hazardous Cargo for Military Air Shipment*). Before the flight,





a squadron rep signed a statement certifying that the break-free was properly packaged and that the crew complied with the NAVSUP directive.

In the same cargo were tires inflated to nearly 100 psi, about twice the limit imposed by NAVAIRINST 04-10-506 which requires deflation to 50 psi or 50 percent of normal inflation pressure for air shipment.



Grampaw Pettibone says:

O.K., lads and ladies, we've all seen those editorial cartoons with doomsday clouds floating over waste dumps. You can almost feel the poison in the air. But those cartoons ain't meant to be funny and this fumin' fiasco aboard a Skytrain II don't make me laugh one bit!

Mix ignition with vapors from the break-free and nothing but disaster will follow. Somebody gave lip service to the regs and said they packaged the stuff the right way. 'Twasn't so. And I'm seein' similar reports at a growin' rate. Scary!

The tires? Same old story. There's an attitude problem here. I'll say it again: Carelessness can kill.

Brown-Shirt Ballet

An experienced plane captain with a sound reputation for professionalism and diligence was directed to clean the canopy of an F-14A spotted on the bow of the flight deck. Weather was normal for summertime in the North Arabian Sea — windy and humid with eight-foot sea swells. The plane captain wore his complete flight deck uniform including cranial helmet.

He climbed onto the port wing. Standing on the nonskid section, he cleaned the forward, port side of the canopy. He began to clean the aft portion while standing between the nonskid area and the fuselage.

The plane captain slipped and fell to the flight deck, landing in such a way that each leg straddled a tie-down chain. Medical personnel rushed to the scene and transported the injured man by stretcher to sick bay. He was hospitalized for five days.

Cause of the mishap was determined as personnel error in that the plane captain didn't exercise appropriate caution under the circumstances. Due to humidity and sea

spray, the aircraft was slippery. When he moved off the nonskid area, a fall was almost inevitable.



Grampaw Pettibone says:

Gramps has a special soft spot in the old ticker for those fellows in brown jerseys on the flight deck — the ones with backs bent from lugging heavy tie-down chains, and faces beaten by the heat and high winds that go with carrier flying. They're special people. We cannot afford to lose a single one of 'em.

I see many TFOA (things falling off aircraft) reports — hardware breaking loose from aircraft in flight. That's an ulcer-breedin' problem on its own. People falling off birds is another crucial matter needing special attention. Stories like this one have been comin' in too often.

Please! You plane captains out there, ashore or on the boats, don't take a single chance when working atop an aircraft. Use the nonskid area whenever possible. Supervisors, see that they comply. There ain't no comedy in straddlin' a tie-down chain the hard way.



Story and Photos by
JO2 Timothy J. Christmann

In 1942, while Naval Aviation was facing its greatest challenge, WW II, the Naval Aviation History Office was established in Washington, D.C. It couldn't have happened in a more exciting time.

At a young 31 years of age, Naval Aviation was proving to skeptics, that tumultuous year, that naval aircraft were as deadly as any weapon known to man. They were as fierce as battle-ships, swifter than destroyers, sneaky as submarines — and harder to hit.

In 1942, they helped avenge the surprise attack on Pearl Harbor by out-fighting the Japanese in places like Midway and Guadalcanal.

But, they didn't stop there. In 1943, they pummeled the enemy at Rabaul, Wake Island and the Gilberts; in 1944 at Truk, the Marianas, and in the Leyte Gulf; and in 1945 at Iwo Jima, Okinawa and in the East China Sea. The result of these victories was twofold: Japan was overwhelmed and U.S. naval warfare was changed forever.

In a short period of time, Naval Aviation had gone from being the underdog to being a winner. Aviation was in the Navy to stay. And so was the Naval Aviation History Office, which today continues to serve as a link to Naval Aviation's 74 years of proud tradition.

Located in the Washington Navy Yard Annex, Washington, D.C., the Naval Aviation History Office's primary function is to maintain operational records and provide support to Vice Admiral Robert F. Schoultz, Deputy Chief of Naval Operations (Air Warfare). This includes maintaining an extensive Naval Aviation history collection, some of it dating back to 1911.

Compiling and maintaining these historical records is important, according to Captain Richard C. Knott, Head of Aviation Periodicals and History, because "history is the heart of esprit de corps. It's the basis of a tradition which makes Naval Aviation what it is today.

"Our history department maintains operational records which are

used to answer questions and solve problems almost daily," he added, "because people look to the past for some of the answers to problems they face today."

For example, Naval Aviation History was recently asked to quickly find out how many U.S. aircraft carriers suffered kamikaze attacks during WW II, and the extent of damage those planes incurred. The information was important, because it was going to be used in high-level briefings.

Using its extensive and rare reference sources, "we compiled the information in short order and provided it to the CNO, who used it in his briefing," said Roy Grossnick, Naval Aviation Historian.

Researching data such as this is part of the job for Grossnick and his associates, John Elliott, assistant historian, and Gwen Rich, archives technician. Together, they provide a wide range of information to the Naval Military Personnel Command, Naval Air Systems Command, Naval Research Laboratory, National Archives, Naval

A Link to a Proud Tradition

Far left, the entrance to the Naval Aviation History Office. Left, Roy Grossnick, Naval Aviation Historian.



Aviation Museum, *Intrepid* Museum, *Yorktown* Museum, the National Air and Space Museum, Pentagon staffs, and countless individuals from Naval Aviation commands worldwide.

Grossnick, who's been with Naval Aviation History since 1980, said that the office answers a great number of both official and unofficial requests.

"The requests cover so many different subjects within Naval Aviation that just keeping track of all of it is a real challenge," said Grossnick. "I don't want to be a walking encyclopedia, but just by osmosis I've absorbed a great deal of information over the years."

He added that when someone calls or writes with questions about specific, typically hard-to-find material, he considers it a personal challenge to locate the data among the office's many crowded but neatly organized file safes, shelves and cabinets.

"I equate a lot of this research to detective work," Grossnick said, "because in many cases that's what it boils down to. Someone will come up with a question and I'm the detective

who has to find the answer."

Like most historians, however, Roy and his associates are research-oriented.

"We enjoy digging into files for information," he said, "because the exciting part about looking is finding the right data."

Because Naval Aviation History maintains files containing a wide range of rare historical information, magazine writers and authors frequently utilize its services.

Peter Mersky, a reserve lieutenant commander who is an editor for *Approach* magazine, said recently that Naval Aviation History was invaluable to him in compiling information for his books, *Naval Air War in Vietnam* and *U.S. Marine Corps Aviation*, and for numerous magazine articles he has penned.

"I can't say enough about Naval Aviation History," he said. "I would recommend its services to anyone who is writing a book or an article, or compiling information for a briefing. You're shortchanging yourself if you don't take advantage of it."

"I consider it one of our functions

to encourage scholarly research and writing on Naval Aviation history," said Capt. Knott, who has written two books, *The American Flying Boat* and *Black Cat Raiders of WW II*. "I think it's important for Naval Aviation History and for the Navy."

Besides assisting researchers, Naval Aviation History provides information on occasion to a number of magazines, including *The Hook*, *Wings of Gold*, and the *American Aviation Historical Society Journal*. It is also a major history source for *Naval Aviation News* magazine, which is located across the hall from it in Building 159E in the Washington Navy Yard Annex.

Two important functions Naval Aviation History performs as part of its support to DCNO (Air Warfare) are managing command histories and the insignia program.

Command histories are records of activities conducted by aviation units and commands which they submit to Naval Aviation History each year.

"We receive about 500 reports annually," said Grossnick, "and we

have thousands of them on file. Primarily, we are interested in operational activities. For squadrons, we're interested in where they were deployed, with whom they were deployed, and anything regarding the type of operations they conducted.

Command histories, which were started in the 1940s, are necessary because they provide a primary reference source for Naval Aviation History and also because they provide the Navy with statistical information regarding policy and programs. According to Grossnick, the Navy uses this data as a guide to future operations.

Naval Aviation History is the final approving authority for all Navy and Marine Corps Aviation insignia, which includes well over 600 commands.

"We are probably the best source for insignia information for the Navy and Marine Corps," Grossnick remarked. "Our insignia files date back to WW II. It's important for squadrons and aviation commands to have insignias because they are symbols which give people a sense of unity or camaraderie."

Unlike the U.S. Army, which has a special branch tasked with designing insignias for its commands, the Navy leaves insignia design to its own aviation units.

"In many cases, a command or squadron has a contest to select the most appropriate insignia," said Grossnick. "And this helps develop the feeling of esprit de corps."

One assignment that Naval Aviation History enjoys is compiling information for, and occasionally helping to write, monographs in conjunction with the *Naval Aviation News* staff.

These monographs, which vary in length between 48 and 90 pages, depending on the topic, were first published after WW II. Some of the more popular subjects have been the NC-4 crossing of the Atlantic Ocean, Naval Aviation in WW I, and the Evolution of the Aircraft Carrier. Naval Aviation History also helps compile the chronology of United States Naval Aviation (current edition is 1910 to 1980) which is updated every 10 years. It is available for purchase through the Government Printing Office. Recently, the History Office supported the *Naval Aviation News* staff in preparing a monograph which depicts in pictorial form the history of Naval Aviation

from 1911 to the present.

"Monographs are important because they are a piece of history," said Grossnick. "They are brief history reports which tell a story about a specific area in Naval Aviation. They aren't meant to cover all of Naval Aviation, because that would involve an in-depth multivolume series. But," he added, "they are excellent reference documents which can be used by researchers, writers or Naval Aviation enthusiasts. It allows them to see at a glance how some aspects of Naval Aviation have evolved."

"If you have these monographs and

people are aware of them, particularly people who are involved in decision-making, they won't have to do a great deal of research to figure out what happened in the past in a particular area."

Naval Aviation History is currently working with the Naval Air Systems Command History Office and *Naval Aviation News* in compiling informa-

Below, Capt. Richard Knott edits a monograph which depicts, in pictorial form, the history of Naval Aviation from 1911 to the present.





Left, one of thousands of past and current Naval Aviation insignia the Naval Aviation History Office maintains.



Roy Grossnick at work in the Naval Aviation History Office.



tion for a publication which will commemorate Naval Aviation's 75th anniversary on May 8, 1986.

"About 30 percent of it is already completed," said Grossnick.

The publication will be a boxed set of about eight monographs which will cover all aspects of Naval Aviation, including antisubmarine warfare, vertical flight, the fighter/attack mission, the Naval Air Reserve, lighter than air and the making of Navy flyers.

"The 75th anniversary publication will primarily be a narrative," said Grossnick. "It will be a good history of Naval Aviation and an excellent reference source. It will be published by DCNO (Air Warfare) and the Naval Air Systems Command," he added. "Our goal is to have it available in January 1986."

Like Naval Aviation, the Naval Aviation History Office has come a long way since the early 1940s. And, according to Grossnick, its future looks bright.

Besides publishing more monographs, Grossnick foresees Naval Aviation History being able to microfilm and microfiche much of its records in

the coming years. "This will be a massive, long-term process," he said, "but, when it is completed, it will save us significant time."

In addition, Naval Aviation History will soon begin to enter a lot of its information into a computer data base.

"That will also take years," said Grossnick, "but once it's finished, we'll be able to recall information faster than it normally takes us to sift through files by hand. And that's important, especially when responding to official requests."

Grossnick added that many aviation units and commands don't know about Naval Aviation History, which is unfortunate.

In time, however, Naval Aviation History hopes to become better recognized through its monographs, occasional articles in *Naval Aviation News*, and through its consistent reliability in responding to the daily barrage of inquiries.

"It's important that all aviation units and commands know about the function we perform," said Grossnick, "and that they can call on us anytime for the information they need." ■

Stearman

Fly-In

They come from all points of the compass, these colorful bi-winged birds from another era. Once each year, during the last lazy days of summer, they migrate from airports and grass strips across the country to converge on Galesburg, Ill., about 150 miles west-southwest of Chicago. The occasion is the National Stearman Fly-In and a pilot-owner like Dr. Ken Fulton who comes all the way from Melbourne, Fla., might fly for days to get there, his airplane's sturdy round heart beating out a comforting rhythm which assures him of a safe arrival — if only he will be a bit patient.

