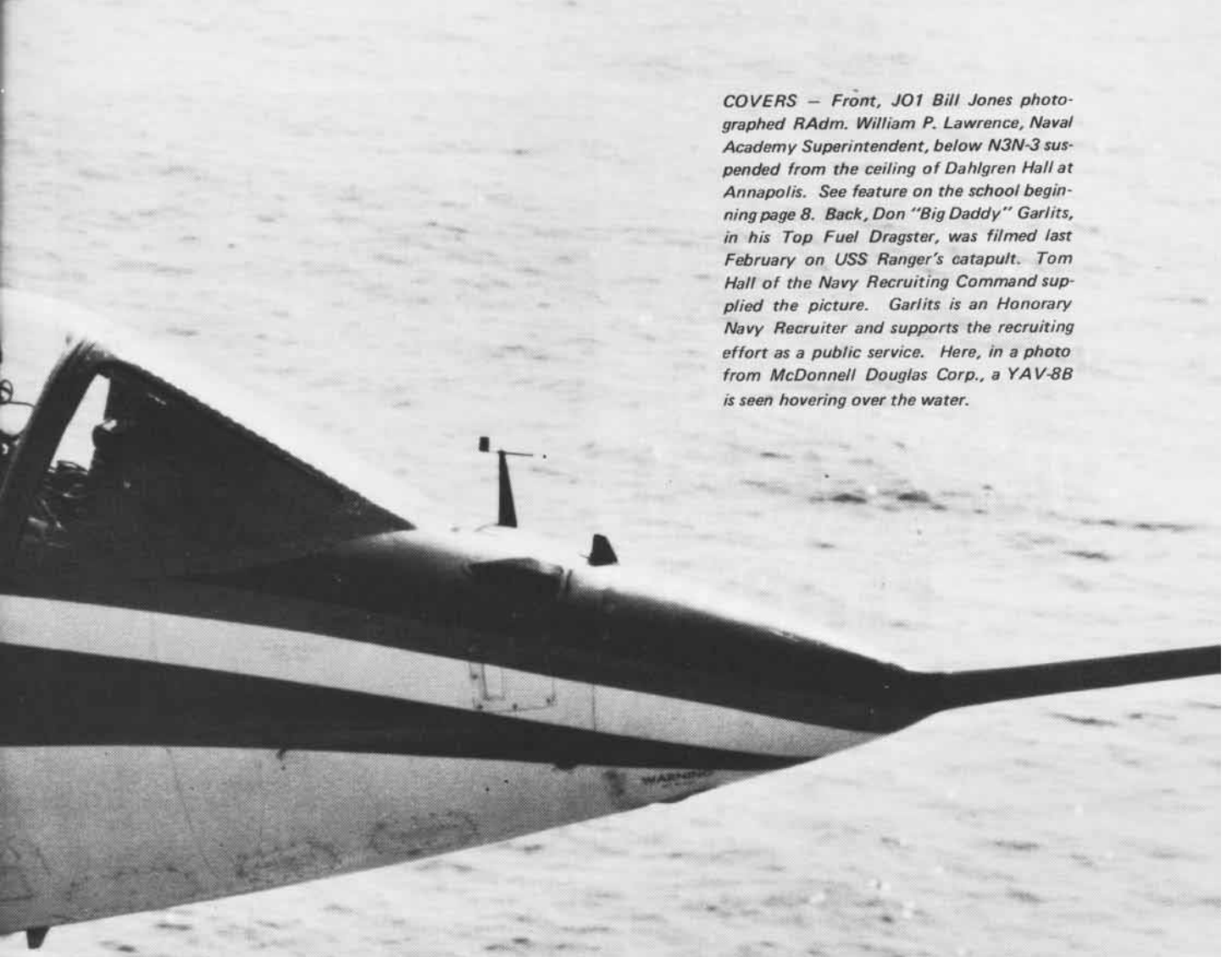
naval aviation news

MAY 1980


AV-8B

COVERS — Front, JO1 Bill Jones photographed RAdm. William P. Lawrence, Naval Academy Superintendent, below N3N-3 suspended from the ceiling of Dahlgren Hall at Annapolis. See feature on the school beginning page 8. Back, Don "Big Daddy" Garlits, in his Top Fuel Dragster, was filmed last February on USS Ranger's catapult. Tom Hall of the Navy Recruiting Command supplied the picture. Garlits is an Honorary Navy Recruiter and supports the recruiting effort as a public service. Here, in a photo from McDonnell Douglas Corp., a YAV-8B is seen hovering over the water.



naval aviation news

SIXTY-SECOND YEAR OF PUBLICATION

Vice Admiral W. L. McDonald
Deputy Chief of Naval Operations (Air Warfare)

Vice Admiral E. R. Seymour
Commander, Naval Air Systems Command

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VICE ADMIRAL PETERSEN RETIRES

Vice Admiral F. S. Petersen's retirement on April 30, 1980, marked the end of 36 years of military service, the last three and one-half years as Commander, Naval Air Systems Command.

After graduation from the Naval Academy in 1944, he saw WW II action aboard the destroyer *Caperton* in the Marianas, Western Carolines, at Leyte, Luzon and Okinawa, and during Third Fleet strikes against Japan. He earned his wings in 1947.

After duty with VF-20A (redesignated VF-192 in 1948), he returned to Annapolis where he received a B.S. in aeronautical engineering in 1952 from the Postgraduate School. His M.S. in engineering was earned at Princeton University in 1953.

For the next three years, Petersen served with VF-51 and then went to the Naval Air Test Center at Patuxent River., Md., in 1956. There he qualified and served as a flight instructor in test pilot training.

His next assignment took him to NASA's Flight Research Center at Edwards AFB, Calif., in 1958, as the Navy's X-15 research pilot. This was the North American experimental rocket plane designed to carry man for the first time to an altitude of about 75 miles.

He was assigned prime areas of responsibility in the program to obtain information on aerodynamic heating, and stability and control. Much information for the design and operation of future aerospace vehicles was derived from this work on stability and control. Petersen participated as a volunteer in many other programs at the Flight Research Center, expedited the X-15 flight program with supporting services, and frequently was ground controller for experimental flights.

For his service in the X-15 program, Petersen was awarded NASA's Distinguished Service Medal and the Distinguished Flying Cross. He was also joint recipient of the Collier Trophy in 1962, one of the highest accolades in aviation.

The following year Petersen began a year's study at the Atomic Energy Commission in Washington, D.C., and was qualified to operate naval nuclear propulsion plants. This was followed by his assignment as executive officer of the nuclear-powered aircraft carrier *Enterprise* until 1966. He was awarded the Bronze Star Medal for his service in combat deployment with the Seventh Fleet.

During the next few years, Petersen had a variety of assignments which took him to Washington, D.C., as Director of Naval Program Planning in the Office of CNO, to West-Pac as commanding officer of the attack transport USS *Bexar* off Vietnam, and back to the Atomic Energy Commission. He returned to USS *Enterprise* in 1969 and served as her commanding officer until 1972 when he reported as Assistant Director for Strategic and Support Systems Test

and Evaluation in the Office of the Secretary of Defense. For his contributions to test and evaluation, he was awarded the Navy Distinguished Service Medal.

After duty as Commander Attack Carrier Striking Force, Sixth Fleet and Commander Carrier Group Two, Petersen was ordered to Washington, D.C., where he served in turn as Vice Chief of Naval Material, Deputy Chief of Naval Operations (Air Warfare) and finally as Commander, Naval Air Systems Command.

In addition to the above decorations, VAdm. Petersen has numerous others that reflect the many facets of his naval career.

In a speech to a group in Boston, Mass., shortly before he retired, ending an illustrious and eventful career, Admiral Petersen said, "Naval Aviation, which is my trade, has never been more impressive in peacetime — better in terms of quality, the kinds of equipment, sophistication, and the fighting confidence that's ever existed.

"What's out there in the Atlantic and Pacific, the Mediterranean and Indian Ocean is a heck of a fine Navy — manned by outstanding men and women who understand who the adversary is, know what their challenge is, and are prepared to step up to the challenge whatever the consequences. You can take a great deal of satisfaction in that and be very proud of them. I can assure you, I do."

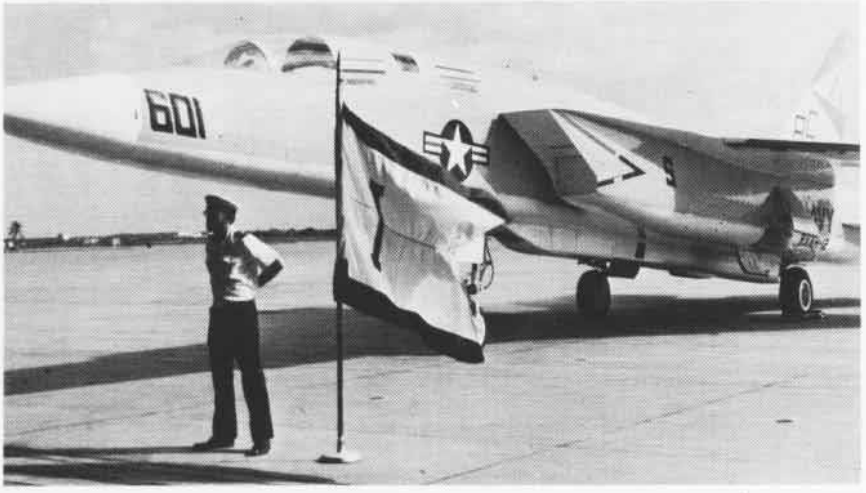
Petersen, as a lieutenant commander, is flanked by other X-15 pilots. Left to right, Capt. Robert A. Rushworth, USAF, Jack McKay, NASA, Petersen, Joe Walker and Neil Armstrong, both of NASA, and Maj. Robert M. White, USAF.

DID YOU KNOW?

Reconnaissance Wing Disestablished

Key West's Reconnaissance Attack Wing One was disestablished January 7, 1980, bringing to an end the only naval warfare community dedicated to tactical reconnaissance. The phase-out was part of a long-range plan to make the wing's demise coincide with the end of the *Vigilante* service life. An interim reconnaissance capability will serve carrier aviation until a follow-on to the RA-5C is developed.

The wing was commissioned in 1951 as Heavy Attack Wing One, flying the P2V-3C *Neptune* and, later, the AJ *Savage*. Its primary mission for 13 years was



to equip and train its squadrons for long-range, all-weather delivery of nuclear or conventional weapons. The transition to the *Vigilante* marked the shift in emphasis from heavy attack to the reconnaissance mission.

The wing consisted of nine fleet squadrons, one training squadron and a support command, the Naval Intelligence Processing System Training Facility. It provided tactical reconnaissance for Navy carrier deployments around the world from 1964 until 1979, and demonstrated the importance of naval tactical reconnaissance in modern sea power.

F/A-18 Updates

The F/A-18 development program achieved two milestones at the Naval Air Test Center, Patuxent River, Md., in December 1979. *Hornet* No. 5 was on target with its first live missile shoot well within the destruction range of its radio-controlled target. McDonnell Douglas test pilot Bill Lowe was at the controls for the successful shoot over the Atlantic of a *Sidewinder*.

TF/A-18A No. 1, the first two-seat version, arrived at NATC in December, flown by McDonnell test pilot Denny Behm. It is the first of two to take part in a full-scale development program. Besides serving as trainers, the two-seat *Hornets* are fully combat-capable. In fleet service the aircraft can be switched from training duties to combat strike or fighter missions.

F/A-18 program manager, RAdm. Glen W. Lenox, accepted delivery of the *Hornet's* first production engine ahead of schedule in early January, at the General Electric facility in Lynn, Mass. The 16,000-pound-thrust-class engine is believed to be the most advanced power plant of its type now in production, offering improved performance and reliability with lower maintenance requirements.

Shielded Hangar

Just off Tate Road at the Naval Air Test Center, Patuxent River, Md., sits an old hangar with a curving roof, shaped like an airfoil, its interior lined with two layers of copper screening. It is a shielded hangar, a unique testing facility, called the electronic warfare integrated systems test laboratory (EWISTL). Its mission is to test and evaluate the Navy's airborne electronic warfare (EW) equipment – radar, jammers, transmitters, receivers and other EW devices. The lab is staffed by two engineers, two technicians, two computer programmers and one mechanic.

The tactical electronic warfare environment simulator (TEWES) is the heart of EWISTL. The simulator is programmed with an exercise or scenario to test an aircraft's EW equipment. The plane is rolled into the shielded hangar for the test. The copper screening shields the aircraft from electronic interference coming from outside. The plane is hooked up to the input lines from the computer, which feeds the test information into the aircraft's EW equipment. TEWES simulates the radar environment in which the plane would be flying. The lab reduces flight testing time by using the computer to do the testing in a controlled environment.

A new improvement which is being constructed is an anechoic (sound suppression) test cell located in the hangar's nose bay. This will be lined with four-foot thick foam rubber tiles with long protusions, like cones. The idea is to eliminate the echo from electronic emissions. When completed in 1981, the anechoic test cell will enable engineers to bombard test aircraft externally with radar and other radio waves to reproduce on the ground the same electronic environment that an aircraft would encounter during a real flight.

Ready Missile Test Facility

Dr. James Probus, Director of Navy Laboratories, who gave the Navy's approval for construction of the Ready Missile Test Facility at the Pacific Missile Test Center seven years ago, was present for its formal dedication recently. The facility at Point Mugu will permit engineers to test entire missile systems under a wide variety of simulated flight environmental conditions.

The head of the production acceptance test and evaluation division, Jim Perkins, said that the facility will allow the ground test of missile systems at temperatures ranging from minus 40 degrees to plus 160 degrees Fahrenheit. At the same time, vibration and stress loads which the missile would experience during aerial combat maneuvering can be simulated.

The Ready Missile Test Facility consists of seven ordnance test cells, four control buildings, a missile assembly building, and an equipment storage building. The test cells and control rooms are massive structures, each containing more than 300 tons of concrete, steel and earth in its construction. "These structures are capable of withstanding an accidental explosion of hundreds of pounds of TNT while providing complete safety to the personnel working in adjacent control rooms," said Perkins.

Missiles will be subjected to conditions that closely simulate the flight environment. Test results have shown a good correlation with fleet experience. Most of the vibrational damage to a missile is caused by turbulence of the aerodynamic boundary layer, acting on the surface of the missile. The facility uses a reverberant acoustic chamber, similar to the interior of a large stereo speaker, into which sound energy is introduced, striking the suspended missile. This duplicates the in-flight vibration which the missile would be subjected to.

New Commander

Vice Admiral E. R. Seymour is the new commander of the Naval Air Systems Command, replacing Vice Admiral F. S. Petersen who retired on April 30.

grampaw pettibone

Melee

Ten F8U-2 *Crusaders* were scheduled to return to their carrier from a Far East naval air station. They had already started engines when the word was passed to stand by for a later overhead time. They shut down and waited. Late in the afternoon, all air group planes ashore were ordered to proceed to another station further south and there await overhead times for the next day.

They refiled IFR and departed by divisions for their new destination. No problems were anticipated, since the reported destination weather was light obscuration with 5,000 broken, 8,000 overcast and two and one-half miles in light rain and haze, with little change forecast.

While en route to their new destination, the flight leader of one four-plane division had a TACAN failure and passed the lead to the leader of the second section, taking the No. 4 position himself.

Arriving overhead at 21,000 feet, they were cleared for a division penetration with latest reported weather as light obscuration, 2,800 broken, 7,000 overcast and two miles in light rain and fog.

The overcast was entered at 19,000 in a finger-four formation under GCA control. At 3,000 feet, still descending, they dirtied up. When they were at 2,500 feet, GCA directed them to level off. They were given a climbout heading and told to report on top. The field was temporarily closed, because a preceding aircraft had missed the MOREST gear and engaged the chain gear, and had fouled the runway.

During the climbout, the substitute flight leader's compass was obviously grossly in error, so another

lead change was made as they orbited in the clear, and the second penetration commenced by sections.

The first section made it this time, the No. 2 plane picking up the MOREST wire after a section touchdown. They reported the weather to Approach Control as 800 overcast and one mile in rain and fog as they taxied off the runway.

Meanwhile the second section had taken a missed approach at minimums – no field in sight – and climbed back to 10,000 to be boxed around by GCA for another shot at it.

On this pass, they broke contact at about 400 feet and one-half mile, and made a section touchdown, No. 2 man to take the MOREST. The section leader landed long, as planned, but the wingman hit fast and flat and porpoised, missing the MOREST, and waved off. He reported 1,500 pounds of fuel remaining, getting tighter by the minute.

GCA picked him up again and brought him around at 3,000 feet, starting and stopping all turns, since he wasn't picking up or flying the headings given; and lined him up for a 12-mile straight-in for the runway.

The pilot's glide path was erratic. He came over the runway lights high and fast, dropped the *Crusader's* nose and touched down flat again. It porpoised wildly, the hook missed the MOREST, and he waved off again.

With 500 pounds of fuel remaining, he had two choices: pull up and eject or do a fast 80-260 and come in downwind, taking the MOREST from the back side. He picked the latter course and swung 60 degrees left, staying low, and then in a 90-degree bank and with full power, swung back to the right, calling GCA for clearance to land immediately.

