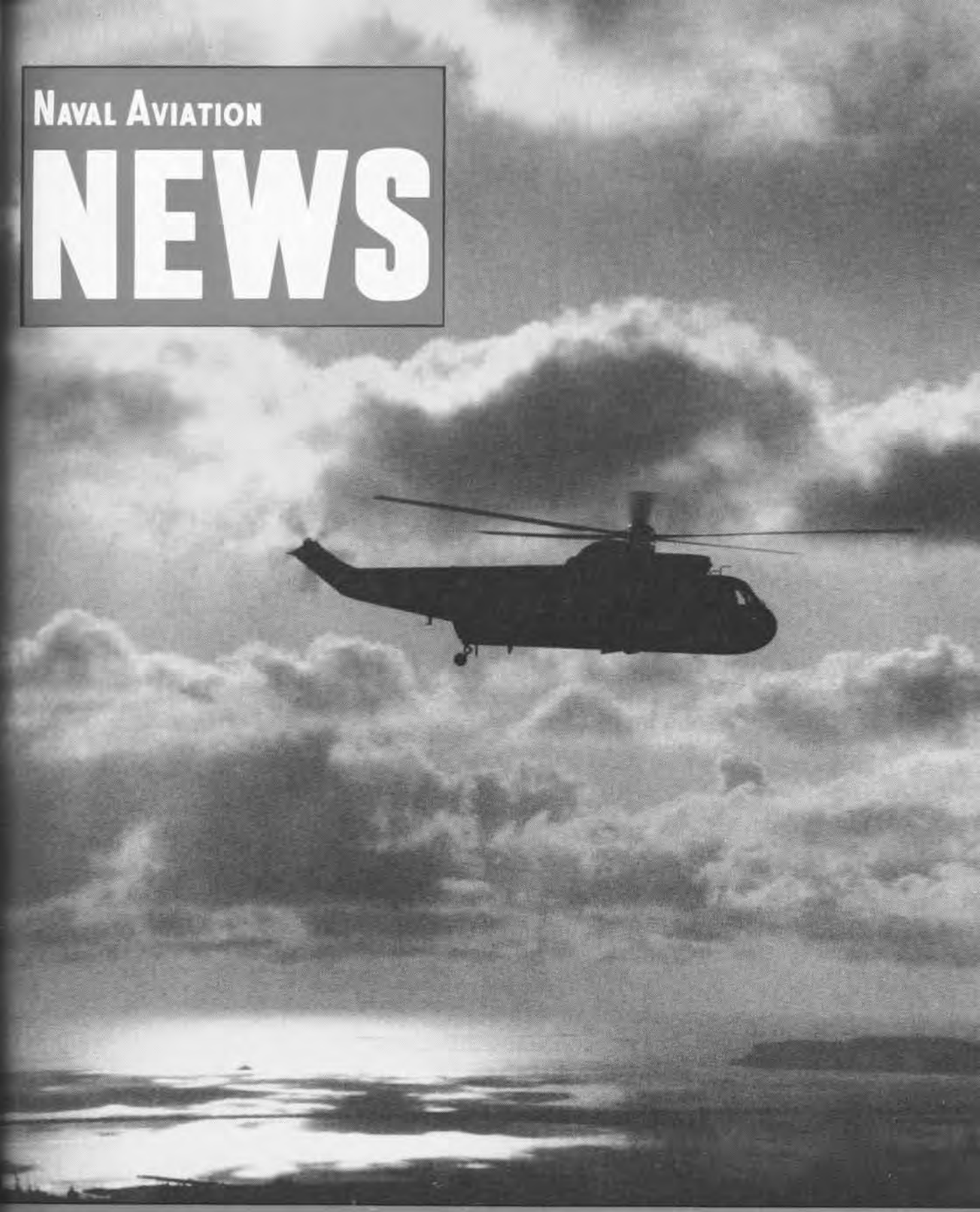
NAVAL AVIATION NEWS



46th Year of Publication

MAY 1965

NavWeps No. 00-75R-3

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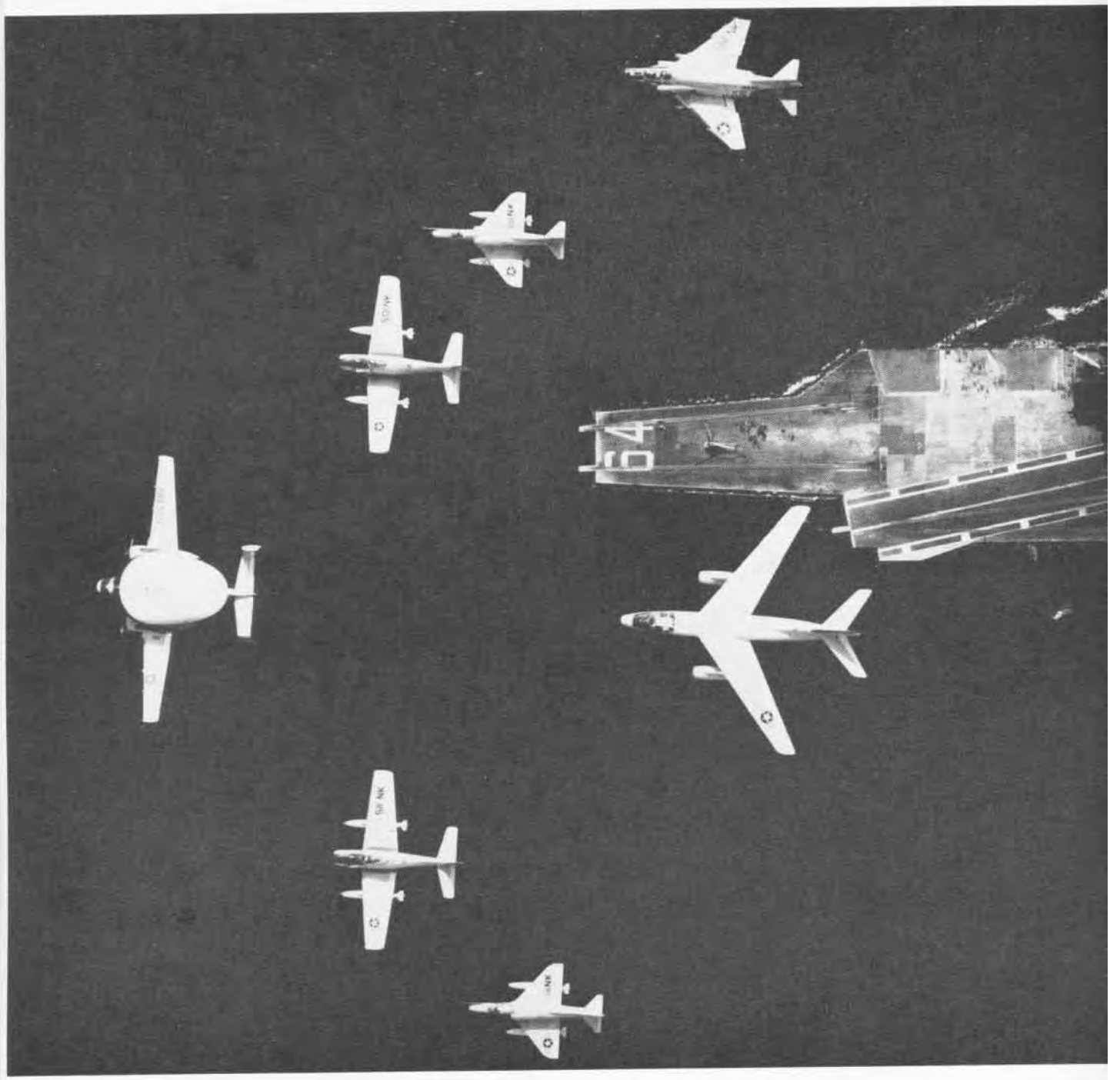

SEAPOWER SELECTIVITY

'The application of seapower is like using a rheostat control, such as the volume control knob on your TV. The user has many variations available as contrasted with, say, a single-action "On/Off" switch . . . . I do not believe that I need emphasize the critical need for selective, fine-tuning of national action as we attempt to cope with the devious, complex and sometimes unpredictable, situations which may confront us today.' —Admiral David L. McDonald, CNO

NAVAL AVIATION NEWS

FORTY-SIXTH YEAR OF PUBLICATION MAY 1965

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Issuance of this periodical approved in accordance with Department of the Navy Poblications and Printing Regulations, NAVEXOS P-35

Published monthly by Chief of Naval Operations and Bureau of Naval Weapons to disseminate data on aircraft training and operations, space technology, missile, rocket and other aviation ordnance developments, aeronautical safety, aircraft design, power plants, aircraft recognition, technical maintenance and overhaul procedures. Send mail to Naval Aviation News, Op-05A5, Navy Department, Washington, D. C., 20360, located at 3704 Main Navy Bldg.; telephone Oxford 62252 or 61755. Annual subscription rate is $2.50 check or money order ($1.00 additional for foreign mailing) made payable and sent to Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Single copy is $.25.

