

NAVAL AVIATION

NEWS



50th Year of Publication

AUGUST 1969

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A WORTHY ENTERPRISE

With its aircraft and ships, the Navy provides a naval presence in overseas areas and ports as a force-in-readiness — present, but without commitment — to demonstrate U.S. concern and resolve in the support and furtherance of United States foreign policy and interests, in all corners of the world.

NAVAL AVIATION NEWS

Vice Admiral Thomas F. Connolly
Deputy Chief of Naval Operations (Air)

Rear Admiral Frederick H. Michaelis
Assistant Deputy Chief of Naval Operations (Air)

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A plane captain is someone special, for he is thoroughly trained for his responsibility as the last man to inspect the aircraft before a takeoff.

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COVERS

PH1 Arnold A. Clemons used a 180° fisheye lens to photograph the bow catapults aboard USS Saratoga (CVA-60). On the back cover is the NAS Miramar runway as seen by PH3 James A. Fallon. The tight pattern of S-2 Trackers, above, is the work of PH2 Bob Knudsen aboard CVS-33.

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NAVAL AVIATION NEWS

Famed Crusader Returns to Duty Record-Breaking RF-8A Will Fly Again

A famous RF-8A photographic *Crusader* jet, used by Major (later Colonel) John Glenn to set a supersonic transcontinental speed record from Los Angeles to New York in 1957, has been resurrected from the "mothball fleet" and soon will be flying again.

The plane, the third of some 144 photo *Crusaders*, built by Chance Vought, was placed in storage in Arizona in 1966. A new Navy need for supersonic photographic aircraft brings the *Crusader* out of retirement.

After it is completely overhauled and modernized at LTV's Vought Aeronautics Division plant, Grand Prairie, Tex., it will be returned to the fleet.



NAVY'S NEW trainer version of the famed Skyhawk series of attack bombers, the TA-4J, takes off from the Palmdale, Calif., facility of McDonnell Douglas. It is lighter than its predecessor, the TA-4F, and does not have the air-to-air and air-to-ground weapon launch equipment. It is powered by a single P&W J52-P-6 jet engine which develops 8,500 pounds of static thrust. The TA-4J, designed for the use of the Naval Air Advanced Training Command, is painted a glossy white with orange markings on the nose, wingtips and tail.

LATE NEWS BRIEF

This news item arrived in the NANews office shortly after deadline:

The aircraft carrier *Lexington* (CVT-16) reached her goal of 250,000 arrested landings on the last day of operations in the Gulf of Mexico just before leaving for overhaul in the Boston Naval Shipyard.

Captain Wayne E. Hammett, *Lexington* commanding officer, made the record landing in a T-2B jet trainer. Commander Donald Jensen, VT-4 C.O., was in the second seat. (See "At Sea With the Carriers" for a report on recent *Lexington* milestones.)

Class Distance Record Claimed OV-10A Makes Fast Atlantic Crossing

Early in June, two Marine Corps pilots claimed an aircraft distance record in an OV-10A *Bronco* by flying nonstop from Stephenville, Newfoundland, to Mildenhall AFB, England. From Mildenhall, they flew to France where the aircraft was displayed at the Paris Air Show.

Lieutenant Colonel Robert L. Lewis, air reconnaissance program coordinator for the Deputy Chief of Staff (Air), Marine Corps Headquarters, and Maj. Charles L. Phillips, OV-10A deputy program manager, Naval Air Systems Command, made the 2,522-statute-mile flight in 11 hours and 49 minutes.

The old distance record for class 1-F, group 2, aircraft was set in an

Army OV-1 *Mohawk* in 1966 in a flight from Seattle, Wash., to Sherbrooke, Canada, a distance of 2,385 statute miles.

The *Bronco* is a twin-engine, turbo-prop, visual reconnaissance plane, built by North American Rockwell. It has been used by the Marine Corps in Vietnam since July 1968.

Equipped with one extra fuel tank, the aircraft experienced some icing problems and bucked 20-knot headwinds during its trans-Atlantic flight. However, Col. Lewis said, the crew and plane arrived in England "in fine shape." With the exception of the extra fuel tank, the OV-10A is the same aircraft as those in Vietnam.

The two Marine pilots have submitted a claim for the official record to the Federation Aeronautique Internationale.

General Carl Heads Pilot Group President of American Fighter Aces

In Colorado Springs at the June meeting of the American Fighter Aces Association, Major General Marion E. Carl, CG, MAW-2, was made president of the American Fighter Aces Association. As the first Marine to be so honored, he succeeds Colonel Francis S. Gabreski, USAF (Ret.).

Gen. Carl, the Marine Corps' first air ace, gained membership in the elite aviation fraternity during the Battle of Guadalcanal, downing a total of 18½ aircraft and receiving his second Navy Cross. He had earned the first in an attack against a vastly superior number of Japanese bomber and fighter planes during the Battle of Midway.

Following WW II, Gen. Carl was assigned to the Naval Air Test Center, Patuxent River, Md., as a test pilot. He was one of the first Marines to qualify in jets and the first Marine pilot to land aboard a carrier. He later commanded the Corps' first jet fighter outfit, VMF-122, and led the first jet aerobatic team.

In 1953, he qualified as the first Marine rocket pilot and, while testing a new Navy high-altitude pressure suit, set an unofficial world's altitude record in the Navy's rocket-powered Douglas *Skyrocket*.

A North Island Unit Celebrates Naval Air Rework Facility 50 Years Old

The Naval Air Rework Facility, North Island, celebrated its Golden Anniversary on July 19, 1969, with an Open House to which the general public was invited. The day was marked by tours of the plant, dedication of a commemorative plaque, an Old Timers' Reunion, static displays and special events.

The mammoth aircraft rework depot was established in 1919 as the assembly and repair department of the naval air station. The name was changed to overhaul and repair department in 1948. It became a separate command on April 1, 1967.

A commemorative coin was minted for the occasion: a gold-plated bronze medallion the size of a silver dollar.



U.S. COAST GUARD pilots flying search and rescue and other missions now have one of the most advanced navigation systems at their fingertips. The AN/AYN-1 has been installed in the HH-3F, the first time this sophisticated avionics systems has been adapted to peacetime use. The HH-3F is a fully amphibious helo with a search radius of over 300 miles.

Quonset Point Establishes Award To be Given for Aircraft Maintenance

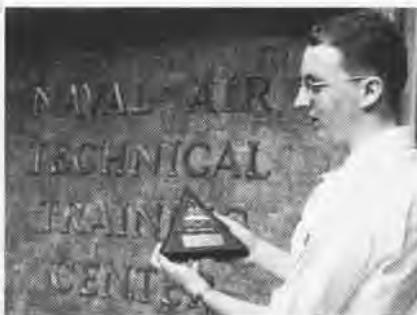
A program which will recognize professionalism and expertise in aircraft maintenance in various fleet squadrons attached to ComFAir Quonset at NAS Quonset Point is planned for the near future, according to Commander Daniel F. Rayder, ComFAir maintenance and material officer.

Cdr. Rayder's staff will select every

six months a squadron that has demonstrated outstanding aircraft maintenance procedure. A wall plaque will be given the squadron to retain until another semi-annual review is conducted.

The plaque, donated by the Grumman Aircraft Engineering Corporation, will be known as the "Admiral Massey Aircraft Maintenance Award."

At the time of his retirement July 1, after 42 years of naval service, Rear Admiral Forsyth Massey was Commander, Fleet Air Quonset.



TDAN Christopher R. David finished the eight-week Training Devices "A" course at NATTC Memphis with an average of 94.12, a record high since the course was established in November 1964. He was given a letter of commendation and a plaque by Cdr. S. E. Brent, the administrative officer.

Chuting Stars Reunion Planned To be Held in September at Whidbey

NAS Whidbey Island will be host to a reunion of the U.S. Navy Parachute Exhibition Team, *Chuting Stars*, on September 6 and 7.

Former members of the *Chuting Stars* for whom the reunion is planned should address their inquiries or reservations either to Commander Paul Salgado, USN, NAS Whidbey Island (Code SU), Oak Harbor, Washington 98277, or PH1 Chip Maury, UDT 11, Naval Amphibious Base, Coronado, San Diego, Calif. 92118.



GRAMPAW PETTIBONE

Flirting with the Angels

The pilot reported to the squadron and assumed the operations duty watch at 0545 in the morning. When relieved at noon, he was immediately scheduled for a close air support flight in an A-4E which landed at 1430. He was then free until a 2130 briefing for a night support mission which took off on schedule at 2300.

An instrument departure was made with VFR conditions on top. As he leveled off at 18,500 feet msl about ten minutes after takeoff, he noticed the loss of his oxygen supply. Since the cabin altitude was only 9,500 feet, he removed his mask to ease breathing. He then initiated a left turn for a return to home plate and advised the controller he was aborting his mission because of a loss of oxygen. The controller directed an immediate right turn to avoid a restricted area. The pilot remembers making a hard right turn.

From that point on, the pilot's recollections are vague, and the account of the rest of the flight was reconstructed from the reports of the controller and wingman. The pilot



remembers pulling his emergency oxygen and placing the handle on the glare shield of the instrument panel. Thereafter he recalls only bright lights and noise in his earphones. The controller gave vectors to the pilot to bring him back to the base, but these were only acknowledged confusedly after many repetitions.

After being switched to approach control with some difficulty, the pilot was cleared for straight-in by GCA. Clearance was acknowledged, but the

pilot repeatedly requested the heading to the field though it had been given to him several times. After requesting a descent, he was cleared to 2,500 feet, given the weather and advised that there were layers of clouds, but that the field was VFR.

The pilot's wingman, who had been approximately one mile in trail after the individual instrument departures, had been attempting to join up at the time the pilot called in about losing his oxygen. His unsuccessful efforts were terminated when he lost sight of the *Skyhawk* as it entered a cloud layer.

In the soup, the pilot reported he was having extreme difficulty, was squawking emergency on his IFF and was preparing to eject. His wingman advised him to go to ram air on the pressurization system. This he acknowledged. He next said he was VFR at 1,500 feet and requested GCA. GCA talked him in to touchdown which was pretty good, considering circumstances. The aircraft bounced slightly, the pilot dropped his hook and was stopped by the arresting gear.

The crash crew helped the poor man out of the cockpit and he was taken to sick bay for examination.



Grampaw Pettibone says:

Great heavenly days! This lad must have been thinkin' pure thoughts all week. He's durn lucky to be around to breathe the pure free air.

The sad part of the story is that the squadron maintenance people and the personal equipment technicians were unable to determine any malfunction of equipment or find any discrepancy in the pilot's mask, the aircraft pressurization or the oxygen system. No incident report was filed, nor was an MOR (medical officer's report) prepared by the squadron regarding this unusual occurrence. Looks like this will be another one of those big question marks which next week may trap some other unwary pilot.

When oxygen problems develop, prompt positive procedures must be employed almost as an automatic response to assure a safe return to terra firma.



Illustrated by *Opbom*

Mental Malfunction

The two-place TA-4F *Skyhawk* attack trainer was assigned to a cross-country flight from one southeastern air station to another. It was the first flight for the Marine captain following his NATOPS instrument check after about 50 hours of training in type. He had had no previous fixed-wing jet experience and only a few hours in other fixed wing types since he was a helicopter pilot by trade.

The rear seat passenger, a non-aviation-oriented PFC, was on his first flight in a jet aircraft. The pilot and the plane captain gave him a cockpit familiarization and seat check-out before they manned the aircraft.

The first leg to an intermediate AFB was incidental. Air traffic control cleared them considerably lower than their requested altitude and this necessitated a fuel stop en route.

Since it was but a short distance to their destination, the pilot asked that the external tanks not be filled with fuel. He also decided that, because the oxygen system was depleted, they wouldn't need to use their oxygen masks and would fly at low altitude for such a short hop.

As the men returned to their aircraft about an hour later to prepare for departure, the refueling crew was just finishing up. They offered to fill the drop tanks to which the pilot agreed.

When calling the tower, the pilot

changed his requested altitude of 25,000 feet to 5,000 feet and, upon receiving clearance, off they went. The 40-minute flight went smoothly at 5,000 to 7,000 feet. The *Skyhawk* entered the break at the NAS at 1,500 feet msl with a heavy load of 6,000 pounds of fuel still on board.

At the 90-degree position in order to give his wheels-down report to the tower, the pilot had to pick up his oxygen mask/mike from his lap and place it against his face. When he looked back at the instruments, the angle of attack was abnormally high and the bird had assumed a high rate of descent. Although he immediately went to a high power setting, the sink rate continued.