Story and Photos by
Captain Richard C. Knott



Getting from one place to another in an open-cockpit Stearman biplane is not the most expeditious way to travel. But if you love to fly, to hear and smell and feel your airplane and everything that's taking place in the air around you, a Stearman is the only way to go.

These old aircraft have been around for almost half a century. More than 8,500 were built, mostly for the Navy and the old Army Air Corps before and during WW II. If complete sets of parts are counted, that number increases to over 10,000.

Boeing Stearman N2S trainers have probably turned out more Naval Aviators than any other aircraft type in history. They taught some of the great names in aviation how to fly,



Deed Levy, dean of Stearman pilots, sold the Navy its first Stearman trainers in 1934.

forgave them their transgressions, sustained them through their first wobbly solos, and nurtured them patiently until they were ready to move on to bigger and faster machines. And that is why they are remembered today by so many with appropriate reverence.

No longer needed when the war was over, large numbers of these old biplanes were declared surplus and made available for civilian acquisition. A few hundred dollars was enough to buy one in good flying condition. They were purchased by pilots and would-be pilots who wanted to fly but were a little short on cash, and by others who wanted that special brand of flying that only a biplane can offer regardless of price.

Many were pressed into service as crop dusters and sprayers. But agricultural flying is a harsh existence for an aircraft and those that managed to survive the hazards of trees and telephone wires at the far ends of the cotton and corn fields often succumbed to the ravages of corrosive insecticides.

Some of the surplus airplanes went into the advertising business towing banners over crowded beaches, exhorting sun worshippers to "Eat at Fat Eddie's" or anoint themselves with Noxema. Others were re-engined and otherwise modified for use as aerobatic performers at air shows across the country. And some just sat outside in the weather and deteriorated. No one knows how many of these aircraft were lost to simple neglect.

At some point over the years, people began to notice that this much-loved old airplane was disappearing from the skies. The law of supply and demand took over and the Stearman became a valuable antique. Gone were



This N2S-4 was one of several superb Navy restorations at the National Stearman Fly-In.



Airline pilot Susan Dacy in her green and white Stearman which she restored herself.



Walt Pierce's aerobatic Stearman "Ol Smokey" shows off its red and yellow sunburst design as it taxis out.

the days when they could be bought for four or five hundred dollars or "traded even" for a rusty pickup truck. Today, it is estimated that there are something less than 2,000 of these aircraft left in existence, with only about 1,200 or so flying. Now the price tag for a standard N2S in fair condition starts at about \$30,000. A good restoration job alone may cost \$50,000 or more. An unusually outstanding Stearman aircraft might go for as much as \$100,000.

The Stearman Restorers' Association, Inc., which boasts a membership of about 1,100, includes owners, restorers, pilots, aviation historians and those who just like to get close to these old classics and to be part of the Stearman mystique. And, indeed, the Stearman aficionados who gather each year at Galesburg are cultists of sorts. Small groups gather under the wings of aircraft to trade little known bits of Stearman lore while others furiously polish already gleaming aircraft to remove some hardly visible fingerprint smudge left by a careless infidel. In a large tent nearby, hard-to-get Stear-



Lt. Gen. Laurence C. Craigie, USAF (Ret.), was the Army Project Officer who recommended that service's purchase of the Stearman trainer.

man parts are bought and sold. Here, one can also purchase a hat, tee shirt or other paraphernalia which proudly testifies that he has made the sacred pilgrimage to the 1984 Stearman Fly-In.

This year's gathering hosted about 70 aircraft, down a bit from previous years. Parked wing tip to wing tip, they were a kaleidoscope of color against the dark green turf of the Galesburg Municipal Airport. Many had been painstakingly restored in their original military markings and colors, those of the Army Air Corps resplendent in insignia blue with orange-yellow wings and red, white and blue

striped tails. Navy N2S aircraft cut especially striking figures in brilliant yellow, some sporting bright red bands around their midsections to indicate previous employment as instrument trainers. Others had been refinished as sport models in a wide variety of color combinations.

And if the airplanes themselves were colorful, they were no more so than the people who regularly attend the Galesburg fly-in. Riding herd on the operation to ensure that everything came off as scheduled were association president Tom Lowe, a United Airlines pilot by profession, and Commander Ted McCollough, USN(Ret.), an F6F *Hellcat* pilot from WW II.

Deed Levy was probably the oldest member present and was clearly the grand old man of the gathering. He had been Chief Test Pilot at the Stearman plant, Wichita, Kans., in the 1930s when the first of this particular line of Stearman aircraft was born. It was he who tested the original Model 70 and demonstrated it for the Navy at NAS Anacostia in 1934. Lieutenant



This dazzling maroon and gray sport Stearman was a show-stopper.



The Stearman pilot views the world through struts and wires.

Commander (later Vice Admiral) Gerald F. Bogan, who was then a flight test officer at Anacostia, apparently liked what he saw and the Navy ordered 61 of these aircraft in two increments. The Navy specified a different engine because there were a number already on hand and the aircraft was known as the Stearman Model 73, Navy designation NS-1.

An improved version, the Model 75, was offered in 1936. The Army bought a large number of these over the years as PT-13s, 17s and 18s, the



Navy, Army and civilian-marked Stearman restorations practice precision formation maneuvers at Galesburg.

changing designations for the same airplane being largely a matter of different engines. The Navy ordered more than 5,000 Model 75s and something less than 4,000 were actually delivered. They were designated N2Ss.

Under the system used at that time, N stood for trainer, the number 2 signified that it was the second trainer model by that manufacturer and S was for Stearman. There were five different configurations of this Navy aircraft, N2S-1 through N2S-5. N2S-3s made up the largest portion.

Lieutenant General Laurence C. Craigie, USAF(Ret.), the Army Project Officer at Wright-Patterson Field, 1935-1936, was present at Galesburg. It was his recommendation that influenced the Army Air Corps to buy its first Stearman PT-13 trainers in 1935. "It was an ideal trainer," he said, "tough, reliable and relatively easy to handle — but you had to fly it!" And that's what made the Stearman so right for the job. It taught people the basics, and at the same time got them ready for the next step up.

The National Stearman Fly-In is a family affair. Michelle Fulton and her five-month-old daughter perch on the wheel of the Fulton family's restored Navy N2S.

If Deed Levy was the oldest experienced Stearman pilot at Galesburg this year, Susan Dacy, 26, was certainly the youngest. She arrived in her own green and white Stearman, which she restored herself. An attractive and highly talented young lady, Susan is a licensed A&E mechanic and commercial pilot with Multi-engine, Instrument, Airline Transport and other ratings. When she isn't flying her



Stearman, she is a Captain for American Central Airlines and can be found in the left seat of a 19-passenger Embraer *Bandeirante*.

One especially interesting aspect of the National Stearman Fly-In is that it is, to a great extent, a family affair. Husbands, wives and children can participate in one way or another and their glistening Stearman is a source of family pride. The planes are pampered and cared for as if they are human. One especially fine Navy restoration owned by John and Elsie Grace has even been adopted as the town aircraft by St. Francis, Kans., where it is towed down the main street as a star attraction of the annual parade.

The fly-in at Galesburg begins in midweek and continues through the weekend. Early arrivals spend the time renewing acquaintances, flying formation and otherwise sharpening their pilot skills. By late Friday afternoon, all the aircraft have arrived.

Saturday is air show day and people from Galesburg and the surrounding area turn out in large numbers for the event. The airport is closed to all traffic. There are aerobatics, precision formation flying competition and a variety of other aerial demonstrations and contests.

By Sunday afternoon, it is all over. Most of the classic old biplanes are already wending their way home, some with great distances yet to travel. The sun is low on the horizon and it will be a spectacular sunset. A Stearman pilot switches on his running lights and watches the sky turn red through struts and wires. He feels the cool night air brushing against his face. The big round engine drones on and he feels suspended in another time and place. This is the special world of the Stearman biplane and the pilot knows he is one of the privileged few to be a part of it. ■

Special thanks to Stearman pilot-owner John Crider who graciously provided the author with photo-plane services and a great formation flight.

Tailhook DRAWS OVER 2,000

By JO2 Timothy J. Christmann

If the 28th Annual Tailhook Symposium was an indicator of the health of Naval Aviation, it's in excellent shape.

More than 2,000 Naval Aviators with ranks from ensign to admiral and representing virtually all carrier flying communities, attended the convention September 13 to 16 at the beautiful Las Vegas Hilton, in Nevada.

They came to unwind in a desert town known for its glitter and entertainment. But, more important, they came to exchange professional information, renew acquaintances and cement the camaraderie which so uniquely strengthens Naval Air.

"I think it's important for Naval Aviators to have this special kind of association," said Admiral James D. Watkins, Chief of Naval Operations, who answered questions at the convention and also spoke at its awards banquet. "Our Naval Aviators are a unique breed. Day or night, in all kinds of weather, there are no better aviators anywhere in the world. The weight of this responsibility calls for a fraternity," he added, "and the Tailhook Association is that fraternity."

"Tailhook gives aviators, especially junior officers, the opportunity to meet one on one with the present leadership and past greats of Naval Aviation," said Bob Lawson, editor of *The Hook* magazine. "Aviators are allowed to speak frankly with this leadership in a relaxed but professional atmosphere. How many places do junior officers get the chance to do this?" he asked.

The visiting Naval Aviators, composed of active-duty, reserve and retired officers, spent most of the four days sitting in on discussions which offered professional insight into a wide range of areas, including strike warfare; the aircraft carrier; CV/flight deck safety; carrier suitability and testing; landing systems development; combat search and rescue; aircraft life support equipment; and Soviet carrier and aviation development.

One of the highlights of the symposium saw Naval Inspector General, Rear Admiral Jerry O. Tuttle, formerly Commander Battle Force Sixth Fleet, speak for more than an hour on carrier operations (story on page 15). But, the most important part of the symposium was the question and answer sessions between some 2,000 Naval Aviators and members of the Navy's hierarchy.

During these sessions, which were held in one of the hotel's larger convention rooms, Naval Aviators asked

JO2 Timothy J. Christmann



Adm. James D. Watkins, Chief of Naval Operations, addresses more than 2,000 Naval Aviators at the 28th Tailhook Symposium, in Las Vegas, Nevada.

very specific questions about varying issues affecting Naval Aviation today.

For instance, during the CNO's hour-long question and answer period, one Naval Aviator asked if Adm. Watkins thought Congress was going to attempt to alter military retirement benefits in 1985.

"In the next session of Congress," the CNO explained, "we can expect to see some serious questions about our military retirement system. No one wanted to tackle the issue in 1984." He told the Tailhookers, however, not to be alarmed because there has been talk before about "cutting" retirement benefits.

"It's one of those continually surfacing subjects, but we are well prepared to defend our system as both realistic and cost-effective in the long run for this nation," he said.

Watkins came to Las Vegas following a visit to NAS Fallon, in Nevada, where he gave a speech during the ceremonies marking the opening of the Naval Strike Warfare Center (NSWC), an institution which will be to the attack community what the Navy Fighter Weapon's School (Top Gun) is to the fighter community. He was asked by one Naval Aviator if he thought the school will help improve the coordination between attack submarines and aircraft carrier battle groups.

The CNO, who once served as X.O. and then C.O. of a nuclear attack submarine, said, "This is a serious defect which has compelled, for too many years, the battle group commander to say, 'I've had it. He's on his own.' That's changing now. We're moving rapidly in a direction that will bring submarines into real-time communication exchange with the battle group."

A Naval Aviator stood and said, "Admiral, I'm on my third tour flying TA-4s. They look tired. Where are the T-45s?"

"They're coming," he replied. "They're in the budget. We have 304 planned with an IOC [initial operational capability] of 1989. We've tended to put training too low on our priorities, but it is now getting the attention it deserves."

Following the CNO's question and answer session, the audience had the opportunity to question an executive panel moderated by Vice Admiral Robert F. Schoultz, Deputy Chief of Naval Operations (Air Warfare), and paneled by Vice Admiral William P. Lawrence, Chief of Naval Personnel; Vice Admiral Robert F. Dunn, Commander Naval Air Force, Atlantic Fleet; Vice Admiral James B. Busey IV, Commander, Naval Air Systems Command; Vice Admiral Crawford Easterling, Commander Naval Air Force, Pacific Fleet; Rear Admiral Cecil J. Kempf, Commander, Naval Reserve; Commodore John S. Disher, Commander, Naval Air Training Command; and Brigadier General John R. Dailey, Assistant Deputy to the Commandant for Marine Aviation.