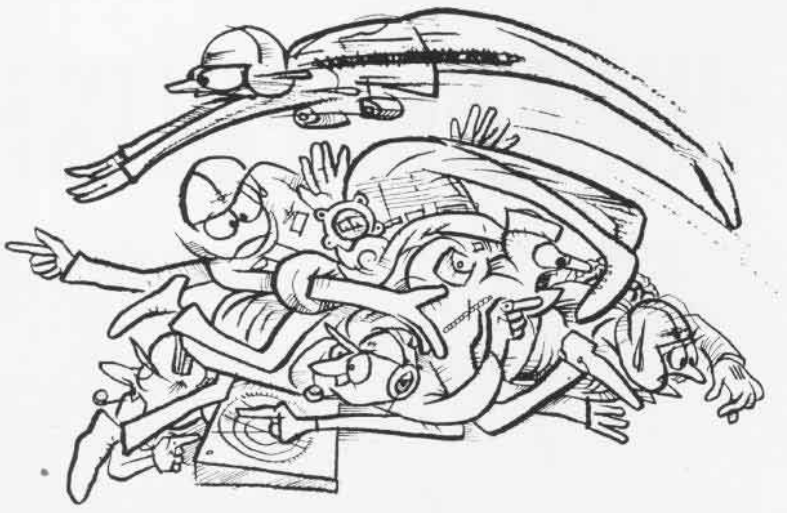
He was close aboard and had to chop the power to idle and drop the nose to make the runway. But he did make it, setting the plane down about 2,500 feet along the runway at 150 knots. Again the hook missed the wire! He shut down the engine, for the brakes were ineffective on the wet runway.

Suddenly, with about 2,500 feet of runway remaining and still rolling fast, he saw another F8U touch down ahead of him, coming from the opposite direction, then pull up and leapfrog over him, touching down again behind. Whew!

Unfortunately, a stream of crash-rescue trucks were chasing the first unfortunate. So, the second plane again went into full power and lifted off, screaming over the first of the trucks with no room to spare – with a somewhat shaken pilot aboard as it disappeared in the soup, climbing out for another GCA pass!

Meanwhile, back to our hero. He couldn't stop and ran off the end of the runway, ending up in four feet of

ILLUSTRATED BY Osborn



water, but uninjured. It had been a rugged day!

Grampaw Pettibone says:

Great jumpin' Jehoshaphat! This was a real weirdy! The combination of lousy weather reporting, complete failure to accept preceding pilots' reports of actual weather, no apparent interchange of info between Approach Control and GCA, and a pilot who flew his GCA approaches as hot as a two-dollar pistol and never told a soul of his instrument difficulties makes this as near a multiple disaster as you can get. This guy's guardian angel must be in a dead faint from exhaustion after this mad whirl!

How many do we have to smash up before controllers accept and pass on pilot reports of terminal weather?

No more than *one* man should ride down the glide slope with bum dope. After that, it's a matter of *passing* the word! (Reprinted from Aug.1962)

The Fight is on!

"Guns!" – called the A-4 adversary pilot as he slid into firing position 1,000 feet aft of the F-4N *Phantom*. To counter the attacker, the *Phantom* pilot, a fleet replacement trainee (RP), pulled into a four-G level break turn to the left in order to execute a high-G barrel roll. He reduced power and extended the speed-brakes, forcing the A-4 to overshoot.

The *Phantom* pilot observed the A-4 coming into view, fed in bottom (left) rudder, rolling the F-4 to the left with the nose falling through the horizon. The F-4 RIO called for more bottom rudder. The RP responded with full left rudder and, as the roll rate increased, he saw the A-4 at the top of his canopy. From his near inverted position, the RP felt he was rolling too rapidly and thought he should reduce the roll rate. Suddenly, the F-4 departed violently to the left.

Observing the departure, the adversary pilot called, "Knock it off, knock it off!" The F-4 sliced to the left at a high yaw rate and immediately entered a flat spin – altitude 17,000 feet. The pilot neutralized the control stick, then pushed it forward as he reduced power to idle. He then pulled the drag chute. The chute extended, but it only streamed vertically behind the aircraft.

The RP initially noted 26-28 units angle of attack (AOA). Seconds later he observed the AOA fully pegged at 30 units with the turn needle all the way to the left. The spin was now very smooth with no pitch or roll oscillations. Application of antispin controls had no effect. Passing 10,000 feet, the RIO initiated successful command ejection. The aircraft crashed into the sea. The crew was rescued.

Grampaw Pettibone says:

Holy falling *Phantoms!* This young lad, the unfortunate victim of inexperience, fell prey to a classic F-4 departure in his attempt to reduce aircraft roll rate through improper lateral control inputs – aileron vice rudder. Although he had been briefed, this pilot did not fully appreciate the results of cross control applications during high AOA maneuvers. In this instance, the aircraft did not display the familiar postdeparture gyrations; instead, it quickly entered a flat spin. The pilot's lack of departure/spin experience resulted in delayed extension of the drag chute and application of antispin controls.

It is well documented that successful recoveries from F-4 flat spins are rare, regardless of the pilot's experience. Old Gramps thinks this was a mighty expensive lesson! A wise man learns from his mistakes, but a wiser man learns from the mistakes of others. We can't afford to buy this kind of experience – or aircraft. Nuff said.

ANNAPOLIS –

Every July some 1,300 young men and women report to the U.S. Naval Academy, Annapolis, Md., for four years of hard work in pursuit of officers' commissions in the Navy or Marine Corps. Many of these will take aerospace engineering as their major. Those who do, find themselves immersed in a tough but highly rewarding curriculum taught in an environment of first-rate instructors and facilities. Indeed, the Academy's "aero" program takes second place to none among the top ranking engineering schools in the U.S., including such prestigious institutions as Cal Tech and the Massachusetts Institute of Technology. Elective courses in vertical short takeoff and landing (VSTOL) and surface effect vehicle technology, for example, give Annapolis an extra dimension not normally available in other universities.

Commander Marle Hewett, an NROTC graduate from Rensselaer Polytechic Institue, a veteran pilot and aeronautical engineering duty officer (AEDO), heads the department. Although the academic approach of his organization is like that of other schools, Hewett says, "We tend to focus on practical aspects with emphasis on lab work. Engineering schools lean toward the theoretical." Helping Hewett get the message across to fertile minds are one other officer, also an AEDO, Lieutenant Commander D. J. Anderson – who was schooled at Purdue and holds an M.S. in aerospace engineering – and seven civilian professors. They handle about 320 midshipmen in the various classes.

The responsibility for directing the Naval Academy lies, of course, with the Superintendent. He is assisted by the Commandant of Midshipmen who is responsible for the professional development and administration of the Brigade of Midshipmen. A civilian academic dean assists the Superintendent and supervises the curriculum and standards.

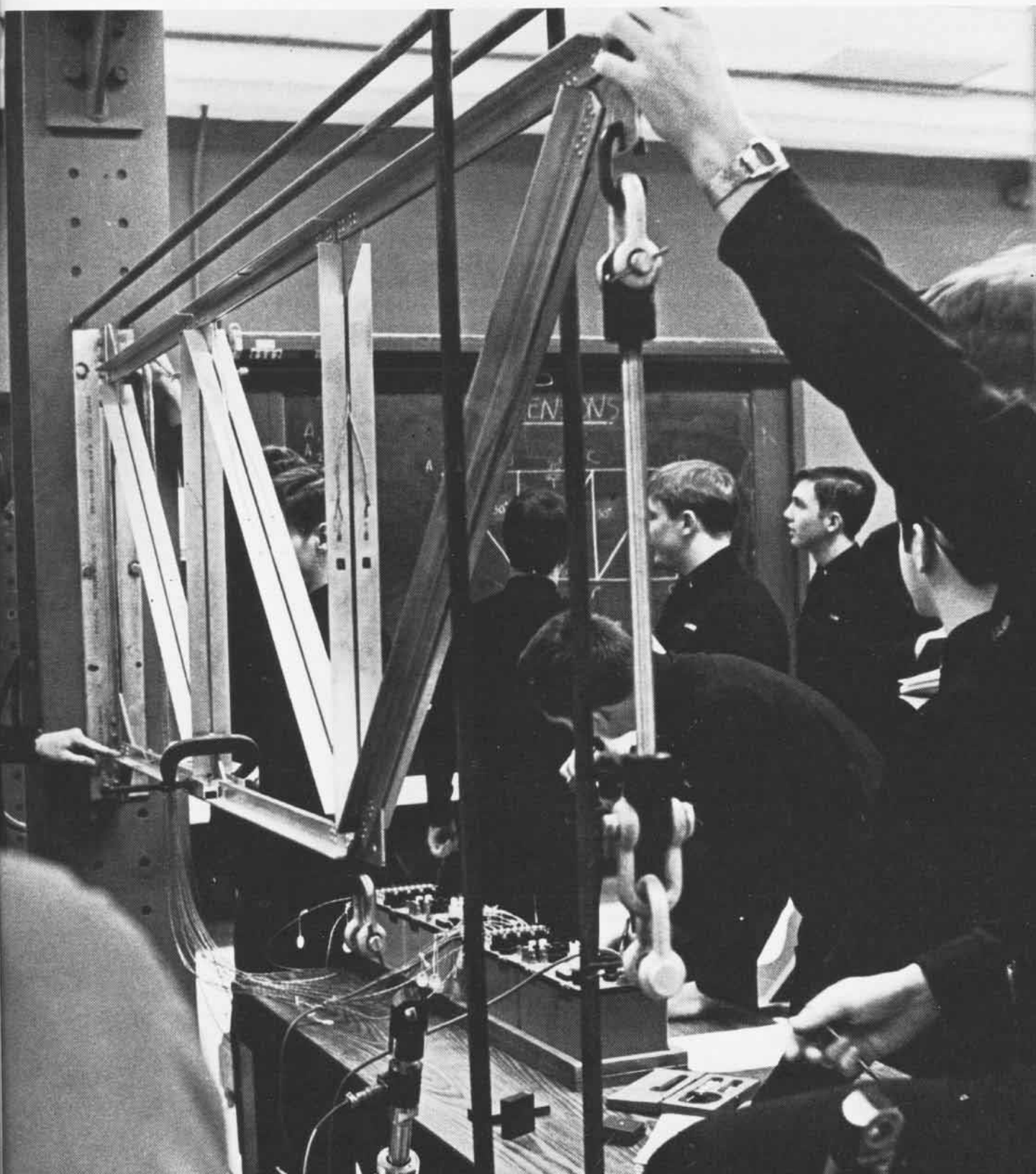
There are 500 faculty members while another 150 of – ficers serve in various advisory or administrative capacities. The teachers are an integrated group comprised of an equal number of both civilian and military personnel. Officers are rotated at three-year intervals, a practice which provides an ongoing injection of fresh ideas based on recent fleet experience. The civilian instructor force lends continuity. Top-ranking civilians from the aerospace field are lured to the Academy by the extraordinary quality of the equipment available and the "aero" program itself. Also, many of them can engage in research projects.

By Cdr. Rosario Rausa

Photos by JO1 Bill Jones

Midshipmen study structure design.

THE AERO CONNECTION



There are four academic divisions at Annapolis: Engineering and Weapons, under which the aerospace engineering department is aligned; Mathematics and Science; U.S. and International Studies; and English and History. There is also the Division of Professional Development under the Commandant, which ensures the professional growth of midshipmen as future officers. The total student body numbers about 4,400 men and women midshipmen.

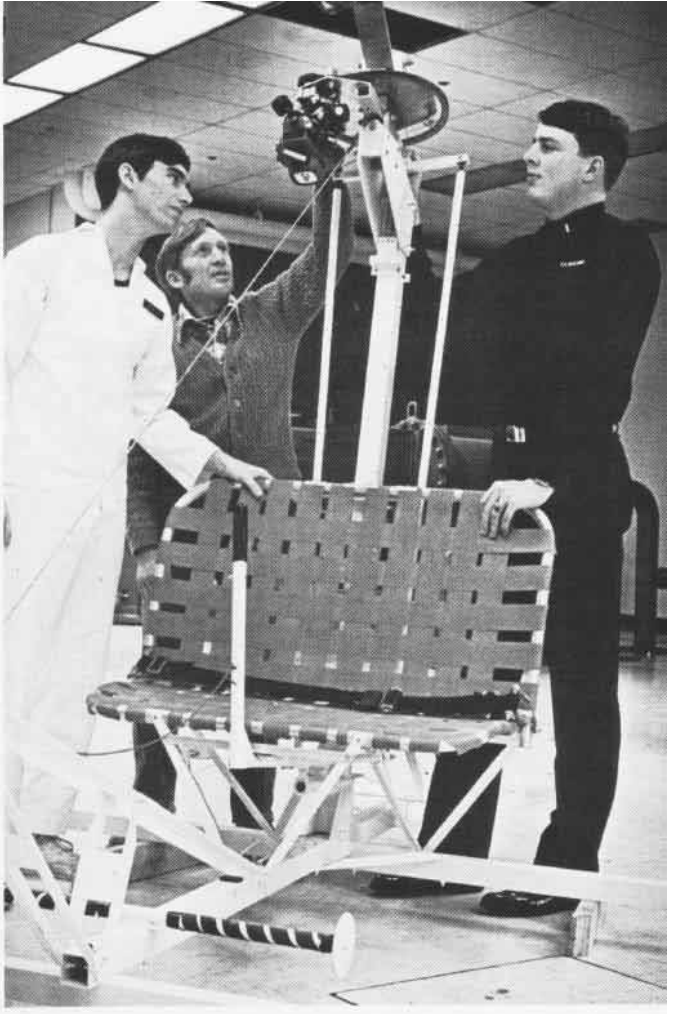
All midshipmen take essentially the same courses in their plebe year. Toward the end of that year, they choose 1 from 18 available majors. One rule of the Academy is that 80 percent of each class must seek their degrees in one facet of the engineering, math or science fields. The other 20 percent study political science, economics, history or English.

Specifically, aerospace engineering involves analysis and design of aircraft, missiles and spacecraft. In recent years, however, virtually any vehicle that travels fast enough to require reduction of aerodynamic resistance can be added to that list.

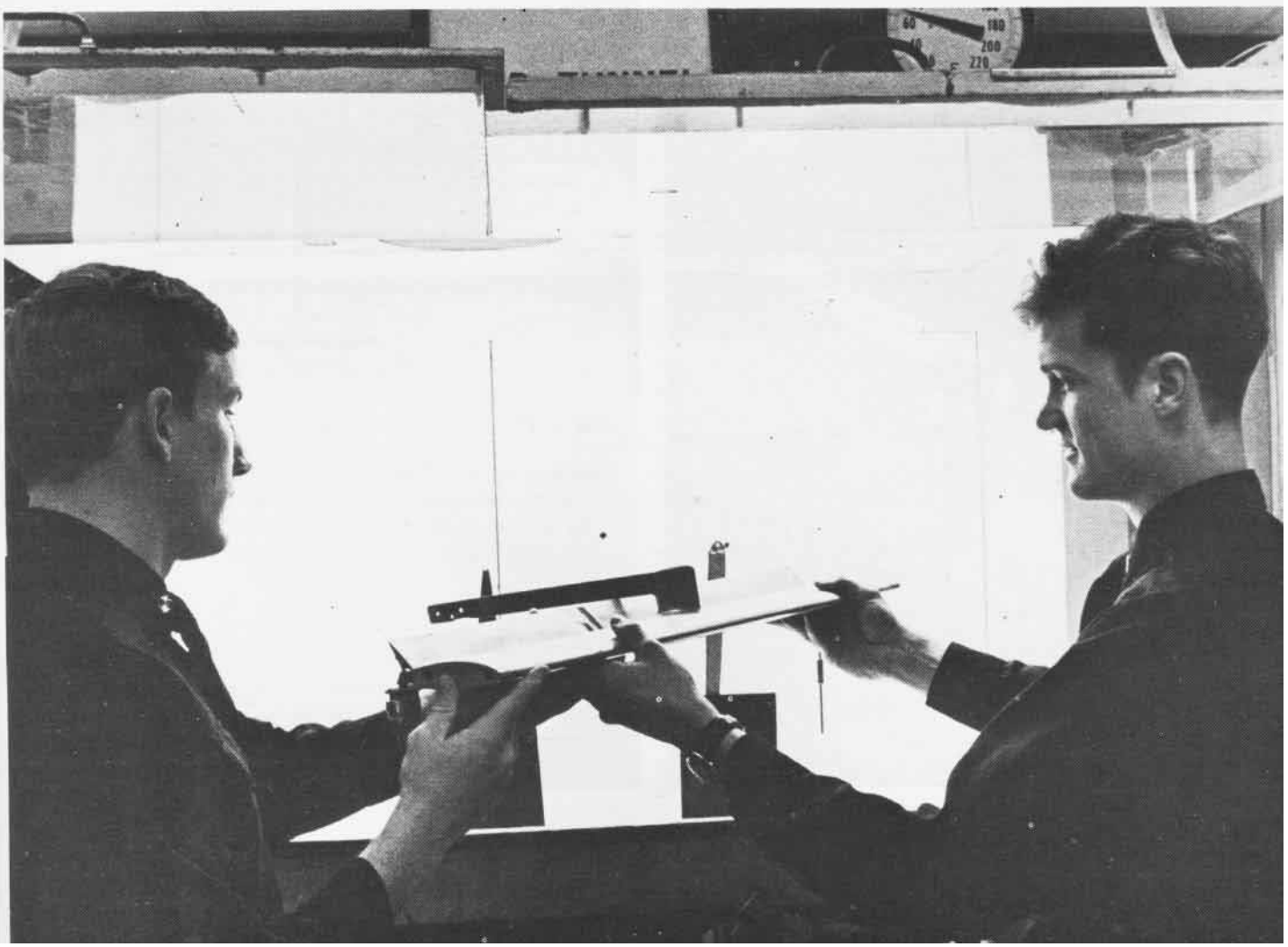
Today's aero department represents an innovative and revitalized change from what was available at Annapolis 15 years ago. The number of aeronautics-related courses then was minimal. Officials recognized the rapidly changing and infinitely more complex technology which characterized fleet ships, aircraft and weapons systems and the need for highly trained officers to help maintain and manage them. It was decided to fortify and magnify the program. The aerospace engineering spaces in Rickover Hall are vivid testimony to that effort.