Seeing that they were not going to make their intended touchdown point, the pilot added 100% power and flattened the attitude just before they struck the runway threshold while still turning toward the landing line. The plane hit on the left wing tip and the drop tank, burst into flames and skidded off the runway to the right. It continued up the right side and came to a stop on a heading 70 to 80 degrees to the right of the runway. The aft section was burning fiercely.

As the stricken plane came to a halt, the pilot jettisoned the canopy, pulled his emergency harness release and attempted to climb out. Finding he was still caught, he called to his passenger to get out and sat down to unstrap.

The PFC asked frantically for help, but finding the pilot unable to assist him, took off his helmet, unstrapped by the normal method and climbed out of the aircraft alone. The pilot soon managed to get himself unstrapped, released his foot from the emergency oxygen cable and followed the passenger.

The pilot was met by the station C.O. who took him to the dispensary in his sedan. Both men were treated for severe first and second degree burns of the face, neck and arms. The passenger, who was not wearing gloves, had badly burned hands and required hospitalization.



Grampaw Pettibone says:

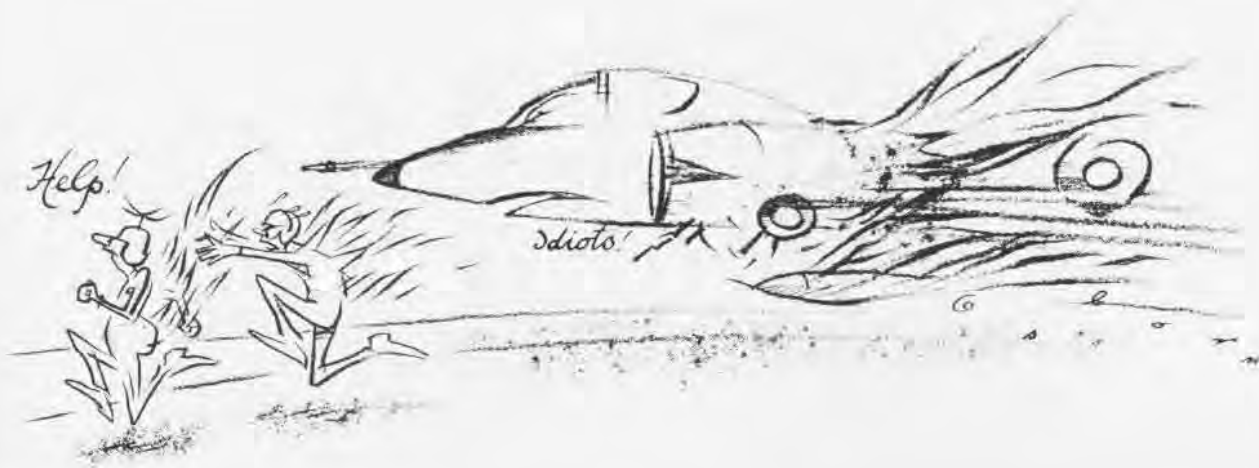
Great gallopin' ghosts! Of all the mental malfunctions I've ever run into, this 'un wraps it up. That 50 hours of instruction this guy had must've gone into a bottomless pit.

It's enough to make a grown man cry — as well as a few million taxpayers. It isn't as if this was the first time this sort of thing had happened! But no, it's not even the second, and it'll probably happen again.

Egads!

What kind of lax operational control was this pilot working under? He shouldn't've been outta sight of an instructor pilot 'til he had more hours in type, particularly with such a weak fixed-wing background.

He almost took an innocent enlisted man with him to that other world, one who was so ill prepared for the flight that he had not been through an ejection seat trainer or low pressure chamber run, and was not equipped with gloves, flight boots, life jacket or survival vest.



AEROSPACE

By Jim Dowd and Robert Barrett

Alexander Pope, the distinguished 18th Century English poet, who wrote, 'The proper study of mankind is man,' would have been astonished at how thoroughly illustrated this truth is in the 20th Century. While such a maxim covers the full range of the humanities, it is well demonstrated in the work of one of Navy's illustrious research facilities, the Naval Aerospace Medical Institute, where man is studied in terms of the environments he encounters today.

CHIEF ARCHITECT of the programs carried out at the Naval Aerospace Medical Institute at Pensacola is Dr. Ashton Graybiel (above, right) who is now in his 27th year of research at the famous Navy facility. As one who is now studying the Naval Aviator sons of World War II Naval Aviators, he finds both generations "a pretty healthy lot." An experiment (below and right), directed by Dr. Earl F. Miller II, tilts and spins volunteer subjects in the physiological optics laboratory to stimulate inner ear organs and study the effects.



MEDICAL INSTITUTE

The Naval Aerospace Medical Institute, Pensacola, Fla., a highly organized facility with a multi-faceted mission, is a part of the Naval Aerospace Center. In its first 30 years, its efforts have been directed toward studying Naval Aviators and setting up physical and mental requirements; training naval flight surgeons and technicians for the service; and helping to

solve problems related to man's capacity to adapt to strange environments and great speeds.

Before most of today's Naval Aviators were born, the often maligned "bureaucrats" in Washington recognized the necessity of accelerating the training program for physicians responsible for the care of increasing numbers of Naval Aviators. In 1939, it

was clear that Army training for naval flight surgeons, followed by aviation training at NAS Pensacola, was not enough. After President Franklin D. Roosevelt declared a limited state of emergency, nine Naval Reserve medical officers reported to Pensacola for a two-month course in aviation medicine.

From that beginning the program grew; building after building was required to house the medical department of the air station. One of its first projects was the development of entrance requirements for those applying for flight training. There was a need to discover the correlation between man's physical and mental make-up and his performance in flight training.

And the growth of the institution has continued to this day. The newest building houses administrative offices and some of the research laboratories. Four years ago, the Institute was reduced from 19 to 11 buildings when a new three-million dollar windowless structure was first occupied. It provided the staff with another 90,000 square feet of floor space. At the present time, there are again 18 buildings because of new projects and expanded studies.

Capt. M. D. Courtney, commanding officer of the Institute, administers the huge organization sprawled over a two-mile radius at NAS Pensacola. He knows that the development of safe and effective flight operations depends upon the knowledge of the stresses associated with abnormal and hostile environments and of human tolerance to those stresses.

Captain M. G. Webb, veteran flight surgeon, heads the training department of the Institute which provides the fleet with qualified flight surgeons, aerospace medical technicians and aerospace physiology technicians. Aerospace psychologists receive training similar to that of the flight sur-





geons early in their course, then continue in their specialties. Every effort is made to help students experience the problems faced by flight crews. Student flight surgeons found physically qualified are allowed to solo after their flight training which is part of the 26-week course.

Before flight training, the student flight surgeons have had 490 hours of lectures, clinical and laboratory periods. The course covers a wide range of medicine, such as cardiology, industrial medicine, neuropsychiatry, ophthalmology and otorhinolaryngology. The last is of great importance because it concerns the anatomy of the nose, sinuses, and the middle and inner ear where much of the danger of disorientation originates.

The aerospace physiology technicians start early in their course to work with flight crews being trained in the Institute's aerospace physiology



NECK STRIPES on a subject (above, left) are measured before and after impact when Capt. Channing L. Ewing, Navy Medical Corps, uses a speed sled to determine what happens upon impact. Directly left, HM2 Kenneth R. Pickett draws a little blood in the Institute's physical examination room where 10,000 Naval Aviators and student Naval Aviators were examined in 1968 for the Naval Air Basic Training Command. At left, below, is shown one of the over 3,500 ejection seat checkouts conducted in 1968 by Miss Mary Norsworthy, physiologist. Below, aerospace physiology technician, trained at the Institute, aids flight crew members who are getting their oxygen checkouts in the Institute's low pressure chamber.



division, headed by Medical Service Corps Commander Morris J. Damato. About 4,000 prospective members of flight crews receive instruction every year in the use of personal airborne protective equipment.

Miss Mary Norsworthy conducts the training in escape systems. Using an outdoor ejection seat, the students learn to keep their elbows together when they pull the face curtain and go up the vertical track about eight to 12 feet, depending upon weight. Gravity pulls them down. "We've never had anyone go up the track and land across the street," Miss Norsworthy tells apprehensive students.

The responsibilities of the aerospace physiologists and technicians are enormous. To illustrate the effects of a continued lack of oxygen, a low pressure chamber is used. Specialists watch the occupants of the chamber with utmost care and have voice communication with each one from outside the chamber which normally seats 18. Two observers are inside the chamber with the students.

Aerospace psychologists save heartaches and money. Through physical and psychological tests, one-third of the applicants for flight training are eliminated. Because of other elimination processes, it takes about 4,000 applicants to get 1,000 qualified Naval Aviators to the fleet.

A long-range program of special interest grew out of work done in 1940-41. Dr. Ashton Graybiel, who pioneered the great Pensacola facility, and his associates examined over 1,000 students and instructors. Nine years later, they began their follow-up study of these same men. This research effort, now called "The Pensacola Thousand Aviators Study" (*NA News*, February 1969, pp. 14-15), will continue; the aviators will be checked periodically throughout their lives.

Conscious of the high cost of training aviators, the psychologists can be instrumental in detecting students in the flight program who will have difficulty in completing the course. In one year, the Naval Air Training Command estimated the Institute psychologists had saved the Navy over \$4 mil-

lion with their student prediction capabilities.

Psychologists are now studying how aviators will perform when a threat of stress is imminent. Students, with electrodes attached to the left forearm, know they may receive a shock during a task involving responses to indicator lights. A minor shock simulates 20 percent damage to the aircraft while a severe shock simulates 80 percent damage to the aircraft. Some anticipate the shock and this decreases their efficiency in carrying out the task.

Nearly every Friday afternoon, a special board of flight surgeons meets to consider cases of Naval Aviators referred to them by medical officers in aviation units afloat and ashore. Seasoned doctors do not like to ground aviators, for they know the costs involved in getting an aviator to the rank of lieutenant or lieutenant commander. As one said, "We do not want to toss your experience and qualifications to one side." However, sometimes it is necessary.

Another task the Institute performs is that of making sure that pilots will be able to withstand the rigors of their task. Volunteers for duty in Operation *Deep Freeze* have been given the "up" or "down" at Pensacola by Commander Hugh S. Pratt, M.C., chief of the internal medicine division. In studying Navy men in the Institute's high altitude chamber at the altitude they would live in for eight months, cut off from civilization except for radio, Dr. Pratt found that some of the men would develop pulmonary edema as fluids collected in their lungs.

At the acoustics and audiology laboratories, headed by Dr. Carl Williams, chief of neurological sciences, research stresses the Navy's hearing conservation program. Researchers check noise levels on ships and stations during engine run-up and in other situations, then advise commanding officers to require the wearing of protective hearing devices. But crewmen do not always cooperate, and it is no secret that career aviators in consequence of their activities suffer a considerable hearing loss as they advance in age.

The newest organization at the Institute, bioengineering, is headed by

Captain Channing L. Ewing, M.C. Dr. Ewing has received Army research funds to do a study on what happens in the area of the head and neck during crash forces. He does some of his work at Wayne State University, Detroit, where he uses a track on which Army subjects are sped from end to end between heart beats. To show the stretching of the neck, Dr. Ewing paints lines around the necks of subjects, and movies show the change in space between lines on impact.

Despite its close involvement in Naval Aviation, the Institute has but one airplane, a *Skyraider*. The A-1 is used for all Institute scientists collecting data in the air. The aircraft is filled with gear for recording brain wave tests, heart beat and other indications of unusual motion. Volunteers try out pills to offset motion sickness, a form of medication the A-1 pilot does not require.

One great area of activity at the Pensacola facility is space research, and a few examples must serve to illustrate the many significant projects undertaken by renowned scientists. In the very earliest days, Dr. Graybiel not only invited outstanding research men to join his staff, but he also began to acquire equipment. To get the Pensacola Slow Rotation Room I, which still operates, he had it built from discarded parts of machines used in making beer.

Some of Dr. Graybiel's staff who struggled along when the going was rough in the early years are to this day making significant contributions in their areas of interest. People like Dr. Dietrich E. Beischer and Dr. Hermann J. Schaefer, originally from Germany and now American citizens, are renowned for their specialties.

Dr. Beischer contributed to the Navy's accomplishment in space science when the first simian primate, Miss Baker, survived a trip into space on May 28, 1959. In the 11 inches of space available in the *Jupiter* missile, Miss Baker rode while her heart beat and blood pressure were reported to earth, blazing the trail for human astronauts.