■ COVER

We are indebted to the Sikorsky Division of United Aircraft for the cover picture of the SH-3A Sea King. The account of the Sea King's record-breaking transcontinental flight in March appears on pages 8 and 9 of this issue of Naval Aviation News.

NAVAL AVIATION NEWS

Heroism Wins High Praise

SecNav Honors Reservist's Act

For bravery in rescuing a girl who was set upon by nine teen-age ruffians on a subway platform deep under the downtown district of Philadelphia, James R. George, AX3, from Atlanta, Ga., has not only received the Navy and Marine Corps Medal from Secretary of the Navy Paul H. Nitze, but also won the gratitude and instant praise of the public.

On the evening of March 6, the 22-year old Naval Air Reservist, on two weeks training duty at NAS WILLOW GROVE, had come to the subway platform en route to his station. He saw a 15-year old girl being held down by five boys. Four other delinquents saw him coming and ran to attack him, beating him brutally in the face and head.

But the girl was saved by George's arrival. Realizing he needed assistance, he dashed up the stairs to the subway cashier and asked for help. A policeman entering the station answered immediately and caught the boys dragging the girl down the subway tracks. He fired a shot and the group dispersed. Later the boys were apprehended and immediately sentenced.

The next day, George found himself a hero, honored and praised. Citations of every kind were made, and on March 12, in his office at the Pentagon, Secretary Nitze presented him with a medal for heroism.

The citation commended George for "reflecting the highest traditions of service to our fellow man, and dedication to responsibility and morality which the Naval Air Reserve and the Naval Service constantly work to accomplish and maintain."

George also received a commendation from the Chief of Naval Air Reserve Training, Admiral George P. Koch.

HANDSHAKE AND KUDOS FOR NAVY HERO

In the picture above, Reservist George, black eye, new medal and all, receives the congratulations of Captain N. R. Charles, Commanding Officer of NAS WILLOW GROVE. On the table are the plaques and awards he received from grateful civic and police organizations of Philadelphia.

Marines are Forming Units

One is to be Activated on June 1

The Marine Corps will establish five new units during 1965: three additional batteries, one for each of three *Hawk*-equipped Light Anti-Aircraft Missile (LAAM) Battalions; a new Marine Medium Helicopter Squadron (HMM), and a Marine Air Traffic Control Unit (MATCU).

Each of the three present LAAM battalions, equipped with three batteries, will receive a fourth firing battery. The added batteries for the 1st and 2nd LAAM Battalions will be established at Marine Corps Base, Twentynine Palms, Calif., this summer. The 3rd LAAM Battalion at MCAS CHERRY POINT, N. C., will activate its fourth battery on November 1.

The HMM squadron to be formed at MCAF Santa Ana, Calif., on July 1, will be equipped with the CH-46A *Sea Knight*.

The MATCU will be established at MCAS EL TORO, Calif., June 1. Such a mobile air control unit is equipped to direct the approach and landing of aircraft in bad weather and will accompany deployments of Marine Aviation units in advance operations.

Museum to Get D-558

'Skystreak' Readied for Display

One of the relics of Naval Aviation, the Douglas D-558 *Skystreak* is slated for display in the Naval Aviation Museum at Pensacola. Aircraft Maintenance at NAS PENSACOLA is readying it, one of the first near-sonic aircraft ever built, for presentation.

Back in August 1947, twice within five days, the *Skystreak* broke the world's speed record: 640.6 mph by Navy Commander Turner F. Caldwell, Jr. (now Rear Admiral), and 650.7 mph with Marine Major Marion E. Carl (now Brigadier General) in the cockpit.

Now nearly 18 years later, the D-558, which only skimmed the surface of the sound barrier, but proved that it could be flown safely close to the ground while approaching the speed of sound, has become, in very truth, "a museum piece."

Nuclear Fleet Goes West
First Move is Scheduled for Fall

The ships of Nuclear Task Force One, *Enterprise* (CVAN-65), *Long Beach* (CGN-9), *Bainbridge* (DLGN-25), and the newest nuclear-powered surface ship, *Truxtun*, (DLGN-35), will be transferred to the Pacific Fleet. *Enterprise* and *Bainbridge* will make the move in October of this year. *Long Beach* and *Truxtun* will leave sometime in 1966.

The transfer will involve no changes in the total naval force in either Fleet. To compensate for the transfer, the guided missile cruiser, *Columbus* (CG-12), will be transferred to the Atlantic Fleet. *America* (CVA-66) and two guided missile frigates now under construction, *Daniels* (DLG-27) and *Wainwright* (DLG-28), originally scheduled for the Pacific Fleet, will now remain in the Atlantic.

The home port for *Enterprise* will be Alameda. *Bainbridge* will have its home port in Long Beach. Home ports for the other ships will be announced later.

The proposal to utilize the unique endurance and self-sufficiency of the nuclear task force in the Pacific area has been under study for some time. According to Pentagon sources, the move was not related to the war in Vietnam, although the presence of the warships obviously would enhance United States striking power in these waters. Timing of the transfer has been dependent on operational commitments and deployments of both the Atlantic and Pacific Fleets.

VT-24 Instructor is Cited
Receives David S. Ingalls Award

A U. S. Marine Corps flight instructor from the Naval Air Advanced Training Command received the first annual David S. Ingalls Award as the Naval Air Training Command Flight Instructor of the Year at NAS Pensacola, Florida.

Captain Glenn J. Shaver, Jr., USMC, Training Squadron 24, NAAS Chase Field, Beeville, Texas, was selected for the Navy League-sponsored award over 756 other flight instructors attached to training squadrons of the Advanced Training Command, headquartered at NAS Corpus Christi, Texas, and the Basic Training Command, headquartered at NAS

CAPTAIN SHAVER RECEIVES RECOGNITION

Pensacola. Captain Shaver has been assigned to VT-24 since August 1962. Since that time he has amassed a total of 1,776 accident-free flight hours. Mr. Robert H. Barnum, National President of the Navy League, made the presentation.

Runner-up to Captain Shaver was Captain Robert M. Ondrick, USMC, of the Naval Air Basic Training Command's Training Squadron 3, based at NAAS Whiting Field, Milton, Fla. The two Marine Corps Aviators were chosen to vie for the honor after being selected as the Outstanding Flight Instructors of their respective commands.

The David S. Ingalls Award was named after Rear Admiral David S. Ingalls, USN (Ret.), the Navy's first Ace. Admiral Ingalls, Naval Aviator number 85, became an Ace while flying as a member of the famed Yale Reserve Unit in France during WW I. He is now president and publisher of the *Cincinnati Times Star*.

Top Graduates are Honored
Three are Given Wrist Watches

Engraved wrist watches were presented at NAS Corpus Christi to

MRS. DICK OF DAR AND HONORED PILOTS

three 1964 honor graduates of the Naval Air Advanced Training Command. The watches were the gift of the Texas Society, Daughters of the American Revolution.

Honored as the top student aviators from their respective services were (as shown here, left to right): Ltjg. Albert F. Baker, USCG; Ens. James H. Hise, USN; and 1st Lt. Robert B. Geltz, USMC. Mrs. Winter Dick, State Regent of the DAR, made the presentation.

Ltjg. Baker, in September 1964, completed multi-engine training with VT-31 and is now on duty with the Coast Guard Air Detachment at Elizabeth City, N. C. Ens. Hise, who trained with VT-23 and was graduated in May 1964, is now assigned to VF-53, NAS Miramar, Calif. First Lt. Geltz, another 1964 graduate, completed his training with VT-26 and is now assigned to VMFA-542, NAS Atsugi, Japan.

New Designators for NAO's
Command Opportunities Available

A new designation has been authorized for Naval Aviation Observers. Along with the change goes a refinement in policy that allows NAO's to compete for and hold any command assignment for which they qualify by demonstrated performance and ability. They may fill any aviation 13XX billet not requiring actual control knowledge of an aircraft.

According to BuPers Instruction 1210.4C Change of February 8, a 132X designator is appropriate for "an unrestricted line officer, a member of the aeronautical organization, who is a flight officer."