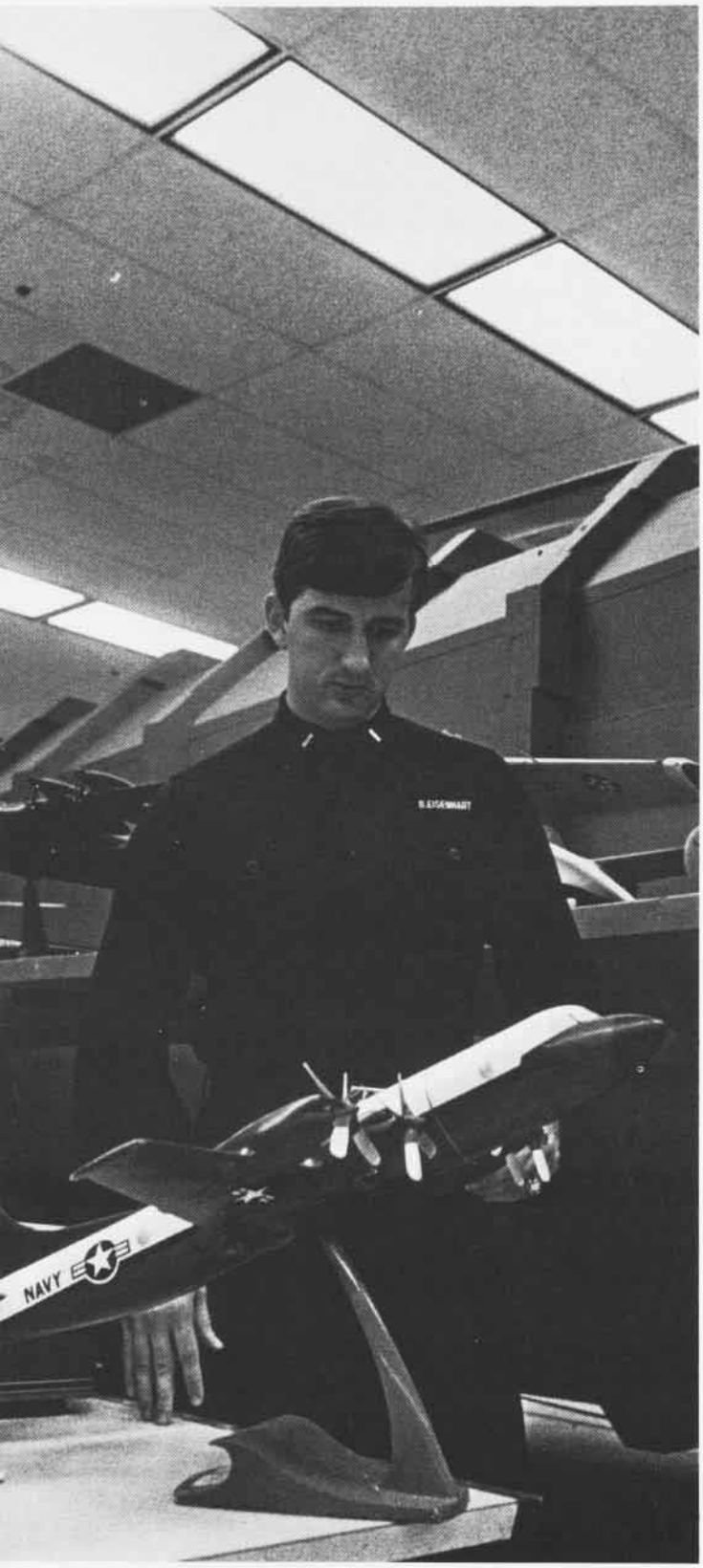
The equipment truly is superb. An elevated control station for starting, monitoring and stopping a variety of engines rivals that of some actual test activities. There are propulsion, structures and rotor labs, the last featuring a roof which opens to the sky to allow for blade rotation. Low speed, transonic and hypersonic wind tunnels permit a broad spectrum of studies and research projects. A twin-engine *Bonanza* leased from the Beech Corporation flies out of nearby Lee Airfield and is used as a flight test vehicle. A variable stability flight simulator is available for various experiments. A huge machine shop supports all other departments and has a computerized, numerically-controlled mill. Models used in the wind tunnels and in a 380-foot towing tank are constructed here. Among the most salient features are the Academy's computer facilities, which include a Honeywell 6060 machine operated on a time-shared basis, and a computer-aided design and interactive graphics unit. Unlike most other learning institutions where waiting lines are normal, computer time is plentiful at the Academy. There are virtually no delays, so students, whose schedules are tightly controlled to begin with, save time in their data reduction and equation-solving tasks.

Also, on hand for training are a T-34 *Mentor* mock-up, valuable for structures analysis work, and an XR-5 surface effect vehicle. It has a fiberglass hull, is 48-feet long with an



Clockwise from top: students Tom Goebel, left, and Richard Pickering, right, examine Benson GyroCopter with lab technician Ronnie Wheeler; midshipman Lee Smith monitors Matthew Grissom in the trainer; airfoil is scrutinized in conjunction with wind tunnel tests; and aerospace engineering major, Donald W. Eisenhart, inspects gas turbine engine mock-up.




NAVY


T-34B
FIRST AIRCRAFT
FLOWN BY
STUDENT
NAVAL AVIATORS
PASS
T-34

eight-foot beam and is capable of making 30 knots.

"We also have a Hoverbug," says Hewett. "It's an air-cushioned vehicle purchased at the bargain price of $1.00. It was surplus gear from a James Bond movie. We have 'flown' it over land and calm waters, and it can reach 40 miles per hour. It has a rudder but you have to be careful because it is difficult to keep the machine aimed straight ahead. One lawn mower motor drives a propeller for forward movement. A second creates the air cushion. It gives us some exciting moments.

"We must offer a top-notch program if we're going to get top-notch people. The youngsters coming out of high school nowadays are very aware of what the various colleges and universities have to offer. The Academy has to be competitive. It also helps when parents of prospective midshipmen visit the campus and see that we have exceptional facilities, not only in the aeronautics field, but in other areas as well."

Once a midshipman signs on for aerospace engineering, the required courses include the following subjects: principles of flight, aerodynamics, wind tunnel, flight performance, aerospace structures, gasdynamics, stability and control, flight propulsion and aerospace vehicle design. Major electives are: orbital mechanics, elements of flight test engineering, aerospace structure II, aeroelasticity, gasdynamics II, aerodynamics of VSTOL aircraft, computer-aided design in engineering, and principles of surface effect vehicles.

These are as tough as they sound. About 50 percent of those who begin the aero major complete it, with the remaining midshipmen entering other majors. But those who do earn their B.S. in aerospace engineering not only build a strong foundation of technical knowledge, they are well prepared to pursue graduate degrees upon graduation or some time later.

Individual research projects are strongly encouraged. A few years back (*NANews,* September 1974), one midshipman working with a professor developed an augmenter ramjet engine. Another built a cloud-seeding device. These are typical examples. Recently, a particularly dedicated midshipman practically lived in one of the labs while he designed and built a light rocket engine which was 10 feet long and 8 inches in diameter.

One significant project in the works is the Naval Academy heat balanced engine which has a combustion chamber modified for fuel efficiency. Automobile company representatives have visited Annapolis to examine this potentially promising power plant.

A field trip is taken once a year and the itinerary varies. NASA's Huntsville, Ala., activity or the Grumman Aerospace Corporation plant in Bethpage, N.Y., are typical stops.

The flight test engineer course allows the midshipmen to actually get in the air and function as fledgling test pilots. In a program similar to, but obviously much less involved than that at the Navy's test pilot school in Patuxent River, Md., students make six flights apiece in the *Bonanza,* recording various data and writing detailed reports on their aerodynamic findings.

Another interesting tool of the department is the so-called GyroCopter. Built by the Benson Co. and on loan to the Navy, it looks like a miniature helicopter with a lawn chair for a cockpit and a small motor to drive the blades.

Among graduate program opportunities is a Guggenheim Scholarship for study in aeronautics. Some newly commissioned officers study flight dynamics at Princeton; propulsion at Cal Tech; structures at Columbia. The opportunities have to be earned, but they are certainly worth the sweat and toil, especially in the long haul of a naval career. Those who go for additional degrees must commit themselves to two years of active duty for each year of study, in addition to the regular five-year obligation after graduation.

The Academy will accommodate the special interests of deserving individuals. One especially bright young man was given permission to commute to the University of Maryland to take courses for a master's degree, while attending regular classes at Annapolis. "This was an extremely unusual example," says Hewett, "but he received his M.S. and B.S. at about the same time."

What type duty do aerospace engineering graduates choose? Not surprisingly, 80 percent become either aviators or Naval Flight Officers. Most of the remaining 20 percent go into the nuclear power field or surface line.

At NAS Pensacola, Fla., where flight training begins, graduates don't necessarily have a head start on other aviation students where actual flying is concerned. But they certainly fare well in ground school. Importantly, if they do set their course for a career in Naval Aviation, they will be able to talk knowledgeably with company technical representatives, maintenance technicians, and other professionals at the Naval Air Systems Command, Naval Air Test Center, Naval Air Development Center, and the like. What they learned at Annapolis certainly helps them when they become involved directly, or indirectly, with aircraft, hydrofoils, surface effect ships, satellites and gas turbines.

Rear Admiral William P. Lawrence, Superintendent of the Naval Academy, stated, "One of our most successful midshipmen, who could have gone to nearly any school in the country, told us that he chose the Naval Academy because it 'offered the most options.' " The aerospace engineering course constitutes one of the most dynamic and worthy of those options, and pays long-range dividends for Naval Aviation.

Senior Eisenhart examines P-3 Orion model. Although replaced by T-34C in training command, T-34B in foreground is valuable training aid at Annapolis.

THE SUPERINTENDENT SPEAKS

Rear Admiral William P. Lawrence, Superintendent of the U.S. Naval Academy, talked with Naval Aviation News about the Academy's aerospace engineering program and other matters.

We are very proud of the aviation presence at the Naval Academy. The aerospace engineering program is especially impressive. It is comparable to the best in the country. The lab facilities are superb. Visiting professors have made very favorable comments to me about the program. It's a tough major, a rigorous program. The midshipmen realize this but know it pays dividends in the long run. Of course, we feel strongly about all of our programs.

About 80 percent of our officers are lieutenant commanders and below and serve as instructors, advisors, administrators and in various other capacities. Duty such as theirs gives them exceptionally valuable experience, broadens their perspective on a naval career and substantially improves their professional growth.

Admiral Hayward, CNO, has strongly emphasized the importance of maintaining education and training programs of the highest quality throughout the Navy. We're striving to do our part here, and officers assigned to the Academy have extremely rewarding tours while enhancing the quality of education advocated by CNO.

The Naval Academy is one of the finest duty stations one could ask for. The academic environment, the cultural attractions available, both locally and in surrounding cities, and the school's facilities make life at Annapolis most appealing. Housing is ample. All facilities available to the midshipmen are available to officers assigned to the Academy. There are programs, especially in the athletic area, for dependents including children. We also have a computer orientation course for dependents and civilians assigned to the school. We strongly encourage full participation in social, athletic and academic events by officers and their families.

Whether or not an officer is an Academy graduate is irrelevant here. It's simply not important. All of our 350 officers get caught up in the Naval Academy's esprit de corps, regardless of their background, and are performing in an outstanding manner. There is a complete interface between the officers and the midshipmen in both academics and in other areas of Academy life.

We have some dynamic aviation activities at Annapolis. In addition to the aerospace engineering department, there is the VTNA, or aviation indoctrination program. We have a contract with a civilian concern which gives flight instruction to our midshipmen at the Baltimore-Washington International Airport. Our own aviation officers supervise the program.

We also have a Navy Flying Club for the staff and midshipmen. Additionally, there is a Civil Air Patrol group which is very popular. Midshipmen are also provided indoctrination, including flight activity, as part of the summer cruise program.

I am most pleased with the promotion aspects resulting from duty here. Historically, many officers who had tours at the Academy as junior officers have reached flag rank. I have made it my policy to be personally involved with assignments of officers leaving after their tour, usually three years in length. I work directly with the Navy Military Personnel Command in this regard. I have been impressed with the number of officers who eventually were given commands after leaving here.

Assignment to the Naval Academy is most enlightening. It is also as enjoyable as it is professionally valuable.

Golden Eagles

Naval Aviator #29

Child, Lindberghs

In the "It's a small, small world" department: as *NANews* staff members go about their daily business, they occasionally run into the unexpected. Such was the case when we found Dan Child, the son of Captain Warren Gerald "Gerry" Child, Naval Aviator #29. Dan has contributed these unpublished photos from the family album.

Capt. Child graduated from the Naval Academy, Class of 1907, as a past midshipman (as grads were commissioned at that time). He was chosen to go around the world with the 16 battleships of the Great White Fleet on a good will cruise that ended in February 1909 at Hampton Roads.

Capt. Child in an era of pioneers, qualified to command subs in 1910, qualified as an HTA pilot in 1916, qualified as a free balloon pilot in 1917 and as a dirigible pilot in 1917. His aviation career included duty as X.O. of *Shawmut* and *Langley*, C.O. of *Aroostock* and *Langley*, and NAS Anacostia, and Superintendent of Flight Schools at NAS Pensacola.

Child

RAdm. Upham, Lindbergh, Child

Child and son

VTXTS

THE UNDERGRADUATE JET FLIGHT TRAINING SYSTEM

By Captain Ben Short, Project Manager

Let's take a brief and imaginary look at a student Naval Aviator going through the strike/jet pipeline in 1990.

He reports to a modern classroom and sits down at a desk equipped with a TV screen and a keyboard. He types in a few characters. The screen prints him a welcome and begins the scheduled lesson. It outlines the learning objectives for the lesson, then provides examples and practice problems, and finally gives the student a test on what has been absorbed. If the test shows a significant point was not understood, the system cycles the student back through a more detailed review of the deficient aspect to ensure that he or she does understand the missed point. Later in the study session, a message appears on the screen reminding the student of a scheduled simulator period.

After the student checks in and gets situated in the simulator complex, wearing full flight gear, by the way, the material to be treated is flashed on a TV monitor. The student is in an exact replica of an aircraft cockpit and is realistically attired for his flight. When the canopy is closed, large cathode ray tubes display near-real-world visual scenes derived from computer-generated imagery and model board landscapes. Once in operation, the motion cues are provided by a "G suit/G seat" instead of a six-degree-of-freedom synergistic (working together, cooperating) motion platform used by many simulators today. (The "G suit/G seat" would feature actual inflation of anti-G suit pockets.)

After a busy session in the simulator, mastering the subjects studied earlier in the classroom, the young flyer is ready to try his newly learned skills in the air.

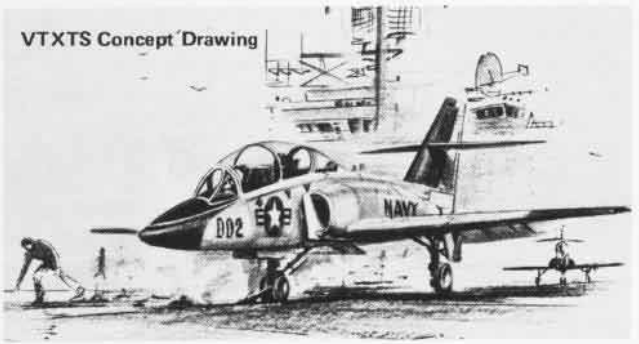
The aircraft is small, very maneuverable and capable of high subsonic speeds. The cockpit has many state-of-the-art items found in operational aircraft — HUD, multipurpose

displays, computers, and the like. Performance capabilities exceed those of aircraft currently used for flight instruction. But, the training command planes of 1990 would use 40 to 50 million gallons of jet fuel per year less than their predecessors.

After the flight, the student and the instructor recall selected portions of the hop on a video display for debriefing. There will be little need to refer to scribbled notes on a kneeboard grading card. If particular segments of a flight are still in question, the exact maneuver made by the student can be repeated in the simulator.

At the close of the day, the student can log in to the training management system for an automatic update of his progress, check schedules for the next day, and review other related information. In similar fashion, the ops officer of the squadron reviews the progress made by each student, examines the status of the aircraft, and previews the entire flight schedule for the following day.