The Baker flight was only the be-

ginning. One research project followed another for the National Aeronautics and Space Administration. For example, Dr. Beischer has carried out research in high and low magnetic fields. Since the moon has only one-thousandth of the magnetic field on earth, he is trying to determine how people will get along on the moon. In a huge geodesic dome in a wooded area on the naval air station are two rooms, 8x8x8 feet. One room is covered completely with a special alloy to keep out the earth's magnetic field. Here two volunteer Navy men spent five days in the Moon Room, using plastic eating utensils because ferrous materials would set up a magnetic field and disturb the low magnetic environment. The experiments thus far indicate that people exposed to such an environment have visual difficulties.

Another large area of interest involves the study of man's inner ear organs. The vestibular physiology laboratory is filled with elaborate devices which subtly stimulate the inner organs of balance. Such stimulation of the semicircular canals, so small they would fit on a man's fingernail, can cause severe disorientation. (Some aircraft accidents may have been caused by such disorientation of the pilot.) Since NASA wants to discover whether future space stations will have to be rotated to offset some of the effects of weightlessness, Pensacola researchers are collecting data on the reactions of people in rotating capsules.

The first four people to be tested three years ago in the Coriolis Acceleration Platform (CAP) lived 12 days inside the device as it spun continuously at 10 rpm. Inside the platform - 20 feet in diameter, 10 feet high and 40 feet long - the subjects had the necessities: hot and cold running water, a stove, refrigerator and sanitary facilities. Their scheduled work included eight hours of tests prescribed by the on-board physician. The volunteer subjects were constantly observed in order to detect any slow-down in their mental processes. The men were given tools to work with and mathematical problems to solve. Physiological reactions were also sought, so blood pressure and urine were checked

frequently. The four subjects were very sick the first few days, but once they adapted to the rotating environment, they felt better. But after leaving the room, they staggered for a day or two as they walked.

Experiments with both deaf and blind subjects have also been carried out. The subjects with "labyrinthine defects" do not encounter the symptoms usually shown by people who hear, but the blind subjects have all the symptoms of sighted persons.

Also inside CAP, subjects trying to walk a straight line find that the force caused by rotation pulls them to the side. They throw darts and miss the target until they learn to compensate.

Because the force of rotation pulls everything to the side of the rotating room, scientists speculate that people working on rotating space stations may be working on the walls, not in their usual, upright position. Weightlessness cannot be created in an earth laboratory, so men in CAP body frames move about the room on cushions of air coming up under three plates to keep the devices off the deck just enough so that they can move readily from one side to another. In the air-bearing devices, the men are kept in a horizontal position. Their

arms are free, and they have hinges at the knees so that they can walk the walls and climb steps parallel to the walls. In movies, they look somewhat like the astronauts when they are walking outside their space vehicles, appearing to float, tripping on the steps and walking with fumbling movements.

One of the recent experiments involved volunteers lying in a tank filled with water for eight hours, followed by 16 hours in bed. This process was repeated until the subjects were in a weakened condition. This cardiovascular deconditioning study was inaugurated because Institute researchers are concerned with the lack of exercise on long space flights. They know that when a man is weightless, his blood is weightless and his heart must carry on its normal work. The question is: How long does it take a man to become cardiovascularly deconditioned from lack of exercise?

A new project undertaken for NASA involves preparing two monkeys to go into earth orbit for six months to a year before man is put in space for prolonged periods. Right now, tasks performed by monkeys are recorded on a 24-hour basis. In the



AS PART of extensive studies in space environments, Dr. Hermann J. Schaefer, a leading authority on cosmic radiation, studies proton tracks obtained in nuclear emulsion packs returned from space flights to determine the amount of radiation the astronauts encountered.

experiments conducted by Dr. Graybiel and Dr. John S. Thach, Jr., the rhesus monkeys are free to move around and get exercise inside a biosatellite. They are not encumbered by electrodes as Miss Baker was in the 1959 space flight. Once the monkeys are in orbit, scientists will get information by telemetry. Every time the animals touch the levers, a thermistor inside records their palm temperature. Part of an electrocardiogram can be transmitted every time the monkeys touch the food levers.

An Egyptian cardiologist, Dr. Hassan H. Khalil, was invited by Dr. Graybiel to come to the Pensacola research facility because he had developed a new method of measuring the heart's blood output. Dr. Khalil inserts a catheter in a vein in the arm which is passed through the heart and into the right pulmonary artery. When it is in place, Dr. Khalil introduces heat by means of high frequency power and obtains the same results as those provided by the universally used dye infusion method. The advantage of the method is that it can be repeated 200 times or more with no ill effects whereas the dye infusion can be repeated only five or six times without adversely affecting the patient.

Experimental psychologists and physiologists, Dr. Fred Guedry and Dr. Jorma I. Niven, use sophisticated devices to study the effect of inner ear stimulation by using the Human Disorientation Device, the only one of its kind. It can be rotated on two axes at the same time, up to 60 rpm. A camera records the involuntary eye movements resulting from the bizarre stimulation.

Dr. Earl F. Miller II, head of physiological optics, tests the astronauts' eye movements. He is one of many scientists waiting aboard the recovery aircraft carrier at a splashdown in order to test the astronauts.

Thousands of visitors to the Institute each year range from scientists of world renown to Explorer Scouts. The sophisticated visitors find the varied functions of the Institute profoundly interesting, but it remained for a Boy Scout to exclaim on



THE VESTIBULAR physiology laboratory is filled with elaborate devices which stimulate the inner ear organs. Inside the Coriolis Acceleration Platform (left), subjects in body molds (below), borne on air, walk. This special device can be rotated at speeds as high as 33-1/3 rpm.



one occasion, "Boy! This place is something else — like science fiction!"

The programs carried out by the Naval Aerospace Medical Institute are flexible enough to provide avant-garde research, but foremost in the mind of

the research men and administrators is the chief aim of the institution: to aid in the selection of physically and psychologically qualified Naval Aviators and help protect them from occupational hazards.



Less than 30 years ago, Border Field was a training ground for Naval Aviation gunners. All that remains of the field today, located in the most southwestern corner of the county near Imperial Beach, Calif. are a few run-down buildings — the windows are broken and grass grows up through the floors — and some memories of how it was.

Welcome to Border Field...



Naval Aviation's GHOST TOWN

A Photographic Essay
by PH1 Robert E. Woods



Early in 1950, Border Field was redesignated a "target drone training area and emergency landing strip." In 1961, the field was turned over to GSA, then the Naval Electronics Lab for research. Like other ghost towns in American history, Border Field will decay and people will tear it down to use the land for an ultra-modern idea that is a long way from the days when propeller-driven fighters dove on targets driven by steam.



A desert flower in a bottle, a stark pattern of light on an instructor's chair — signs of another time when ...



In Memoriam

CAPTAIN RICHARD A. SCHRAM, USNR



Captain Richard A. Schram, USNR, died June 4 in Reading, Pa., when the Piper *Cub* in which he was performing his internationally famous "Flying Professor" act failed to recover from a hammerhead stall and crashed on the runway. He was 52.

At funeral services in Pensacola, Fla., Chaplain Raymond W. Johnson, USNR, speaking of Captain Schram said, "We will never capture the full value and positive posture of this great man. . . . Dick stands as a landmark in the history of aeronautical skill and Naval Aviation. He possessed that rare ability to simply but profoundly tap the pulse of people with a depth of humor that remains incredibly rich in the halls of our personal memory. . . .

"Some men are destined to cross over in the line of duty. Dick Schram was the perfect cut of a man to step out while offering his gift to those who loved and admired him. He truly lived his dream."

Captain Schram had amused and frightened audiences at military air shows for more than 20 years. He was well qualified for his Flying Professor role with more than a quarter-century of pilot and engineering experience behind him.

He is survived by his widow, the former Marjorie Weaver; a daughter, Mrs. Linda Welsh, whose husband, Lt. James J. Welsh, is serving in Vietnam; and a son, Lt. Richard W. Schram, public affairs officer for the *Blue Angels*.

Captain Schram developed an early yen to fly. He took his first airplane ride at 11 and soloed while still a high school student in Buchanan, Mich., his hometown. As a student at Notre Dame, he earned money by flying low-level aerobatics.

He was commissioned an ensign in 1942 and assigned duty as an engineering officer in charge of aircraft overhaul and repair at NAS Glenview. Although he had been for some time a commercial pilot and Bendix employee before his commission, he was not eligible for the Navy Aviation Program because of a rule barring married men.

Captain Schram was discharged at Glenview in 1946 and decided to barnstorm to make some quick money. He invented the "Flying Professor" act in 1946 as a means of competing with the many former military aviators who were on the barnstorming circuit, and made his debut, appropriately, at Glenview in the 1946 Navy Day celebration.

He flew both military and commercial shows until 1953 when an automobile accident temporarily curtailed his flying. Just under two years after the accident, he began performing aerobatics again and, until his death, flew only in Department of Defense-sanctioned shows.

In 1949, the Flying Professor, then a Lieutenant Commander in the Reserves, was awarded his Naval Aviator wings by Rear Admiral A. K. Doyle,

then Chief of Naval Air Reserve Training at NAS Glenview, thus becoming one of the few men in aviation history to win his wings without going through flight training.

At the time of his death, Captain Schram was active in the Selected Air Reserve Program at Glenview and employed by Chicago Aerial Industries, Inc., Systems Division, where he was Director of Military Relations.

In recent years, the Flying Professor most often performed in air shows with the *Blue Angels*. His 20-minute act was always flown in a Piper *Cub* owned by a resident where the air shows were held. Dressed in black tails and silk topper, and armed with a leather bound "How to Fly" book, the professor would "steal" an idling plane while the crowd awaited an aerial performance by Captain Dick Schram, USNR. After a wingtip, one-wheel takeoff, the Professor flew through a series of stalls, spins, loops and rolls while he vainly tried to "regain" control of the airplane without the help of his book, always inadvertently left on the ground. After 20 minutes of precision flight demonstration, polished by years of experience and practice to look amateurish and comic, the Professor would come out of a dead-engine half roll and make a half loop approach to a drag-chute landing.

But in Reading on June 4, something went wrong, and the Flying Professor died, doing what he loved best.

THE GIANT SLEEPS

By JOC Gerald R. Boling
and PHAN George Lloyd



SEAMAN Jeff Rutledge spends his last day as Essex crewman directing guests.

Retirement came to one of the most illustrious ships in naval history June 30 when USS Essex was decommissioned in Boston, Mass. The giant was laid to rest, but like the princess in the story, she's not dead, only sleeping.

Few Navy ships have accumulated records equal to Essex, and now, all her accomplishments are history. She had been aptly named the fightingest ship in the fleet.

Today the carrier is barren. Not a single fighting jet is on her hangar deck. Rust is building up on the flight deck. No more will anxious sailors be leaving her for weekend liberty.

Vice Admiral Vincent P. de Poix, Deputy Director (Administration, Evaluation and Management) in the office of the Director of Defense, Research and Engineering, principal speaker at the decommissioning ceremony, said, "She was truly the fightingest of the famous fighting ladies. . . ."

A ship lives mostly in the minds of those who have served in her and so it was for three of the guests at the ceremony. Introduced during the ceremony by Essex skipper, Captain David C. Carruth, were three plank owners, former enlisted man Richard F. Jamison, AOCS John F. Palmer, presently assigned to NAS South Weymouth, and former musician Mr. Robert Hayes.

These men were aboard the ship in WW II when she steamed over 230,000 miles and earned 13 battle stars. They recall the day in 1944 when their ship was hit by a kamikaze plane. Though 15 shipmates were killed and 44 wounded, the lady wouldn't stay down. She was out of action for only 30 minutes.

But now her flags have been lowered and folded away. The Navy has paid her a fine and final tribute. Her bell was presented to the city of Essex, Mass., where it will be displayed. (Four

Navy ships dating back to 1799 take their name from the city and county of Essex in Massachusetts.)

What began in WW II is now a closed chapter of naval history. USS Essex will always be a giant in the eyes of men who go down to the sea in ships. She has magnificently fulfilled the prophecy of her first commanding officer, Captain Donald B. Duncan, that she would be an everlasting credit to our flag. She is. She was.

Now it is all over. Essex sleeps quietly, moored to a pier in the Boston Naval Shipyard. Occasionally she rouses to tug gently at her mooring lines, conscious of the call that may come for a fighting lady to serve again. And so home is the warrior, home from the sea — USS Essex, the sleeping giant.



DURING INVOCATION, BT2 C. E. Hooser stands with head bowed along with fellow crew members while Reverend H. P. Kellett, vicar of the Old North Church, offers prayer.