When a 132X has qualified in more than one of the eight subspecialties, he will be reported for assignment in the last one acquired. The eight are: bombardier, controller, electronic countermeasures evaluator, navigator, interceptor, photographer-navigator, tactical coordinator and reconnaissance navigator.

The term "flight officer" will be applied to all NAO's except the Limited Duty Officers (LDO's) who entered the program in the beginning. LDO's selected for permanent flight status as of July 1, 1964, or later, will retain their 135X designations and flight status. Future changes of station will be compatible with LDO normal rotation policies.

GRAMPAW PETTIBONE

Poor Planning

Two RA-5C's with a replacement pilot (RP) and reconnaissance attack navigator (RAN) in one aircraft and an instructor pilot (IP) and RAN in the other departed home base one morning for a photo reconnaissance training flight. The IP briefed the replacement crew the afternoon before the flight, so just prior to manning their aircraft, the crews again reviewed the flight as briefed the day before.

The two aircraft were to rendezvous while climbing to 15,000 feet then level off and conduct air-to-air photography, including both obliques and verticals. The replacement crew was then to conduct air-to-ground photography for the remainder of the flight and the chase pilot was to depart for a separate mission.

Preflight, taxi and take-off were normal in all respects and the aircraft made a running rendezvous as planned. The replacement pilot took a position approximately one-half mile astern and after establishing radio contact with the instructor pilot informed him that he would move into position for some oblique camera work. After 15 or 20 oblique exposures from

a position of 1,000 to 1,800 feet abeam, the RP informed the IP that he was ready to commence taking verticals and would maintain 15,000 feet.

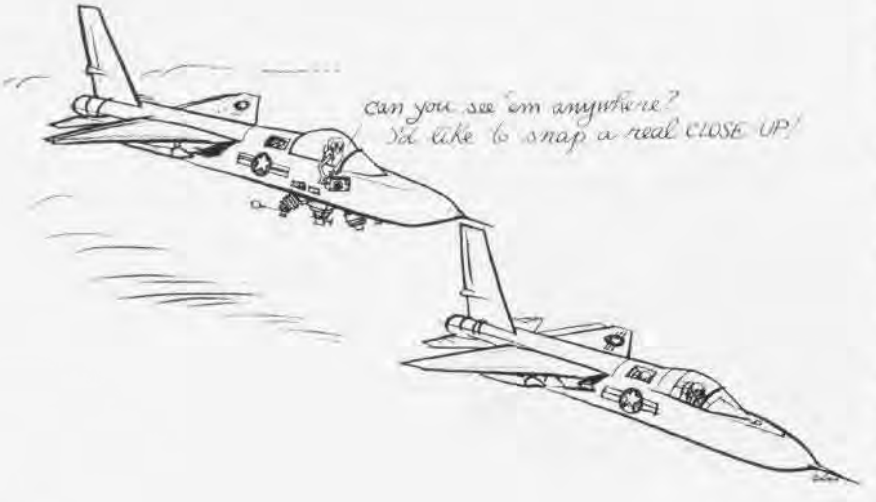
The IP moved in behind the RP and positioned himself at 14,500 feet for a pass. The IP then established a slow closure rate on the other aircraft and advised the RP to start his cameras. Both pilots concentrated on holding their heading and altitude, but in a few seconds the IP heard the transmission, "You're too close," followed by a slight bump.

Just after this transmission, the RP saw the vertical stabilizer of the other aircraft rising rapidly on the right side of his cockpit only a few feet away. He immediately made an attempt to avoid the collision by pulling up to the left, but could only reduce the rate of closure. Simultaneously with the collision the RP saw debris fly and felt a loud blast. He immediately initiated ejection by the face curtain. The RAN who had made the radio transmission, "You're too close," reached for the face curtain when he heard the bang and felt the shock, but was pilot-ejected before he could eject himself.

The instructor pilot tried to raise the other aircraft by radio, then saw the *Vigilante* off to the starboard in an inverted nose-down attitude. He radioed for the crew to eject, then broadcast a Mayday. Shortly thereafter he saw two chutes descending through about 5,000 feet.

The aircraft crashed in an unpopulated area and neither the RP nor the RAN was injured during the ejection sequence and landing.

The IP orbited the crash scene and informed SAR units of the position. An A-5A pilot in the area joined on the IP and inspected his aircraft for damage. The RA-5C did not appear to be damaged and, after performing a slow flight check at 8,000 feet, the IP returned to home base for an uneventful landing. The IP's aircraft had sustained only limited damage in the collision.



Grampaw Pettibone says:

Great heavenly days! If a stunt like this don't wilt the lily nothin' will. When two experienced pilots booby-trap themselves into such a mess, you want to sit right down and cry.

One of the pilots involved in this fiasco said he thought the accident could have been avoided if they had cross-checked altimeters prior to the air-to-air runs. Now that's what I call 20-20 hindsight. Just wonder what happened to adequate briefing, super

ILLUSTRATED BY Osborn

vision, sound judgment and the good old professional approach. Each one of these pilots lost sight of the other, but neither one made an effort to break off. They got exactly what they were askin' for—trouble and plenty of it.

There is nothin', absolutely nothin', to replace *planning* and *headwork*.

Get-Home-itis

A couple of pilots and two passengers departed an East Coast NAS about 0930 one morning in a trusty TC-45 for a short trip to another NAS, approximately 400 N.M. south. Shortly after takeoff, they encountered actual instrument conditions and, by the time they arrived at their destination, the weather was close to GCA minimums. According to the copilot's statement, the pilot leveled off slightly high. The landing was a little rough but better than a lot of landings he had "shuddered through" in the "Beech."

The aircraft was parked at the transient line. The pilots and passengers departed the area for a couple of hours while the aircraft was serviced.

The pilots had previously agreed to switch seats for the return trip. When the "first pilot" returned to the aircraft, his copilot and passengers were aboard getting strapped in for the flight.

During the pre-flight inspection, the "first pilot" noticed that the port prop tips had been scraped and ground off. Both pilots agreed that the props could have been damaged prior to their trip. They further agreed that the damage could not have occurred during the previous landing.

The pilot who was to fly the return leg of the flight decided that both tips were ground down about the same amount so the prop would still be reasonably well balanced. Without further delay, the pilots and passengers manned the Beechcraft. After two and one-half hours of instrument time, they landed at their home base.

The pilot noted the damage to the port prop on the yellow sheet but *did not* ground the aircraft. He left it in an UP status because it flew so smoothly.

Grampaw Pettibone Says:

Oh, brother! "I'll not only fly this bird with a damaged prop, I'll leave it in an UP status for a 'friend' of mine." With a friend like this, who needs enemies?

The Reporting Custodian put it this way: The unprofessional approach exhibited by the pilots involved in this incident could well have ended tragically for themselves and their passengers. It is unknown whether ignorance, complacency, or "get-home-itis" dictated the decision to proceed with the return flight with known propeller damage, but that decision was insupportable by either technical directives or common sense. GREB 139D requires specific checks of shaft alignment and strainers prior to placing the aircraft in an UP status. Further compounding the situation, ceilings and visibilities en route were less than ideal for single engine operation or landing.

Now that's really hittin' the nail on the head. It'd be mighty hard for Ol' Gramps to improve on that endorsement.

Sad Situation

A pilot, copilot and two crewmen departed an East Coast MCAS late one afternoon in a UH-2A for an NAS approximately 225 miles north. After being airborne nearly an hour, the pilot experienced a nose-down pitch in the aircraft but quickly corrected it. He then checked to see if the Automatic Stabilization Equipment (ASE) had disengaged and it had not. A few seconds later the aircraft began oscillating around the longitudinal and lateral axis. At this point the pilot noted a one-per-revolution vibration and as the control problems continued, he decided on an emergency landing.

Luckily, there was a full moon and an open field was clearly visible. During the approach, the pilot experienced increased control problems but was able to make a reasonably good emergency landing. After securing all switches, the crew evacuated the aircraft uninjured. A farmer who lived nearby arrived at the scene and drove the pilots to a telephone where they notified their squadron Duty Officer and the nearest military base of the forced landing.

The crew logically expected assistance to arrive in a short time, but it was 1500 the following day (20 hours after landing) before help arrived. The pilots and crewmen spent the night in a lean-to they constructed.

The pilots and crewmen assisted the crash crew in loading the UH-2A on a truck. The crewmen, after having gone without sleep or food for almost 36 hours, were asked to accompany the aircraft to the base. Going was slow and they traveled only five miles before darkness forced them to stop. The crewmen attempted to get transportation from the military base but were informed none would be available until the following morning. The crewmen were so tired by this time they spent the night in a motel and arrived at the base with the aircraft the following morning, approximately 40 hours after the forced landing.