During the executive panel discussion, VAdm. Lawrence was asked how important he thought subspecialties are in career development.

Lawrence, who has been Chief of Naval Personnel for a little over a year, said that in all Naval Aviation communities there has to be a revival of subspecialties to develop the wealth of expertise an officer needs to get all the jobs done.

"This is an absolutely essential requirement for success in the Navy," he remarked. "I think that with the advancing complexity of the world today, and the advance of technology, it just makes good sense for officers starting out to pick up a subspecialty area in which he wants to become very knowledgeable and capable in order to go with his warfare specialty."

The questioner asked if he thought pursuing a subspecialty warranted leaving a particular community for awhile.

Lawrence said that "you can be very effective in NavAir-SysCom or OP-05 while you're working on your subspecialty. You're helping your community just as effectively in NavAir in getting the right systems out in the fleet," he added. "So, you can stay very much in your community while you're building up that expertise."

Lawrence said that there are many different kinds of subspecialties and that a Naval Aviator should start early to determine which best fits his individual interest and attributes.

"I'll definitely second everything Adm. Lawrence said," VAdm. Busey remarked. "I need all the help I can get at NavAir."

"We've got to build the leaders of Naval Aviation," he said. Then, pointing to the audience, Busey added, "Some of you sitting out there in this crowd are going to be the leaders of Naval Aviation in the future, both on the business and operational side. I think the most effective guys I have at NavAirSysCom headquarters are those who have left their communities for a short period of time but, on their way, maintained contact with their community." Busey cautioned, however, that Naval Aviators shouldn't stay away from their communities too long.

Later in the discussion, VAdm. Lawrence was asked what he thought of making fleet support a separate career pattern.

"Fleet support is kind of a general term," he replied. "You're basically talking about communities like VRCs. I think you should give your emphasis and priority to the warfare community because that is the cutting edge of the

Tailhook Association

VAdm. R. F. Schoultz, DCNO (Air Warfare), far right, moderates the executive panel discussion at the '84 Tailhook Symposium. Panel members were (left to right), BGen. J. R. Dailey, Asst. DCS for Aviation, HQMC; Como. J. S. Disher, CNATra; VAdm. C. A. Easterling, ComNavAirPac; VAdm. W. P. Lawrence, ChNavPers; VAdm. R. F. Dunn, ComNavAirLant; VAdm. J. B. Busey, ComNavAirSysCom; and RAdm. C. J. Kempf, ComNavResFor.





JO2 Timothy J. Christmann

VAdm. Easterling emphasizes a point during the executive panel discussion. Beside him is VAdm. Lawrence.

Navy and we want people to be primarily inspired to do that."

Lawrence added that the people in the warfare community should try spending some time in the support areas. "I think it's very healthy for the Navy," he said, "because the support area needs people who understand what the warfare area is all about. I also feel that it's good for the warfare people to understand what fleet support is about."

VAdm. Schoultz remarked that it's hard to develop a career pattern that is meaningful for an organization as diverse as VQ and VRC. "It's difficult to make it identifiable," he said.

"What makes this point difficult," added VAdm. Dunn, "is we've taken certain people out of the training command who, for one reason or another, were not available to be assigned to a fleet squadron and therefore were put in some of these other categories. And now they have a significant tour under their belts in a particular specialty and they are looking for a way to make the Navy a career. They see the opportunity to lead in a specialty in this particular support category."

"My suggestion to those people who find themselves in this position is to do the absolutely best job they can in their present assignment and lobby as hard as they can to get into a warfare specialty, until we can better get a handle around this very complicated issue," he said.

Along this line, a woman aviator asked VAdm. Lawrence whether women would be allowed to continue to serve in the VR community if it was made into a warfare specialty.

"The VR and VRC are specialty areas, and we'll certainly let women use them as specialty areas for their careers because those are the two communities that are basically open to them," he said. "To answer your question, yes. It would enhance the career patterns of women in Naval Aviation."

Lawrence remarked that any area where women can serve under the law is good because "we're trying to give women command opportunities."

In response to a related question, Lawrence said the law which forbids women to serve in warfare missions doesn't indicate that women cannot perform the warfare missions

conducted by the Navy today. "I've seen enough evidence out in the fleet to say they can," he said. "It's really a question of the will of society. That will has been reflected by Congress."

VAdm. Dunn was asked what the Navy was going to do if it gets the ordnance it wants but doesn't get the increased airspace and ranges it needs for training.

"A great deal of effort is going into enlarging, expanding and improving the facilities for conventional ordnance delivery in a very realistic environment," he said. "We have the targets, but the airspace is a different problem."

Dunn remarked that the Navy is working to get the airspace it needs, specifically in the NAS Fallon area. He also added that the Navy is sensitive to the encroachment on its airspace in the areas where its aviators are working today, and the Navy continues to discuss the problem with the Federal Aviation Administration.

"We face constant encroachment on our ranges and airspace, especially on the East Coast," said VAdm. Dunn. "We have only two target complexes that we can use [Oceana, Va., and Pinecastle, Fla.]. The one at Pinecastle is constrained because of forest service restrictions. We have the range in Oceana, which is helpful for the fighter and A-6 people, and we soon hope to get a range off Charleston, S.C., and later off Key West, Fla."

"It's constant pressure all the time," VAdm. Schoultz remarked. "Aircraft try to make short cuts through the restricted areas we're using. It's a constant quail meet."

He added, however, that the director of the FAA, despite heavy pressure, is sympathetic to the Navy's problems and will try to keep down encroachment.

One aviator asked the panel why his squadron, when deployed in the Indian Ocean, flew F-4Ss while reserve

Tailhook Association



It was standing room only as more than 2,000 Naval Aviators attended the '84 Tailhook Symposium.

pilots were flying F-14s at NAS Miramar, Calif.

Rear Admiral Cecil Kempf told him that, if the Navy is truly going to have a reserve force that can mobilize and augment the fleet, it has to train on the same aircraft as the fleet.

"It's just a matter of what you want the reserves to do," he said. "The new philosophy is that we want to mobilize and augment the fleet. And, because we cannot afford a full-time standing force, the Naval Reserves have to be ready when called."

Earlier, Kempf told a group of reservists that the Naval Air Reserve is "riding the peak of its importance." It has programs currently under way that will soon see reserve pilots and NFOs flying the F-14, F/A-18, A-7E, and E-2C. The only major aircraft the reserves won't receive for some time are the A-6 and S-3.

"Unless they open up the S-3 line, the reserves are not going to get S-3 squadrons," said Kempf. And VAdm. Schoultz added that the Navy doesn't have the inventory of A-6s to handle the reserves right now. "As the Marines transfer out of the A-6 into the F/A-18, we'll have more," he said. "It's going to take a decade, however, before we have an A-6 reserve squadron."

Schoultz added that if "you say you're going to bring the reserves out in case of war or even use them as replacements, you have to give them the airplanes for which you've got support equipment aboard the carriers."

VAdm. Dunn said that a reserve squadron recently deployed aboard the carrier *Eisenhower* (CVN-69) and did very well. "But that's nothing new. They've been doing that for quite a while," he added. "Most people don't know how dedicated and patriotic the reserves really are."

The 28th Annual Tailhook Symposium concluded with

an awards banquet on September 15, in which many Naval Aviators were cited for the outstanding jobs they performed in their respective communities. Adm. Watkins congratulated the award winners, and afterwards gave an address in which he described Naval Aviators as "the flame."

"You are the flame that has burned through WW II, Korea, Vietnam, the Gulf of Sidra, Grenada, Lebanon," he said. "You give credence to one of Napoleon's quotations, 'Of all careers, the Navy is the one which offers the most frequent opportunities for junior officers to act on their own.'"

Watkins remarked that Naval Aviators have the type of job where on one hand they say, *I can't believe I'm getting paid for this*, and on the other hand, *I'm not sure I can stand it any longer*.

"But you are the ones who come back again and again," he said. "Not for material riches, but because you love what you do. It's in your blood."

The CNO thanked the Tailhookers for inviting "a lonely submariner and envious black shoe" to the symposium. And, before leaving the podium, he once again called them the best aviators in the world. ■

Tailhook Association Awards

VAW-126 won the Grumman AEW Excellence Award; VAW-137, the Grumman-sponsored Adm. Arthur W. Radford Award; VS-22, the Lockheed-California-sponsored Adm. Jimmy Thach Sub-Hunter Award; VA-35, LTV's Clarence W. McClusky Award; VF-211, Litton's RAdm. Joseph C. Clifton Award; VF-302, the F. Trubee Davison Award, sponsored by McDonnell Douglas; and VT-19, Rockwell International's VAdm. Robert Goldthwaite Award. The Association's highest honor, Tailhooker of the Year, went to RAdm. Jerry Tuttle for contributing the most to carrier aviation in 1984.

Tailhook Association



RAdm. TUTTLE ON CV BATTLE GROUP

RAdm. Jerry Tuttle, center, receives the Tailhook Association's "Tailhooker of the Year" award for his contributions to carrier aviation for 1984. Adm. Watkins, right, and Capt. Gary Hakanson, Tailhook president, left, presented the award.

Noting that the "operational cross-bar has been raised," Rear Admiral Jerry Tuttle, in a speech September 15 at the 1984 Tailhook Symposium, said that "we can now surround the carrier battle group, wherever it sails, with a lethal envelope of 1,000 nautical miles."

Speaking to nearly 2,000 Naval Aviators gathered in a large convention room at the Las Vegas Hilton in

Las Vegas, Nev., Tuttle added that power projection strikes ashore, war-at-sea strikes and intercepts of noncooperative aircraft up to 1,000 nautical miles away have already been demonstrated.

The admiral, who recently became Naval Inspector General, following a tour as Commander Battle Group Sixth Fleet, said that such capability must give the Soviet Union great

concern "because it has no weapons to harm the [carrier battle group] at that range. And," he added, "[once the USSR penetrates the 1,000-nautical-mile envelope] it will be on the defensive from the outset."

RAdm. Tuttle, who was chosen as the Tailhooker of the Year by the Tailhook Association, hastened to add that the 1,000-nautical-mile range should not be viewed as a limit.

"We have not even touched the edge of the envelope, let alone approached our elastic limits," he remarked. "In fact we in tactical aviation (TacAir) should accept no limits and be restrained only by our imagination. Let's not be guilty of setting the crossbar for high jumping when we should be pole vaulting."

Tuttle, who was introduced by Rear Admiral Ken Moranville, Director of Aviation Plans and Requirements Division at the Pentagon, as "one of the best battle group commanders the Navy has today," told his listeners that the new Naval Strike Warfare Center (NSWC), "Strike University," at NAS Fallon, Nev., will "contribute greatly" to this endeavor.

"[It will develop] new tactics, refine existing ones and further expand the envelope," he said, warning that "we must continue to test and stress our weapons systems, identify the weakest link, take positive action to ameliorate or eliminate that weakness, and then test and stress again." He also added that TacAir must always take the fight to the enemy.

RAdm. Tuttle, who spoke for more than an hour, remarked that carrier aviation and operations have experienced great progress in the last 27 years.

"This operational change has been of necessity, because of the ever-increasing threat, a product of the application of technology by our innovative and imaginative predecessors and by you — TacAir — the finest aviators in the world," he said. "The carrier is the cutting edge for this nation's crisis management and diplomacy, and is the most awesome tactical weapons system in the world."

He added that it is essential to have a carrier battle group because it is the instrument most frequently called upon by the President to demonstrate American will power and defend national interests.

Tuttle said that because of the greatly expanded and lethal envelope of the threat weapons systems, a widely dispersed force disposition is a "given" in order to enhance survivability.

"To ensure positive command and control and reliable communications between this widely dispersed formation brings me to one of the five dimensions of naval warfare, electromagnetic spectrum," he announced. The other four dimensions Tuttle described earlier in his speech were air, surface, subsurface and space.

"One does not have to know Ohm's law or identify the difference between an electron and a baseball to work, study and knowledgeably operate in this essential dimension [electromagnetic spectrum]," Tuttle said. "The operational commander who fully understands, controls and exploits the electromagnetic spectrum will, with any resemblance of a balance in forces, dictate the outcome of and prevail in any encounter."

Another dimension of naval warfare that greatly influences carrier operations is space, which is determined by the presence, capability and availability of Soviet and U.S. satellites, according to Tuttle.