THE COMMISSIONING PENNANT is lowered, perhaps for the last time, above left. AOCS John Palmer, at left in picture above right, said the decommissioning was like watching an old friend die. Palmer and R. F. Jamison, at right in picture, are plank owners. The ship's bell is presented to Paul H. Mugford, representing the city of Essex, Mass., by Captain David C. Carruth, below left, and VAdm. Vincent P. de Poix. The colors are lowered for the last time.



WEAPON LIMITATIONS



RETARDED M117 bomb-to-bomb collision causes release of MER-7 from an A-6, top. (Note missing fins from bomb on MER.) An A-4 (center) fires 2.75" rockets from a LAU-60/A pod. High rocket density with no nose-to-tail separation between pairs causes an erratic flight. A satisfactory Rockeye II release from an F-8 (right).



The Ordnance Branch of the Weapons Systems Test Division at the Naval Air Test Center, Patuxent River, Md., establishes weapon release envelopes of aircraft stores: rockets, mines, torpedoes, fuel and spray tanks, pods, targets, and accessories, such as racks, launchers, adapters and detachable pylons.

All test pilots in the branch have combat and Test Pilot School experience and, on an average, maintain proficiency in five different aircraft, including: A-1 Skyraiders, A-3 Skywarriors, A-4 Skyhawks, A-6 Intruders, A-7 Corsairs, F-4 Phantoms, F-8 Crusaders, OV-10 Broncos, S-2 Trackers and P-3 Orions.

In addition to the pilots, 22 civilian engineers and technicians combine more than 340 years experience in ordnance. Navy warrant officers, chiefs and other petty officers, and Marine Corps NCO's represent valuable fleet experience.

Ordnance branch evaluators receive requirements, based on the fleet's needs and desires, from the Naval Air Systems Command in the form of AIRTASKS. The end results of AIRTASKS are the "external stores operating limitations" sections of aircraft tactical manuals.

High speed photography is one of the most effective means of collecting the necessary data for evaluation. The photographic branch of the technical support division mounts from one to six cameras at strategic spots on the test plane, including nose gear doors, fuselage steps and adjacent rack stations. Color and black-and-white film is exposed at speeds ranging from 64 to 400 frames per second. The pilot controls the camera operation.

Upon completion of the flight, the film is unloaded, developed, edited and returned to ordnance for review.

After analyzing edited film, the project pilot and engineer recommend loading and release intervals to the Naval Air Systems Command.

The pilots and engineers say it is rewarding to see their recommendations appear as interim changes to tactical manuals. They add, however, that fleet pilots can make the job even more rewarding for everyone concerned by staying within prescribed limits.

New Avionics Building Opens Ultra-Modern Facility for NAS Miramar

Ribbon-cutting ceremonies June 16 marked the grand opening of the new Avionics Facility at NAS Miramar. Officiating was the station's C.O., Captain Armistead Smith, Jr., who received the keys of the new building from Rear Admiral R. R. Wooding, CEC, Commander, Southwest Division, Naval Facilities Engineering Command.

As Lt. C. E. Magee, avionics division officer, assisted him, Commander F. M. Mhoon, aircraft maintenance officer, cut the red ribbon to open a new era of ultra modern, rapid electronic service for the men and aircraft at NAS Miramar.

The new facility, built at a cost of \$880 thousand, is completely air-conditioned. It includes a humidity and air filtration system to provide a controlled climate for delicate instrumentation.

The design of the building is so advanced that it is expected to easily handle the extra equipment and work demands which will come into being when the Navy starts using the new F-14 jet aircraft.

One of the unusual features of the building is a medium-sized room which is completely encased with solid copper sheeting. This "screened room" completely isolates its inner space from all radiation — from inside as well as outside. Such a room is needed because, without its capability of deadening radiation, repaired transmitters undergoing testing would be filling the air waves with confusing, and perhaps hazardous, emissions.

In a sound-proof room, aircraft generators and power systems can emit wails from their power source while technicians outside monitor and control test functions without suffering possible hearing damage.

Before the new facility became operational, the avionics division was housed in four separate locations. Now with its complement of approximately 250 men, the division can provide, with increased efficiency, electronics service for NAS Miramar's F-4 *Phantoms*, F-8 *Crusaders*, TA-4F's, T-39D's and the larger C-117's.

An Artistic Approach to Safety



By LCdr. A. E. Weseleskey

"All hands on deck for an art show!" announced the skipper of Helicopter Antisubmarine Squadron One, NAS Key West, Fla.

Does that sound crazy? Not so, in this case. Simply a new approach to aviation safety.

It happened this way. One day, while looking for potential hazards during a safety survey, the C.O. and the aviation safety officer of HS-1 observed some talented doodles and artwork, executed by squadron members. Thinking it over, the skipper announced a contest which would allow them to display their talents.

There would be an art show for which the only criterion would be that the entries must be related to industrial or aviation safety. All hands would try to find a way to illustrate or portray local safety hazards, dream up slogans and dramatize ideas.

Initially, the reaction of the men was mixed: "It'll never get off the ground."

"How are you going to put it over?"

"Sounds great. Let's try it."

"What are the prizes?"

"I can't draw, but I have a really great idea."

"I can draw, but I haven't the needed inspiration."

The safety officer selected an enlisted men's art committee augmented

by the public affairs officer. The show would be held a month later. Basic art material would be provided; for example, broad tip felt color pens and poster board. The pictures would be displayed on the hangar doors. Four days prior to judging, all entries would be submitted for display. The judges were the commander of CVSG-50, the HS-1 skipper, the ComFAir Key West safety officer and the HS-1 safety officer.

There were ten prizes in all: Three 72-hour passes, two 48-hour passes, two \$25.00 savings bonds and three dinners-for-two at a well known local restaurant.

To make sure that participation would not be left to the last moment, the safety officer visited each work area and encouraged contestants to get their entries ready. Men with ideas cooperated with squadron artists to produce posters that fit most of the squadron's daily functions.

From each shop came at least one entry until the safety officer had some 40 posters on his desk. The response was enthusiastic and the judges found the work varied.

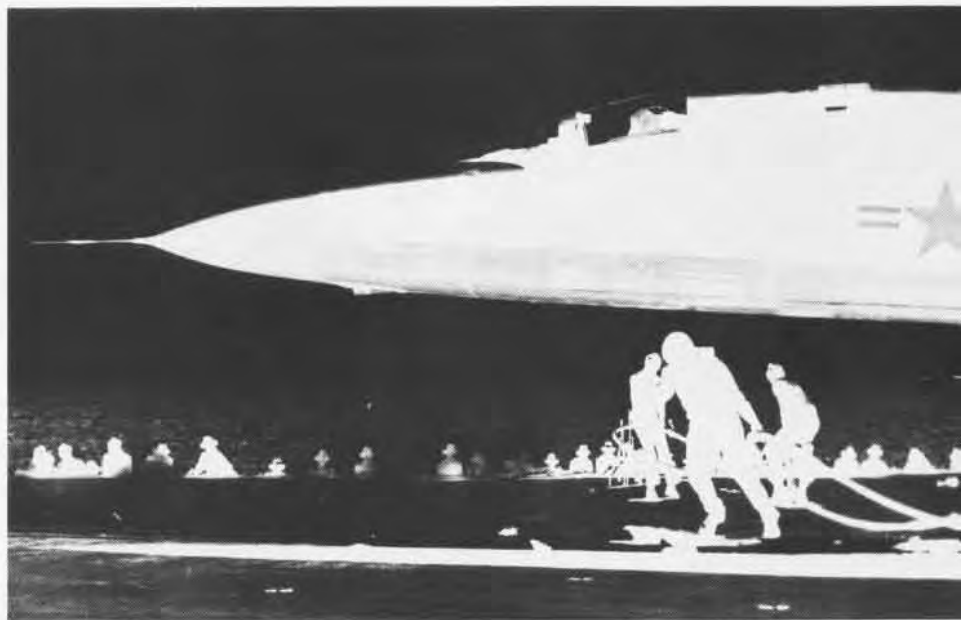
The artistic approach to safety proved to be one of the most effective means of getting everyone to look around and see his environment in terms of safety. After all, let's face it — Safety is an ART.



*A Photographic Interpretation of
Flight Decks and Men
By PHC Ralph Payne*

Flight decks are busy, dangerous places. The stark realization, on the part of the men who work there, that one mistake could be final causes them to move carefully but swiftly around the revving aircraft to do their jobs. Once the launch is over, an eerie stillness prevails. Flight deck action is portrayed on these pages by representative . . .

FORMS





Five members of the first apprentice class (top) at North Island are still aboard (left to right): W. F. Garber, Jr., C. F. Thompson, S. G. Hewson, G. A. Skelley, Jr., and J. C. Roush. Apprentices (above) sign up for courses at San Diego City College to earn Associate of Arts degree. J. M. Bargar (right), in his third year apprenticeship as aircraft engine mechanic, pressure-tests a J-79 frame to detect leaks.

ANNIVERSARY REPORT

By Eiretta Sudsbury

On-the-job training is traditional at NAS North Island, San Diego. In the past 22 years, the North Island Apprentice School has graduated 950 apprentices. An additional 255 are in training at the present time. Of these, 23 are in the Public Works Department and the rest are in the Naval Air Rework Facility; 29 are fourth-year apprentices. The training division of the Industrial Relations Department directs the school.

Eighty-five percent of the apprentice program is on-the-job training. The rest is classroom training at North Island or the San Diego City College.

In on-the-job training, apprentices work, step by step, in the shops of their trade. For example, an airframes mechanic goes through these shops: oxygen, hydraulic, hydraulic test, landing gear, helicopter main gear box, helicopter assembly and F-4 assembly.

The time spent in each shop depends upon the complexity of the operation. The student starts in by learning the simplest aspects of the trade and works up. By the end of the third year, he is performing at the basic journeyman level and steadily gaining proficiency. By the end of the fourth year, he is a class A craftsman.

Shop instructors and journeymen serve as instructors, sharing with the apprentices the skills they have mastered. Some who are serving in this capacity today at North Island were members of the first class of North Island apprentices. Of the ten who officially became journeymen mechanics on July 18, 1947, five are still aboard.

These men hold middle management positions in the Naval Air Rework Facility: S. G. Hewson, as general foreman I, aircraft engine mechanic, heads the test section of the power plant division; C. F. Thompson, a mechanical engineering technician (drafting) in the plant engineering division, designs tools and equipment; G.

A. Skelley, Jr., a foreman (electrician) in weapons division #1, supervises the rework of F-4 Phantom II aircraft; William F. Garber, Jr., a supervisor (aircraft) in the production control division, supervises all the control centers in the accessories building; and J. C. Roush, an industrial engineering technician in performance review division, investigates deviations from norms.

Hewson, Garber and Thompson, members of the first apprentice class which began August 18, 1941, were employed as aircraft mechanic (motor), aircraft mechanic (general), and machinist, respectively. Skelley, an electrician, and Roush, aircraft mechanic (motor), began their training January 5, 1942.

In the beginning, there were only six trades in which apprentices were trained: aircraft mechanic (motor), aircraft mechanic (general), metalsmith, electrician, machinist and radio mechanic. Today the school covers nine.

The North Island classroom training today consists of trade theory, blueprint reading, mechanical or electrical schematic drawing, and industrial organization.

The training at San Diego City College covers three four-year courses: mathematics, science related to the trade for which the apprentice is preparing himself, and English (public speaking and technical writing). There are two two-year courses in industrial psychology and political science.

These courses provide 56 credits. With a minimum of one additional course, a man can earn an Associate of Arts degree with his trade as a major; for example, he may become an AA (Electronics).

Selection of North Island apprentices begins with a written test. Lack of a high school diploma will not

disqualify an applicant, but usually he cannot pass the test without at least that much education.

Those who qualify are given a second test to measure potential. This is followed by a personal interview. Interviewers try to match the man to the trade because the degree of job suitability usually determines whether or not the apprentice will successfully complete training.

Those who make the most successful candidates, according to Jack Sherman who heads the school, are about 25 years old. The younger the apprentice, the more likely he is to drop out or fail to apply himself.

The North Island Apprentice School turns out men who are not only outstanding journeymen but also candidates for advancement in management. Their success is one measure of the effectiveness of the program.

The 1947 graduates were asked to compare the challenges in 1969 as against those of 1947 for journeymen mechanics in the aircraft trades. Their view was that aircraft are so complex today that more is required of a man, in a technical sense, than was required in 1947. For example, in 1947 an aircraft mechanic (general) was expected to know how to overhaul the airframe of an aircraft. In 1969, the airframes mechanic may work on a single component that is so highly sophisticated and complex that more thinking is required than was demanded in repairing the whole airplane in 1947. This is duplicated in each trade.