Grampaw Pettibone says:

Holy mackerel! I don't see anything wrong with the way this pilot handled his emergency, but the salvage and rescue operation is just about as sad as I've ever read. It's downright disgustin' for a crew to be treated this way and shakes me no end to know that a thing like this can happen.

I hope the commanding officer of the helo crew brought this to the attention of the base commander. If he did, I'll bet my last chip things were changed—but fast.

AT AN ALTITUDE *of 100 miles, photographs taken by LCdr. John Young show the east coast of Africa near Tananarive, Malagasy.*

GRISSOM AND YOUNG COMPLETE THREE ORBITS IN 'MOLLY B'

By Ltjg. Richard Booth

MARCH 26, 1965, was a slightly overcast but springlike day in Washington. The East Room of the White House seemed to sprout people. Television cameras were in place and directors were busy checking monitors and worrying about schedules. Among the honored guests was Secretary of the Navy Paul H. Nitze. On the front row were seated two families.

The Marine Corps Band struck up "Hail to the Chief" and the room became suddenly quiet. Preceded by the color guard, President Johnson and Mrs. Johnson made their entrance. The tall figure of the President drew less attention than usual as photographers focussed on the two men directly behind him.

Surrounded somewhat by an aura of immortality, the two astronauts made their way to the front of the room and took seats by their families. The famous Gilbert Stuart painting of President Washington, reported to be the only thing saved by Dolley Madison from the British invasion, looked down at the pair of men, who just hours before brought the United States one step beyond the threshold of outer space. The occasion, although an anti-climax to the flight, was memorable, the setting historic.

In his speech, President Johnson noted the advancements made in the space program in the last four years and predicted that further progress within the year would be greater still. Obviously referring to the Soviet "walk in space" President Johnson noted that our space program, without referring to "stunts" and "spectaculars," was progressing at a steady pace toward peaceful accomplishments in space; one that would benefit all mankind.

Noting that 400,000 people in the United States are directly or indirectly concerned with our space program, President Johnson stated proper recognition was impossible.

CAPE KENNEDY, *Florida: Lift-off of the United States' first two-man spacecraft was at 9:24 A.M., Eastern Standard Time, under clear skies.*

The four awards given that day reflected the efforts being made to bring this nation into the lead in the space race.

The awards honored Maj. Virgil I. (Gus) Grissom as the first man to make two flights into space and both Grissom and LCdr. John W. Young as command pilot and pilot of the first two-man *Gemini* spacecraft. Also honored was Mr. Bud Schurmeier, Director of Project *Ranger*. Mr. Schurmeier was credited for the most dramatic advance in our knowledge of the moon. The other recipient was Dr. Robert Seamans of NASA who was cited for his work as general manager of the civilian space effort.

Major Grissom, speaking for the group, said in part: "We accept these awards as tokens of affection from this nation, not just to the four of us, but to the millions of people across the country who are involved directly and indirectly in the success that both the *Ranger* program has had and we had this past Tuesday." The atmosphere of the occasion was that of high spirits. All in attendance were well aware of the feats accomplished by the astronauts and what they meant to the space program.

Looking back at the week's events, the teamwork was evident. As far back as March 9, and for some, the day before the shot, 20 ships comprising recovery Task Force 140 along with two Coast Guard cutters, made an exodus from ports the length of the East Coast to stations across the Atlantic and in the Caribbean. The destroyer USS *Cony* (DDE-508) was one of the first to leave.

After taking on fuel at Bermuda, she headed east for 3,000 miles to a spot just south of the Canary Islands. A majority of the ships were stationed along the critically important orbit insertion track from Cape Kennedy across the Atlantic to the Canaries. Four planned landing areas along this track were provided for a launch abort situation during the powered phase of the flight and just after the booster shutdown and separation. Other than the primary landing area, two more were set up for a landing at the completion of first and second orbits.

The entire task force, under Rear Admiral Ben W. Sarver, Commander Cruiser Destroyer Flotilla Four, consisted of 20 ships, 79 aircraft and over 6,000 Navy men. The force stood poised and ready for the actual shot.

When the rust-colored cloud of smoke and steam flashed from the tail of the *Titan II*, it was 9:24 A.M., EST, at Cape Kennedy. At the eastern end of the range, the afternoon had already begun.

Within three minutes, the first communication was received from the ship and the space capsule, "Molly Brown," was on her way. With the 18.5-foot capsule estimated to be three times as complex as the *Mercury*, little was heard from the astronauts during the flight.

Along with tests in the actual flight of the space ship as they flew backwards and upside down, the astronauts also conducted experiments on foods and blood tests to determine the effects of weightlessness and radiation.

An historic achievement in the flight was the ability of the pilots to control its actual flight path. This is essential to the rendezvous missions planned for the remaining *Gemini* flights and for the Project *Apollo*, which plans to land men on the moon by 1970.

The flight, that began only 24 minutes after the earliest possible launch time, was held up when a leak in a pressurized line was discovered with less than 40 minutes to go. One turn of a wrench stopped the leak and the countdown was resumed. Lifting off in near perfect weather, the craft splashed down at 2:18 P.M., EST, more than 50 miles from its expected landing spot.

Less than an hour after impact, the astronauts stepped onto the deck of the major recovery ship, USS *Intrepid* (CVS-11) to be welcomed by her crew, members of the press and NASA officials.

The ships of Carrier Task Force 140 headed home with the knowledge that the flight itself was a success. Despite the fact that it landed farther from the target point than planned, the astronauts were otherwise successful in accomplishing the planned mission.

In the words of the President, "This is a great day for all America. . . . We have crossed over the threshold of man's first tentative and experimental ventures in space. The question of whether there would be a role for man himself in space is already firmly and finally answered, and answered affirmatively. Man's role in space will be great, it will be vital and it will be useful."

TWO SH-3A *helicopters from the USS Intrepid hover over the capsule after its four hour and 53 minute, three-orbit flight.*

AT WHITE HOUSE *ceremonies, Major Gus Grissom and LCdr. John Young received citations and medals from President Lyndon Johnson.*

'DAWDLING DROMEDARY' SETS A RECORD

CREW MEMBERS *pose with "Dawdling Dromedary" (left to right) Paul J. Bert, ADJ1, Commander James R. Williford, Lt. D. A. Beil.*

OFFICIALLY STARTING *their transcontinental distance record trip, the pilots take a signal from deck personnel of the USS Hornet (CVS-12).*

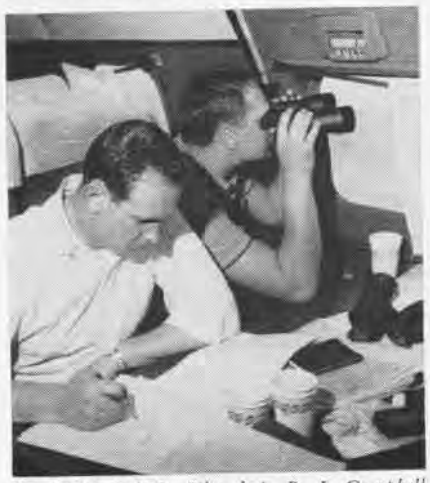
A NAVY/SIKORSKY *Sea King*, called the "Dawdling Dromedary," a nickname its record denies, made a transcontinental flight one day in March and set up its claim for the world's record for distance flight by helicopter.

The big day, March 6, began at dawn (7:18 A.M., EST) when the helicopter took off from the aircraft carrier *Hornet* at San Diego and flew 2,116 miles to the USS *Franklin D. Roosevelt* at Mayport (Jacksonville), Fla. It landed at 11:10 P.M., EST, after exactly 15 hours and 52 minutes in flight.

COMMANDER WILLIFORD *inspects fuel tank seal affixed by NAA officials prior to flight.*

The crew, all of the Naval Air Test Center, Patuxent River, Md., were pilot, Commander James R. Williford, head of the Rotary Wing Branch, Flight Test Division; co-pilot, Lt. David A. Beil, project pilot of the same branch; and crew chief, Paul J. Bert, ADJ1, Service Test Division.