"We have become far more sophisticated in satellite vulnerability and our ability to avoid satellite footprints to deny locational and positional information of the carrier battle group," he said. "The use of satellites for our communications has expanded significantly in recent years, but requirements exist for far greater utilization. The vulnerability issue for communication satellites is nonsense," he added, "and one method of improving survivability is redundancy."

Tuttle said that one of the most exciting capabilities that is on the horizon is the Navstar Global Positioning Navigation System, which will provide positional data accurate enough for targeting and will revolutionize air and surface tactics.

In undersea warfare, he said TacAir is making gains by totally integrating nuclear submarines with maritime patrol aircraft, many types of acoustical arrays and "most importantly, all source intelligence with our battle force antisubmarine assets. The S-3 has come of age," Tuttle said. "The SH-60 cannot get here soon enough.

"ASW must be approached as a strategy, as opposed to a tactic," he added. "It must be tenaciously pursued, [because it] is a dimension of naval warfare that will influence the carrier *modus operandi* more than any other."

Tuttle said that the gains made in long-range strike combat air patrol (CAP), with intercepts consummated both actively and passively, are very important.

"Efforts are ongoing to further refine and document strike CAP procedures," he remarked. "Fundamental to the success of long-range strike CAP are adequate indications and warnings from all source intelligence and information data management in the form of tactical decision aids,

RAdm. Tuttle said that in the Mediterranean the Navy has been "most successful" in integrating U.S. and NATO land-based air forces, shore-based radars and C² facilities with Navy fighters and other anti-air warfare assets to cover an integrated air defense area.

"Navy fighters now routinely maintain CAP stations over land under tactical control of the airborne warning and control system (AWACS) or a shore-based commander," he remarked. "By the employment of AWACS and E-2Cs, the air picture of two-thirds of the entire Mediterranean at one time has been achieved."

Tuttle, who was in command when naval attack aircraft bombed targets in Lebanon on December 4, 1983, said that "regardless of what might have been said or perceived on this side of the pond, I am extraordinarily proud of TacAir on that strike. The simple fact that the strike got off in an incredibly compressed time frame makes me proud of the maintenance, ordnance and aircrews," he added. "The aircrews intrepidly went with sweaty palms, little or no sleep, and put ordnance on difficult-to-locate targets and remained disciplined throughout."

In closing, Tuttle said that "we must continue to nourish and contribute to Naval Air. Remember," he told his audience, "turbulent progression is preferable to tranquil stagnation." ■

NASA



NASA

First Human Satellite

Captain Bruce McCandless II

By JO2 Timothy J. Christmann

Hey, this is neat!" exclaimed the lone astronaut as he twisted and turned in the vastness of space, 165 miles above Hawaii.

It was February 7, 1984. Navy Captain Bruce McCandless II, 46, Mission Specialist on the space shuttle *Challenger's* STS-41-B journey, became the first human satellite by performing a feat no astronaut in history had ever attempted. He stepped into space without being fastened to a line.

"This is beautiful...super...superb," he radioed back to *Challenger* and mission controllers at NASA, in Houston, Texas, as he maneuvered up to 320 feet away from the orbiter. Then, referring to Navy Astronaut Neil Armstrong, who made the now famous statement, "That's one small step for a man, one giant leap for mankind," when he landed on the moon in 1969, McCandless said, "That may have been one small step for Neil, but it's a heck of a big leap for me."

Such a statement reflected more, however, than just his physical venture into the heavens. McCandless was elated not only because he had reached the apex of his 18 years as an astronaut, but also because of the success-



Top photo, *Challenger* lifts off from Kennedy Space Center, Fla., on February 3, 1984. Above, Navy Capt. Bruce McCandless II, astronaut aboard *Challenger's* 41-B mission, becomes the first man to walk untethered in space thanks to the nitrogen-powered, backpack-like Manned Manuevering Unit (MMU).

ful performance of the \$10-million Manned Maneuvering Unit (MMU) which he had helped to create.

America's tenth space shuttle mission was marred by several problems, including the unfortunate failure of two 41-B deployed communication satellites to reach their intended geosynchronous orbital altitudes. But the success of McCandless' MMU was perhaps the most significant highlight during the eight-day, five-man orbital flight because it revolutionized extra-vehicular activity. Thanks to the development of this backpack-like, 335-pound device, astronauts now have the capability of supporting a variety of space-related tasks that they were unable to perform in the past, such as inspecting the orbiter exterior; servicing free-flying payloads and satellites; assembling large structures (space stations or antennas); commuting to other spacecraft; and, if need be, participating in rescue operations. But most important, all these tasks can now be accomplished without tethers

or other attachments which could hamper an astronaut's mobility.

"I believe the MMU is going to be invaluable in the future as far as the space shuttle is concerned," said Ed Whitsett, MMU Project Manager at NASA who, together with McCandless and Martin Marietta Aerospace of Denver, Colo., designed and developed the device. "And, because of its mobility, the MMU is going to be quite valuable once we really begin to get into the space station era."

The MMU is worn like a backpack by an astronaut who can put it on and remove it unassisted at a special flight support station on the orbiter. It's powered by 24 nitrogen gas thrusters, which are activated by hand controllers. These controllers, located at the end of the MMU's extendable arms, give an astronaut the luxury of moving in any direction.

MMU: From Drawing Board to Orbit

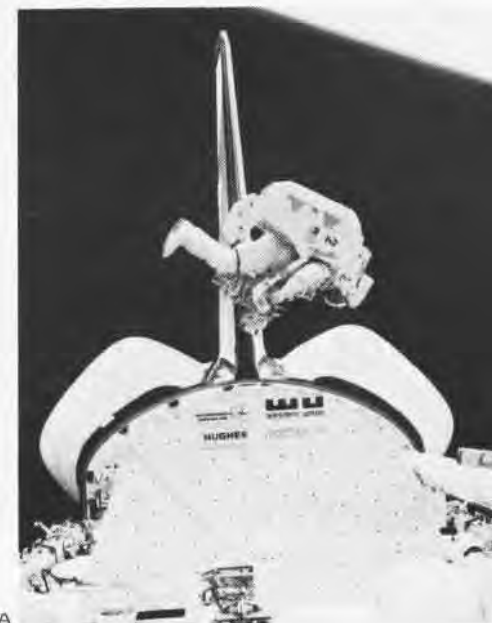
According to McCandless, the MMU

essentially grew out of two maneuvering units (the hand-held and the backpack) which were used sparingly aboard Project *Gemini* spacecraft in the mid 1960s — a period when NASA was devoting most of its efforts to landing a man on the moon rather than improving extra-vehicular activity in a weightless environment.

"Then in 1968, Whitsett [an Air Force captain at the time] came up



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Above, a Navy video news team interviews Capt. McCandless at Fort McNair, in Washington, D.C., during a recent visit to the city. Top right, Capt. McCandless, wearing a space suit, is harnessed to the Manned Maneuvering Unit, a device which he helped create. Bottom right, Capt. McCandless maneuvers closer to the space shuttle Challenger.

with the idea for designing a maneuvering unit to be evaluated *inside* the *Skylab* workshop in 1973-74," said McCandless.

Intrigued with the thought, McCandless teamed up with Whitsett to create the M-509 astronaut maneuvering research vehicle, a modified combination of the two devices used on *Gemini*.

During the three *Skylab* missions, five astronauts successfully flew the nitrogen-powered M-509 for about 14 hours inside the spacecraft's large (20-by-22-foot) orbital workshop.

"*Skylab's* M-509 experiment gave us the technical base for what we would need for maneuvering units to use aboard the space shuttle," said Whitsett, who along with McCandless received the American Astronautical Society Victor A. Prather Award in 1975 for their contribution to the M-509.

From movies taken of the M-509 in flight aboard *Skylab*, Whitsett and McCandless discovered, among other findings, that an astronaut could fly more precisely with a backpack-type maneuvering unit than with the hand-held variety. So, between 1974 and 1979, they proceeded to drastically modify M-509's design into what would later become the MMU.

"We knew exactly what we wanted the MMU to do," said Whitsett. "What we needed, however, was to build it so the MMU could operate outside the space shuttle in vacuum and in the temperature extremes of space."

It was a grueling, time-consuming process. But Whitsett and McCandless didn't mind the work. They believed in the concept's importance to such an extent that even severe funding constraints in the mid-1970s didn't discourage them. In fact, during those lean years, they accepted help from enthusiasts who shared their belief in the MMU, according to Whitsett.

In 1979, funding for the MMU increased. The program's pace picked up and, after years of testing, culminated in McCandless' space flight last year.

"It was quite a thrill to watch Bruce take the MMU up to 320 feet and really show what it could do," said Whitsett. "I was also happy that he was selected to be the first astro-

naut to test the device because he had the most experience with it. A lot of the MMU's design was based on Bruce's ideas. He knew it better than anyone else."

"I had simulated and trained with the MMU so much that I was confident it would work well," said McCandless who logged more than four hours' flight time during *Challenger's* February 1984 flight.

McCandless added that he wasn't worried about the device malfunctioning and possibly leaving him stranded in the blackness of space because "the MMU is redundant. No single failure can prevent it from being flown back to the orbiter," he said. "And if two simultaneous, unrelated failures were to occur, the space shuttle could always fly over and rescue a stranded MMU operator. We had all the bases covered from a safety standpoint."

Before *Challenger* began its return journey to the Kennedy Space Center on February 11, 1984 (the first time a space shuttle launched and landed at the same location), President Ronald Reagan called the crew and praised them for their "courage and inspiration." During his conversation, Reagan asked McCandless to explain the significance of his celestial adventure. McCandless said, "We're literally opening a new frontier in what man can do in space, and we'll be paving the way for many important operations on the coming space stations."

From Annapolis to Challenger

Born June 8, 1937, in Boston, Mass., McCandless became interested in space while an elementary student in Long Beach, Calif. "I got a book titled *Rockets, Missiles and Space Travel* and it excited my imagination," he said.

McCandless entered the Naval Academy in Annapolis, Md., in 1954, following in the footsteps of his father and both grandfathers, who were all prominent naval officers.

His father, Rear Admiral Bruce McCandless, a 1932 graduate, earned a Medal of Honor in action during WW II. And, the astronaut's grandfather, Commodore Byron McCandless, a 1905 Naval Academy graduate,

designed the presidential flag in 1915. USS *McCandless* (FF-1084), commissioned in 1972, is named in their honor.

Capt. McCandless' other grandfather, Captain Willis W. Bradley, a 1907 Naval Academy graduate, also earned a Medal of Honor, in 1917. USS *Bradley* (FF-1041), commissioned in 1965, is named after him.

"My father was an influence on me in joining the Navy because he was a role model," Capt. McCandless said recently. "But he never pressured me. As long as I got into something that was legal and moral, it was okay with him."

During his final year at the Academy, a historical event helped spark McCandless' growing desire to someday work in America's as yet embryonic space program.

On October 4, 1957, to the amazement of the world, the Soviet Union orbited the 184-pound artificial satellite *Sputnik I*, and opened the age of space.

"The United States was moving along with the assumption that it would put something in space when the time was right," McCandless said. "No one appreciated the fact that the Soviets had the capability at that time. It was a shock."

While a midshipman, McCandless earned a B.S. in Electrical Engineering and graduated second of 899 students in 1958. Following graduation, he took his first step toward the space program by going into Naval Aviation and working his way up to high-performance fighters.

McCandless was designated a Naval Aviator in March 1960, and in December of that year was assigned to VF-102 where he flew F-6A *Skyrays* and F-4B *Phantoms* until 1964. During this period, he deployed aboard the aircraft carriers *Forrestal* (CV-59) and *Enterprise* (CVN-65).

In 1964, he reported to the Naval Reserve Officers Training Corps Unit at Stanford University in California, and earned an M.S. in Electrical Engineering the following year. He was among 19 astronauts selected by NASA in 1966, which was the largest group chosen up to that time.

As an astronaut, McCandless was a member of the support crew for the

Apollo 10, 11 and 14 lunar landing missions. He was also the back-up pilot for the first *Skylab* flight and served as capsule communicator in the control center during all three missions. For his valuable participation in support of *Skylab*, McCandless received the NASA Exceptional Service Medal in 1974.