The complexity of the job has not diminished, but increased. Although the need for manual skills has declined, the requirement for mental skills has risen.

On its 28th anniversary, the North Island Apprentice School keeps abreast of advancing technology by turning out journeymen equipped to perform the complex tasks of the aerospace age.



SAAB's in International Exhibit

At the Paris Air Show, SAAB of Sweden exhibited three new aircraft: the 105XT; the 37 Viggen (above right), a STOL all-weather attack aircraft; and the 35F Draken (left),

a supersonic all-weather interceptor fighter. The 105XT, internationally exhibited for the first time in Paris, is a twin-jet trainer, light attack and reconnaissance aircraft.

Men of Mercy

Coast Guard HH-52A rescue helicopter crewmen deliver an ill woman to San Diego policeman and doctor after airlifting her from a pleasure boat 150 miles off the California coast. She became ill while on a fishing cruise, and the Coast Guard was called upon for help. Last year, Coast Guard men answered some 1,445 calls for help.



Induction Notice 25 Years Late

With his recent discharge from the Navy in his left hand, Aviation Electrician First Class Edward G. Savage holds in his right hand his notice to report to the draft board for induction into the Army. Savage, who retired after 25 years active duty, earned seven Good Conduct Medals and re-enlisted six times. He was surprised that the Army wanted to see him — immediately.



VF-121's 'Blue Ears'

A trainee from Fighter Squadron 121's plane captains' school at NAS Miramar, Calif., comes out of the squadron's line shack carrying a pair of "black ears" (sound attenuators) and a can of blue spray paint. He disassembles the ears, arranges them on top of

By AMSAN Larry B. Winn

an empty barrel and begins spraying them blue.

An airman apprentice ambles over, curious.

"What are you doing?"

"Painting my ears blue. Just passed the boards. I'm a plane captain now."

He is proud, and he should be. Three months earlier he probably didn't know an F-4 from a sparrow hawk. But now he is an expert, trained by the squadron that specializes in familiarizing pilots and ground crews with the *Phantom II*.

Some say that being a plane captain is a dangerous and thankless job, but one salient point remains: responsibility for the lives of two men and a two-million dollar aircraft rests squarely on the shoulders of the plane captain. He is the last person who inspects the aircraft before it leaves the ground, and the go-no-go decision is largely his.

A plane captain trainee receives classroom and on-the-job (OJT) training. During the OJT phase, an experienced plane captain becomes his mentor. Together they go through five weeks of "crew training."

The apprentice trains with a para-brake crew and packs the chutes which



AME3 Robert Borkenhagen runs through his preflight checklist (left). Fuel crew (above) "hot fuels" a squadron F-4 Phantom.

blossom behind a landing aircraft to help slow it down.

With a hot brakes crew, he stops all aircraft immediately before they taxi onto the flight line after landing. If the plane's brakes are found to be overheated, it is directed to an isolated spot where a tire explosion will do no damage.

The task of corrosion control, he learns with the wash crew. A dirty, prone-to-rust aircraft can be dangerous.

Working with the oil crew, he checks the oil level in each of the plane's engines when it returns from a hop.

The fuel crew has a particularly lonely and dangerous job. The fuel pits, far out on the field away from parked aircraft, are alternately wind-swept and sunbaked. The men freeze in winter and in summer must wear either long-sleeved shirts or jackets to protect them against the fire hazard. Yet their morale is high. They banter and tell jokes while waiting for aircraft to taxi out for fuel.

The classroom portion of VF-121's plane captains' school is conducted by ADJ3 Tim Stroshine. The course provides trainees with a knowledge of fueling and inspection procedures, hand signals and safety precautions.

Following this, ADJ3 Vince Cosner,

maintenance school instructor, introduces students to the practical aspect of their work. Each must perform ten preflight and ten daily inspections before coming up for plane captain exams.

The first of these consists of 50 written multiple-choice questions. If the candidate passes, he is ready for the verbal performance test. If he passes that, too, he is ready for the grand finale — the Plane Captain Examining and Selection Board.

The board is made up of VF-121 officers and chiefs. Here, the candidate undergoes another battery of questions about his job and his personal motivation.

If all goes well, the plane captain trainee becomes a full-fledged professional. He gets a can of blue spray paint from line gear issue and paints his black trainee ears plane-captain blue.

Shortly afterwards, the new plane captain is assigned his first aircraft. He inspects it before the flight crew arrives and signs the part of the Naval Aircraft Flight Record that says: "I certify that this aircraft has been inspected . . . serviced . . . and is ready for flight."

Then he and his trainees connect electrical and air power to the aircraft,

strap in the pilot and radar intercept officer as they arrive, and then stand clear of the plane. The pilot signals "Start 2." The port engine fires; then the starboard.

The plane captain hand-signals the pilot to move his control surfaces one at a time to check their operation. The external power lines are disconnected; the wheel chocks, pulled. The plane captain checks ground traffic on the line, then signals the pilot to move. He salutes smartly as the F-4 goes on its way to the high-power turn-up area.

When the pilot has turned up and is satisfied that his engines work smoothly, he taxis to the fuel pits, with the fuel probe extended. Other plane captains and their flock of trainees fuel the *Phantom*, the last time anyone will look at the aircraft's external condition before it flies. A short time later, the F-4 is airborne.

A black plume appears on the horizon. It is another of VF-121's aircraft coming in. It flattens its descent and lands, a parabrack blossoms from its tail cone, and it slows to turn from the runway. Scant minutes later, the hot brakes crew has checked the wheels, removed the chute and sent the plane back to the line.

A VF-121 plane captain's pledge to safety has been fulfilled.



PLANE CAPTAINS Gary Bullard and AEAN J. F. Yosten pull rocket seat safety pins (left). As an F-4 taxis into the slot after landing, a member of the hot brakes crew directs the plane to a safe place (above).



THE SELECTED AIR RESERVE

NARDiv-K2 Awards

In ceremonies at Naval Air Reserve Division K2, based at Buckley Air National Guard Base, Aurora, Colo., three men were awarded the Naval Reserve Meritorious Service Medal and seven Air Reservists received plank-owner plaques.

Receiving the medals were AE1 John W. Mugford, AM1 Marvin M. Johnson and AO1 John T. Chestor. The petty officers were cited for outstanding performance of duty while attached to NARDiv-K2.

The plank owners are Commander Peter C. Bigler, LCdr. Richard D. Karnes, WO Donald F. Typher, AO1

Chestor, AD1 Edwin D. Berkowitz, PH2 Edward Arnold and AO2 Thomas L. Clark.

Commander Warner W. Tyler, commanding officer of the unit, made the presentations.

At their regular monthly meeting, the Air Reservists were briefed on Vietnamese ethnic groups and culture by Capt. Do Van Minh, RVN Air Force liaison officer at Lowry AFB.

NAS Atlanta Navigation Trainer

LCdr. T. V. Gallagher, aircrew training officer at NAS Atlanta, has come up with an answer to the problem of Air Reserve navigators learning



HS-70S1 CREWMEN discuss ASW training mission before a four-hour flight. Below, AW2 V. N. Brinkley checks sea rescue hoist.



Atlantic ASW Exercise

More than 2,000 men, 13 ships and 43 aircraft participated in a combined Naval Air Reservist and active duty air and surface antisubmarine warfare exercise off the Virginia Capes.

Reserve Amphibious Antisubmarine Warfare Exercise 1-69 originally was conceived in October 1966. The plan for the maneuvers, written almost two years later — in August 1968 — involved both active duty and reserve Navy men. The training began in the Atlantic Fleet's ASW Tactical School

where the Reservists tested their reactions, asked questions and familiarized themselves with new operational methods.

Teamwork, dedication and pride of accomplishment contributed to the unquestioned success of the 12-day simulated war at sea. Before the units involved departed for home, the commanding officers gathered for a brief critique and reported to the officer in over-all command, Rear Admiral William S. Guest, Chief of Naval Air Reserve Training/Commander Naval

Air Reserve Force, that their personnel gained valuable, much needed tactical experience.

More than 750 Air Reservists manned the ASW and support aircraft, according to Captain J. H. Bell, commanding officer, NARTU Norfolk, who was air ASW commander. The statistics were impressive. Of the 18 activities in the Naval Air Reserve Training Command, 11 were represented in the exercise. Among them were HS-70S1 from NARTU Norfolk; and S2D *Tracker* units from NARTU

how to use a sextant and meet annual celestial requirements, once they have their navigator designator.

He built a trainer. As a result, NAS Atlanta is believed to have the only celestial navigation trainer of its kind in the Naval Air Reserve Training Command.

The 7'x11' enclosure has two sextant mounts, shelves for navigation publications and forms, and a desk top for work space. To meet annual requirements and get extra training in celestial navigation, the navigators can compute information for taking sextant sights on the sun and stars, make their shots, plot sun lines and stars — all in the enclosed trainer.



LIEUTENANT John H. Dickas of VP-67B2 fits a sextant on the navigation trainer at NAS Atlanta. This device was designed by LCDr. T. V. Gallagher, the aircrew training officer.



IN ATLANTIC Fleet's ASW Tactical School, Lt. Elmer K. Williams, Jr., and AW2 John E. Parker locate a submarine in a classroom drill. Later, Parker (above) uses his new knowledge to solve airborne problem.

Lakehurst, N.J., NAS Willow Grove, Pa., and NAS South Weymouth, Mass. The participating units flew 412 hours, 82.4 percent of the scheduled 505 hours in the operating area, and amassed a total flight time of 712 hours.

The aircraft dropped 431 sonobuoys, 150 smoke bombs and 234 practice depth charges, resulting in five confirmed "kills."

Two Atlantic Fleet submarines acted as the enemy during three days of cat-and-mouse maneuvering at sea.

The submarines played the game well, attempting to evade the destroyers, helos and fixed wing ASW aircraft.

As a result of carrier qualifications by the helicopter squadrons during the exercise, 29 pilots day-qualified and ten night-qualified on the flight deck of USS *LaSalle* (LPD-3).

Captain R. W. Stecher, commander of the surface task force, considered the performance of the people involved "remarkable." He said on several occasions that he actually had to remind himself that there were Reserv-

ists in the exercise. Blending perfectly with their regular Navy counterparts, they were operating like a well-oiled machine by the end of the exercise.

RAdm. Guest said that he was highly pleased with the degree of coordination achieved by the combined air and surface units and stressed the importance of continuing the program and expanding it in the future.

The exercise is over. The Reservists are home. But they took with them new knowledge and a strong sense of pride in a job well done.



ON PATROL

with the Fleet Air Wings

Reserves at Barber's Point

With the beginning of summer, reserve patrol squadrons arrived at Barber's Point. By the end of September, five VP reserve units and four fleet tactical reserve squadrons will have had two weeks of active duty, bringing almost 260 officers and 1,200 enlisted men to Hawaii. Most of the patrol squadrons fly the P-2 *Neptunes*.

VP-47G7 from NAS Moffett Field with three aircraft opened the season. This squadron was hosted by VP-4. Next came VP-46G6, also from Moffett.

The largest group to arrive was VP-71, a full fleet reserve squadron, composed of three smaller squadrons. VP-71 has a complement of 65 officers and 435 enlisted men as compared with approximately 30 officers and 100 enlisted in the smaller units. The squadron, which has 12 P-2 *Neptunes*, arrived July 14 from NARTU Alameda and departed July 25.

VP-65L1 from Los Alamitos arrived with its seven aircraft July 28 with their scheduled departure time August 8. VP-28G5 with three aircraft is scheduled to arrive from NARTU Alameda August 11.

'Brother Duty'

"Brother duty" has a record of being a popular arrangement in VP-22, based at Barber's Point.

When Airman Eugene Morin checked into the squadron to join his brother, Petty Officer Third Class Lloyd Morin, it marked the sixth set of brothers serving together in the *Blue Goose* squadron.

In addition to the Morin brothers, VP-22 boasts these other sets: PO1 Glenn Judd and PO3 David Judd; PO2

Joseph Keola and PO3 Dennis Keola; PO3's Jerry and Wayne Reddekopp; PO1 Antonio Sardillo and PO2 Augusto Sardillo; and PO2 Michael Slattengren and AN Gary Slattengren.

Once asked what were some of the advantages of brother duty, Dennis Keola said, "For one thing, it helps morale. We often help each other out on problems that come up. It was my brother who prompted me to go up for second class."