Sounds Buck Rogerish, maybe, but today's technology promises that such sophisticated methods of training aircrews are possible. If current planning is realized, the system will be the result of a program the Navy is currently initiating.



VTXTS Concept Drawing

The Undergraduate Jet Flight Training System (VTXTS) project is a total training system, planned for the intermediate and advanced phases of the strike (jet) pipeline for Navy and Marine Corps aviators. It consists of the aircraft, associated simulators, and academics, with many of the management, scheduling, and record-keeping functions incorporated into a computer-based training management system.

The training system aspect of VTXTS has real meaning. Each of the subsystems (aircraft, simulators and academics) will be designed to complement the others, to produce a synergistic effect. Unlike the past, VTXTS involves a lot more than an aircraft with simulators to match. It will be designed and engineered to provide an integrated system to effectively train student jet aviators.

To promote better planning in major acquisition programs throughout the government and not just in the Department of Defense, the Office of Management and Budget (OMB) has provided guidance to all departments and agencies within the federal government in the form of Circular A-109 which is similar to an instruction or notice. The circular directs the department or agency head to certify that the service does have a deficiency in its ability to execute one of the assigned missions (in this case, jet flight training), before starting a major acquisition program to correct the stated deficiency. For DOD, this would be the Secretary of Defense or one of his principal deputies. The need to satisfy the deficiency should be stated in mission or functional requirements, but not be specific concerning hardware. With the broad range of experience, knowledge and manufacturing know-how in industry, it is prudent to capitalize on this expertise by providing only the requirements, and not preconceived ideas which might delay possible solutions. The document certifying this need is the mission element need statement (MENS), which is approved at the SecDef level for major systems. The MENS for the VTXTS project was approved in June 1979, and is currently one of the few approved for the Navy.

The need, as stated in the OSD-approved MENS for the

Hawk

Alpha Jet

VTXTS project, is threefold: first, provide comprehensive and effective jet flight training to student Navy and Marine Corps aviators to meet fleet and operational requirements; second, reduce the overall cost to train aviators; and, last, extend or provide replacement aircraft for the T-2C and TA-4J, which are currently in the training command.

To provide comprehensive and cost-effective flight instruction, the training command ascertains current fleet operational requirements. This ensures that fledgling aviators will be capable of performing in a satisfactory manner when they report to their first fleet replacement or operational squadron.

With the recent doubling of jet fuel prices, and the high cost of manpower to service, maintain, and repair training command aircraft, operation of the current training system is very expensive.

The service life for the T-2C *Buckeye* is 12,000 hours, and at the present and forecasted operating tempo these aircraft will last through the 1980s. The TA-4J *Skyhawk* has a service life of 7,500 hours. Unless this limit is increased or a modification program is initiated, these jets will begin reaching the end of their service life by the middle of this decade.

Another part of OMB Circular A-109 directs that all viable alternatives which could satisfy a need should be explored before a final decision is made on a solution to satisfy that need. In the case of VTXTS, the aircraft alternatives can generally be divided into three groups:

- Continued use of current assets, the T-2C and the TA-4J, with a planned service life extension program at the appropriate time, possibly buying more T-2Cs with modifications.
- Procurement of an in-production trainer aircraft, comparable in performance to those currently in the training command, capable of carrier arrested landings and catapult shots. (The French-German *Alpha Jet,* British *Hawk* or the Italian MB-339 are examples of aircraft which are challenging, and have adequate performance to meet the needs of the training command, although modifications would be required to make them carrier operable.)
- Acquisiton of a new design aircraft.

The long-range plan for the VTXTS project calls for four phases as specified by current DOD acquisition directives. The first, which the project is now entering, is the conceptual phase when four or five studies will be conducted by industry to develop viable concepts in detail. The second phase will demonstrate the critical aspects or key points of two or three industry concepts developed during the first phase. The third will select the most cost-effective training system and accomplish full-scale development, including the detailed planning and engineering necessary for the fourth or production phase. In the final stage, all of the aircraft, simulators, and other supporting equipment will be produced and phased into the training command. Between each step, the concepts and efforts made to that point will be presented to the defense system acquisition review council (DSARC) for approval and authority to proceed into the next phase. The DSARC is a panel of key members of the OSD staff, responsible for all facets of acquisition in general.

The functional or mission requirements, from which industry will develop training system concepts during the first phase, have been expressed in the form of terminal learning objectives (TLOs). These are statements of tasks the student must master from the time he completes the basic phase in the T-34C *Mentor* until he receives his wings. The contractors participating in the conceptual phase will take each TLO and subject it to a very detailed analysis, dividing it into the most elementary parts. Each part or subtask will then be assigned to be taught in the classroom, simulator, or aircraft. Once this has been done, the total integrated training system can be defined.

An example is the TLO to conduct low-level navigation. Some of the component parts involve the proper interpretation of an aeronautical chart, computing time, distance, heading; proper radio procedures; and recognizing terrain features from the air. Interpretation of the charts and computation of the navigation information are best taught in the classroom, while the radio procedures can be practiced and mastered in a simulator. However, recognition of the terrain features is best accomplished in the air.

The four or five industry concepts developed during the conceptual phase will be reviewed in detail by Navy special-

ists in the appropriate areas, including personnel from the Chief of Naval Education and Training Command. Two or three of the concepts, which can best fill the requirements of the training command to train student aviators, will be selected for further development during the second phase, after approval of the DSARC. These two or three concepts identify the critical issues of the proposed training system. These points can then be proved, either through some type of experiment, prototyping of hardware, or more detailed study, before a decision is made involving a large expenditure of money on a training system that may not meet the needs of the training command, or would be too expensive to operate. To prevent a prolonged acquisition cycle, the entire training system will not be validated during the second phase, except for those points or areas which are critical to the particular training system proposed.

At the conclusion of the validation demonstration phase, the two or three concepts which have been examined in detail will be submitted to the DSARC panel with a recommendation as to which concept should be pursued into the third or full scale engineering development phase. The selected contractor will then begin the engineering drawings, order the casting and materials, and start all of the detailed planning required to put a major system such as this into a production phase.

When the engineering has been completed and necessary testing conducted, the entire package will be presented to the DSARC panel once again, and authority requested to begin production of the system. If it is determined that the system meets the needs of the user and is cost-effective, SecDef will authorize the project to proceed into the production phase.

This is the four-phase process of the acquisition system.

On the surface, this approach appears to take longer than a normal acquisition program. However, with proper planning and development of requirements, a more effective training system will result and there will be fewer changes or delays as the project moves into the acquisition cycle.

With the VTXTS project just entering the conceptual stage, no firm decisions have been made on the shape of the aircraft, features to be incorporated into the simulator, or changes to the content of the academic course. The training system which will best serve the needs of the user in the most cost-effective manner is the one goal of the project.

It is recognized that simulators provide a capability and potential which have significantly changed training procedures and techniques over the past several years. It is also recognized that there is no substitute for flight hours when teaching a fledgling aviator rudimentary flight skills. A simulator can be a tremendous asset in preparing a student for the next task he will learn, and will make each hour in the air more beneficial. However, there is a minimum number of hours which a flyer must spend in the air to gain the proficiency, experience, and confidence required to be designated a Naval Aviator.

VTXTS is a training system composed of several elements, all of which must function together in a productive and efficient manner. To ensure a smooth interface between the elements, the entire training system will be acquired from one contractor who will be charged with the overall integration effort.

The ultimate goal of the VTXTS project is to provide the most cost-effective and affordable jet flight training system possible, a system capable of supplying well-trained aviators to the operational forces. To accomplish this, the Navy, the technical community, and those who establish the requirements must form a cohesive team working toward a common goal.

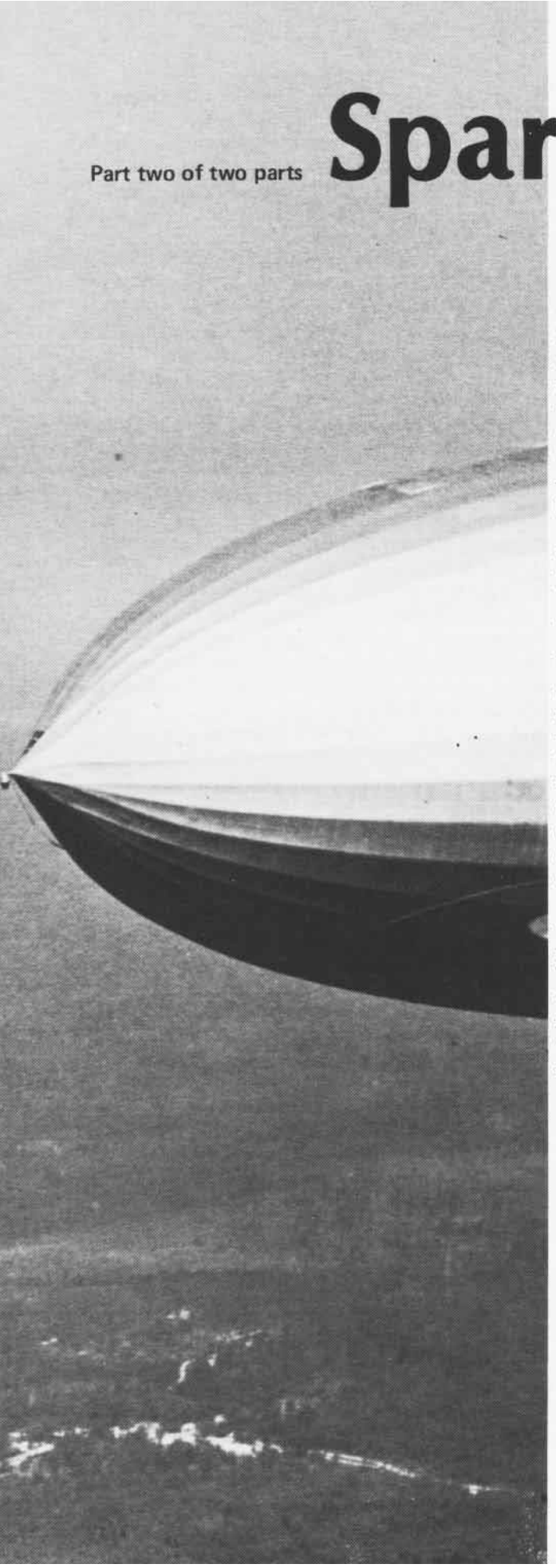
Captain Ben Short has been an attack pilot throughout most of his naval career. He has flown 3,600 hours, the majority of them in tailhook aircraft, in both the Atlantic/Mediterranean and Pacific areas. He has logged nearly 800 traps, was C.O. of VA-86, a *Corsair II* squadron, and has more than 210 combat missions under his belt. A Naval Academy graduate, class of 1956, Capt. Short took postgraduate training at the Navy's school in Monterey, Calif., from 1961 to 1963. He also attended the Defense System Management College at Fort Belvoir, Va.

The first U.S. Navy pilot to fly in the front seat of the *Alpha Jet*, built by Dassault-Breguet Dornier, he has flown in two other possible VTXTS contenders, the British Aerospace *Hawk* and the Italian AerMacchi MB-339. The Italians, incidentally, presented Capt. Short with a certificate attesting to the fact that he was the first non-company pilot to fire the MB-339's 30-millimeter guns.

Reports Capt. Short, "NavAirSysCom has received and is evaluating conceptual proposals from industry for the first phase of the VTXTS program."

Part two of two parts

Sparrowhawk –



The first half of the *Sparrowhawk* story took the F9C series airplanes through the end of 1931. The prototype XF9C-1 with its Naval Aircraft Factory (NAF) hook had made its first hook-on landings on *Los Angeles*. The XF9C-2, incorporating Navy-recommended changes, had undergone preliminary Navy flight tests, and design and construction of the six production F9C-2s were well under way. *Akron* had also undergone initial flight operations, but her trapeze was still under construction at NAF. The *Los Angeles* trapeze had been removed to provide critical components for *Akron's*.

January 1932 found *Akron* exercising with the fleet, still without her aircraft. The XF9C-1 was at NAF for modification to its hook-on gear, readying it for *Akron* operations. The XF9C-2 was still at Curtiss for engine work and other modifications.

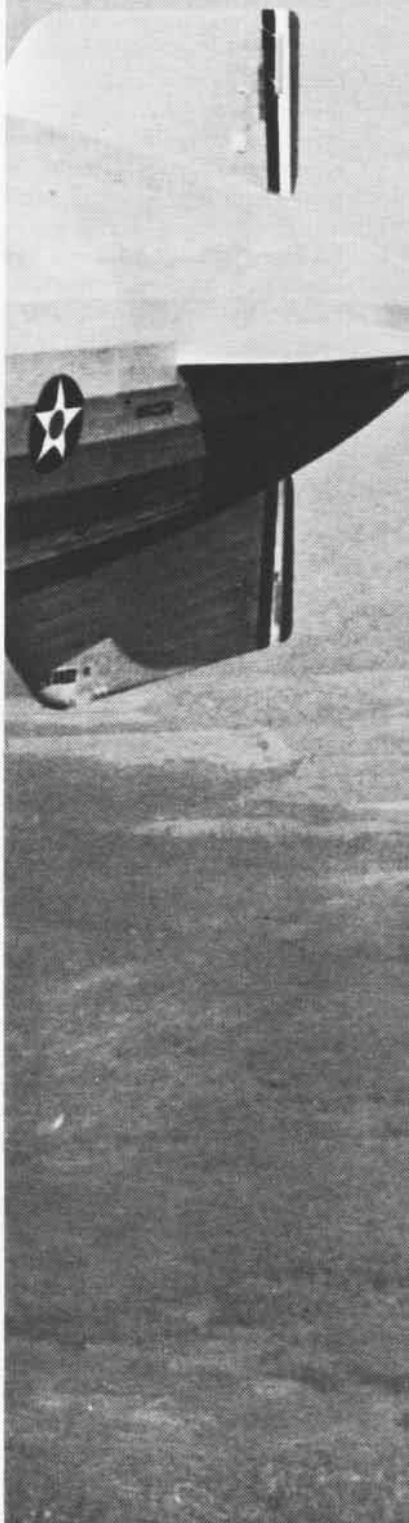
With the detail design of the F9C-2 well established, it became evident that it would be heavier than its X model predecessors, due to additional equipment requirements and design improvements. Because of the changes, it was agreed to conduct the contract flight demonstrations on the first F9C-2, rather than the XF9C-2, and further Navy testing of the XF9C-2 was subsequently cancelled. It also became clear that the first F9C-2 would not meet its March 1 contract delivery date. Delay in receiving the R-975E-3 engine, the special electric starters, and the many design changes were assessed as the causes.

The XF9C-1 went back to Lakehurst, but before the trapeze was installed, *Akron* suffered considerable damage to her lower vertical tail in a wind-caused ground accident. The trapeze installation was completed while the repairs were being made and the first *Sparrowhawk* went back to NAF where its 975C engine was replaced by a commercial 975E with a front-mounted exhaust collector – evident in many photos of the hook-on-equipped XF9C-1.

During April, while the *Akron* and XF9C-1 work was proceeding, the first F9C-2 was completed and Bill Crosswell took it up for its first flight on April 14, without the airship hook installed. Subsequent flights with the airship hook revealed a directional stability problem. In addition to this problem, and other more minor ones typical of most aircraft in their intial flying, a shimmy condition was observed when the brakes were used. Two days later the wire-braced, Jenkins-type landing gear was replaced by a three-strut type, similar to that used on the original XF9C-1, though longer and using low pressure tire wheels in streamlined pants as with the Jenkins gear. Test flights were flown regularly until April 25, with various adjustments to reduce engine/prop-caused vibrations and obtain best performance. Simple fixes to improve directional stability were also explored, and it became apparent that no simple fix would suffice. Spins and spin recovery were tested with satisfactory results, and the Inspector of Naval Aircraft agreed that

The Airship Fighter

By Hal Andrews



the F9C-2 was ready for demonstration and trials, except for the directional stability with the hook-on device installed. The Bureau agreed to accept the airplane for trials without further changes, and it was ferried to Anacostia by Bill Crosswell on May 3.

On the same day, the XF9C-1 made its first hook-on landings over Lakehurst on *Akron*'s newly installed trapeze. A few days later, the XF9C-1 and *Akron* were on the way to the West Coast, separately. Early in June, *Akron* was on her way back east with the XF9C-1 and an N2Y-1 on board. The weight proved excessive in the altitude and weather conditions over eastern Arizona, and the planes were launched, returning to Lakehurst on their own.

By early June, it was obvious that the directional stability with the hook-on device installed was unacceptable and a fix was essential. Curtiss engineers tackled the problem both in flight with the second airplane and in the wind tunnel. They were attempting to isolate the cause and establish a fix that would not require too extensive a change in the production airplanes, since all six were nearly completed. Modifications to the hook-on device and in the upper wing root area were ineffective. Various configurations of additional vertical fin area (including auxiliary fins in the stabilizers, as seen many years later on the Grumman AF *Guardians*) were successful in the wind tunnel. The most obvious taller vertical tail was unacceptable for structural strength, airship hangar height restriction, and reconstruction reasons. The final solution installed on the second F9C-2 was an aft addition to the fin, extending the rudder hinge line rearward six inches. The first F9C-2, which had already started airship operation trials, was returned to Curtiss and the second, with the fin modification, was used to complete the trials. When stability was still considered inadequate, another extension to a total of nine inches was incorporated in all airplanes as the final fix. Other BIS discrepancies were either fixed or accepted; one Navy change was to incorporate pneumatic tail wheels for field operations. In spite of the recognition that field operations would be more normal than carrier ops, guards were installed on the wheel pants so that an arresting wire would not slide over the top if a tire were compressed.