This was not the first record for the SH-3A. The Sikorsky helicopter was the first ever to exceed 200 mph,



IN NAVY C-131, *Sikorsky's R. J. Campbell and crew chief Makowski follow the SH-3A.*

FOR ABOUT 9½ HOURS *of the flight, the SH-3A was on single engine. The #2 engine was secured shortly after passing Guadalupe Pass, Tex., and started again 5,000 feet over Jacksonville.*

AT JOURNEY'S END, *Pilot Williford steps out of the Dromedary that didn't dawdle.*

CREW MEMBERS *(C) are welcomed at Mayport by Captain M. W. Cagle, C.O. of USS Roosevelt (CVA-42), at left, and Rear Admiral Goldthwaite, Commander Fleet Air Jacksonville.*

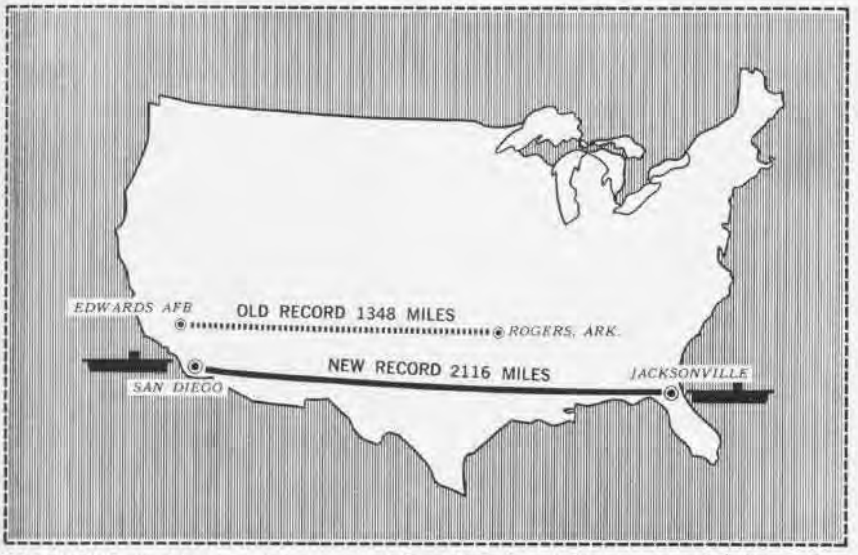
a world record of 210.6 mph, set in February 1962.

The cruising altitude of the Dawdling Dromedary ranged from under 5,000 feet to 15,000 feet, the latter height being maintained during the final two hours of the flight.

The helicopter had a gross weight of 23,000 pounds at takeoff (about 4,000 pounds over its normal Navy operating weight, but only 1,000 pounds over that used for some other military operations). Its fuel load at takeoff was 1,690 gallons, and it had 60 gallons left upon landing.

Commander Williford commenting on the flight said, "We had about 20 hours of liquid oxygen aboard and used it for about six hours. That mask hurt after five hours.

"Since weight counted, the heater had been removed. We therefore wore rubber boots, long underwear, etc., but still were thoroughly chilled upon arrival. The temperature at 15,000 feet was −11° that night."



MAP SHOWS *old helicopter distance record (dotted line) and the new record (solid line) set by a U.S. Navy/Sikorsky SH-3A helicopter. Average ground speed was 133.3 miles per hour.*

"The C-131 chase aircraft crew was amazed at our accuracy of navigation with a lone omni. Actually, it was such a clear day it was the old type of piloting, that is, "just north of that reservoir' or 'one mile south of that city,' etc. We flew through mountain passes until Guadalupe, thence great circle route to Mayport.

"For the trip, +10 knots tailwind average was needed, and it appeared we weren't going to make it for the first 8-9 hours because we were behind on our time vs. distance plot. But as we climbed higher—climbing being limited by retreating blade stall—we gained stronger and more favorable winds. By the time we reached Valdosta, Ga., we had about 35 knots pushing us. That was a nice feature because the Okefenokee Swamp at night is no place for an autorotation with empty fuel tanks."

Vice Admiral Paul D. Stroop, ComNavAirPac, sent his personal congratulations to Commander Williford: "This first coast-to-coast, non-stop flight of a helicopter will be a lasting tribute to Naval Aviation."

Admiral David L. McDonald, CNO, congratulated the Naval Air Test Center praising "the professional competence of the crew" of the SH-3A: "Heartiest congratulations to all who participated in making possible this new world distance record."

FORMING THE FIRST *link in the effective E-1B-F-4B combination, Ens. Alden C. Davis, attached to Norfolk-based VAW-12, is responsible for initial detection of low flying raid aircraft.*

THE NAVY IS A FAMILY TRADITION

IN 36 YEARS of naval history, many advancements have occurred. Ships and airplanes have come and gone. The advent of so-called modern warfare has seen a radical change to mission, responsibilities, and tactics of the U. S. Navy. Throughout the years, although many things change, some do not—things such as naval customs and traditions and the Davis family of Hammond, Louisiana.

In 1929 Ensign Royce P. Davis was graduated from the U. S. Naval Academy at Annapolis. He was commissioned and proceeded to his first sea duty assignment with the carrier USS *Saratoga* (CV-3). Thirty years later, Captain Royce P. Davis, Sr., retired. He now resides in Hammond.

TAKING VECTORS *from his brother, Ltjg. R. P. Davis, Jr., completes the intercept.*

In 1965 the Davis family again makes an appearance in the Navy and again on the *Saratoga* (CVA-60). Even more coincidental is the fact that Ltjg. Royce P. Davis, Jr., attached to VF-31 based at Jacksonville and his brother, Ens. Alden C. Davis, attached to VAW-12 based at Norfolk, Va., are working as a team.

Ens. A. C. Davis is an NAO(C) attached to the only squadron of its kind on the East Coast. VAW-12, with its complement of 40 aircraft and over 700 men, supplies detachments of men and aircraft to practically all carriers in the Atlantic Fleet. In carrying out their assigned mission of airborne early warning, they routinely take control of such high performance aircraft as the F-4B and conduct intercepts. In the event of hostilities, they could mean the difference between another Pearl Harbor or a successful intercept by U. S. Navy airplanes at at safe distance from the task force.

His brother, Ltjg. R. P. Davis, Jr., is an NAO radar intercept officer, attached to VF-31. As an RIO, it is his job to take the initial vectors from the E-1B controller, who may be his brother, and locate the intruder on his radar. After making the acquisition, he will take over the intercept and feed information to his pilot who will in turn make the kill.

Chapel Window Dedicated

First in a Series at Pensacola

A newly installed stained glass window depicting the story of Christ as the Divine Physician was dedicated at the Naval Aviation Memorial Chapel at Pensacola. Chief of Chaplains, Rear Admiral J. Floyd Dreith, made the dedication during Pre-Flight services on Sunday, March 14. The window is the first to be installed in the chapel proper and was presented by medical personnel throughout the Navy, active and retired.

The dedication marks the first of eight such windows to be installed in the chapel proper. The four windows on the east side of the chapel will depict scenes from the Old Testament: Moses the Lawgiver, David the King, Nehemiah the Builder and Isaiah the Prophet. The remaining three on the opposite side will depict scenes of the Life of Christ; the Baptism, Calming the Storm, and Christ the Teacher. The entire installation is expected to be complete in one year.

150,000 GCA Approaches

Averages 34 Daily for 12 Years

The Ground Control Approach Unit at NAS BARBER'S POINT, Hawaii, recently logged its 150,000th approach. A C-118 flown by VR-21 Commanding Officer, Captain Warren E. Westrup, made the historic approach.

Since the installation of the GCA unit in 1953, there have been an average of 34 GCA approaches made every 24 hours. This unit and the one at MCAS KANEOHE serve aviators of all services in the Hawaiian area.

CIVILIAN CRASH *Captain at NAS Cecil Field, Leslie M. Garner, receives the Navy Meritorious Civilian Service Award from Captain S. D. Wright, station C.O., for his rescue of a pilot from a crashed jet which was burning and in danger of exploding. The award is third highest of the Navy civilian awards.*

RIDING THEIR OWN CUSHIONS OF AIR, THE SR.N5 (FOREGROUND) AND THE SKMR-1 UNDERGO SALT WATER TESTS AT NAS NORFOLK

RIDING ON AIR, SKMR-1 UNDERGOES TESTS

WITH ALL THE APPEARANCE and sounds of a Buck Rogers trademark, the 30-ton SKMR-1 "floated" down the seaplane ramp at Norfolk to join the Bell-Westland SR.N5, her sister craft, already in the bay waters.