Fair Exchange

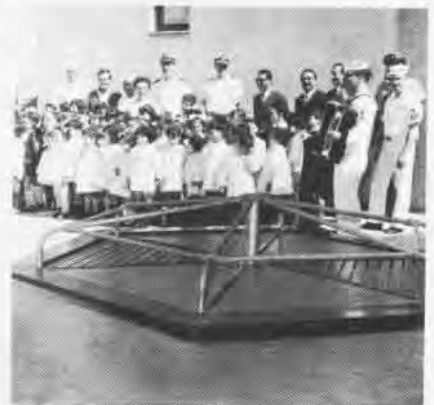
Italian girls are known for their charm and beauty, but no one can compare with the beauty and charm of a little girl receiving a gift, according to

WHEN VP-21 gave a merry-go-round to a school in Sicily, the C.O. gave a squadron pin to the little girl who presented special thanks, a kiss, and a pretty bouquet.

the officers and men of VP-21.

While deployed to Sigonella, the VP-21 *Blackjacks* enhanced community relations with Sicily by presenting a heavy-duty merry-go-round to a public school in Motta, a small town about six miles from the air facility.

The merry-go-round, purchased in



the United States and constructed in Sicily by the squadron, was presented to the town officials and the children by Commander John Goodfellow, C.O.

Highlight of the ceremony was the presentation of the squadron pin to a charming, small girl by Cdr. Goodfellow. She presented the commander a bouquet of flowers.

P-3C Arrives at Patuxent

VP-30 accepted delivery in June of the first production model of the P-3C, the Navy's new, computerized, antisubmarine warfare aircraft. (For details on the P-3C, see *Naval Aviation News*, July 1969, pages 24-25.)

Skippers of Navy patrol squadrons at Patuxent River, Brunswick, Me., and Jacksonville were invited to examine the airplane and see its ASW system in operation. Commander J. T. Coughlin, commanding officer of VP-30, was host to the visitors while they were at NAS Patuxent River.

Heading the list of distinguished guests viewing the aircraft was Admiral Arthur W. Radford, USN (Ret.), former Chairman of the Joint Chiefs of staff (1953-57). Admiral Radford addressed the graduating class of the U.S. Naval Test Pilot School during his visit.

Back from Vietnam

Patrol Squadron 45, led by Commander W. H. Saunders, C.O., returned home to NAS Jacksonville in June from a six-month deployment to WestPac where the *Red Darters* had been operating. The majority of the VP-45 ground crewmen had arrived slightly earlier via airlift.

It was an extremely successful deployment for VP-45. Launching daily patrols, the squadron provided shipping surveillance in the waters of the China Sea and Gulf of Siam off South Vietnam and Cambodia. The 330 missions flown were a vital part of Operation *Market Time*. Only four missions were aborted during the six-month period — a new record for VP squadrons flying *Market Time*.

Red Darters returned to Jacksonville as an Alpha squadron (all crews 100 percent ASW-qualified).



LT. TERRY DANNER is supported by his crew as he places the cherished ASW Alpha on aircraft ZE-01. The crew became the first P-3 Alpha crew for VP-17, now stationed at NAS Barber's Point, Hawaii. VP-17 is the newest designated P-3 Orion squadron in the fleet.



THE FIRST fleet operational P-3C to arrive at NAS Patuxent River in June was delivered to Patrol Squadron 30. It was then put on exhibition to which some 150 guests were invited.



at Sea with the Carriers

PACIFIC FLEET

Bon Homme Richard (CVA-31)

Captain Dickson W. Alderton has relieved Captain T. P. Dankworth as *Bon Homme Richard's* commanding officer. Capt. Dankworth has reported for duty with Naval Air Systems Command, Washington, D.C.

Capt. Alderton was CIC officer aboard the carrier seven years ago, as a commander.

Bon Homme Richard is currently on her fifth Vietnam deployment since 1964. She is scheduled to return to her home port, San Diego, this fall.

Enterprise (CVAN-65)

Captain John M. Tierney has relieved Captain John E. Kennedy as chief of staff, Commander Carrier Division One. The change of command was held aboard *Enterprise* in the Gulf of Tonkin. Rear Admiral M. W. Cagle is the current Commander, Carrier Division One.

Oriskany (CVA-34)

For the second time in two months, Secretary of the Navy John H. Chafee visited the attack aircraft carrier *Oriskany*. The most recent visit was in the Gulf of Tonkin when the Secretary copiled a C-2 onto the carrier deck. Two months earlier, he visited the ship in San Diego. *Oriskany*, which is currently on her tenth deployment to the Western Pacific, the fourth to Vietnam, is commanded by Captain Jack S. Kenyon. CVA-34 is flagship for Rear Admiral Roy M. Isaman, Commander Carrier Division Seven.

Kearsarge (CVS-33)

Kearsarge has been awarded the Armed Forces Expeditionary Medal (Korea) for service in Operation *Formation Star* early last year. This marks the third citation to be received by the antisubmarine warfare carrier for her last deployment to the Western Pacific. Previous awards for that deployment were the Meritorious Unit Commendation and the second consecutive Battle Efficiency "E" pennant.

Kearsarge, flagship for Rear Admiral Jerome H. King, Jr., Commander ASW Group One, is currently on her 12th WestPac cruise. Captain Leonard M. Nearman commands the carrier.

Okinawa (LPH-3)

Happiness is a playground... or watching children enjoy a playground. It depends on your point of view.

For children at the Vinh Ninh school in Da Nang, RVN, happiness is having the playground with three swings and two teeter-totters. For the sailors of USS *Okinawa*, who provided the playground equipment, it is enough to watch the Vietnamese youngsters excitedly test the new playthings for the first time.

Making playground equipment for Vietnamese schools has become almost an avocation for the men of "R" division in the *Okinawa* engineering department. Under the direction of Warrant Officer Ron Jewkes, their division officer, volunteers have, in two deployments, designed and constructed four playgrounds for Vietnamese children.

Near the end of the current deployment, the ship was awarded the Navy Unit Commendation for support of Marines in Con Thien in 1967. As the crew

began wrapping up the second Western Pacific deployment, with the off-loading of embarked Marine Battalion Landing Team 1/26 and Marine Helicopter Squadron 362, Secretary of the Navy John H. Chafee; Vice Admiral W. J. Bringle, Commander Seventh Fleet; and Rear Admiral W. W. Behrens, Commander Amphibious Force, Seventh Fleet, were aboard for a visit.

During this deployment, *Okinawa* spearheaded four major assaults against the Viet Cong while serving as the afloat command center for Amphibious Ready Group Alfa. Capt. H. D. Williams commands the ship.

Hornet (CVS-12)

In ceremonies at the Long Beach Naval Shipyard, Captain Carl J. Seiberlich has relieved Captain Jackson A.



SECNAV John H. Chafee walks across the *Oriskany* deck with Capt. J. S. Kenyon.



ABOARD *USS Valley Forge (LPH-8)*, helicopter maintenance crews of the Ninth Marine Amphibious Brigade work around-the-clock to keep the helicopters ready for day or night missions into Vietnam. A Marine mechanic gives a helo a quick check on deck (upper left) while another is towed to elevator. A CH-46 engine is repaired, (left) and electrical circuits are checked and rechecked (above) before flight.

Stockton as commanding officer of the antisubmarine warfare carrier *Hornet*. Rear Admiral Constantine A. Karaberis, Commander Fleet Air San Diego, was the guest speaker.

Capt. Stockton has assumed duty as chief of staff for Commander ASW Group One. Capt. Seiberlich formerly commanded *USS Salamonie (AO-26)*.

Ticonderoga (CVA-14)

It was one of those coincidental days and it would be difficult to convince *Ticonderoga* crewmen that number 14 is not something special.

The 14th day of the month began

routinely for *CVA-14* in the Tonkin Gulf. It all started when the ship headed for a scheduled underway replenishment rendezvous with an ammunition ship. The rendezvous was scheduled for 1400 local time, with *USS Firedrake (AE-14)*. As is usually the case, a destroyer pulled along the other side of *Firedrake* for replenishment — *USS Buchanan (DDG-14)*.

CVA-14 sent the first line over to *AE-14* at 1414. Sounds hard to believe, you say? Ask the photographer assigned to film the operation from a helicopter. He is PH1 R. M. Smith and he can be trusted — he just completed 14 years service.

In other events aboard the carrier, Secretary of the Navy John H. Chafee made a whirlwind visit to the ship on his tour of WestPac commands. The crew recently celebrated the ship's 25th anniversary while operating in the Tonkin Gulf.

Ranger (CVA-61)

The *USS Ranger*, which recently returned from her fourth Vietnam deployment and eighth Western Pacific cruise, is currently undergoing a minor overhaul at the San Francisco Naval Shipyard. Captain William H. Livingston commands the ship.

ATLANTIC FLEET

America (CVA-66)

A change of command for Commander, Carrier Division Two, the commendation of an *America* shore patrolman who made a citizen's arrest, and the presentation of trash receptacles to a Little League group are the highlights of the carrier's recent activities.

Rear Admiral Jack M. James relieved Rear Admiral Leroy V. Swanson in ceremonies at which Vice Admiral Robert L. Townsend, Commander Naval Air Forces Atlantic, was principal speaker.

DS2 Michael E. Okuley has been commended by Portsmouth, Va., Chief of Police and *America* commanding officer, Captain Richard E. Rumble, for making a citizen's arrest of a purse snatcher and then resisting attempts by bystanders to free the woman. Okuley held the purse snatcher in custody until local police arrived. The woman was convicted and sentenced; a man was convicted for attempting to obstruct justice.

Twelve red and white barrels, stenciled in blue, "Donated by the USS

America," were presented to the president of the Virginia Beach Little League by Commander Jack M. Kennedy, the carrier's public affairs officer, who, like several of the ship's crew members, has sons playing in the league. The cans will be used as trash receptacles in the park.

Boxer (LPH-4)

A warrant officer aboard the amphibious assault ship *Boxer* has finally succeeded. After nine years of checking through telephone directories at his duty stations, WO1 J. F. Kepics has found another Kepics in the Navy — BMC J. A. Kepics, stationed aboard USS *Sagamore* (ATA-208). To his further delight, WO Kepics found the chief, a 24-year veteran, was a first cousin he had never known about.

Franklin D. Roosevelt (CVA-42)

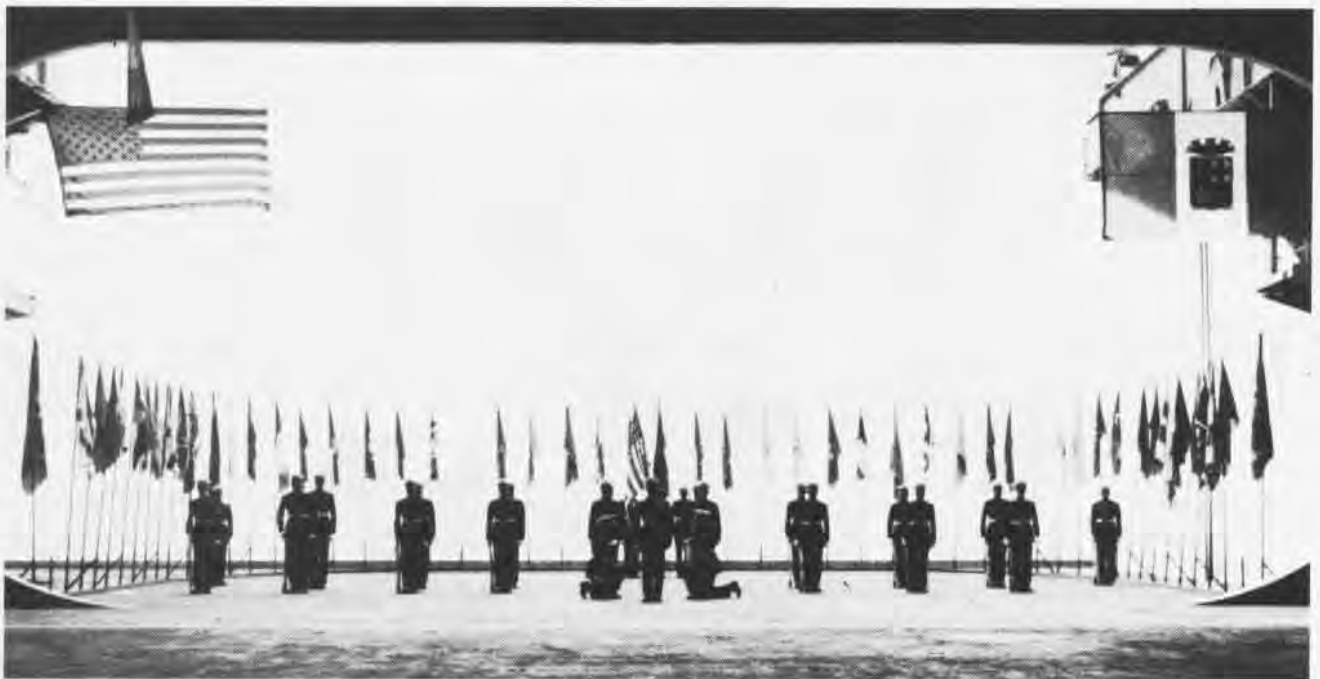
The attack aircraft carrier *Franklin D. Roosevelt* has completed a one-year, \$46-million overhaul at the Norfolk Naval Shipyard. Visitors who inspected the progress of the largest overhaul in Norfolk history included Congressman Durward G. Hall of Missouri; Rear Admiral J. A. Brown, Shipyard Com-

mander; and Rear Admiral J. W. Dolan, Atlantic Fleet Maintenance Officer. Captain James O. Mayo commands the carrier.