While these tests were proceeding, four more pilots reported to the airship's heavier-than-air unit, joining Lieutenants T. Ward Harrigan and Howard L. Young. Lieutenant Frederick M. Trapnell and Lieutenants Junior Grade Harold B. Miller, Frederick N. Kivette and Robert W. Larson, along with Harrigan and Young, were to become the core of the airship HTA pilots — and, as events transpired, almost the whole of this exclusive group. In August, another ground incident put *Akron* out of service with tail damage. During this period, the F9C-2s were readied for delivery and the decision made to provide a total of eight *Sparrowhawks* for *Akron* and *Macon,* four for each, by upgrading the XF9C-1

and purchasing the XF9C-2, with Curtiss incorporating as many as possible of the F9C-2 changes. The XF9C-2 had been displayed at the Detroit National Air Show in the spring and since its last Navy testing had been used by Curtiss to test a controllable pitch electric propeller. Because it had already been modified from the -1 configuration and had never been configured for accepting a hook installation or hook landing loads, considerable rework was necessary. This was started in September, and a contract was signed in November.

In September the F9C-2s were ferried from Buffalo by the HTA unit pilots and *Akron* operations began. Due to a structural beam configuration in the aft section of *Akron's* hangar, only two could be stowed on board. However, all the pilots operated with the airship, staying in relatively close proximity because of radio limitations caused by inadequate shielding, particularly of the engine ignition system. Trapnell proposed modifications to the trapeze, eliminating the wing auxiliary hooks and substituting an aft fuselage "saddle" that was lowered after the airplane was hooked on, to restrain it while it was being hoisted into the hangar. This was incorporated in the trapeze and found to be a definite improvement in November flight operations.

As part of its upgrading the XF9C-1 went back to Buffalo in the fall for a steerable, pneumatic tire tail wheel, and subsequently to NAF for further improvements. The eight airplanes were to be split into two groups when *Macon* joined *Akron* in 1933. Ending the year, Harrigan submitted an extensive report on experience with the airship fighters and on their proposed employment for the future. Among other things, he foresaw their primary mission as scouts, rather than the airship as the scout, with the fighters used for her defense. As the year ended, one of the more perplexing problems was with the last airplane built. It exhibited longitudinal instability characteristics not evident in the other F9C-2s. Checks at Lakehurst and at NAF failed to reveal the real source of the problem.

1933: An End and a New Beginning

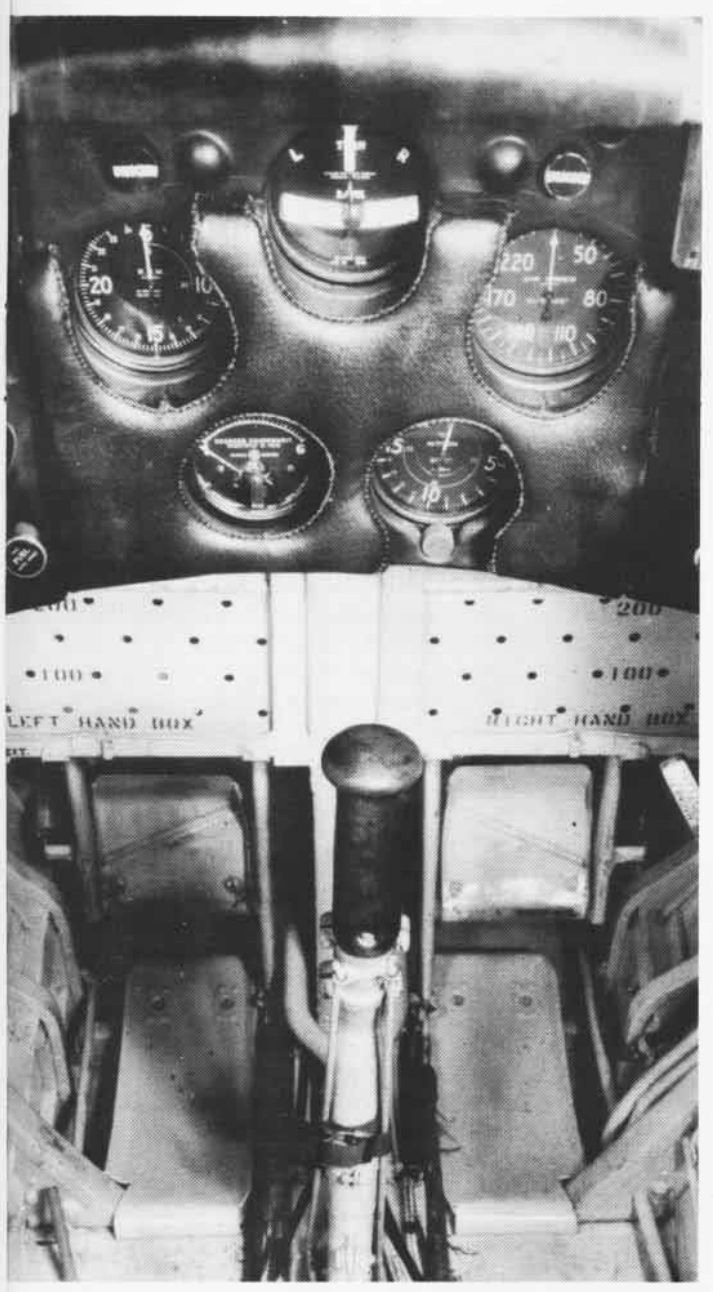
Akron and her F9C-2s got off to a good start in 1933. As many as three of the *Sparrowhawks* were operated with the airship in various exercises. Curtiss and NAF tackled the electrical and shielding problems, with the necessary improvements made at NAF, along with changes in other areas. The XF9C-2, updated by Curtiss to the production configuration, joined the other *Sparrowhawks* in January. Unlike most Navy aircraft, it was purchased complete with its engine, an SR-975E, which was then fitted into the Navy system. Thirty-gallon auxiliary fuel tanks, to be carried under the fuselage centerline, were ordered from Curtiss for the F9Cs; BuAer (Bureau of Aeronautics) made sure that appropriate testing was included in the contract. Another contract covered replacing the XF9C-1 landing gear (and its high pressure tires) with a new one, essentially the same as that on the F9C-2s, including the air wheels, longer struts and streamlined wheel pants. Since it was to be the fourth *Akron* airplane, it would be brought as close to the F9C-2 configuration as possible. Subsequently, the auxiliary fuel tank installation was also ordered, to be completed at the same time as the landing gear work.

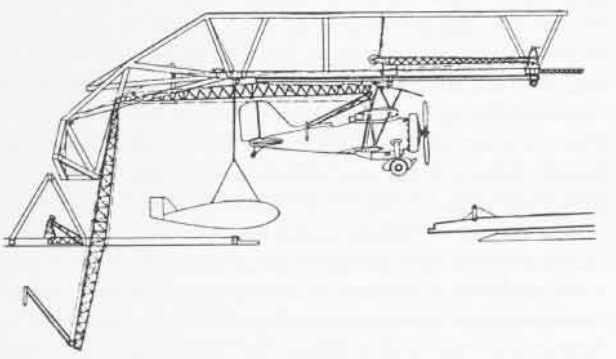
Tests with the last production F9C-2 at NAF failed to reveal the cause of the longitudinal instability and it was returned to Buffalo in early February for Curtiss to diagnose and solve the problem. A variety of minor problems on individual airplanes were resolved as they were discovered during the course of *Akron*'s heavier-than-air unit operations through March. At the end of the month, the XF9C-1 was ferried back to Buffalo for the landing gear and auxiliary fuel tank changes. The errant sixth airplane was confirmed from engineering drawings to have minor variations in alignment details; flight tests indicated that the installation of elevator tabs would be a practical and effective solution to its instability problems.

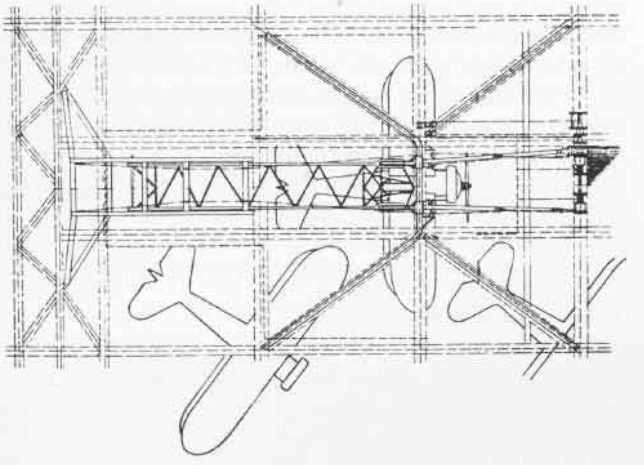
On April 4, in the early morning hours, *Akron* crashed at sea off the New Jersey coast, while flying through a severe storm. Seventy-three persons, including Rear Admiral Moffett, Chief of BuAer, lost their lives. There were only three survivors. The Navy's airship program had received a major blow. None of the *Sparrowhawks* or their pilots were on board *Akron* when she went down. Without an airship until *Macon* would be delivered in June, they continued general training operations, and the airplanes were rotated through NAF for incorporation of the various modifications. The elevator tabs found necessary on the sixth airplane were scheduled to be installed on all the F9Cs to maintain similar configurations; however, it was finally decided to put them only on the sixth and the XF9C-1, which really needed them. Installation of the auxiliary tanks revealed an interference problem under certain conditions; the addition of a spacer at the attachment corrected this. In May, the XF9C-1 and sixth F9C-2 were returned from Buffalo. Since there were more *Sparrowhawks* than necessary, with only *Macon* to operate from, it was decided that the XF9C-1 would be released from the program after its modified hook installation had been tested.

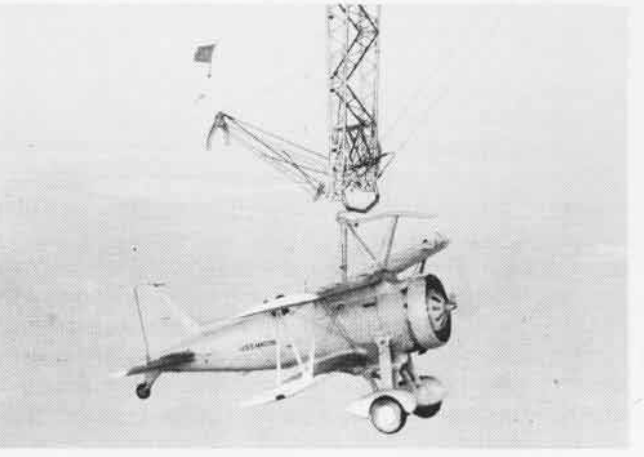
On June 23, *Macon* was commissioned and flown to Lakehurst. As her trials proceeded, the *Sparrowhawks* joined her, four operating from the hangar for the first time on July 7. The XF9C-1 finished its hook tests and was returned to NAF to have a modernized engine installed and be stripped of its hook and guns, so that it could be used as an experimental projects airplane. It was to continue in this role until surveyed in 1935. By the end of August, the perch had been installed and the final Board of Inspection and Survey trials were completed. Planning then proceeded for the move to Sunnyvale, Calif., where *Macon* would be based. While four F9C-2s which were to accompany *Macon* received new radio installations and modernized engines (R-975-22) at NAF, the three spare aircraft were used for flight operations. After the first four were returned, the three would go through the same program and then be shipped to NAS San Diego as spares.

One of the interesting sidelights of the *Sparrowhawk* story was the exchange of correspondence between the air-









Clockwise from top: Sparrowhawk's cockpit was compact; arrangement of trapeze and rails in airship hangar; XF9C-2 just off Macon's hook; and surviving Sparrowhawk in 1938.

ship C.O. and BuAer over the markings of the aircraft. The airship [and its heavier-than-air (HTA) unit] wanted each of the six F9C-2s to carry the markings of a carrier squadron section leader, using red, white, blue, black, green and yellow in the normal succession for fuselage bands, cowling and reversed wing chevrons; the use of red, white and blue vertical tail stripes and other deviations were also requested. The need for high visibility was the principal justification noted. After several exchanges, the Bureau finally agreed to the section leader markings, but stated that marking would otherwise follow specs and Commander Air Battle Force would assign the tail color to be used.

In mid-October *Macon* flew to her new base, the four *Sparrowhawks* proceeding independently. On arrival over Sunnyvale, one of the F9Cs was flown aboard for ballast in landing – a standard procedure to make the airship statically heavier on landing so that helium wouldn't have to be released. Unfortunately, Harrigan, C.O. of the Sparrowhawk unit, didn't go west with *Macon;* he was sick and it would be a long time before he was back on duty.

During November and December *Macon* and her airplanes concentrated on exercises with the fleet in the Pacific. Generally, the F9Cs operated close to the airship as she performed scouting missions. *Macon* was regularly spotted and "shot down," turning emphasis again toward having the planes fly away from the airship as scouts.

1934: Year of Operations

The new operational concept for using the F9Cs as scouts was put into practice in 1934. The aircraft flew away from the airship on a 60-degree course and returned after turning 120 degrees back toward the airship. *Macon's* speed in maintaining her course and that of the airplanes were such that they would meet as the aircraft returned to the airship's path. Radio communications and radio direction finding were also developed to improve the effectiveness of the airship/airplane combination. The RDF "loop" was built into the F9Cs, extending out the wings, along the wing struts between the wings and across the fuselage.

Modifications to the three spare airplanes were completed in January and they were shipped to San Diego for storage until needed. In April, *Macon* went to Florida to exercise with Atlantic Fleet units, returning in mid-May. The *Sparrowhawks* were ferried crosscountry, fortunately on the eastbound trip, since *Macon* suffered some structural damage in the area of her port fin attachment while flying heavy in hot, turbulent weather over west Texas. After her return, the HTA unit had a major change in pilots, with Lieutenants Junior Grade Leroy C. Simpler and Harry W. Richardson replacing three of the old timers, Trapnell, Young, and Larson.

The new pilots were trained in hook-on flying in mid-July, just before *Macon* and the *Sparrowhawks* conducted a special exercise. With the landing gears replaced by auxiliary fuel tanks for the first time, Lieutenant H.B. Miller and Lieutenant Junior Grade F.N. Kivette were launched after a flight of some 1,500 miles to intercept the cruiser *Houston* carrying President Roosevelt from Panama to Hawaii. Locating the ship, they were soon joined by *Macon.* They returned aboard to pick up packages of magazines, newspapers and letters and flew down to drop them on the ship's deck. (Both missed, and *Houston* had to launch a boat to pick them up.)

For the rest of 1934, operations continued on a regular basis. The *Sparrowhawks* regularly operated aboard without their landing gear. They would take off from land after the airship had launched (*Macon* needed to be as light as possible on takeoff), climb up and be taken aboard; the gear would be removed, to be replaced after *Macon* had landed with the F9Cs in her hangar. While most earlier operations were conducted with two planes flying together, in case one should be forced down at sea, they were operated singly more and more as experience was gained. While the F9Cs did experience an occasional landing accident, the only HTA unit pilot injured in an accident was Richardson, while flying another officer on a training flight in one of the N2Y-1s used by the unit. His place was taken, after a three-month lapse, by Lieutenant Junior Grade Gerald L. Huff to bring the complement back to four pilots. The spare airplanes were drawn from San Diego while the ones in use went in for overhaul, two at a time, starting in August.

In October, a rare incident occurred when Simpler came up to hook on. Because of turbulence, the trapeze yoke crashed through the fore and aft guard tube of the hook structure between the N struts. Very carefully he managed to maneuver the airplane so that the yoke passed back out between the broken ends of the guard tube. Neither he nor Miller, flying with him, had fuel to reach shore, so Miller landed first and Simpler followed, very gingerly and successfully in spite of his badly damaged hook structure. A few days later, the *Sparrowhawks* operated from the airship without their landing gears for Navy Day newsreel coverage.

Through the rest of the year, operations continued. In addition to their scouting operations, the F9Cs flew simulated attacks against *Macon* for gunner and evasive maneuver training (the latter against dive-bombing attacks, considered to be an effective way of destroying the airship).

1935 and On: Into the Past

The pattern of operations continued into the first weeks of 1935. Training for night hook-on operations was begun to expand the use of the aircraft in their scouting role. On February 12, however, it all come to an end as *Macon,* with four of the *Sparrowhawks* in her hangar, eased into the Pacific waves off Point Sur, Calif., after loss of her upper fin and major structural failure of her upper aft section. Fortunately, unlike the *Akron* crash, almost all of her officers and crew were rescued, 81 of the 83 on board.

With no more airships in the picture, the spare airplanes at San Diego were surplus. The XF9C-2 had its hook removed and was ferried to NAS Anacostia for general flying in August, while the first two F9C-2s remained in storage. In the spring of 1936, the XF9C-2s (as all three had by then

been officially designated) were restricted to straight and level flying. Their appeal for proficiency flying was thus greatly reduced, since they were considered excellent aerobatic airplanes, having been one of the few unrestricted Navy combat aircraft. In August 1936, the two San Diego airplanes were ordered to Norfolk, where one would be used to provide spares while the best of the two would be overhauled for general utility use. Unfortunately, the second F9C-2 never made it to Norfolk in October. Its second landing accident on the way damaged it beyond repair and it was shipped back to San Diego for salvage.