Since that time, McCandless has been involved in various projects at NASA, the most important being his assistance in the development of the M-509 and the MMU. Although he's been an astronaut for 19 years, his first voyage into space didn't occur until *Challenger's* STS-41-B mission last February.

"He had been working toward that goal for a long time," said Bernice McCandless, his wife of 25 years. She wasn't worried when he spent 191 hours in space during his last shuttle mission because "I was confident everything would turn out all right."

Mrs. McCandless said that immediately following her husband's space walk, he was often approached by autograph seekers, a development which is now slowly tapering off.

"He's taken all the attention in stride," she added. "The children (Bruce III, 23, and Tracy, 21) and I are extremely proud of him."

"Bruce is exceptional," said Whitsett, who retired from the Air Force in 1977. "He's brilliant, sincere, and I think he is one of the best astronauts we have today."

Views on the Space Shuttle and NASA

Capt. McCandless, who hopes to participate in future space shuttle missions, said the shuttle program has been a phenomenal success. He notes that in the shuttle missions all three liquid engines have performed flawlessly; all payloads have been carried into orbit successfully; and all space shuttles have been launched and returned safely.

McCandless added that for the first time in history, astronauts have gone into space and repaired a satellite that was launched on an expendable booster years earlier. "In fact," he said, "we were able to fix things on the satellite that weren't anticipated earlier."

McCandless remarked that "with this knowledge and capability there are some very distinct serviceability considerations applicable to weather, earth and defense satellites which in the long run will save the government money.

"We've also reached a point in our shuttle technology where we can carry specialists of various sorts, who are not astronauts, along on a space flight with only a couple of weeks' training," he said. "A great example of this is Navy civilian oceanographer Paul Scully-Power who was carried in the STS-41-G mission last October to observe and take photographs of the ocean's surface."

According to McCandless, another great shuttle attribute is the fact that it's the world's first reusable spacecraft.

"Even the Soviets' *Soyuz* spacecraft aren't reusable," he remarked. "And probably the ultimate compliment to the space shuttle is that the Soviets seem to be building something that looks very much like it. We don't know much about it, but it appears the Soviets are so impressed by what we've got that they want one, too."

McCandless said that the U.S.S.R. is a formidable competitor in space.

"Their *Salyut* space station, for example, which circled the globe for eight months continuously with a manned crew of three to six people, may not be sophisticated but it exists, it works, and it is being used by the Soviets for a variety of activities. Their *Soyuz* spacecraft, used for transportation to and from the *Salyut*, can be produced on an assembly line," he said. "It's a standardized, reasonably reliable vehicle which they are able to manufacture in large quantities."

According to McCandless, NASA has two obligations in the near future: "One, to develop the space shuttle into a high-frequency-of-flight, low-cost, reliable system. And, two, to develop and operate a space station with various pieces of auxiliary equipment."

McCandless remarked that NASA hopes to build a pressurized four-to-five-module space station in the early 1990s which will have the capability of maintaining a crew of about six to

eight permanently in orbit. Later, the space station would be gradually increased to 10 to 12 modules with a crew of about 16.

He added that space stations will serve a variety of important functions from maintaining specialized equipment (like radars) permanently in orbit to developing material-processing techniques — jobs which the shuttle can't perform economically due to the limited duration of its trips into space.

McCandless, who has more than 4,000 flight hours (3,600 in jet aircraft), said that it is easier to enter the space program today than it was when he was chosen because there are more jobs available.

"There are a lot of interesting, challenging and rewarding careers in the space program besides that of actually being an astronaut," he said. "The Navy is currently the number one user of space-derived tactical and navigational information, and I look for continued rapid growth of the Navy's own space program. The establishment of the Naval Space Command on October 1, 1983, was a big step in this direction."

McCandless remarked that advanced degrees in Engineering, Physical Science and Medicine are always useful tickets into the space program. And, depending on which part of the program a person wants to join, the Naval Postgraduate School, in Monterey, Calif., offers courses leading to a space systems designator which is "quite helpful." In addition, the training conducted at the Naval Test Pilot School, in Patuxent River, Md., is also "very valuable."

But, the bottom line for candidates seeking acceptance into the space program is to do a good job in their respective fields and exhibit an interest in NASA.

"Then, when the time is right, they should do what I did," said McCandless. "Grab the opportunity and apply." ■

Capt. McCandless, the world's first human satellite, maneuvers up to 320 feet away from the space shuttle *Challenger*.



Subspecialty Development

Coded for Success

By Sandy Russell

Today, everyone is assigned a number in a computer somewhere. The number may represent a personal checking account at a bank or a driver's license number at the Department of Motor Vehicles, but we are all coded in some way by some organization. Some people may feel that computers are assuming too much control of our lives and that we are becoming simply numbers in a data bank.

But the Navy has a system of coding that junior aviation officers should be aware of as an asset to their careers. It denotes the development of a professional subspecialty which is becoming increasingly important to a successful career in Naval Aviation.

Subspecialties aren't new. In the fifties and early sixties, they were considered a very important part of career progression. Since the mid-1960s, however, Naval Aviators have been heavily tasked operationally in combat and in a number of rapid-response scenarios. Vietnam-era, mid-grade officers moved on to sequential command and promotions on the basis of superb but more operationally slanted records. This led to the misconception in the fleet that the key to success for aviation officers was to remain on an operational-only career path.

There is presently a move in the Navy to inform young aviation officers about the importance of subspecialties to future career opportunities. Vice Admiral Robert F. Schoultz, Deputy Chief of Naval Operations (Air Warfare), says, "We need good operators, of course, but today our Navy is growing both in numbers and sophistication. Our selection boards are seeking and selecting leaders who are versed in... a myriad of subspecialties which can be obtained primarily through Washington area experience, service college attendance and/or postgraduate education." He goes on to say that "Subspecialty development should be emphasized and considered important for every career-oriented aviation officer."

Due to today's expanding technology, the Navy is becoming more

technically oriented, and up-to-date know-how and managerial skills are more in demand, according to Commander John Healy, Head, Professional Development, Education and Subspecialty Management (NMPC-440). Studies were done by the Navy to define billets where specialized skills were needed and curriculums were built around them at the Naval Postgraduate School (NPS) in Monterey, Calif. Quotas were then determined of the number of people to be educated at NPS in those subspecialties.

It is felt that there is a real need in the Navy for personnel who have graduate education in certain areas, ranging from nontechnical fields such as intelligence, political military affairs, personnel management and logistics, to the technical fields of antisubmarine warfare, communications, acoustics and systems acquisition management. Chief of Naval Personnel Vice Admiral William P. Lawrence emphasized the importance of subspecialty expertise during the executive panel discussion at the Tailhook Symposium last September by saying, "This is an absolutely essential requirement for success in the Navy." (See "Tailhook Draws over 2,000," page 12.)

Cdr. Healy explains that there are various degrees of a subspecialty. After an officer completes his master's degree program in a subspecialty at NPS, he earns a "P" code which follows the number code of his field of expertise, i.e., XX44P for antisubmarine warfare. After successful performance in one or two billets which utilize this education, he comes up before a subspecialty selection board headed by a flag officer and other experts in that field. The different boards, which meet every few months in Washington, D.C., look at an officer's overall record and evaluate his performance in the subspecialty billets. With the board's approval, he is designated a *proven* subspecialist, which changes his code to a "Q."

An officer may earn an "S" code,

denoting significant experience in a subspecialty without a postgraduate education. When he is designated a proven subspecialist on the basis of experience, he receives an "R" code.

The subspecialty codes earned by officers signify achievement and certainly give an officer the edge over his contemporaries in the promotion and command screening processes. Selection boards are looking for leadership at the proven level. Proven billets are usually for those more senior in rank and have more responsibility. A proven subspecialist can be a lieutenant commander but is normally a commander or captain.

Some interesting promotion statistics have been published from recent selection boards, according to Cdr. Healy. At the commander and captain levels, the promotion percentages for officers with Navy-funded graduate education experience run about 20 percent higher than those without it. He says this proves that "In a man's personal career, [postgraduate education] is very much needed, and the benefit to the Navy goes without saying."

Cdr. Healy feels that the ideal time for a young aviation officer to consider electing a subspecialty is after his first fleet tour, when he is fresh out of college and still academically oriented. The next opportunity is during his second shore tour. Selection boards for postgraduate school meet annually and those chosen to attend NPS must have good performance and academic records.

Improvements have been made in the postgraduate education program in recent years, says Cdr. Healy. Now an officer can take correspondence courses from NPS and improve his chances of being selected for postgraduate study, which in turn can earn him the desired subspecialty. Selection to NPS carries with it an obligated service of three years for the first year of study, and one year for every additional year.

Officers interested in obtaining information on subspecialties should

refer to the manual of Naval Officer Manpower and Personnel Classification, NAVPERS 15839E, and *Perspective — A Newsletter for Navy Officers*, or call the Naval Military Personnel Command (NMPC-440) at (202) 694-3321 or autovon 224-3321. Cdr. Healy says, "We do a lot of counseling here every day. Once a person understands what [a subspecialty] is, what it means to him promotion-wise and what it means to the Navy, he's vitally interested in it."

Whether the subspecialty code is followed by a P, Q, S, or R, it is more

than just an individual's specialization number in a computer data bank. It represents a major enhancement to achievements, including aviation command and beyond.

In summary, the Navy's Air Boss VAdm. Schoultz stresses, "My aim is not to thwart or in any way discourage the desire to *bag flight time* and sharpen operational skills. It is rather to get us thinking beyond flying time. Get involved! It's your career and one that should include more, much more, than just flight time." ■

Graduate education quotas for aviators are now available. . . . through October 1985. If you want to attend NPS between now and then, contact Lt. Cdr. Ed Lohoski (NMPC-432J) at (202) 694-8708 or autovon 224-8708. Quotas in many curricula are going fast. Graduate education is an excellent stepping stone for subspecialty detailing and is considered an important *plus* by promotion boards. Call now!

Naval Aviation News plans to run a series featuring subspecialties available to Naval Aviation officers. The following articles are the first two of the series.

Command, Control and Communications

The Vital Link

By Commander Dave Bogosian

Hey, we've got a problem." Those words from astronaut John Swigert, in the *Apollo 13* command module over 200,000 miles away, told the Houston control center that the moon-bound mission wasn't going as planned. Swigert's message and the status report from command pilot and Naval Aviator James Lovell alerted the ground team that an explosion had taken place in the *Apollo 13* service module. The mission was aborted and the crew returned to earth safely aboard the lunar module. This emergency landing was accomplished successfully through the efforts of the spacecraft's crew and the ground team, and their ability to effectively communicate with each other.

To present-day Naval Aviators, basic communications such as clearances for takeoffs and tactical vectoring are routine, but the effective transfer of information is precisely why their missions succeed. Good communication, without question, forms the framework of any successful mission — from a simple tactical engagement to strategic warfare. Particularly in today's high-tech Navy, Naval Aviation officers with subspecialties in communications are



Flight controllers and NASA officials in the Houston control center were in constant communication with the *Apollo 13* crew during the problem-plagued mission.

needed to efficiently manage this expanding field.

The Naval Postgraduate School, Monterey, Calif., now has quotas in two communications fields for naval officers. These programs are designed to satisfy the needs of the Navy as well as the personal interests of the officers in the fields. The education permits an officer to address more knowledgeably current and future

problems associated with military communications systems, and expands his base of professional know-how and technical competence. In short, it is designed to enhance performance throughout an officer's naval career, especially in operational, technical management and policy-making billets.

Successful completion of the Communications Engineering curriculum leads to the Navy subspecialty code

XX81P and a Master of Science in Electrical Engineering. In the Telecommunications Systems curriculum, the Communications Systems Technology subspecialty code XX82P is earned, along with an M.S. in Telecommunications Systems Management.

All curricula provide a well-rounded background of scientific principles, technical practices and managerial analytical skills. Studies also heighten the officer's capability for creative thought and innovative problem-solving. An officer enrolled in either of these programs may study associated areas outside the field of specialization to accommodate his academic background and individual interests.

Careers in communications are challenging and present an excellent opportunity for proven subspecialty expertise and for command. Sponsored by the Director, Command and Control under the Chief of Naval Operations (OP-094), these curricula are continuously reviewed and updated to provide the most up-to-date graduate education possible.