John F. Kennedy (CVA-67)

Commander Harold L. Marr, Commander Attack Carrier Air Wing One, became the newest carrier's first centurian when he landed a VF-14 F-4 *Phantom II* aboard the ship as it steamed with Task Force 60 in the Med. *Kennedy* is the third carrier on which Cdr. Marr has made 100 landings. The others were *Hancock* and *Roosevelt*. It was also Cdr. Marr who made the first arrested landing aboard *Kennedy* during the ship's shakedown cruise last fall. For that landing, he piloted an A-4 *Skyhawk*.

With a sunset flag retreat and dance, *Kennedy* crewmen celebrated the second anniversary of the ship's christening in Genoa, Italy, while on their first deployment with the Sixth Fleet in the Mediterranean. Among the guests for the ceremony were 50 consul generals from nations in Europe, Asia, North and South America, and leaders of the civic and military communities of the city. Rear Admiral Pierre N. Charbonnet, Commander Carrier Striking Force,



A USS JOHN F. KENNEDY MARINE COLOR GUARD PREPARES FOR SUNSET RETREAT IN THE MEDITERRANEAN



COMMANDER JENSEN, VT-4 SKIPPER, SHOWS DELIGHT WITH THE RECORD

Sixth Fleet; Millan L. Egert, U.S. Consul General in Genoa; and Captain Earl Yates, *Kennedy* commanding officer, were hosts for the ceremony.

Saratoga (CVA-60)

President Richard M. Nixon was aboard *Saratoga* Armed Forces Day to witness a firepower demonstration by a 14-ship task force off the Virginia coast. In a speech to the crew, the President expressed his respect for American military men and congratulated the ship on a job well done and thanked them for an enjoyable afternoon.

Earlier, the *Saratoga* delivered a package containing food, cigarettes, toiletries and position to John Fairfax, a British citizen who was rowing from the Canary Islands to Miami in a 20-foot rowboat named "The Britannia." The carrier encountered the mariner 120 miles southeast of Grand Caicos Island.

Lexington (CVT-16)

As *Lexington* worked toward a goal of 250,000 arrested landings before

suspending operations in the Gulf of Mexico to depart for the Boston Naval Shipyard for overhaul, several historical marks were set: Commander Don Jensen, VT-4 commanding officer, made his 100th arrested landing aboard the training carrier to become the first VT-4 C.O. to accomplish the feat. In one month, pilots logged 4,201 arrested landings to set a monthly high mark for 1969. The first operational landings of the Navy's dual-seater TA-4F *Skyhawk* were made by VA-44. Cecil Field-based VA-44 trains Naval Aviators in the A-4 for duty with Atlantic and Pacific squadrons.

Lexington is in her 27th year of operations. At this writing, 249,000 landings had been recorded.

Wasp (CVS-18)

The antisubmarine warfare carrier *Wasp* is winding up a three and one-half month tour of Europe, which included visits to Lisbon, Portugal; Rota, Spain; Rotterdam, the Netherlands; Portsmouth, England, and Oslo, Norway.

In Portsmouth, the 25-year-old carrier represented the United States in a

NATO review in honor of Her Majesty, Queen Elizabeth II. The honors involved more than 60 ships from 11 NATO countries. *Wasp* is commanded by Captain Samuel M. Cooley, Jr., with Rear Admiral Frank B. Stone, Commander Carrier Division 14, embarked.

Yorktown (CVS-10)

In her first operational exercise since joining the Atlantic Fleet, *Yorktown* headed a NATO antisubmarine warfare force in search of "enemy" submarines in the joint exercise *Sparkplug*. Included in the exercise were forces from Canada, West Germany, Great Britain, Portugal, the Netherlands and the United States. The object of the exercise was to protect two simulated merchant ship convoys sailing between San Juan and Norfolk.

A group of NATO submarines provided the opposition.



PRESIDENT NIXON tells *Saratoga* crewmen during his visit to the carrier: "When you really prove yourself is not when everything goes right, but when something goes wrong and you make it right."

TV for Pilots

Problem: Develop a solid state television display set for the cockpit of Navy jet attack aircraft.

Requirements: it must be small with twice the clarity and contrast of a normal set; it must be able to withstand tremendous G shock forces and extreme temperature ranges from coldest to hottest.

Likelihood of success: Zero.

More than a year ago civilian industry said it could not be done.

What Navy jet pilots needed was a television that would give them an extra set of eyes to view the world as their airborne weapons see it.

The job was assigned by the Naval Missile Center, Point Mugu, to its air to surface branch, headed by Colonel R. E. Solliday, USMC.

CWO Charles L. Wallace and a civilian electrical engineer, Clifford F. Aggen, were selected to head the project. CWO Wallace is assigned to the air to surface branch, and Aggen is with the Pacific Missile Range electronics devices section, technical support department.

"The ideas and techniques we used to develop our video display system had been around for some time," Wallace said. "What we did was apply them."

With the model makers and technicians of the electronics devices section helping them, they followed a logical pattern to develop a new set.

First, they repackaged a small television set to see if the project was

feasible. Then they tried newly developed circuitry with a commercial TV tube. This was a definite improvement but, owing to direct sunlight in the plane cockpit, the set still lacked the brightness level required.

After a four-inch diagonal television tube was made to their specification by private industry, they packaged it with the new integrated circuits and components developed for the commercial tube. This gave them a prototype with the required brightness and resolution.

"Some items now in the system

were not available when the project was started," Wallace said. "We asked the micro-circuit facility at NMC to build them. Later, they became available commercially."

One big advantage NMC had over private industry was its having combat-experienced pilots to give them information. The pilots used the television during its development to measure improvement.

"We also had a built-in store of knowledge in technicians and engineers, and the aircraft were right here. All this helped," Aggen said.

The size of the picture tube was reduced about two inches in length. Sandwiching it between the plug-in module cards made the best use of available space.

Since temperature variations involve severe stresses on the circuits, the compact package underwent tests in temperature chambers heated to 250 degrees F. and cooled to 60 degrees below zero.

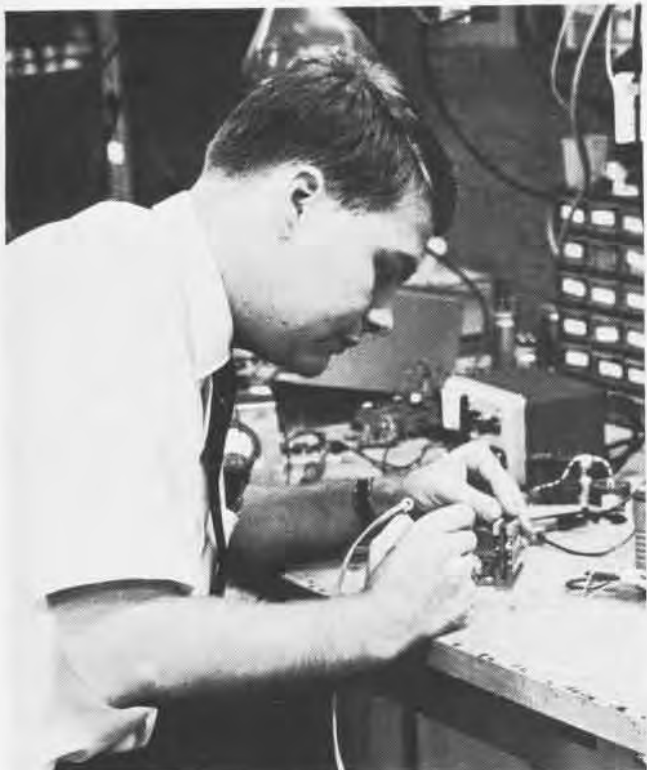
"We transferred the prototype model back and forth from the hot and cold boxes," Wallace said. "If it still worked after ten transfers, we knew it would function properly in aircraft. If the stress caused problems, we disconnected the damaged module card, corrected the trouble in a new card, then started the series of tests over."

The new video display system is now being tested and evaluated prior to a decision regarding its production.

Although now hand-wired to the television camera, the new system could be made to operate remotely by adding another module card to the scheme.



AN ENGINEER examines a high voltage power can that converts low voltage into high voltage required by the airborne video set.

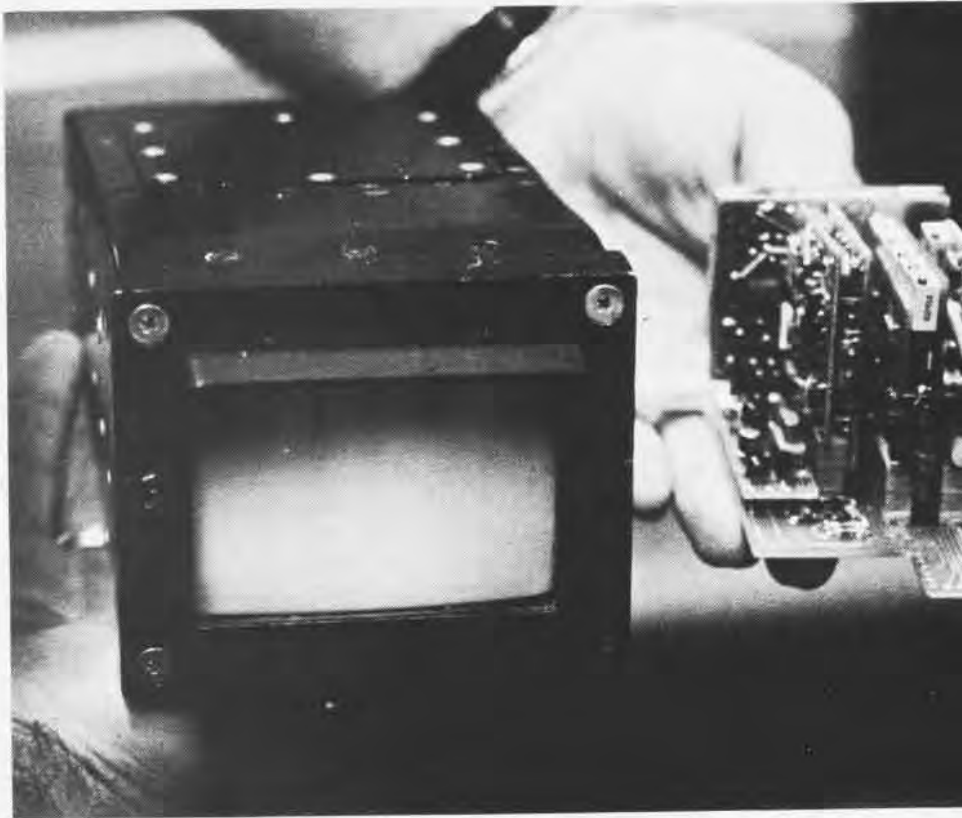
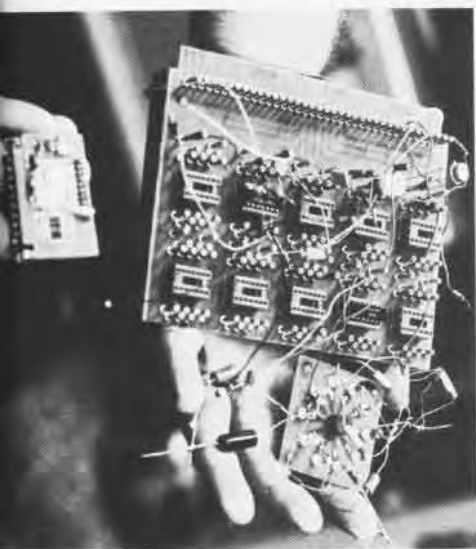


CLIFFORD E. AGGEN, one of the project coordinators, examines a component for the television display unit under development at Point Mugu. Aggen is working toward a master's degree at USC.