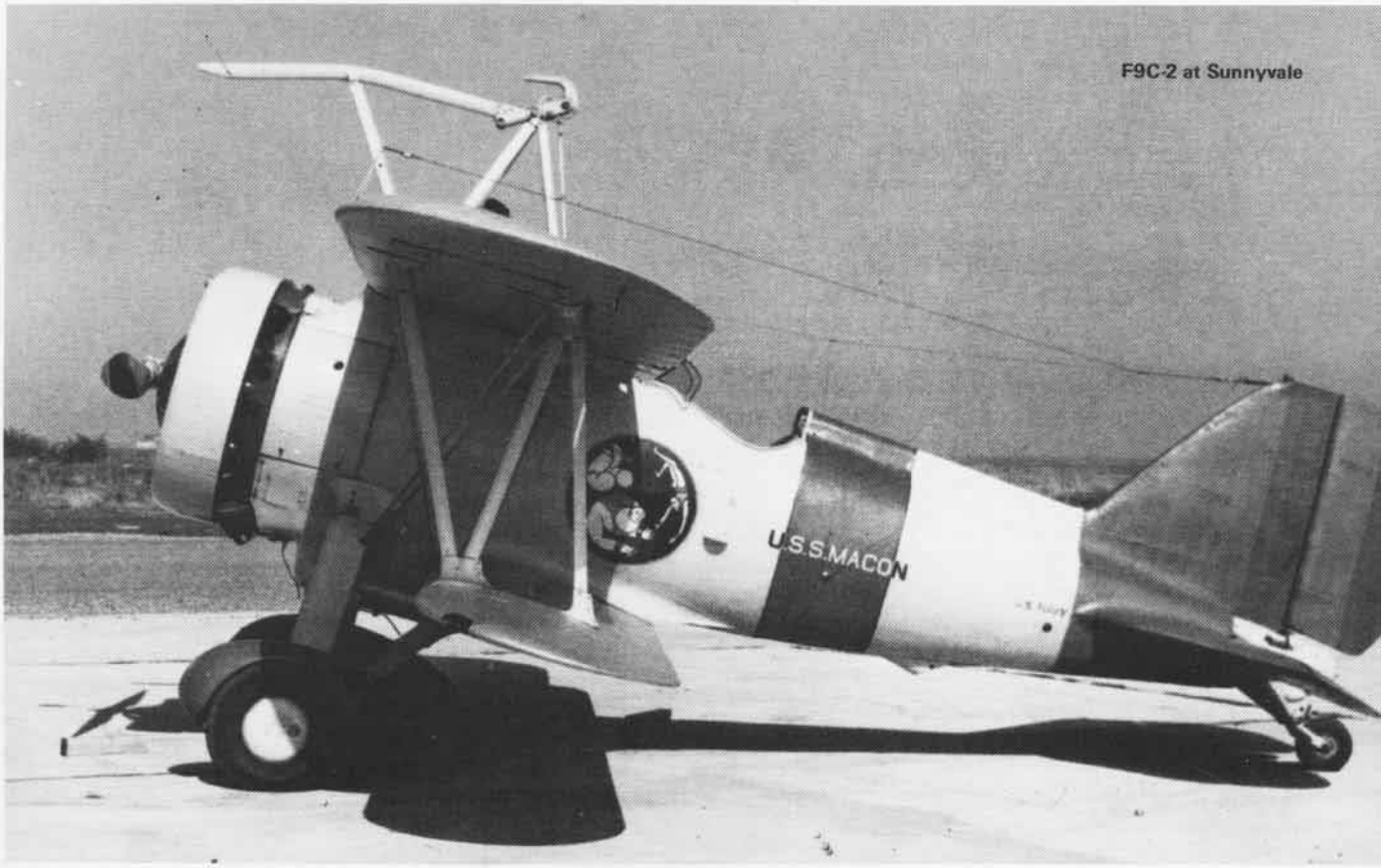
Meanwhile, the original XF9C-2 Anacostia airplane had been added to the group so that two would be overhauled and one surveyed. With the loss of one, the original one-from-two plan was to proceed. On November 3, on its way from Anacostia to Norfolk, the XF9C-2 made a forced landing without significant damage, and it was trucked the rest of the way. The survey board charged with selecting one for overhaul, using parts from the other, decided to overhaul the first F9C-2 and survey the XF9C-2. The remaining *Sparrowhawk* flew as a station airplane until it was finally grounded in 1939. Significantly, in spite of their unique pioneering mission, no *Sparrowhawks* suffered a major accident, and no *Sparrowhawk* pilot was ever injured during their years in service.

Commander A. H. Flagg, then C.O. of NAS Norfolk, proposed that the last *Sparrowhawk* be turned over to the Smithsonian Institution, Washington, D.C., in view of its unique history. It was delivered by barge to the Washington Navy Yard in 1940. For nearly 20 years, it was on display in the "tin building" on Independence Avenue which housed the major part of the Smithsonian's aircraft collection that was on exhibit.

In 1959, the aircraft was put in storage where it remained until 1971 when the Potomac Chapter of the Antique Airplane Association took on the job of restoring it as a volunteer project under National Air and Space Museum guidance. After nearly four years of spare-time effort, it was refurbished to like-new condition in its *Macon* colors. One interesting discovery during restoration was that the survey board had liberally interpreted the charge to use the best parts of the surveyed plane to restore the selected one: the fuselage with its integral vertical fin was found to be that of the surveyed XF9C-2.

On opening day of the new National Air and Space Museum building, the *Sparrowhawk*, hanging by its hook in the lighter-than-air hall, was a sparkling reminder of a unique bit of Naval Aviation history.

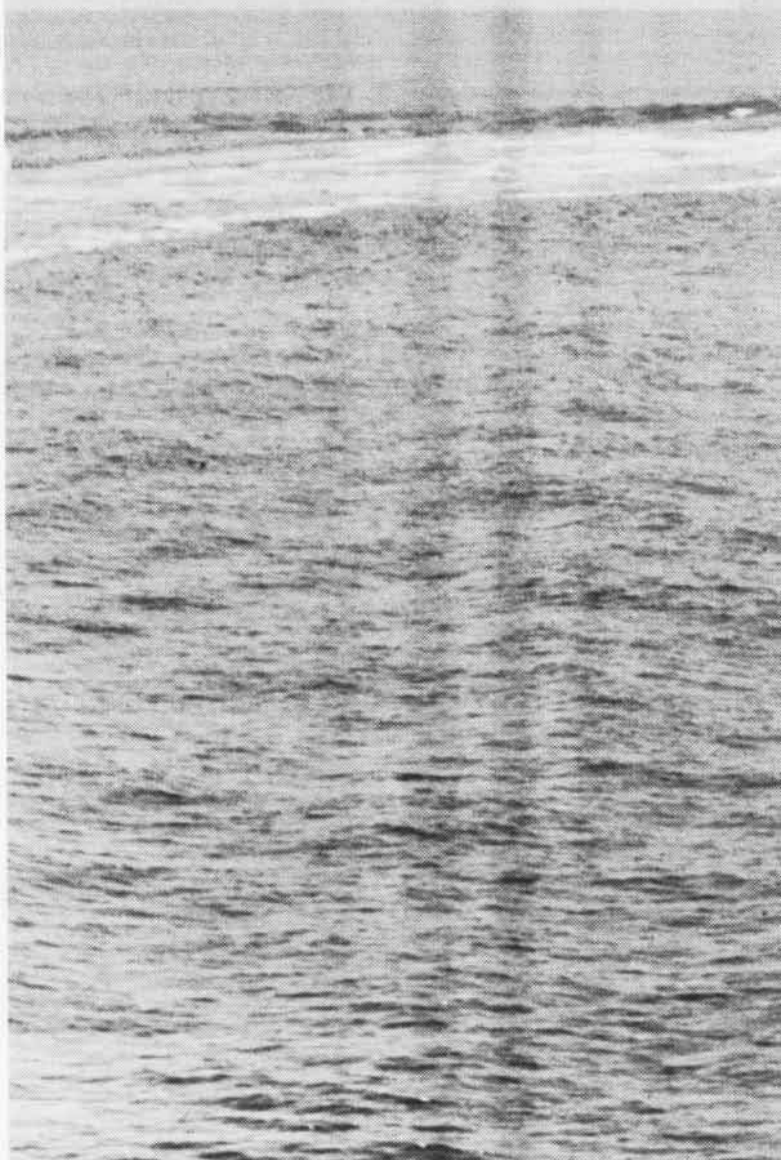
Appreciation is expressed to Arthur Butler, William Armstrong, Pearl Beatty, John M. Elliott and Phillip Edwards for assistance in making this article possible. The full story of *Akron* and *Macon* and their airplanes can be found in *The Airships Akron and Macon, Flying Aircraft Carriers of the U.S. Navy,"* by Richard K. Smith.



F9C-2 at Sunnyvale

The Men of the Fighting Lady Remember

By James T. Bryan, Jr.



The Yorktown CV-10 Association has honored the memory of former shipmates in various ways at each annual reunion since its founding in 1948. In 1951 a memorial plaque was given to the family of Commander Charles Crommelin, commanding officer of VF-5, the carrier's first fighter squadron. A bronze plaque was presented to CV-10 in 1957 in honor of VF-5's Lieutenant E. T. "Smokey" Stover, who was lost during the first strike on Truk. He was chosen as "symbolic of all those who, through service aboard *Yorktown,* made the *Fighting Lady* one of the most famous carriers in WW II."

Bronze plaques and monetary gifts have been presented to the Naval Academy in memory of Vice Admiral James H. Flatley, Jr., and Vice Admiral Ralph Jennings. In 1972, the association participated with the Cherokee Indian Nation in dedicating a bust of *Yorktown's* first commanding officer, Admiral J. J. "Jocko" Clark, of Cherokee Indian blood, at the Tahlequa Reservation.

The aircraft carrier *Yorktown* was saved from the scrap heap in 1975, towed to Charleston, S.C., and opened as the first ship in the Patriots Point Naval and Maritime Museum. The Yorktown Association then embarked on a program to memorialize 175 shipmates who gave their lives during WW II, and the Korean and Vietnam Conflicts. This drive raised enough money to build the 240-seat Smokey Stover Yorktown Memorial Theater which features films on Naval Aviation. There are also memorial chairs in the theater contributed by people in memory of shipmates or loved ones. Large plaques have been donated, primarily by squadrons. The surviving members of Torpedo Squadrons Five and One purchased a TBF *Avenger* torpedo bomber in memory of 36 squadron mates. The plane is spotted on the hangar deck just aft of the theater. The association also hopes to locate and mount photographs of *Yorktown's* 175 casualties in the theater's entrance and exit alcoves.

Patriots Point would like to have other carrier associations furnish designated spaces with photos and memorabilia pertaining to their

particular ships. Progress has been slow because there are only about 18 active WW II carrier groups; because the cost of properly furnishing space runs between $3,000 and $10,000; and since, after 35 years, pictures and mementos are scattered around the country in dens, attics and cellars.

The Yorktown Association is now exploring less expensive ways to tangibly recognize the sacrifices of those who manned sister carriers during WW II, Korea and Vietnam. In 1979 the association decided to declare CV-10 to be Naval Aviation's national memorial to carrier aviation. It also decided to expand its Board of Directors to include those with close ties to carrier aviation.

A large bronze tablet proclaiming the carrier's new role as "The Arlington of Carrier Aviation" was dedicated in ceremonies aboard *Yorktown* in October 1979. Among those who took part were Vice Admiral Wesley L. McDonald, DCNO (Air Warfare), who represented CNO Admiral Thomas B. Hayward, and Vice Admiral James B. Stockdale, USN (Ret.), Vietnam POW and Medal of Honor winner.

One of *Yorktown's* WW II chaplains, Rev. Robert A. Alexander, expressed the Yorktown Association's primary objective in dedicating the *Fighting Lady* as a national memorial.

"We are here today to open the decks of this old ship, the USS *Yorktown,* to all of her sister carriers, some 145 CVs, CVLs and CVEs that formed the primary offensive force since December 7, 1941. . . .

"We are here today to establish a living memorial to all of our sister carrier shipmates who made the supreme sacrifice during WW II, Korea and Vietnam. . . .

"We are here today to establish a living, tangible memorial that will forever remind us and the people of our nation that we must prize very highly and guard very carefully the gifts of love and devotion that they have passed on to us. . . .

"It is most fitting that this memorial should be established. Did you ever stop to think that for many of those who didn't come back, their grave is only a degree of latitude and longitude in some ship's log?"

It is hoped that in the next several years, the names of approximately 12,000 who did not come back will be inscribed on bronze plaques. In order to make *Yorktown* a memorial to carrier aviation, lists must be compiled of the casualties for each of the 145 carriers, and funds must be raised to cover the cost of the plaques.

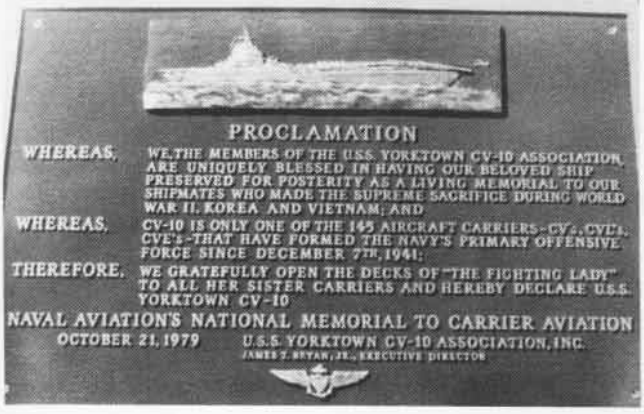
Some help in the first project came from Rear Admiral John D. H. Kane, Jr., USN (Ret.), Director of Naval History and Curator for the Navy Department, who had photostatic copies made of WW II casualty books (which are not complete). When the association compiles the casualty lists, it will have a register of carrier aviation casualties by ship, air group and war — to be cast in bronze and mounted in *Yorktown's* memorial hangar bay.

The fund-raising project started with a check from Captain James H. Flatley III, C.O. of USS *Saratoga,* for a plaque listing the five air group personnel *Sara* lost during her deployment in the Tonkin Gulf. This was followed by a donation from Capt. Flatley's uncle, Dr. John Flatley, to pay for a plaque listing 148 casualties suffered by the first *Yorktown* (CV-5). The Lexington CV-16 Association is the first carrier alumni group to participate and USS *Guadalcanal* (CVE-60) is the first CVE to be memorialized.

USS Monterey (CVL-26) was the first CVL to join the Arlington of Carrier Aviation through the generosity of her 1943-5 shipmate, former President Gerald R. Ford.

Last October, the Association elected Gerald Ford as honorary chairman of its board of directors. Others elected to the board were Admiral Arleigh Burke, Vice Admiral Stockdale, Captain Flatley and Captain Grover Walker, executive director of the Naval Aviation Museum in Pensacola.

The Yorktown Association hopes that at its 33rd annual reunion, October 10-13, 1980, many additional carriers will be represented and will have plaques unveiled at dedication services planned for that time, to honor the memory of shipmates and squadronmates who did not come back.



USS Yorktown (CV-10) at Patriots Point.

PEOPLE·PLANES·PLACES

Awards

Seventeen *Grey Knight* flight engineers from Moffett Field's VP-46 received letters of commendation for logging a significant number of flight hours during the squadron's last deployment to Misawa, Japan. A letter from Commander Patrol and Reconnaissance Force, Seventh Fleet read in part: "Seldom in my naval career have I had the pleasure of commending a group of individuals who have had a more integral part in supporting their command. You responded superbly to the challenges of high tempo flight operations...." It was also a happy coincidence that the engineers received their commendations on the day VP-46 reached the milestone of 16 years' accident-free flying.

HSL-30, Norfolk, was named recipient of the CinCLantFlt Golden Anchor Award for FY 1979 in the small shore-based activity category. The award represents the highest retention rate of any such activity in the Atlantic Fleet. In less than one year, the squadron improved retention by more than 100 percent. It also graduated nearly 15 percent more replacement pilots, aircrews and maintenance personnel on or ahead of schedule. HSL-30's primary mission is to train replacement pilots and enlisted personnel to fly and work on the SH-2F. Skipper is Cdr. R. H. Jesberg.

Lt. Thomas C. Lang, NFO from VAW-117 at Miramar, was designated by Grumman Aerospace Corporation as Hawkeye of the Year 1979. The award is presented annually to honor excellence in the early warning aircraft community. Nominees are considered for their professionalism, dedication, technical expertise, leadership and mission contribution. ComFitAEWWingPac, in conjunction with Grumman, manufacturer of the E-2, presented the award.

AT2 Ed Woodall, Point Mugu, double checks the readiness of communications equipment aboard an F-14 *Tomcat*. Woodall

was recently awarded the Humanitarian Service Medal for his participation in Operation *New Life/New Arrival*, which was part of the evacuation of Vietnamese to Guam.