Communications Engineering

Communications Engineering provides officers with comprehensive scientific and technical knowledge applicable to Navy and Department of Defense command, control and communications systems. The 600 curriculum is designed to establish a broad background of basic engineering knowledge, and selected advanced studies in electronic systems, communications, ship/weapon control systems, information processing or other pertinent areas.

Telecommunications Systems

The Telecommunications Systems curriculum offers technical and managerial instruction to officers who will be managers of new communications systems applications, or communications officers in large command staffs, afloat and ashore, including the Joint Chiefs of Staff and the Defense Communications Agency.

The Telecommunications Systems program provides comprehensive study in management, with emphasis on the systems management field, and study in decision-making in advanced systems and program management. The

technical courses within the 620 curriculum have been especially designed for non-engineers. Classroom instruction is supplemented by guest lecturer seminars, with discussions of communications topics by military officers and civilian executives from the Naval Telecommunications Command, Defense Communications Agency, National Security Agency and other major communications activities.

After designation as a subspecialist in either Telecommunications Systems Management (XX82P) or Communications Engineering (XX81P), most Naval Aviators return to sea-going billets in squadrons, aboard ships or in staff jobs to maintain warfare designator progressions. Upon rotation to shore duty, they are assigned to billets that make full use of their subspecialty abilities.

Top-rate performance in a subspecialty assignment results in the designation of *proven* subspecialist, as determined by a selection board. Subspecialty development in Command, Control and Communications provides career opportunities for the Naval Aviation officer at the commander and captain levels, after command or in the event that squadron command is not realized. The results of recent commander and captain selection boards demonstrated that subspecialists with Navy-funded graduate degrees enjoyed an advantage over others in selection opportunity.

It may seem like "culture shock" making the transition from cockpit to classroom while obtaining a master's degree in communications, but the extra effort is worth it to attain a qualification that will benefit the officer as well as the Navy for the duration of his career, and possibly beyond.

Entry into the **Communications Engineering** program may be made in any quarter, during October, January, March or July. Typical billets available for XX81P-coded officers are:

Captains:

Navy Satellite Communications Program Coordinator, Chief of Naval Operations (OP-943C), Washington, D.C.

Assistant Program Manager, Communications Systems, Naval Electronic Systems Command, Washington, D.C.

Head, NATO/Joint Allied C2 Branch, Chief of Naval Operations (OP-940D), Washington, D.C.

Joint Data Systems, Deputy Chief

C2 Engineering Division, Defense Communications Agency, Washington, D.C.

Commanders:

Billets at the Defense Communications Agency Headquarters, Arlington, Va., and the Defense Communications Engineering Center, Reston, Va.

Head, Tactical Communications Branch, Chief of Naval Operations (OP-986F), Washington, D.C.

Director, Implementation, Commander Naval Telecommunications Command (COMNAVTELCOM), Washington, D.C.

Electrical Engineer, Joint Tactical Communications Office, Washington, D.C.

Lieutenant Commanders:

Communications Electrical Engineer, Defense Communications Engineering Center, Reston, Va.

Telecommunications Systems classes convene in October. Representative billets for XX82P-coded officers are:

Captains:

Commanding Officer, Naval Communications Area Master Stations (NAV-CAMs) in Norfolk, Va.; Naples, Italy; Honolulu, Hawaii; and Guam.

Division Director, COMNAVTELCOM Headquarters, Washington, D.C.
Branch Head, Naval Communications Division, Chief of Naval Operations, Washington, D.C.

Commanders:

Commanding Officer, Naval Communications Stations and Units, various locations worldwide.

Executive Officer, NAVCAMs or Naval Communications Stations, Norfolk, Naples, Honolulu and Guam.

Staff Officer, Defense Communications Agency, Chief of Naval Operations, COMNAVTELCOM and Fleet Commanders in Chief, Washington, D.C., Norfolk, Honolulu and London.

Afloat billets, large staffs including amphibious groups and numbered fleet commanders.

Lieutenant Commanders:

Communications Officer, NAVCAMs and Communications Stations; afloat on carriers, amphibious command ships and cruiser-destroyer groups worldwide.

Billets at Defense Communications Agency, COMNAVTELCOM and Chief of Naval Operations, Washington, D.C.

Communications billets on Type Commander Staffs, Norfolk, San Diego, Honolulu.

Lieutenants:

Message Center Officer, NAVCAMs, Norfolk, Naples, Honolulu and Guam.

Various afloat communications billets, aboard ships and on staffs. ■

ASW Graduate Education

It's a Good Deal



A Naval Aviator with ASW subspecialty expertise has the advantage of better understanding ASW problems and can use his knowledge in improving complex systems in aircraft such as the P-3C Orion.

Naval Aviators love to fly. That goes without saying. And they want to spend as much time as possible developing their flying skills and establishing reputations in their respective aviation communities. Why, then, should a young aviator, at the beginning of his career, elect to leave the cockpit to attend the Naval Postgraduate School (NPS) in Monterey, Calif., for two years to obtain a master's degree in the antisubmarine warfare (ASW) subspecialty? To answer this question, Lieutenant Commander John Long, ASW Curricular Officer at NPS, has come up with some convincing reasons.

"It's one of the good deals in the Navy," Lt.Cdr. Long says. "Graduate education is becoming more important than ever to upward career progression. The ASW curriculum gives an officer the opportunity to get that education in an area where he has already built a foundation of operational experience. He goes to school full time in beautiful Monterey, increases his warfare expertise, becomes more competitive and gets a free master's degree. That's what I call a good deal."

The ASW curriculum was established at NPS in response to a need in the fleet for increased technical expertise in ASW efforts. The program, which graduated its first class in 1975, educates officers in a variety of dis-

ciplines dealing with how ASW systems function and how they are affected by their environment. Graduates return to the fleet in operational ASW billets ashore and afloat with the goal of enhancing fleet ASW capability.

Jobs are widespread in the field of ASW. There is at least one subspecialty billet in every fleet ASW squadron. Other billets exist on OPNAV staffs and sea-going staffs, in ASW operations centers, ASW project offices in the Naval Material Command and Naval Air Systems Command, and all aircraft carriers have one subspecialty billet for a Naval Flight Officer. More than one-half of approximately 230 ASW subspecialty graduate billets in the Navy are for aviators.

The course of study, which begins in April and October, involves two years of mathematics, physics, acoustics, electrical engineering, oceanography, operations analysis, human factors, computer science and meteorology. During his experience tour, elective sequence and thesis work, the officer can further specialize in any of these areas. The program is *not* a tactical training or equipment-specific course. It *is* a systems engineering approach which provides an officer the engineering fundamentals and physical principles to allow him to best employ *any* ASW weapons system and develop tactics for it.

Graduates of the ASW curriculum

receive a Master of Science in Systems Technology and earn the subspecialty designation XX44P code. Although the curriculum emphasizes operational applications, graduates are prepared to perform in operational, technical or managerial areas and, as their careers progress, they typically qualify as proven subspecialists and their designation code changes to XX44Q.

Continued excellence in operational performance will qualify an officer to fill designated key senior ASW management billets. All graduates possess the operational and technical expertise to meet the Navy's expanding requirements for leadership in the environment of growing sophistication of ships, aircraft and weapons, and the strategic and tactical employment of these systems.

Commander Joe Gerard, Tactical Development and Evaluation Program Coordinator in the office of the Chief of Naval Operations, says the ASW subspecialty is career enhancing because it documents an accomplishment in the field. It also offers an officer the opportunity "to be able to bridge the gap between the people who build systems and those who use them," which is especially meaningful in a command tour or later in a senior staff billet. Lt.Cdr. Long adds, "If you're comparing two people [for command selection] with basically the same credentials, the officer with the subspecialty should certainly have the advantage."

The ASW curriculum is good for the Navy and it's good for the officer because it provides the education necessary to develop ASW experts. And the need for this education is great as there are more billets than graduates, and the number of billets is increasing.

Interested officers should contact their detailers now. There are seats available for this year and next. For additional information, write Lt.Cdr. John Long, ASW Curriculum Officer, Naval Postgraduate School, Monterey, Calif. 93943, or call (408) 646-2112/6/7 or autovon 878-2112/6/7. ■

Lockheed-California Co.

USS Roosevelt

A Shield of Deterrence

As early as March 1898, Theodore Roosevelt, then Assistant Secretary of the Navy, recommended that the Secretary appoint two officers to sit on an interservice board to examine Professor Samuel P. Langley's flying machine and report on the potential for its use in war. That was the beginning of the Navy's official interest in airplanes.

Information for this article was compiled by Roy Grossnick, Naval Aviation Historian.

By Helen Collins

In December 1907, Theodore Roosevelt, America's twenty-sixth president, watched his "Great White Fleet" of U.S. Navy battleships sail out of Hampton Roads on a blustery winter day to begin a voyage that would circumnavigate the globe. It was a commitment to establishing a strong U.S. naval presence around the world.

Almost 77 years later, on October 27, 1984, a great ship bearing his name — the super carrier *Theodore Roosevelt* (CVN-71) — was launched into the same waters. At the launch-



Richard Blakely



Newport News Shipbuilding

Above, Roosevelt attains her full length as new superlift crane lowers 700-ton bow section into place.

Left, barrage of colored balloons adds excitement to the ceremonies.



Godspeed, a 68-foot wooden sailing ship, shares the shipway with Theodore Roosevelt prior to launching. Godspeed is a replica of the ship that brought the first English settlers to Jamestown, Va.

ing ceremony at Newport News Shipbuilding and Drydock Company, Secretary of Defense Caspar Weinberger said, "We here put to sea a mighty ship that will be a shield of deterrence. . .and a ready power for peace."

The October day was midsummer hot and humid and bright with sunshine. Thousands had turned out for the advent of one of the U.S. Navy's most advanced ships. Jugglers, clowns and magicians strolled through the crowds, bands played. There was the pervasive murmuring of many voices. Music was everywhere.

Then, there was the sound of glass being shattered against the bow of the great ship by Mrs. John F. Lehman, Jr., wife of the Secretary of the Navy, followed by the crack of a three-gun salute. A huge American flag rose behind the reviewing platform and thousands of heads turned up into the glare of the sun to follow the flight of four F-14s directly over the flag.

Tugs began to move the Navy's newest aircraft carrier, decorated in red, white and blue bunting, away from the dock and out into the water.

They slowly moved her to another berth where work will begin to prepare her for commissioning in 1986. Overhead, the sky was filled with color as barrage after barrage of multi-colored balloons were released to float upward. It was an occasion for celebration.

USS *Roosevelt*, the fourth *Nimitz*-class, nuclear-powered aircraft carrier, was being launched almost 18 months ahead of schedule, due in large part to computer-aided design and manufacture. Modular construction techniques were used, in addition to a new superlift gantry crane with a 900-ton capacity instead of the previous 300.

The huge crane allowed the shipyard to build and preoutfit subassemblies, some weighing as much as 900 tons. Over the past three years, these units were added to the ship's hull almost weekly and, with early installation of machinery and equipment, some were nearly completed when added to the ship. The carrier attained her full length in June when her 700-ton bow assembly was lifted into place by the supercrane. These innovative techniques in shipbuilding have



Theodore Roosevelt Collection
Harvard College Library

Roosevelt, a man of action, was the first president to go down in a submarine and fly in an airplane.

produced units with precision fit.

The carrier's propulsion plant, consisting of two reactors, will provide 13 years of normal operations, without refueling, at speeds in excess of 30 knots.

From bow to stern, CVN-71 measures 1,092 feet, almost as long as the Empire State Building is tall. From port to starboard the 4½-acre flight deck stretches over 252 feet. And from keel to mast top, her height is the equivalent of a 24-story building. She will carry a 6,000-man crew and about 100 tactical aircraft, including the F/A-18 *Hornet*.

Despite wielding a big stick on several occasions during his presidency, Theodore Roosevelt was also known as a man of peace and was the first American president to win the Nobel Peace Prize. The rationale behind the big stick was, of course, simple. With a strong fleet, he could speak softly and work wonders without resorting to force. With a 93,000-ton combat load displacement, USS *Roosevelt* will represent one of the biggest sticks in the country's defense arsenal. ■

Reserve Wing Goes in Toto

By Lieutenant Commander Steve Martin, VF-202



F-4S Phantom of VF-202 launches from Eisenhower.