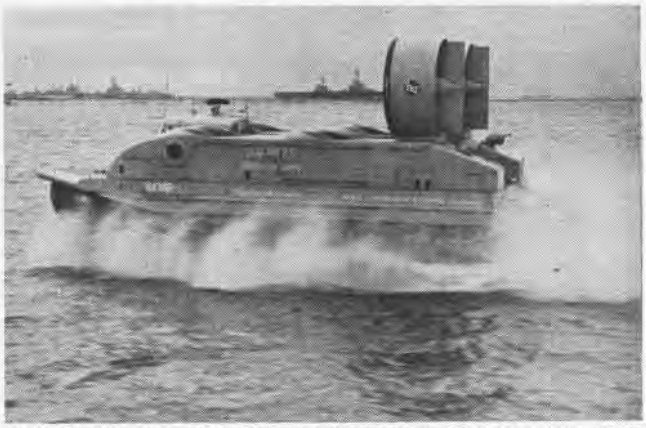
The "flight" was part of a program conducted by the U.S. Navy's Operational Test and Evaluation Force. Under evaluation are the British-developed Bell/Westland SR.N5, a versatile seven-ton machine, and the U.S. Navy's 30-ton *Hydroskimmer*, largest and most powerful air cushion vehicle (ACV) ever built in the United States.

The program includes evaluation of both ACV's for such applications as amphibious warfare, antisubmarine warfare, counter-insurgency operations, convoy screening, night or low-visibility operations and crew training.

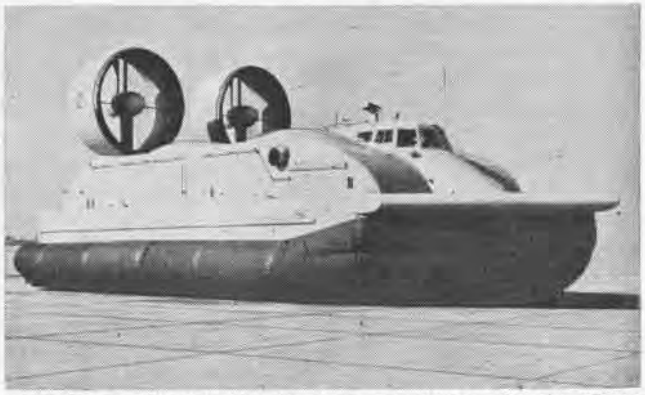
The *Hydroskimmer*, designated SKMR-1 by the Navy, was designed and built by Bell Aerosystems at its Buffalo facility. It is 65 feet long, 27 feet wide and 23.5 feet high. Total weight, with four hours' fuel, a two-man crew and four observers, is approximately 61,000 pounds.

Four cushion fans mounted in the hull of the *Hydroskimmer* provide the lift to raise it from the surface. Two 10-foot aluminum propellers, mounted in ducts on the afterdeck, supply the thrust to drive the SKMR-1 over the surface on its own air cushion at speeds in excess of 70 knots. This was its first series of salt water tests.

The SR.N5 is a high-speed amphibious craft that rides its own air cushion over water, land, ice, snow, mud or marsh. Powered by a 900-hp turbine engine, the SR.N5 has achieved speeds up to 60 knots. With a maximum gross weight of over seven tons, it is capable of carrying 20 passengers or two tons of cargo. The British-developed Westland is 39 feet long, 22.9 feet wide and 16 feet high.



SKMR-1, ITS SKIRT INFLATED, HOVERS FOUR FEET OFF THE DECK



LARGEST U.S. VEHICLE OF ITS KIND UNDERGOES ITS SEA TRIALS

NEW ANTARCTIC NAMES HONOR VX-6

MEMBERS OF THE DEEP FREEZE 60 VICTORIA LAND TRAVERSE PARTY CAMP IN FRONT OF MOUNT VX-6. IT RISES 7155 FEET

IN THE LATEST LIST of geographic names covering features in the Antarctic, 29 features honor the men now and formerly assigned to Air Development Squadron Six. This squadron provides air support for scientific studies and mapping of the south polar regions. Also included on the list is a feature honoring the squadron itself. The list, approved by the U.S. Board on Geographic Names, was made official by signature of the Secretary of Interior, Stewart L. Udall.

Noted among the features named are places honoring ten U.S. Army officers and men who were assigned to the *Deep Freeze* air squadron for the 1961-62 and 1962-63 summer support seasons. Flying in UH-1B *Iroquois* helicopters, they participated in Topo North-South and Topo East-West during the respective seasons. The Topo projects gave helicopter support to over-snow traverses during which survey teams of the U.S. Antarctic Research Program mapped important areas of Antarctica.

Two Army enlisted men participated in both Topo projects, acting as helicopter mechanics in the field. They are SP5 Louis J. Harrison, USA, and SP5 Frank L. MacPherson, USA. Manuel J. Perez, a Navy photographer, was singled out by the Board for his participation in the projects as a member of the Topo West field party.

On the 1961-62 Topo North-South traverse were CWO John D. Brazil, helo pilot; CWO Clarence E. Gleaton, also a helo pilot; and Sgt. (1st Class) Billy D. Stafford, NCO in charge of the enlisted detachment. All are Army men assigned to the VX-6 squadron.

On the 1962-63 Topo East-West traverse were SSgt. Robert J. Anderson, USA, in charge of the enlisted men in the detachment; 1st Lt. Charles W. Beaman, USA, helo pilot; CWO Joe R. Griffin, USA, helo pilot; and Capt. Frank H. Radspinner, USA, OinC of the helo detachment.

Five Navy officers and men of the squadron and one Marine enlisted member were honored for their support of the Topo projects in ski-equipped C-47 *Skytrains*. They are: Lt. Ronald L. Bolt, pilot; Allen N. Cox, ADJ2, crew chief; LCdr. Alexander T. Craven, pilot; Lt. Owen B. Lovejoy, copilot; Gerald M. Sample, AT1, radio operator; and SSgt. James K. Shields, navigator.

For photomapping flights, the following were honored: Mike B. Keim, PH1, for P-2 flights over Victoria Land in 1962-63; Harry N. Williams, PH2, for P-2 flights over Victoria Land and other areas of Antarctica during the 1960-63 seasons; Lt. William W. Works, P-2 pilot, also during the 1960-63 seasons; and Lt. Olan L. Dockery, for C-121 flights over North Victoria Land in the 1962-64 seasons. Ltjg. Harold S. Hemphill, VX-6 photo officer who handled many of the photomapping assignments, was also singled out by the Board on Geographic Names.

Three former commanding officers now have features in Antarctica named after them. They are Commander Gordon K. Ebbe, the squadron's first C.O.; Commander William H. Everett, C.O. from 1962 to 1963; and Commander Martin D. Greenwell, who commanded during 1961-1962. Features have already been named for former C.O.'s Captains Douglas L. Cordiner and William H. Munson. LCdr. Charles J. McCarthy, officer in charge of the VX-6 detachment at Ellsworth Station during *Deep Freeze II*, now has an inlet bearing his name.

Three VX-6 officers were honored by the New Zealand government for aerial support of that country's field parties during the 1963-64 seasons. They are Lt. John M. Bowers, Jr., Lt. James R. Edixon, and Lt. Daniel M. Moody.

In the Board's second honoring of the Antarctic air squadron, it has approved the name Mount VX-6, submitted by scientists of the Victoria Land Traverse Party in 1959-60. Previously, the Board approved the naming of Airdevronsix Icefalls at 77° 31'S, 160° 25'E.

The features and their coordinates are listed as follows:

Anderson Pyramid	70° 56'S,	162° 24'E
Beaman Glacier	70 58 S,	164 38 E
Bolt, Mount	71 06 S,	165 42 E
Bowers Peak	71 45 S,	163 20 E
Brazil, Mount	72 02 S,	167 59 E
Cox, Mount	71 47 S,	160 36 E
Craven, Mount	71 08 S,	165 15 E
Dockery, Mount	71 12 S,	164 39 E
Ebbe Glacier	71 03 S,	164 45 E
Edixon, Mount	71 48 S,	163 20 E
Everett Range	71 20 S,	165 40 E

Gleaton, Mount	72	12 S, 168	27 E
Greene, Mount	72	07 S, 168	14 E
Greenwell Glacier	71	20 S, 165	00 E
Griffin, Mount	71	11 S, 166	16 E
Harrison, Mount	70	24 S, 159	47 E
Hemphill, Mount	71	01 S, 165	06 E
Keim Peak	70	44 S, 159	52 E
Lovejoy Glacier	70	48 S, 160	10 E
MacPherson Peak	70	53 S, 159	43 E
McCarthy Inlet	78	45 S, 46	20 W
Moody, Mount	71	32 S, 162	49 E
Perez, Mount	70	00 S, 159	33 E
Radspinner, Mount	71	28 S, 164	33 E
Sample Nunataks	70	53 S, 159	50 E
Shields, Mount	70	11 S, 159	56 E
Stafford Glacier	72	30 S, 168	15 E
VX-6, Mount	72	38 S, 162	12 E
Williams Bluff	70	43 S, 160	14 E
Works, Mount	71	14 S, 164	56 E

The September 1961, June 1962, and March 1963 issues of NANEWS contain lists of names and coordinates of features similarly honoring the VX-6 squadron, its officers and men.