Calling *Kennedy* the finest ship in the fleet, VAdm. G. E. R. Kinnear, ComNavAirLant, recently presented the Norfolk-based carrier her third consecutive Golden Anchor Award; the Atlantic Fleet's 1979 "Big Boy" Sportsmanship Award; and decorated the ship's X.O. with the Meritorious Service Medal on behalf of President Carter for "superb leadership throughout a complex overhaul," which "produced extraordinary results." The Golden Anchor is given annually to units achieving exceptional effectiveness in management, administration and support of career motivation programs. The "Big Boy" reflects voluntary participation by members of the carrier's crew in sports programs. Rear Admiral selectee Lowell R. Myers is *Kennedy's* C.O.

Records

Several squadrons marked milestones in accident-free flight hours: VC-5, 10,000; VA-305, 12,500; H&MS-12, 13,000; VA-52, 15,000; HS-6, 17,000; VAW-126, 18,000; VA-22, 22,000; VA-146, 35,000; VRC-30, 43,000; VS-24, 60,000; VA-128, 65,000; VP-24, 80,000; VS-28, 83,000; VP-40, 90,000; VT-19, 93,000; and VP-50, 97,000.

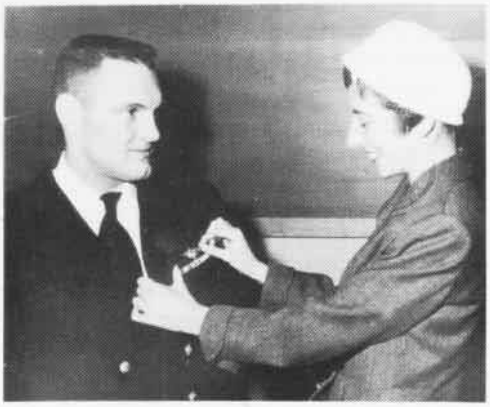
The *Woodpeckers* of VP-49 claim to lead all the East Coast patrol squadrons in safety with their record of 130,000 accident-free hours. Skipper Cdr. J. C. Payne commended his squadron on its achievement. The air crew that flew the *Woodpeckers* over the historic mark included: LCdr. Jay Williams; Lts. Dan Patterson and Al Smith; Ltjg. Alex Hill; AD1 Carl Nix; AW3s Kurt Trombino and Bryant Conway; AX3 Randy Brown; AO3 Nate Garrison; AD3 Keith Gregg; and AOAN Steve Allen. LCdr. Bill Dailey is the squadron's safety department head.

Not to be outdone in safety, the West Coast patrol community was represented by Moffett Field's VP-46. The *Grey Knights* also reached 130,000 hours, celebrating over 16 years of safe flying. The squadron was congratulated by C.O. Cdr. Mike Knosky and RAdm. Charles O. Prindle, ComPatWingPac, at a cake-cutting ceremony marking the occasion. VP-46's safety officer is LCdr. Jack Airlie, assisted by safety petty officer AMS1 Ed Peretio.

Several aviators were cited for personal flight-hour milestones in their respective aircraft. 1,000 hours: Lts. Gary Jones and Steve Park from HSL-32 in an SH-2F; Lts. Bill Knell, Julius Longshore and Steve Cole, VAW-116, E-2; LCdr. Henry Shotwell, VA-35, A-6; and Lts. Tim Lester, Bob Taylor, Larry Munns and Jim Symonds, VA-115, A-6. 2,000 hours: LCdr. Harry M. Highfill, VAW-116, E-2; Cdr. Sandy Coward and LCdr. Gene Allen, VA-37, A-7; and Cdrs. John Mazach and J. J. Coonan, VA-15, A-7. 3,000 hours: Cdr. Daniel C. Bunting, VF-102, F-4.

Et cetera

December 7th is a date carved in history for many Americans, but for one Navy family, it was the beginning of two aviation careers. On December 7, 1954, Ltjg. Richard J. Miller received his Wings of Gold from his wife, Lois, at NAS Hutchinson, Kans. The 25th anniversary of this event, in 1979,



marked the day his son, Ens. Scot Miller, received his wings, having completed advanced multi-engine training in VT-28, Corpus Christi. Now Capt. Miller is the director of advanced systems development in NavAirSysCom, Washington, D.C. Ens. Miller will report to VP-40, Moffett Field, following training in fleet replacement squadron VP-31. In second photo, Mrs. Miller strikes the same pose as she did 25 years earlier, this time with her son, Scot.

PEOPLE·PLANES·PLACES

Honing the Edge

VAW-126 has returned to Norfolk from a weapons deployment to Roosevelt Roads, P.R. Led by Cdr. H. J. Long, Jr., the *Seahawks* spent three weeks gearing up for their scheduled July 1980 deployment with CVW-1 aboard *Kennedy*. The squadron's E-2C *Hawkeyes* flew over 170 hours and participated in numerous air-to-air intercepts and strike exercises, as well as electronic warfare training, range surveillance and simulated SAR ops.

VC-12 became the first Navy squadron to drop a CTU-2A food and medical supplies container to Army ground forces, during a recent exercise at Fort Pickett, Va. LCdr. Charles Long, OinC of the

Oceana-based reserve squadron, dropped the container from his TA-4J *Skyhawk*. In a real combat situation, CTU-2As, parachuted from low-flying, high-speed jets, provide forward-area troops with essential supplies. In its six-year existence, VC-12, skippered by Cdr. O. Brooks Pollock, has flown more than 13,000 accident-free hours.

Kapitanleutnant Michael Bunke, German Navy, is congratulated by Lt. Randy Smith, RIO, after they returned from Bunke's first carrier landing aboard *Eisenhower*. Bunke was undergoing replacement pilot training at VF-171, Oceana, at the time and is believed to be the first German naval officer to carqual on a U.S. carrier.

Change of Command

ComHelWingRes: Cdr. Philip F. Duffy relieved Cdr. Charles T. Steckler.

ComLAtWing-1: Capt. L. W. Smith relieved Capt. H. P. Kober.

CVW-14: Cdr V. J. Huph relieved Capt. Dave Rogers.

HS-2: Cdr. Steven M. McDermaid relieved Cdr. Vernon H. Von Sydow.

HSL-31: Cdr. Brian H. Shoemaker relieved Cdr. Jerry L. Vanatta.

HT-8: Cdr. Vincent C. Secades relieved Cdr. John P. Gander, Jr.

NAS Lemoore: Capt. James M. Gleim relieved Capt. Leroy B. Keely.

VA-94: Cdr. Paul Cassiman relieved Cdr. Paul E. Otto.

VA-146: Cdr. Larry J. Vernon relieved Cdr. James A. Lair.

VA-147: Cdr. David J. L'Herault relieved Cdr. Phil Gubbins.

VAW-115: Cdr. George E. Huxhold relieved Cdr. G. Arthur Harrison.

VF-302: Cdr. K. W. Pettigrew relieved Cdr. Dudley Moore III.

VMFA-312: LCol. George T. Schmidt relieved LCol. D. J. Kiely.

VP-4748: Cdr. Robert L. Wilson relieved Cdr. Walter J. Shriver.

VR-53: Cdr. J. A. Montaro relieved Cdr. D. G. Schaefer.

VRF-31: Cdr. Donald R. Denault relieved Cdr. David F. Silseth.

VS-22: Cdr. Danny Powers relieved Cdr. Paul Love.

VS-31: Cdr. Frank Brough relieved Cdr. Carl Lind.

TIME TO STAY

Enlisted College Programs

NavOp 033/80 announces two new enlisted education programs: enlisted education advancement program (EEAP) and enlisted commissioning program (ECP). Both offer full pay and allowances during time of study, but participants must finance their own education.

EEAP enables a person to earn an associate degree in 24 months while on active duty. Requirements are: applicant must be between 21 and 36 years of age, and have 4 to 14 years of service; have a high school diploma or GED equivalency; and a GCT/ARI or WK/AR of 110.

ECP allows persons with college credit to complete requirements for a baccalaureate degree in 24 months and subsequently earn a regular Navy commission via Officer Candidate School. Requirements are: applicant must be between 22 and 31 years of age with 4 to 11 years of service.

Competition for the program's limited positions – 50 ECP, 75 EEAP – will be extremely keen and the deadline for application is May 15. Contact your personnel office.

A Retiree's Perspective

AECS John Eubanks transferred to the Fleet Reserve in August 1978 after 22 years of active duty. He currently lives in Jacksonville, Fla., where he owns a television sales and service business.

"I joined the Navy March 1, 1956, after dropping out of high school. I was unable to find employment because my only skills were farm work, construction work and a paper route. I was an unskilled 17-year-old. My reluctant parents finally consented to sign for me to join the armed forces. After first being accepted by the Air Force, I changed to the Navy to enlist with friends.

"By far the toughest years of my career were the first ones. The responsibilities of a wife and child followed, along with learning my rate and becoming a petty officer. I think the worst aspect of Navy life at this point was definitely the meager pay. I found it necessary to work in the Alabama corn fields during off-duty hours to support my wife and two children.

"In 1960 I reenlisted after being out for 80 days. I decided I would make the Navy my first career. I was trained and assigned duty involving flying, and qualified as an aircrewman in the P-2 *Neptune.* I remained in aviation throughout my career, eventually qualifying as a P-3 flight engineer. Most of the training I received after my first enlistment was people and management-oriented, which prepared me well for eventual assignment as a maintenance control supervisor.

"I approached the latter years of my Navy career with a concern for my future employment. About mid-career point, I was a part-time employee in a radio and TV repair shop in Pensacola, Fla., where the owner trained me and spurred my interest. I always had the desire to own my own business after my Navy career. My Navy training seemed to enhance my ability to work in radio and TV repair. I started to buy tools and by 1968 I was building test equipment that I would need to work as an independent technician. In 1973 my wife began working, to help prepare us for retirement.

"I was first eligible to retire in 1975, but decided to accept orders to Jacksonville where we had a home. I felt this would give me time to establish myself for a civilian career. In 1976 I was selected for E-8, which required an extension, but I was able to be reassigned to VP-56 in Jacksonville. I had already bought a radio and TV license and was running a one-man, part-time repair business. In late 1977 I was given the job of squadron maintenance chief and my Navy job consumed all my time. The business had grown to the point that I was able to employ two people. I decided to retire in August 1978, based on the need and growth of the business.

"In retrospect, I know that our success to date is largely due to training, understanding and friends we found in the Navy. We still are dependent upon the Navy retirement pay to make ends meet. However, business is picking up and hopefully my wife will not need to work much longer. The one thing that every retiree misses most has to be the people he worked and lived with during his Navy career. We are still fortunate enough to see some of them from time to time and will always cherish the memories of the many others."

Definitely. . . a career

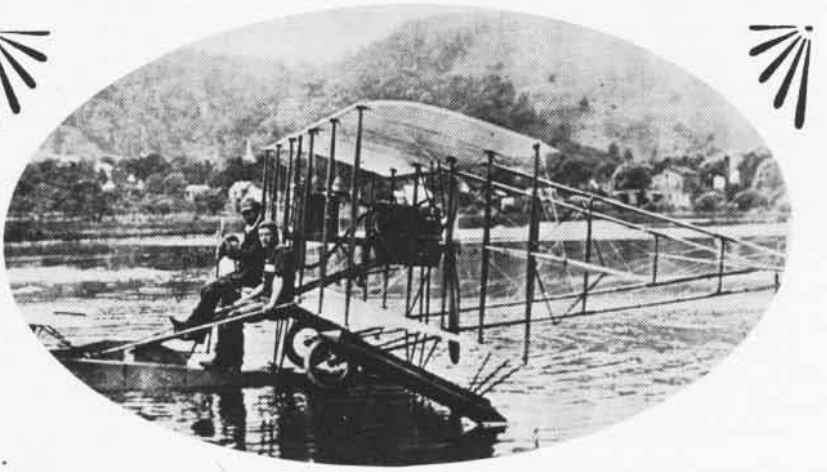
AQ1 T. D. Woodford enlisted with broken service on November 14, 1979, and is assigned to VF-154 at NAS Miramar, Calif.

"I spent twelve and one-half years in the Marine Corps and decided to take a chance in the civilian world. I got a couple of real good jobs somewhat related to what I'd been trained for. Unfortunately, these jobs relied on contracts from airline companies. I found out quickly that no matter how good you are, if a contract is completed or cancelled, the last hired are the first laid off.

"I did have some good times as a civilian, but thinking back, the few months I had to draw food stamps and hunt for a secure job were no fun. Not to mention how I would feel or what I would do if one of my three boys had to go into the hospital.

"We've only been in the Navy a few months, but we know we made the right choice. We'll definitely complete a career. We don't want to have to worry about the cost of medical care or the possibility of layoffs, and we enjoy the close warmth Navy families have with each other."

THE Curtiss MUSEUM



In the sunset calm, Curtiss lifted the A-1 from the glassy water to circle the lake. Chambers was delighted; Ellyson was impatient. When Curtiss beached, Ellyson took the passenger's seat, and the inventor took off again, then stepped ashore after the hop. Ellyson, preparing to solo, announced he would now fly for his license. He had put off the test, so the Navy's first aviator could qualify in the Navy's first plane.

This passage, describing a scene on Lake Keuka near Hammondsport in 1911 featuring the A-1 *Triad* aircraft, is quoted from *Anchors in the Sky* (Presidio Press, 1978), the biography of Spuds Ellyson. Written by Rear Admiral George van Deurs, USN(Ret.), the book is a fascinating and superbly documented account of Naval Aviator #1. Among many other events, it describes how Captain Washington Irving Chambers and Lieutenant Ellyson, working with Curtiss, struggled to get Naval Aviation off the ground. The drama of those days is richly remembered at the Glenn H. Curtiss Museum.

It's a little like going through a time warp," said a visitor to the Glenn H. Curtiss Museum in Hammondsport, N.Y. "Pass through the door and you're in turn-of-the-century America."

True enough. The small but captivating museum, which honors one of man's greatest aviation pioneers, has spacious rooms with high ceilings and wood floors that creak underfoot. It houses a wonderful collection of vintage flying machines, aircraft engines, and memorabilia from the "age of homespun." Everything from ladies' fashions in the late 1800s to Edison phonographs are there for the viewing. Quilts are mixed with antique toys, vintage cameras with old-fashioned dentistry tools. They all fill display cases and virtually every nook and cranny in the museum.

Another visitor, who had marveled at the fragile beauty of Curtiss' famed *June Bug* (a near-perfect replica), was equally impressed with the shiny, spiked helmet that once belonged to a German infantryman. The artifacts are bathed in natural light from many windows, except for a basement exhibition area. The stone building is two stories high, wears a coat of ivy and was once a school where Glenn Hammond Curtiss learned his three Rs.

Curtiss, of course, is *the* father of the flying boat and one of the most productive mechanical geniuses of his time. He was born in 1878 in Hammondsport, which is located on the southern tip of Lake Keuka in the heart of New York State wine country. Some called him a "backyard" or self-made engineer. Importantly, he designed and flew airplanes that represented great advances in the infant age of flight.

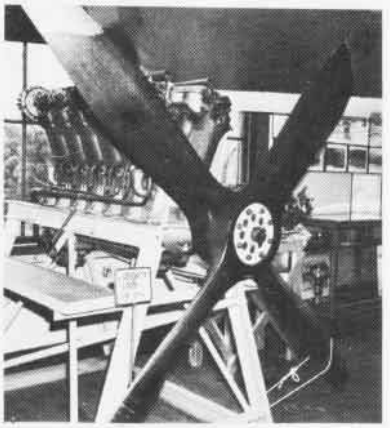
He trained the Navy's first pilot,

By Cdr. Rosario Rausa

Lieutenant Theodore "Spuds" Ellyson, and Ellyson trained the third, Lieutenant Junior Grade John Towers, at Hammondsport. Curtiss, therefore, played a critical role in laying the foundation upon which Naval Aviation thrives today.

As a teenager, Glenn Curtiss ran a successful bicycle business. Fascinated by things mechanical, he turned to motorcycles and in 1907 earned billing as "The Fastest Man On Earth" by reaching 136.7 mph on his eight-cylinder motorcycle. His flying interests were actually spawned in 1904. Captain Thomas Baldwin, a balloonist, asked Curtiss to build an engine for his dirigible, the *California Arrow*. While working with his two-wheelers, Curtiss also produced a dirigible engine that proved so successful he was soon in the aviation business as well. Later, the Aerial Experiment Association was formed by Dr. Alexander Graham Bell and Curtiss was asked to join the group as director of experiments. The organization's main focus was on scientific study of winged flight.

The *Red Wing* was a product of the association's work and flew before many witnesses on March 12, 1908. It was considered by many to be the first successful public flight of a flying machine in America. The *Red Wing* was carried aboard the steamer *Springstead* through the icy waters of Lake Keuka that day and Mike Mandiak, the museum's staff photographer, likes to think of the ship as "the first aircraft carrier." Purists would disagree, pointing out Professor Langley's Aerodrome of 1903 which was carried on a houseboat, or the Union transport *Fanny*, from whose deck ascended balloonist John LaMountain in 1861.