It was a special event, since the last time it happened was six years ago — the old timers were somewhat vague about the date. The event was the embarkation of Carrier Air Wing Reserve Twenty (CVWR-20) aboard an active duty aircraft carrier for carrier qualifications and cyclic operations. Since the primary mission of the reserve naval air arm is to be ready to go to sea, aviators in the Naval Air Reserve must qualify in landing aboard an aircraft carrier each year. So, what was so different about this year's evolution?

The difference was that the *whole* reserve air wing — all nine squadrons — went to sea as a unit, and did much more than just practice and qualify at carrier landings. This is not usually possible because the Navy's operational carriers are for the most part too heavily tasked to allow for a 10-day hole in their schedule just for the reserves.

But occasionally it happens. *Eisenhower* (CVN-69) was open for 10 days last June and CVWR-20 made the most of this golden opportunity. The reserve wing's seasoned officer and enlisted personnel began the same evolutions they had learned in years past when Yankee Station and Vietnam were standard stops for the aircraft carrier air wing team. Cruise boxes full of test equipment and books choked

the carrier pier at Norfolk, Va.; the ship filled to capacity with people, equipment and luggage; and the ship's company coped with a strange air wing which was replacing their own wing for two weeks. Months of planning and preparation reached fruition as *Eisenhower* got underway on June 26, 1984, with CVWR-20 aboard.

The first days at sea were spent requalifying the air wing, principally the fighters from VFs 201 and 202. For this evolution, each pilot was required to land 12 times on the carrier, arresting 10 times.

On completing carquals, the air wing began five days of practice in carrier air wing tactics — tanking, approach (Marshall) patterns, departure procedures and other familiar standards. Many of the air wing personnel quickly began to feel that they had never left the active Navy as they settled into the routines they had learned during earlier months and years at sea.

However, there were also new tactics to be learned and practiced while aboard *Eisenhower*. Cruise missile defense, open ocean tactics and battle group operations were among the current doctrines drilled into CVWR-20 personnel during an all too short (or too long, depending on whom you asked) stay at sea.

Adding to the complicated task of working with an air wing not her own, *Eisenhower* opened her gangplanks to male dependents and relatives of both the ship's company and CVWR-20 for a "tiger cruise." During the days at sea, family members and guests of all ages were treated to a firsthand look at life aboard a powerful aircraft carrier.

The success of the exercise was unquestionable: 660 arrested landings, 800-plus flight hours and seven days of invaluable refresher training at sea — all with an unblemished safety record. Even though the time at sea was short, all the elements of a full-blown cruise were there: a visit to the "foreign port" of Norfolk (since all but two squadrons came from other locations), embarkation, carrier qualifications, cyclic operations, shipboard food, noise, movies at sea, late nights with midrats, drills, the flyoff and the return to port.

Despite the complexities attendant on such a cruise, *Ike's* then commanding officer, Commodore Edward W. Clexton, found it "an absolute treat." Captain Morris Kemple, commander of CVWR-20, said, "There is no substitute for integrated air wing operations aboard ship. Impressive statistics verify the dedicated and totally professional efforts of each member of the wing."

Taking a group of diverse air wing squadrons and turning it into a team is a task requiring planning, proximity and time. CVWR-20 did not have the luxury of time. However, after a few days at sea, it became apparent that because of the high level of experience of the air wing's aircrewmembers and maintenance personnel, the team had come together much more quickly than was expected. In addition, *Eisenhower's* crew was up on step after just returning from a deployment.

Commander Ed Downing, VF-202's commanding officer, summed it up at squadron quarters, "This has been one of the best detachments I can remember. We've reached every goal that we established, most notably in maintaining an unblemished safety record. Your experience and hard work have brought the air wing/squadron/ship team to a proficiency level normally achieved only after several weeks of at-sea operations. Well done." ■

STATE OF THE ART

Drug-Detecting Orion

The first Lockheed P-3 *Orion* modified with an infrared detection system and APG-63 radar to track aircraft and ships suspected of drug smuggling in coastal waters and across land borders has been delivered to the U.S. Navy for test and evaluation. Primarily used for weapon control on aircraft such as the F-15, the APG-63 has been modified for use on the P-3 to simultaneously scan and track suspect aircraft. The P-3 also houses a multipurpose radio for communication with the U.S. Coast Guard, Customs Service and civilian law enforcement agencies. After completion of functional and operational tests, the U.S. Customs Service will fly the P-3 out of New Orleans to patrol the Gulf of Mexico, Caribbean Sea and U.S.-Mexico border.

Reconnaissance Hornet

An F/A-18 *Hornet*, fitted with reconnaissance equipment installed in the forward fuselage near the nose of the plane, made its maiden flight at McDonnell Douglas in St. Louis, Mo., last August. The reconnaissance equipment is packaged together as an interchangeable unit called a sensor pallet — developed at NADC Warminster, Pa. — which provides two sensor stations capable of using a mix of current U.S. Navy and Marine Corps reconnaissance equipment. There will be further testing at the Naval Air Test Center, Patuxent River, Md.

Space Launch Vehicle

LTV's space launch vehicle got its start 25 years ago when a contract was awarded by NASA to LTV (then Chance Vought) to develop vehicle structures and integrate four solid-rocket motors into a 70-foot, 35,000-pound launch vehicle designed for a variety of space tasks including orbital high-altitude probe and high-speed reentry. The result was an economical vehicle which was to become a workhorse in the space programs.

Scout, standing 75 feet tall and weighing about 47,000 pounds, was the first solid-propellant vehicle to place a payload in orbit. Since its first launch, it has had an operational success rate of 95 percent and its capability has grown dramatically. Originally able to place a 131-pound payload in a nominal 300-mile orbit, *Scout* today can loft 450 pounds into that orbit.

MH-53E in Minesweeping Tests



U.S. Navy/Sikorsky MH-53E airborne mine countermeasures helicopter prototype tows a magnetic-influence hydrofoil vehicle during minesweeping helicopter testing off Panama City, Fla. The MH-53E is a variant of the CH-53E Super Stallion.

S-3A and S-3B Vikings

Lockheed-California Co.



The U.S. Navy's S-3A *Vikings* may soon be able to perform in-flight refueling of carrier-based aircraft, as well as their assigned mission of submarine detection, classification, localization and attack. Unlike the previously modified KS-3A prototype tanker version, this model will feature a "buddy store" tank assembly mounted on the left wing. The tank will intake fuel from other tanks on the aircraft and pass it to probe-equipped receiver aircraft via a hose and drogue. A separate tank mounted on the S-3A's right wing does not have the fuel transfer capability. Normal mission duties could still be performed during fuel transfer.

Lockheed's new S-3B *Viking* features improved avionics and weapons systems. These include a new acoustic processor, expanded electronic support measure coverage, increased radar processing, a new sonobuoy receiver system, electronic countermeasures, and the *Harpoon* missile. The S-3B shown in the photo is the first modified version, which will be joined by a second before being delivered to the Navy for technical evaluation testing in October 1985. Eventually, as many as 160 S-3As could be updated to the S-3B configuration.

JVX Program

Bell-Boeing, prime contractor for the Joint Services Advanced Vertical Lift Aircraft (JVX) program, has awarded Grumman Aerospace the first major subcontract of the program — for the first phase of design, development, production and testing of empennage tail sections for the tilt rotor aircraft. The JVX aircraft will utilize substantial amounts of high-strength composite materials such as graphite and Kevlar, and these new-technology fiber materials will be used in nearly all of the tail section. The JVX empennage is a complex structure with two vertical stabilizer/rudder assemblies connected by a central horizontal stabilizer/elevator assembly. The tail section will have integral antennas, de-icer boots, and collision and formation lights. It will be constructed with several internal ribs and spars, and will be connected to the fuselage by a splice interface frame.

The JVX is a multimission tilt rotor aircraft that will be flown by components of all branches of the U.S. armed forces. It offers the vertical-lift versatility of a helicopter, and the speed and efficiency of a fixed-wing turboprop airplane.

Awards

Ltjg. Mark John may be the most junior NFO mission commander in VAW-115, but he is already number one in his field. In competition with the best NFOs in the Pacific Fleet, he was chosen as Naval Air Pacific NFO Tailhooker of the year at the Tailhook Convention in Las Vegas last September.

Whiting Field's HT-18 received the FY 83 CNATra Training Effectiveness Award for helicopters. The squadron completed training for 427 Naval Aviators and flew indoctrination training flights for more than 1,450 Naval Academy and NROTC midshipmen. In addition, it also completed 360 carrier qualifications, including some 1,800 carrier landings — more than any other Training Command squadron.

Records

The following units recorded safe flying time: VT-23, 100,000 hours; VXN-8, 17 years and 70,000 hours; VR-24 Det Rota, 13 years; HS-74, 44,000 hours; VAW-115, 12 years and 22,000 hours; Naval Air Development Center, 10 years and 28,000 hours; VA-52, 8 years and 39,352 hours; VAO-133, 6 years and 10,000 hours; VA-97, 4.5 years and 20,000 hours; VF-151, 4 years and 15,000 hours; HML-367, 3.5 years and 20,000 hours; VT-19, 2 years and 19,000 hours; and VF-24, 2 years and 7,500 hours.

The following individuals marked personal career milestones:

HML-367: Majors Ernest Riggins and David Rogers each reached 3,000 accident-free flight hours while assigned to the Futenma, Japan-based squadron, flying the UH-1 *Huey* in support of ground units and personnel transport.

VF-213: Lt.Cdr. Brian Flannery received his F-14 *Tomcat* 1,000-hour award from Grumman Aerospace Corporation.

Honing the Edge

Some 2,500 reserve Marines and sailors from 20 states participated in *Phiblex West Coast 1-84* last summer. The two-week amphibious landing exercise held at Camp Pendleton, Calif., was designed to train the reservists as an air/ground team.



Sgt. Rick Houle

Viewed through the window of a sister craft, an HMH-772 helicopter loaded with reserve Marines touches down on a dusty landing zone during the exercise.



VXN-8's Project Birdseye performs ice reconnaissance missions to aid in environmental predictions covering the Arctic Basin and marginal ice zones. Its mission requires this RP-3A Orion to operate north of the Arctic Circle year-round in varying weather conditions.

Run-of-the-mill reserve centers are a thing of the past for some New York City naval reservists. They're going to be drilling aboard an aircraft carrier, the former USS *Intrepid*, now docked in the Hudson River as the privately owned Sea-Air-Space Museum. Naval Reserve Center, Manhattan was officially accepted by the Navy last September 30. The center will eventually include some 20,000 square feet, with five classrooms, a sick bay, drill deck, several support rooms and sleeping areas. About 200 reservists are expected to drill aboard *Intrepid*.

Et cetera

Some sailors jokingly say that the fate of any decommissioned ship is a one-way trip to the razor blade factory, and old planes supposedly end up somewhere in the desert. Not so for one of VFP-306's RF-8G *Crusaders*. When the squadron was disestablished last fall at NAF Washington, D.C., the plane was slated for display at the Naval Aviation Museum, Pensacola, Fla. During its 25-year career, BuNo 146898 accumulated 7,150 flight hours, which is believed to be more than any other F-8 in the Navy.



VFP-306's C.O. Cdr. Gary W. Riese flew the squadron's last *Crusader*, side number 601, to its new home in Pensacola.

While on a 10-day port visit in the Mediterranean last fall, *America* (CV-66) was honored with very special guests. Princess Caroline of Monaco and her husband took a tour of the 85,000-ton, Norfolk-based carrier at the invitation of RAdm. Joseph S. Donnell III, Commander Cruiser-Destroyer Group 12 and Commander Battle Force Sixth Fleet. The visitors marveled at the complexity of the "giant of the sea" and were very impressed with the F-14 *Tomcat*.

A VA-105 pilot sits in the cockpit of his A-7E *Corsair II* while flight line personnel conduct one last walk-around of the aircraft prior to launch. The inspection reveals an unstable fuselage ordnance station, and an aviation ordnance technician is called in. Moments later, a potentially dangerous situation is taken care of and the pilot is given the signal to proceed. Working as a team, VA-105's ordnance shop ensures that each plane launched carries only quality ordnance on systems that are properly functioning.

Sgt. Anita V. Mayorga



AO1 Juan Terry loads inert ordnance onto an A-7E *Corsair II* of VA-105 deployed to NAF Kadena, Japan.

Change of Command

CVW-5: Cdr. Timothy R. Beard relieved Capt. Bob Canepa.