Time Check by Satellite

One-Tenth Microsecond Measured

A time differential of one ten-millionth of a second was recently measured between clocks in the United States and Japan through the use of the NASA *Relay II* satellite.

Scientists from the U.S. Naval Observatory, Washington, D. C., working at the NASA Mojave Tracking Station in California, and a Japanese scientist at the Kashima Ground Station, near Tokyo, measured the difference by comparing radio signals relayed by the communications satellite.

A 10,000-pulse-per-second signal from the test clock at Mojave was broadcast via satellite. At Kashima, the incoming signal was immediately rebroadcast, along with a similar signal originating at the Japanese station. Thus scientists at Mojave were able to photograph and compare a visual presentation of their original signal and its echo, as well as the clock signal coming from Japan. Later the procedure was reversed and photographic observations were made at Kashima. Results were identical. Purpose of the experiment was to determine how accurately time comparisons can be made between widely separated points with present communication satellites. It was the first experiment which synchronized clocks in the U.S. and Japan via satellites. A similar experiment was conducted in 1962 between the U.S. and England with equally accurate results.

THIS CANADAIR CL-41G TRAINER WAS MODIFIED FOR LIMITED WAR TACTICAL MISSIONS

CANADIAN 'TUTOR' EVALUATED AT PAX

UNUSUAL AIRPLANES are commonplace at the Naval Air Test Center, Patuxent River, Md. A recent visitor to the flight line there was a modified version of the Royal Canadian Air Force's new standard trainer, the Canadair *Tutor*. Carrying the company's CL-41G designation, this *Tutor* was modified as a prototype of a combined tactical/trainer aircraft. It was evaluated by NATC as part of Navy/Marine interest in the development of tactical aircraft for limited warfare situations .

Following tests of its armament capability conducted at the Naval Ordnance Test Station, China Lake, NATC test pilots ran a brief flight evaluation of the armed *Tutor's* flight characteristics and suitability as an attack airplane.

The *Tutor* was developed by the Canadair Division of General Dynamics and accepted as the RCAF's standard trainer. Like the U.S. Air Force's T-37 jet trainer, it features side-by-side seating. The low-wing configuration with air intakes at the wing-fuselage juncture is also common to both. However, the *Tutor* uses a single Canadian-built GE J-85 engine in place of the T-37's twin lower-power engines. The T tail of the *Tutor* is another distinguishing feature. Prototypes of the T-37 as a tactical aircraft have been built and have been tested by the U.S. Air Force.

The armed *Tutor* carries up to a total of 3,500 pounds of external stores with six store stations. These include gun pods, rocket packs, and a wide range of conventional bombs.

'Seapower' Movie Ready

Jack L. Warner Produces Navy Film

A movie entitled "Seapower," narrated by Glenn Ford and produced by the Warner Brothers Studios under the personal supervision of Jack L. Warner, is now available. It can be obtained through Officers in Charge, Navy Recruiting Stations; Commanding Officers, Naval Reserve Training Centers; and the Public Information Officers of the Commandants of the Naval Districts.

"Seapower," which establishes the vital importance of the seas, both above and below the surface, now and in the future, is based on a story concept developed by the Honorable Paul B. Fay, Jr., at the time he was Under Secretary of the Navy, and Vice Admiral John S. McCain, Jr. It was written and produced by William L. Hendricks.

The Navy's capabilities and firepower are shown in action in a manner demonstrating how this power could be utilized if required to preserve world peace and freedom. The Navy's latest and most effective Naval weapons are shown in action—poised power that figured vitally in the solution of the Cuban crisis in 1962.

MISSILE WEAPON SYSTEM DATA REVAMPED

By Joseph L. Lewis
Fleet Weapons Missile Systems Analysis and Evaluation Group

THE AUTHOR EXPLAINS FEATURES OF REPORT FORM TO PILOTS OF FIGHTER SQUADRON 114

IN THE OCTOBER 1962 issue of *Naval Aviation News* (pp. 35-37), a unique missile weapon system data collection program was described in an article entitled "Fighter Mission Data Automated." The program, described originally as Air-to-Air Missile Weapon System Flight Report (AAMREP), has recently been brought up-to-date, complete with a revised form, new reporting instructions, and a more flexible plan for obtaining certain mission data by selective sampling of pertinent exercises.

Since, in addition to air-to-air missiles, air-to-surface missiles are now included, the program originally named AAMREP, has been renamed Air Launched Report (ALREP) to cover all air-launched weapon systems. As currently established, ALREP will monitor *Sidewinder*, *Sparrow* and *Bullpup* operations along with associated aircraft and equipment. Provisions have been made for future missile systems as well.

Two groups were involved in designing the revised form and formulating instructions for its use: the U.S. Naval Fleet Missile Systems Analysis and Evaluation Group (FMSAEG), Corona, Calif., and a large representation of squadron personnel. The aim was to simplify data reporting without reducing its quality.

This was accomplished by streamlining the form and by reducing the reports required where sufficient background data had been accumulated. These changes were made on the basis of a survey of squadron comments on AAMREP. FMSAEG then redesigned the form and submitted it to representatives of Atlantic and Pacific Fleet squadrons for review. The consensus eventually reached is reflected in the ALREP program which is to be implemented under OpNav Inst. 08810.1 and BuWeps Inst. 8810.2.

The progress of the AAMREP program has been monitored by both CNO and BuWeps since it began. After a nominal trial period to determine its feasibility, the program was fully evaluated in order to assure a realistic basis for its continuance.

It became at once apparent that the AAMREP had provided an unprecedented data backlog of such broad scope that it was no longer necessary to report every practice intercept and/or missile captive flight. The program's only routine requirement was therefore reduced to data on missile firings and certain counter-measures exercises.

To keep up with continually changing tactical and equipment developments, the sampling concept was added. Thus data on any special exercise, new or modified equipment, or unusual test environment can be gathered for a limited time on approval of BuWeps and CNO. Such data may or may not use the standard ALREP forms.

As a supplement to the BuWeps directive FMSAEG has prepared a brochure describing the parameters required on the data form. Included in the brochure is a sample form filled out to report a typical firing mission. To supplement the brochure, FMSAEG is sending briefing teams to all CONUS and WestPac squadrons to explain the program requirements and to answer any questions. Squadrons in the Med will be briefed at Atlantic locations between deployments.

Here are some of the new features of the program. A separate form is available for each major system. If you are a *Phantom* pilot or RIO, you will use a Type I form; a *Crusader* pilot will use Type II; attack aircraft will employ a form designed for ASM firings. New forms will be designed as needed for subsequent weapon systems. In the sampling program, specially designed temporary forms, probably very simple ones, will be used.

MISS IRMA STICKLER IS TAPE LIBRARIAN

In many of these programs, FMSAEG may supply personnel to assist in gathering the data and in filling out the form itself after debriefing the aircrew.

The new air-to-air forms have been reorganized to separate clearly intercept and missile-firing data. In-flight code sheets have been eliminated. Except for arbitrary parameters, such as altitudes, ranges, etc., the pilot will make a choice from a few simple codes on the form itself.

For operations conducted in an ECM environment, a CM card has been included as a supplement to the intercept data section. This card has a few coded items and an ample remarks section. This section should be used freely so as to provide amplification and overcome inevitable coding deficiencies in this rapidly changing field.

Perhaps the most significant changes in the form are the provisions for more precise data on intercept geometry and other vital flight and firing parameters. These were designed to meet demanding requirements for data on weapon system performance under varying environments.

The oft-harried pilot or RIO tends to see these reports as just another paper chore, especially since the data usually ends up in a document which he may never see. Perhaps a general accounting of AAMREP experience to date is in order.

AAMREP has had its critics. For example, an early source of misunderstanding was the original concept of supplying operational data to the squadrons. Many squadrons found the data a useful adjunct to routine periodic reports, especially where FMSAEG and the squadrons developed special listings to meet routine reporting objectives. Others did not avail themselves of this opportunity, and consequently did not benefit from this output. As a routine reporting tool, the program appeared to many squadrons to be a waste of time. The new directive does not continue this feature on a routine basis. However, squadrons who request such periodic reports will continue to receive them, with the necessary proviso that they furnish sufficient data (for example, reports on practice intercepts) to meet their individual report requirements.