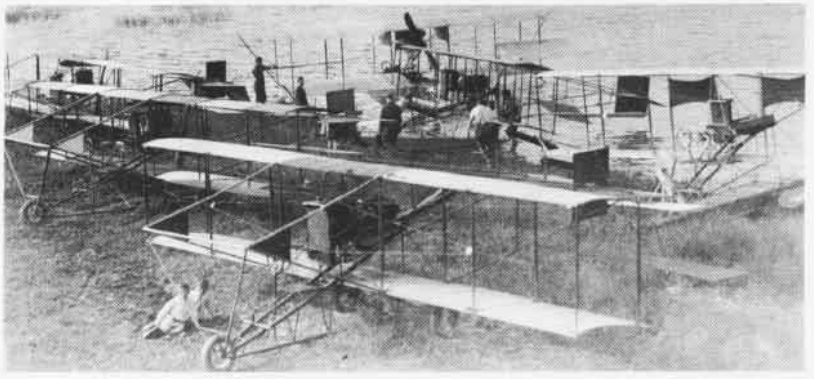


Liberty engine; below, Curtiss attended school in building which now serves as museum; opposite page, Curtiss, Ellyson and Navy's first aircraft, A-1 Triad.

No matter. The important thing is that the Curtiss Museum is chockfull of exhibits and a visitor doesn't have to be a buff to enjoy them. "We do have a growing library and archives for researchers," explained curator Merrill Stickler, "but most people come just to enjoy looking at the airplanes and the photographs and all the other artifacts." Added Stickler, "We do request that those wanting to use the research library give us a little notice so that we can properly arrange to show them what we have in the way of pictures and written matter."

Among the displays in the old schoolhouse are a 1912 Curtiss *Pusher*, part original machine, part reproduction; the fuselage of a *Jenny* ("We're still working on the wings,"

THE Curtiss MUSEUM



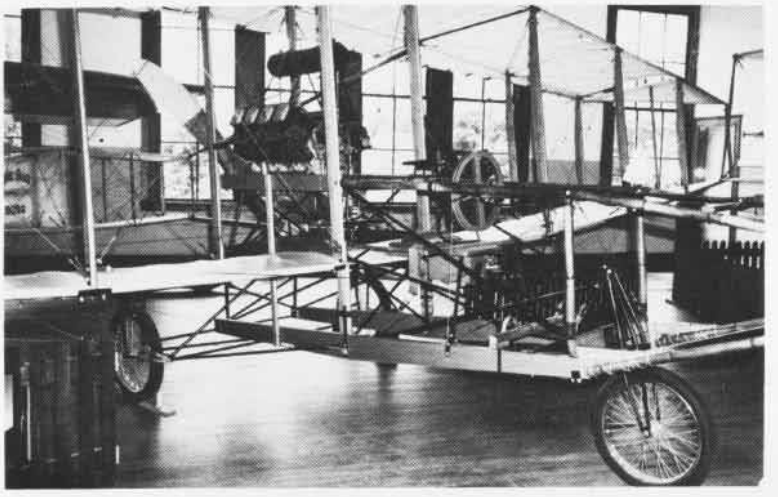
Clockwise from left, Steamer Springstead with Red Wing on board; aircraft of the Glenn Curtiss Aviation School are depicted in this photo from a vintage post card; June Bug replica; Curtiss and record-breaking motorcycle; and remnants of Springstead were discovered in 1968: tiller and part of hull, which was used for shoring.

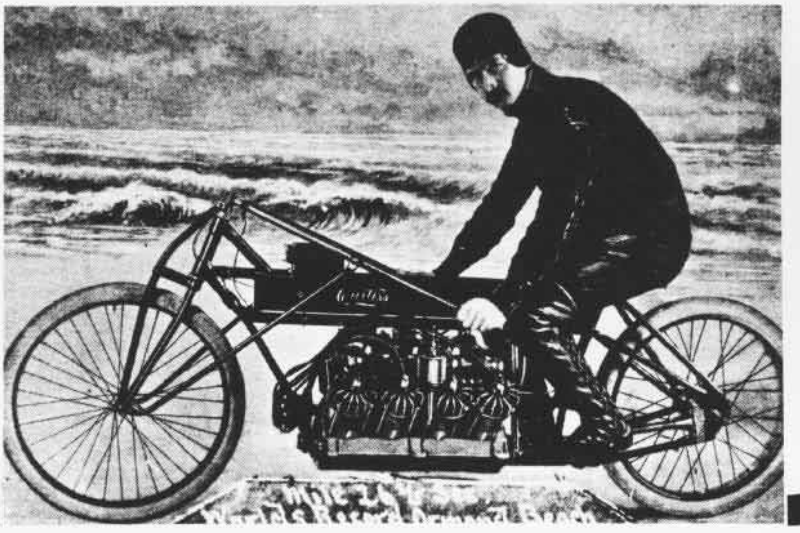
explained Stickler); the fuselage of a 1919 Curtiss *Oriole;* a 1927 Curtiss *Robin;* a Mercury Aircraft *Chic;* a replica of the *June Bug,* one of Curtiss' most well-known planes; and a variety of other aircraft parts and engines. Among five motorcycles, incidentally, is the one Curtiss rode to his 1907 speed record. It's on loan from the Smithsonian Institution.

Artifacts are still being discovered along the shores of the lake where flight activities flourished in days gone by. Ray Tillman, an employee of Mercury Aircraft, Inc., of Hammondsport, an offshoot of the Curtiss Company, is on the museum's board of trustees and is an expert on Curtiss history.

"What looked like a tiller and part of the wooden hull of the steamer *Springstead* (*Red Wing*'s 'carrier') were found in 1968," said Ray. A few of us examined the pieces and by cross-checking with photos and other records we were able to confirm that they did indeed come from the *Springstead."*

Both Ray and Mike, who is a postal worker but spends much of his spare time in Hammondsport





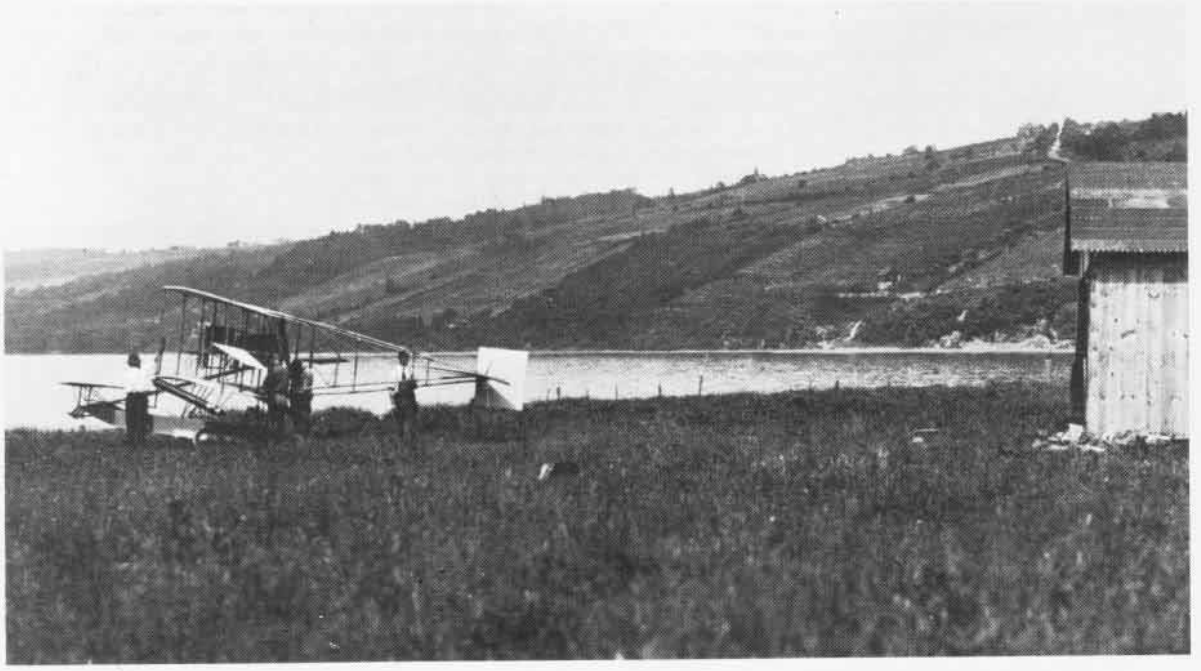
THE Curtiss MUSEUM

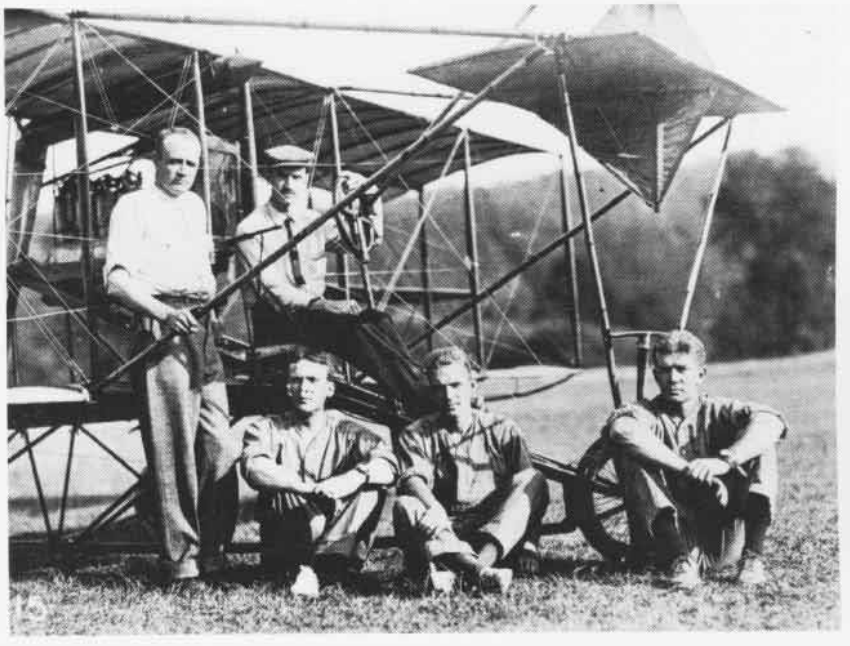
mingling with museum visitors and adding explanatory notes on Curtiss history for their pleasure, typify the support the museum enjoys. They are sincerely proud of the Curtiss heritage and interested in promoting knowledge of it. Ray, for example, can answer virtually any question about Glenn Curtiss and his associates. He can tell you about the boarding house where Spuds Ellyson lived while at Hammondsport and detail the locations where actual takeoffs and landings took place more than 65 years ago.

The museum, incidentally, is also considered the center of the western New York Glenn H. Curtiss wing of the OX-5 Aviation Pioneers, a group of early pilots and mechanics interested in furthering aviation knowledge. (The OX-5 was a Curtiss aircraft engine.)

"We're open from May through October," said Merrill Stickler, "Monday through Saturday from nine to five. Although our attendance was down some last year," he added, "we average 20,000 visitors annually."

It is well worth the journey to New York State's wine country for those who would like a genuine glimpse of Americana and aviation as they were in the eventful early years of the twentieth century.





Opposite, Curtiss and Ellyson in cockpit of early flying boat at edge of Lake Keuka. Above, A-1 is in foreground. Vineyard runs up slope of distant hill. Right, the master, Glenn Curtiss, at the wheel with Lt. John McClaskey (USMC), standing, and left to right on the ground: Paul Beck, John Towers and Naval Aviator No. 1, Spuds Ellyson, in 1912.

LETTERS

Blue Angels' Schedule

May

3-4	MCAS El Toro, Calif.
10	NWC China Lake, Calif.
11	NAS Lemoore, Calif.
17-18	Ellington AFB, Texas
24	MCAS Beaufort, S.C.
26	U.S. Naval Academy, Md.
31	Grand Junction, Co.

June

1	Grand Junction, Co.
7-8	Fort Collins, Co.
14-15	NAS Corpus Christi, Tex.
21-22	Hamilton, Ont., Canada
28-29	Lexington, Ky.

July

4-6	NAS Willow Grove, Pa.
12-13	NAS Pensacola, Fla.
19-20	Dayton, Ohio
26	Kearney, Neb.
27	Scottsbluff, Neb.

August

2-3	NAS Brunswick, Maine
8-9	Abbotsford, B.C., Canada
10	Seattle, Wash.
16-17	Corvallis, Ore.
23-24	Flint, Mich.
30-31	Cleveland, Ohio

September

1	Cleveland, Ohio
6-7	Aurora, Ill.
13-14	Topeka, Kans.
20	NAS Patuxent River, Md.
21	NAS Oceana, Va.
27-28	NAS Atlanta, Ga.

October

4-5	NAS Miramar, Calif.
11-12	NAS Point Mugu, Calif.
18-19	NAS Cecil Field, Fla.
25-26	Lake Charles, La.

November

1-2	Shaw AFB, S.C.
8-9	NAS New Orleans, La.
15	NAS Meridian, Miss.
16	NAS Pensacola, Fla.

Wings

I read with great interest the letter on wings from AT2 Mansfield suggesting the addition of enlisted aircrewman wings to the inside back cover of *Naval Aviation News*.

Certainly the same question must have been raised some time ago when NFO wings came into existence. The answer is equally as apparent. No fewer than eight pages of your January issue had some mention, either in word or photo, of the enlisted role in Naval Aviation. On a page highlighting squadron insignia it would be most appropriate, in this humble reader's opinion, to display those enlisted Wings of Gold.

Cdr. Charlie Sapp, USN
Weapon System Manager
Naval Air Rework Facility
Pensacola, Fla. 32508

It took the editorial staff of *Naval Aviation News* a long time to realize that NFOs work just as hard as NAs to obtain their wings and they wear them with pride equal to that of the NAs. Eventually, NFO wings were featured in *NANews*.

Now you want to run a poll on AT2 Mansfield's request for a display of aircrewman wings. Is a poll needed? Are the old prejudices still at work? Forget the poll, display the wings.

Maj. James C. Harrington,
USMC (Ret.)
P.O. Box 254
Clinton, Ind. 20735

NRL Annual Course

The Naval Research Laboratory will present its annual two-week course on software engineering principles at the U.S. Naval Academy in Annapolis, Md., July 14-25, 1980. There will be a registration fee of $300-$400 and an activities fee of $35.

This is a technical course for DOD personnel involved with the acquisition or development of software, to improve their ability to evaluate software requirements, specifications, design, correctness and maintainability. It concentrates on technical problems of software design.

Applicants should have a basic knowledge of DOD software problems and policies; they should also be familiar with programming language. Applicants will be screened on background and responsibilities, and priority will be established by the organization sponsoring the student. Course enrollment is limited to 50 students.

For information or an application form, contact Mr. Louis Chmura (autovon 297-3249; commercial 202-767-3249) or Ms. Janet Stroup (autovon 297-3212; 202-767-3212. The address for both is Code 7503, Naval Research Laboratory, Washington, D.C. 20375.

The Naval Aviation History Office is trying to update its insignia files. Of particular interest are Navy and Marine Corps squadron insignia from WW II and Reserve units right after the war. Any readers who might have photos of unit insignia – pictures of flight jackets bearing patches would be helpful – are asked to lend them so that duplicate pictures can be made. The originals will be returned. Actual patches or decals, would, of course, be most welcome and these would also be returned to the sender after being photographed. *Naval Aviation News* will publish the insignia photos in a future issue. Please send insignia information to: Naval Aviation History, Bldg. 146, Washington Navy Yard, Washington, D.C. 20374; autovon 288-4355; commercial 202-433-4355.

Reunions

There will be a USS *Ommaney Bay* Composite Squadron Survivors' reunion in St. Louis, Mo., June 6-8, 1980. For details please contact Howard W. Fisher, 8144 Parkwood Drive, St. Louis, Mo. 63123.

All former VXN-8 Blue Eagle/World Traveller officers who are interested in attending a ball at the Cedar Point Officers Club, NAS Patuxent River, on June 28, 1980, please write or call LCdr. D. L. Gagliardi, VXN-8, NAS Patuxent River, Md. 20670, 301-863-4798.

The sixth annual reunion of the Navy *Hurricane Hunters* of VPB-114, VPW-3, VPM-3, VPHL-3, VP-23, VJ-2 and VW-4 will be held at the CPO Club, NAS Jacksonville, Fla., Saturday, June 21, 1980. Join your old friends for an evening of reminiscing. Call 904-387-1015, 264-3361 or 264-5188 for further information and reservations.

Published monthly by the Chief of Naval Operations and Naval Air Systems Command in accordance with NavExos P-35. Offices are located in Bldg. 146, Washington Navy Yard, Washington, D. C. 20374. Phone 202-433-4407; Autovon 288-4407. Annual subscription: $18.00, check or money order ($4.50 additional for foreign mailing) direct to Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Single copy $1.50.

squadron insignia

Helicopter Anti-Submarine Squadron Eight was established in June 1956 and operated from NAAS Ream Field, Imperial Beach, Calif., flying the HSS-1. It was deactivated on December 31, 1968, and reestablished on November 1, 1969, this time equipped with the SH-3D Sea King. Today, the Eightballers fly their SH-3Hs out of North Island. Under the leadership of Commander Robert Parkinson, HS-8 accomplishes its primary mission which is to detect, identify, localize, attack and destroy enemy submarines. The squadron also conducts SAR and various utility missions, such as medevacs and personnel and cargo transport. The insignia's medieval mace with the eight ball piercing a submarine represents HS-8's ASW prowess; the winged glove grasping a chain symbolizes its airborne striking force.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