AN ELECTRONIC model maker in Point Mugu's electrical devices section uses tweezers under a ten-power microscope to assemble a miniature circuit board for the airborne television set.

SMALL TO SMALLER — Before segments of the module are miniaturized, they are breadboarded and tested. The elements in the breadboard (right in picture below) will be reduced to the size of the module plug-in card (left). In picture at right is the small television and its circuits and components.



TORNADOES



TORNADOES, WHICH OCCUR IN MANY PARTS OF THE WORLD, HAVE BEEN REPORTED IN ALL FIFTY STATES. HOWEVER, THE MOST FAVORABLE REGION FOR THEIR FORMATION IS THE CONTINENTAL PLAINS OF THE UNITED STATES.



TORNADOES IN THE U.S. ARE MOST FREQUENT IN APRIL, MAY, AND JUNE. DURING MAY, THE CENTER OF MAXIMUM FREQUENCY IS IN THE SOUTHERN PLAINS STATES. IN JUNE, THE CENTER MOVES TO THE NORTHERN PLAINS STATES AND THE GREAT LAKES AREA.

THE MATHEMATICAL CHANCE THAT A SPECIFIC LOCATION WILL BE STRUCK BY A TORNADO IN ANY ONE YEAR IS SMALL. ACCORDING TO ESSA, THE PROBABILITY OF A TORNADO STRIKING A GIVEN POINT IN THE AREA MOST FREQUENTLY SUBJECT TO TORNADOES IS 0.036, OR ABOUT ONCE IN 250 YEARS.

THERE ARE EXCEPTIONS; OKLAHOMA CITY HAS BEEN STRUCK BY TORNADOES 26 TIMES SINCE 1892. CODELL, KANSAS, WAS STRUCK THREE TIMES: IN 1916, 1917, AND 1918 ALL ON 20 MAY.



DURING THE YEARS 1953-65, ABOUT 628 TORNADOES PER YEAR OCCURRED IN THE U.S.; ABOUT HALF OF THEM DURING THE MONTHS OF APRIL-JUNE. IN 1965, 898 TORNADOES WERE REPORTED, A NEW ALL-TIME HIGH.



TORNADOES MAY OCCUR AT ANY HOUR OF THE DAY OR NIGHT, BUT 82% OCCUR BETWEEN NOON AND MIDNIGHT, WITH THE GREATEST CONCENTRATION BETWEEN 1600 AND 1800.



WATERSPOUT IN FLORIDA KEYS

Naval Aviation Films

The following motion picture films are among the latest released by the Film Distribution Division, U.S. Naval Photographic Center. They deal with specifics in Naval Aviation.

MV-1052A1 (unclassified) *Tactical Air Power*. Illustrates the military importance of tactical air power in counterinsurgency operations. Covers striking power capabilities of tactical air command, weapons deliveries, assault airlifts, close air support and reconnaissance operations. Demonstrates ground extraction and air drops of heavy equipment and supplies, and introduces the F-111 (20 minutes).

MN-10645A (unclassified) *Aircraft Hand Tools: Screwdrivers and Pliers*. Demonstrates the proper way to use basic hand tools (12 minutes).

MN-10749 (unclassified) *Updating SAR*. Covers the changes in helicopter SAR procedures and crewman training (14 minutes).

Instructions for obtaining prints of newly released films are contained in OpNav Instruction 1551.1E.

VS-30 Pilots Study Waterspouts ESSA Conducting Research in Florida

Mr. Gerald H. Clemons of the U.S. Weather Bureau recently described the Waterspout Research Program being conducted by the Environmental Science Services Administration (ESSA) to pilots of Air Antisubmarine Squadron 30, NAS Key West, Fla.

He explained that the Florida Keys were chosen for the study because the waterspouts appear frequently in that area. Squadron personnel will report all waterspouts observed and help col-

lect information during their training flights.

By studying these "tornadoes over water," ESSA scientists hope to find ways of forecasting tornadoes over land areas. Because waterspouts usually are less severe than full-strength tornadoes and usually cause less property damage, they can be investigated with less danger to the researchers.

When military pilots sight a waterspout, its position is relayed to the Key West weather bureau and the ESSA researchers switch on an automatic camera to take pictures — one every 15 sec-

PERSONAL GLIMPSES

Editor's Corner

TRUE BLUE. The Pensacola number of the Blue Angels has been changed from 452-4466 to 452-BLUE. The area code remains the same — 904.

Perhaps this change will help the wives, sweethearts, mothers and occasional callers remember the number. For those callers who dislike mnemonic devices, the telephone system has agreed to connect those who dial 452-2583. And if the caller does not want to dial the word BLUE, he can also be connected by dialing such combinations as 452-CLUE or 452-ALUE or even 452-CKVF.

This telephone number change is the latest step in the Blue Angels' program to turn their whole world blue. They fly in blue F-4's while wearing blue flight suits. The blue walls of their offices are decorated with pictures of blue planes flying in the blue skies. Even the phones are blue — and now the phone number! Where will it all end?

Korean Pheasants, 100 in all, arrived at NAS Oceana by way of a C-47 transport.

Mr. Dennis Hart, supervisor of Virginia's foreign game farm, was responsible for raising and bringing the birds to Oceana from the farm in Cumberland, Va.

Thirty-four cocks and 66 hens were



released at Oceana's game preserve near the weapons magazine area. At present, there is no open hunting for the pheasants in the state of Virginia because there simply aren't enough of the birds in the state.

Mr. Hart said, "I hope one day there will be enough pheasants in Virginia to permit open hunting."

—By E. McDuell

Where does an aviator get his first taste of aviation and his first lessons in flight?

If it's in Albany, Ga., it's probably through meeting Ltjg. Paul B. Schlein, president of the NAS Albany Aero Club. For example, when Lt. Schlein speaks to a Boy Scout troop at McAfee Airport near Albany, the model for his talk on aerodynamics is the club's *Cherokee Arrow*. The scouts, averaging an age of eleven, listen as attentively as any prospective pilot.

Lt. Schlein is assigned to RVAH-5 at Albany, but it's not jets which draw his audience. It's prop planes and reciprocating engines that stirred the Annapolis graduate to accept the presidency of the aero club for Navy men interested in flying.

—By S. N. Proctor

ANOTHER CHICKEN JOKE? Artificial altitude treatment was recommended by an animal psychiatrist as a cure for "a syndrome of frustration fixation" among a bunch of chickens who were not meeting quota in a French egg factory. It seems the decrease in laying was attributed to the birds' jealousy of the flying ability of the pigeons from a nearby dovecote. So now the chickens are suspended from balloons for periods of up to two hours daily and, we are assured, the treatment is successful. (This fascinating item came from the British Balloon and Airship Club Newsletter, April 1969.)

Pot Luck. Ltjg. and Mrs. Robert P. Blumm have joined that crowd of people we hear so much about but hardly ever know personally — the lucky folks who win the prizes on TV quiz programs.

The Blumms appeared on the popular daytime quiz show, "Dream



House," telecast from New York in May. Competing against each of seven couples in succession, Diane and Buzz won all the "marbles," coming away with a dazzling list of prizes. In addition to the Grand Prize of a beautiful \$40,000 home, the couple won a two-week trip to the Caribbean, seven rooms of furniture, and \$7,000 in cash. They even won a supply of macaroni and freezer full of popsicles.

The type of questions which the Blumms fielded were in the knowledge category. Buzz and Diane turned away all challengers to win prizes totaling \$50,000 in value. Since most network shows are taped and shown on TV at a later date, Buzz and Diane had the opportunity of observing themselves as they won the jackpot in the May airing of the show. To quote Buzz, "The only problem we've encountered so far is that we have had to hire a good tax consultant."

Lt. Blumm, who has been a member of the U.S. Navy since August 1966, joined Helicopter Combat Support Squadron Two in February 1968. He recently completed a world cruise as a member of the squadron's detachment 11 stationed aboard the USS *Intrepid* (CVS-11).

LETTERS

'Nameless by Choice'

In an issue of *Naval Aviation News* some time ago, the "Navy Flyer's Creed" was published in an effort to identify the author. It is now learned that he will probably never be known.

The Naval Aviation Museum found the Creed published in the June 4, 1943, issue of the *NAS Pensacola Gosport*, with a paragraph below the Creed reading as follows: "The author of the above, nameless by choice, may never bomb Tokyo or sink a [Japanese] carrier, but even if he doesn't, he will have made a sizeable contribution to the prosecution of the war by setting forth on paper the thought that should be the creed of every Naval Aviator. May he live up to this creed. . . . May we all!"

J. H. McCurtain
Captain, USN (Ret.)
Officer in Charge
Naval Aviation Museum
NAS Pensacola, Fla. 32508

How Can I Get One?

The other day I met a friend of mine who showed me an illustrated booklet describing the flight of the NC-4 across the Atlantic in 1919. It was written by Commander Ted Wilbur. My friend had only the copy he had obtained in Washington, D.C., during the exhibition of the NC-4 flying boat on the Mall near the Smithsonian Institution.

I am anxious to obtain a copy as quickly as possible. Please let me know how I can do so. This booklet should become a prized memento when it becomes scarce.

T. D. Murphy
Chicago, Ill.

¶ The answer is easy. Simply send in a check or money order in the amount of one dollar — or a dollar each for the number of copies you wish to buy — to the NC-4 50th Anniversary Committee, c/o Smithsonian Institution, Washington, D.C., 20560.

Helicopter Information Needed

In connection with my work as a member of the American Aviation Historical Society, I would appreciate any assistance your readers could give me in the field of rotary-winged aircraft. I need material on helicopters and related activities to copy or trade. All material will be handled with care and returned promptly.

Lennart Lundh, FTG3
USS *Tripoli* (LPH-10)
FPO San Francisco 96601



DISPLAYING the colors of the Silver Eagles Association are retired Naval Enlisted Pilots Jack W. Green (left) and Charles F. Rocheville. Rocheville was a Navy mechanic on the Arctic Expedition of 1925 with Rear Admiral Richard E. Byrd who was at that time a lieutenant commander. The men got together at a meeting of the San Diego Wing of the Silver Eagles. Also there was H. H. "Kiddy" Karr who, in 1920, was first man designated an NAP.

VT-1 Claims a Safety Record

Amasses 75,000 Accident-Free Hours

In June, Training Squadron One, NAS Saufley Field, Fla., counted its 75,000th consecutive accident-free flight hour.

It took seven months and seventeen days to set the new squadron record. This tally is equal to over 8½ years of continuous flying by a single aircraft.

The new flight-hour record was reached shortly after VT-1 was presented the Training Squadron Quarterly Aviation Safety Award, Third Quarter Fiscal Year 1969, by Rear Admiral D. H. Quinn, then Chief of Naval Air Basic Training.

The squadron's 75,000 consecutive accident-free flight hours started last October when VT-1 was faced with the task of phasing in the Fly First concept. This entailed working seven days a week for seven months with a 150 percent workload increase, creating a situation that in many instances would have raised the accident rate.

Commander J. D. Libey, VT-1's commanding officer, officially noted the 75,000th flight hour.

UHF Telemetry System Launched

Talos is Fired from White Sands Range

The first Navy surface-to-air missile to use a new ultra high frequency (UHF) telemetry system was launched June 17 by the U.S. Navy at White Sands Missile Range, N.M.

The missile, a *Talos* representing an engineering development model, was fired by the Naval Ordnance Missile Test Facility at the range. The facility is commanded by Captain G. D. Howard.

According to Richard Smith, an engineer of telemetry design, the system can "provide high density per transmitter." More missile functions can be telemetered by means of the single UHF transmitter than several transmitters with the existing VFH systems. One missile firing that required three such instruments for telemetry can now have the same coverage with one UHF transmitter.

Other Navy activities working on the UHF conversion project include the Naval Avionics Facility, Indianapolis, the Pacific Missile Range and the Naval Weapons Center Laboratories.



To provide early warning service to fleet forces and shore nets is the mission of VAW-111, NAS North Island. Current tasks of the E-1B squadron include intercept and strike control, radio and radar relay, antisubmarine patrol, search and rescue, radar-scope photography and weather reconnaissance. Commander Jesse W. Lewis is C.O. of the unit.





NAVAL AVIATION
NEWS