HMM-361: Lt.Col. David A. Jones relieved Lt.Col. James Schaefer.

HS-8: Cdr. Randall O. Abshier relieved Cdr. Robert A. Schottle.

Independence: Capt. Kenneth Carlson relieved Capt. William A. Dougherty, Jr.

ResPatWingPac: Capt. Robert Fletcher relieved Capt. J. P. McElhenry.

VA-66: Cdr. Robert J. Kelsey relieved Cdr. Robert W. Nordman.

VA-83: Cdr. Stanley F. Bloyer relieved Cdr. William E. Franson.

VA-93: Cdr. Harry W. Hartsell relieved Cdr. Dennis W. Irelan.

VAW-122: Cdr. Joseph W. Heineman relieved Cdr. Charles M. Kraft, Jr.

VAW-126: Cdr. Daniel P. Whalen relieved Cdr. Robert L. Johnson, Jr.

VF-21: Cdr. Greg V. Southgate relieved Cdr. R. P. Boenninghausen.

VMA-211: Lt.Col. Timothy Dineen relieved Lt.Col. Jeffrey McAnally.

VP-48: Cdr. Dan Speed relieved Cdr. J. S. Falls.

VP-65: Cdr. David L. Hargis relieved Capt. Glenn S. Lowes.

VP-67: Cdr. Douglas Siebert relieved Cdr. David John.

VP-92: Cdr. Kenneth C. Belisle relieved Cdr. Tom A. Trautwein.

VQ-2: Cdr. Ellis A. Caldwell relieved Cdr. John J. Draper.

VQ-4: Cdr. Robert V. Downey relieved Capt. Paul R. Fletcher.

VR-57: Cdr. Robert A. Young relieved Capt. Read B. Meclarey.

VT-86: Lt.Col. Walter F. Megonigal, Jr., relieved Cdr. Roy A. Morris, Jr.

VXN-8: Cdr. William F. Lorenz III relieved Capt. William J. Zuberbuhler.

Correction to November-December 1984:

NAMTraGru: Capt. Bernard J. Loomam relieved Capt. William C. Purcell.

PH2 Carl B. Sittler



The above insignia were recently approved by the Insignia Board.

Information Needed

I am writing an article on my uncle, Ens. Wendell Schurse Harrington, who was killed in action over Okinawa on March 28, 1945, while attached to Photo Recon Unit #3, Air Group 17, flying off USS *Hornet* (CV-12). He was participating in a bombing and strafing run and was photographing beach installations when his F6F-5P *Hellcat* collided with an F6F-5E piloted by Cdr. C. L. Crommelin. Both planes went into the sea off Chinen Saki on the southwest coast of Okinawa. There were no survivors.

Ten years later in August 1955, after an Okinawan fisherman snagged his nets on the wreckage, my uncle's plane, serial number 71768, was recovered. His remains, remarkably preserved, were sent home for burial.

I would like to hear from any of *Naval Aviation News'* readers who can give me any information about Ens. Harrington during his naval career, or about Cdr. Crommelin — and also any information about the collision.

Harold E. Wilson, Jr.
4092 Virginia Circle East
Columbus, OH 43213

VH-3

I need search and rescue operations information from VH-3 pilots and crewmen, 1944-1946, on any and all of their flights. This is for an in-depth squadron history. If you can help, please contact me at (817) 649-2531.

LeRoy Way, USN (Ret.)
2800 Roberts Circle
Arlington, TX 76010

PH1 Ron Beno



NAF Washington

I am writing about your reference in the November-December issue to a blimp being demonstrated at Andrews Air Force Base this past spring. The location was actually Naval Air Facility, Washington which is on Andrews AFB. Civilian and military media have mistakenly referred to Andrews as the location of a number of happenings. We seem to be a somewhat obscure installation and it's a hard fight to get ourselves "on the map."

JO3 Robert Scott
Public Affairs Office
NAF Washington, DC 20390

Ed's note: We promise to be more careful in the future.

Aircraft Designation Sheets

Thank you for the naval aircraft reference posters you sent us. We will distribute them to our Scouts at their annual dinner. Once again, from all of our boys, thank you.

Frank J. Caputo, Asst. Cubmaster
Cub Scout Pack No. 3803
6949 West Addison Street
Chicago, IL 60634

Correction

We regret that in our November-December 1984 issue, we did not give proper credits to the photo on page 1 of the F-4J with the new bomb fin, and to the photo on page 11 of the P-3 *Orion* carrying *Harpoon* missiles. They should have been:

Rusty Lowry



VS-21

I would like to hear from anyone who served in Air Anti-Submarine Squadron 21 (VS-21) from 1957 through 1959 and who also made the 1958 WestPac cruise aboard *Philippine Sea* (CVS-47). I am especially interested in learning whether any reunion is scheduled.

Alfred Novacek
Dwight, NB 68635

Patches Wanted

I'm an avid collector of all types of USN, USMC, USCG and USAF aviation unit patches. If anyone has any patches they can send me, I would be most appreciative.

Johnny Signor
3418 Carolyn Lane
Cocoa, FL 32926

Reunions, etc.

The EA-6B *Prowler* community is hosting its **Twelfth Annual Tactical EW Symposium** at NAS Whidbey Island, Oak Harbor, Wash., February 19-21, 1985. Contact Lt.Cdr. Mike Clay or Lt.Cdr. Ernie Harris, autovon 820-2093 or (206) 257-2093.

First reunion of USS *Hermitage* (LSD-34) ship's personnel from 1956 on is planned. For information contact C. J. DeHart, 1459 Robin Rd., Waterloo, IA 50701, (319) 291-6435.

Third annual Martin PBM Mariners' reunion, PBM pilots and aircrewmen, to be held during ANA Symposium, April 25, 1985, Hyatt Regency Crystal City, Washington, D.C. Contact Dick Gingrich, 468 E. Baltimore, Greencastle, PA 17225, (717) 597-8250, or Norm Polski, 8203 Autrim Lane, Baltimore, MD 21208, (301) 922-2007.

STAG ONE SATFOR reunion, March 5-13, 1985, Hyatt Orlando Hotel, Orlando, Fla. Contact J. J. Hall, P.O. Box 5721, Titusville, FL 32780, or F. R. Newman, 3967 N. Harbor City Blvd., Melbourne, FL 32935.

Naval Helicopter Association annual symposium and awards banquet will be held in Virginia Beach, Va., May 1-5, 1985. For information, contact Lt.Cdr. Ronald Rygg, HSL-30, Norfolk, Va., autovon 564-1413/1414.

PROFESSIONAL READING

By Lieutenant Commander Peter Mersky, USNR-R

Lundstrom, John B. *The First Team: Pacific Naval Air Combat from Pearl Harbor to Midway*. U.S. Naval Institute, Annapolis, Md. 21402. 1984. 576 pp. Illustrated. Indexed. \$29.95.

This impressive, beautifully researched volume is first-class. It is undoubtedly destined to become the reference on this period of WW II. Heavily illustrated with never-before-printed photos, *The First Team* addresses a relatively forgotten period — except for specifics like Coral Sea and Midway — in a wealth of detail. Simple, easy-to-read-and-understand diagrams of battles and individual engagements complement the text. Tables of organization showing pilots assigned to particular squadrons, American and Japanese, give a totally new dimension to familiar areas.

This book is full of little-known details and inside stories. Photos, detailed appendices on markings, bureau numbers of embarked aircraft, tactics and a comprehensive index add icing to the cake. Read *The First Team*. You won't be disappointed.

Miller, David. *An Illustrated Guide to Modern Sub Hunters*. Arco Publishing, Inc., 219 Park Ave. S., New York, N.Y. 10003. 1984. 160 pp. Illustrated. \$9.95.

Perhaps one of the more unusual titles in the Arco series of reference guides, this new book includes all types of antisubmarine warfare vehicles, surface ships, submarines and aircraft. Most of the photography is in color and there are some fine shots of various submarines.

The section on aircraft represents approximately one-third of the total book, including a small section on ASW weapons systems. The introduction, which gives a small treatise on the state of international ASW efforts, is comprehensive and complemented with photographs, charts and maps. Squadron training officers have a complete monthly training lecture laid out right here.

Humble, Richard. *United States Fleet Carriers of World War II in Action*. Blandford Press, U.K. 1984. 160 pp. Illustrated. Indexed. \$17.95.

This book is a compendium of excellent capsule accounts of the

various sea campaigns and battles involving aircraft carriers, and is a useful reference work. The emphasis is decidedly on U.S. carriers, but there is a well-written introduction on the initial development of the aircraft carrier by the British in WW I, post-war development by the U.S., Britain and Japan, and the status of the carrier forces of the major powers immediately prior to WW II. Japanese development is especially well chronicled.

The effect of pre-war disarmament conferences and treaties is discussed and, as the text enters WW II, a summation of the situation vis-à-vis the carrier and its aircraft set the stage for the main thrust of the book. Once in the WW II period, there are good sections detailing the Coral Sea and Midway battles and the subsequent march toward Japan.

The 1920s and 1930s photos are the most interesting, especially to American readers.

Gunston, Bill. *An Illustrated Guide to Spy Planes and Electronic Warfare Aircraft*. Arco Publishing, Inc., 219 Park Ave. S., New York, N.Y. 10003. 1983. 160 pp. Illustrated. \$9.95.

Another in the now-familiar Arco series, this volume deals with that unusual and rarely chronicled community of aircraft commonly referred to as "spy planes," mainly intelligence gatherers of one form or another. This new book relies on good color photography, with occasional drawings and a good comprehensive text. The book's best sections are those which cover British aircraft, since the series originates from Great Britain. Other countries' aircraft are also well documented, including the U.S. EF-111 and U-2 series. The expansive Boeing C-135 family is also detailed.

Soviet aircraft are included, such as the MiG-25 and IL-18, and the Bear family. There is also an interesting section on remotely piloted vehicles.

As with most of this comprehensive series, this volume represents a good value and is a good reference source for information and photos.

awards

Marine Corps Aviation Awards

The Marine Corps Aviation Association presented the following awards for 1984 at its 13th annual convention last October in Washington, D.C.:

- Alfred A. Cunningham Award, Aviator of the Year: Col. Lawrence R. Medlin
- Robert G. Robinson Award, NFO of the Year: Lt.Col. James E. French
- Aviation Ground Officer of the Year: Capt. Stephen C. Lambeth
- Aviation Electronic Technician of the Year: GySgt. Edward G. Robinson
- Air Controller of the Year: Maj. William L. Groves
- Bud Baker Trophy, V/STOL Enhancement: Lt.Col. Michael D. Ryan
- Special Category Award: Maj. Howard B. Eddins III, MACG-28
- Fixed Wing Aircrewman of the Year: CWO3 Timmy A. Bahr
- Helicopter Aircrewman of the Year: GySgt. Kelly M. Neidigh
- Plane Captain of the Year: Sgt. Jesus L. Zarate
- James Maguire Award, Enlisted Aviation Safety: SSgt. Harry A. Hanish
- James E. Nicholson, Enlisted Leadership: MSgt. James W. Varney
- CMC Aviation Efficiency Trophy: H&MS-12
- Robert M. Hanson Award, Fighter Squadron of the Year: VMFA-112
- Helicopter Squadron of the Year: HMM-261

Lawson H. M. Sanderson Award, Attack Squadron of the Year: VMA-211

V/STOL Squadron of the Year: VMA-231

Goldthwaite Award

The 1984 Vice Admiral Robert Goldthwaite Award for Training Excellence has been presented to Training Air Wing One's intermediate strike training squadron VT-19, as the top Training Command squadron. The award, sponsored by the Columbus Aircraft Division of North American Rockwell, is named in honor of VAdm. Goldthwaite who contributed significantly to the Naval Air Training Command during his 45-year career. The award recognizes outstanding achievement of units engaged in the flight training of student Naval Aviators and NFOs.

Lockheed-California Awards

Lockheed-California sponsors annual awards that are presented to the naval supply community. The 1983 winners of the CNO Aviation Supply Excellence Awards for P-3 supporting supply activities are NAS Bermuda, Atlantic Fleet; NAS Cubi Point, Pacific Fleet; and NAF Detroit, Reserve Force. Winners of the 1983 Supply Excellence awards for S-3 Air Anti-Submarine Warfare are USS *Dwight D. Eisenhower*, Atlantic Fleet; and USS *Enterprise*, Pacific Fleet.