Operational data listings were, fortunately, only a by-product of the AAMREP program. The data, representing typical weapon systems performing under day-to-day operational routines, provided a first-hand picture of the composite air/missile program. Monthly missile firing results, involving the complete system, were made available to BuWeps. Special studies were conducted on the Airborne Missile Control System (AMCS). These revealed, in many instances, unrealized capabilities. One such study served as the only up-to-date input to a series of high-level war games computations. While many studies only confirmed system capabilities the pilot operator already knew, the information was now being made available to cognizant engineers and technicians who had no prior first-hand experience with day-to-day operational problems.

One notable study on air-to-air missile performance restored confidence in a particular missile system by demonstrating that engineering changes had created a new level of performance in late model production. A single ECM report was extremely well received as one of the first of such documents evaluating routine performance in these environments. Much additional information has been distributed informally in direct response to questions involving minor or transient problem areas. The fact that both BuWeps and CNO were aware of these accomplishments is evidenced by their directives to continue the program.

Since the new reporting program will collect data in reduced quantities, it will be incumbent upon all participants to be as accurate and complete as possible in completing one of the ALREP's. Under current firing allowances, individual participation will occur only a few times in a given year and FMSAEG will no longer have a quantity of data sufficient to warrant exclusion of poorly executed data forms. This means that questionable forms will be returned to the squadron for clarification. To avoid such delays, a plea is entered here to try to make each form count. When in doubt, "exit" to *Remarks*. Brief verbal statements, even opinions, can offer valuable clues when available in quantity. It is your weapon system, tell us how it's doing. Together we can get the facts to the people who need them to maintain the best equipped fighting force in history.

COMFUTER AT CORONA MAKES VOLUMES OF DATA AVAILABLE

AN FMSAEG REPRESENTATIVE (UPPER RIGHT) IS ABOARD CARRIER

'SILVER LANCE'—A LESSON IN WAR

FLIGHT CREWS *remained on five minute alert during the amphibious exercise. The air wings provided ASW protection to the force and close air support to the Marine landing forces.*

A CRUSADER *drops a fire bomb during pre-landing softening up of the assault beaches.*

GRIM REALISM prevailed when the Navy and the Marine Corps joined forces in the most extensive exercise since WW II. *Silver Lance,* which involved 60 ships and over 50,000 sailors and marines, took place in a fictional country, actually part of Camp Pendleton on the Southern California coast.

The exercise, developed by Lieutenant General Victor H. Krulak, USMC, drew its names from the legends of King Arthur. *Lancelot,* a friendly country with villages of *Camelot, Tristram,* and *Gawain* came under pressure from its northern neighbors, *Merlin* and *Modred.* The entire setting was made to order at the Marine training base at Camp Pendleton.

The inhabitants of *Lancelot* were all Marines. A political structure was set up with their own religious practices, their own flag and national anthem and their own grievances. To obtain the desired setting and background for the exercise, a theoretical political situation was planned for the little country.

Basically, the established government of *Lancelot* became undermined by the insurgent province of *Campen.* After a series of "crises," the government of *Lancelot* decided it could no longer guarantee the safety of American citizens. The president then requested American military aid to help keep the peace. From here the circumstances developed into what has been deemed a typical counter-insurgency situation. It involved assistance in suppressing guerrilla activities, providing advisory personnel to the armed forces, working to restore law and order, protecting American lives and making ready for the possible evacuation of American nationalists.

Prior to the actual invasion, a full-scale rehearsal was held. As the carriers *Bennington, Oriskany,* and *Midway* moved into position just off the coast, Navy and Marine elements ran through exercises in shore bombardment, close air support and missile firing. After neutralizing the beachhead, the carrier based planes provided

A MARINE *LVTP-5 churns out of the tank deck of an LST before forming up in an assault wave. Part of a self-sustaining landing force, the vehicle has a capacity of 34 troops.*

DEMONSTRATORS *in front of the American consulate oppose American landing forces.*

PRO-AMERICAN *demonstrators gather in the streets of Lancelot to display a welcome sign on arrival of the American ambassador and the Marine Brigade Commander before the landing.*

close air support and remained on call to destroy specific targets, simulating support of a landing force. While a ramp-down rehearsal of landing craft took place, Marine helicopters flew over enemy lines in a simulated vertical envelopment.

Further agitation by the *Merlinese* forces precipitated retaliatory action and the U. S. forces swung into motion. Racked by sweeping Navy and Marine jets on reconnaissance runs, the beachhead next underwent "softening up" by the carrier-based airplanes prior to the actual landing. During and after the landing, the fighters made simulated bombings on the beachhead followed by Marine helicopters with wave after wave of assault troops. After the beachhead was secured, the helos then returned to deliver tons of support material, such as food, water, medical supplies and ammunition.

The carrier air wings took part in all maneuvers. Jets were launched against raiding PT boats and the props concentrated their efforts on the enemy submarine threat. After the attack phase had been launched, aircraft took part in daily air strikes against *Merlin* guerrilla centers inland and *Merlinese* Navy ships off the coast. Land-based aircraft joined in the melee to expand further the gigantic exercise. American forces reached deeper into their bag of new tactics.

Utilizing virtually every aspect of naval warfare, the operation also included a parachute drop of five UDT men into the sea. The men hand-carried their reconnaissance findings to Vice Admiral J. B. Colwell, Amphibious Force Commander, aboard his flagship. Less than 30 minutes after being picked up from the water, they were back on another mission.

In an exercise designed to test the flexibility of Fleet warfare in the face of such an adversary, such items as at-sea replenishment and loading exercises were given as much attention as the actual landing in the over-all contribution of Navy and Marine airpower to the exercise.

It is hoped that each participant will recall the strife-torn villages and remember that some were designed in the simple lines of Normandy farmhouses; others resembled Amazon jungle villages; still others resembled oriental fishing settlements. The lessons learned in *Silver Lance* could be applied in counter-insurgency situations as well as in larger conflicts.

IN A DISPLAY *of versatility, an Underwater Demolition Team (UDT) member parachutes to the sea near the flagship to hand-carry reconnaissance data to the amphibious commander.*

ORDERS TO LAUNCH *strikes against North Vietnam targets meant swift indoctrination for new skipper of carrier USS Coral Sea (CVA-43).*

FLIGHT DECK CREWMAN *aboard carrier Ranger guides a bomb-laden Skyraider into position for launch against North Vietnam targets.*

VIETNAM: WAR AT SEA AND ASHORE

- ***Aboard the USS Ranger, it was a time for waiting that ended with determined action.***
- ***The USS Coral Sea's new skipper received a swift indoctrination.***
- ***Holiday routine came to a sudden end for Navymen aboard the USS Hancock.***
- ***An enlisted Marine Corps advisor had time for one last smoke before he boarded an assault helicopter that would carry him into battle.***

THEY WERE totally unrelated events, but they were events that threw different types of Navy and Marine Corps Aviation into the same pot of ink that was used to write another chapter in the history of Vietnam.

It was titled "Responsive Action."

Communist attacks against American installations and increased atrocities against civilians in South Vietnam caused the U.S. to send weapons-laden, sea and landbased aircraft on continuing strikes against North Vietnam. At the same time, American military advisors continued to join Vietnamese soldiers in a deadly game of aerial cat-and-mouse against Viet Cong guerrillas.

The Navy's side of the chapter was authored aboard the three attack aircraft carriers—*Coral Sea, Ranger,* and *Hancock*—operating in the South China Sea as part of the 7th Fleet.

CORAL SEA *C.O., Capt. G. L. Cassell, gives orders from bridge over sound-power phones.*

Perhaps the best summation of the events came from Ltjg. M. J. Perez in *Coral Sea.* He wrote:

"On February 6, daily routine operations ended and *Coral Sea* steamed toward Manila, so crew members could enjoy a few days of scheduled liberty and a well-earned rest. But at 6:12 a.m., Saigon time, the following day, word was flashed to Rear Admiral Henry L. Miller (Commander Task Force 77) aboard *Ranger* to assemble all the units of his task force.

"During the previous evening, guerrilla attacks against American bases in South Vietnam cost the lives of several Americans and injured others."

Response to the order aboard *Coral Sea* was immediate—as it was in *Ranger* and in *Hancock.* "Rear Admiral Edward C. Outlaw, Commander Carrier Task Group 77.5, ordered (*Coral Sea* skipper) Captain George L. Cassell and the commanding officers of all ships in his task group to steam at top speed toward an appointed rendezvous area," Ltjg. Perez wrote.

At the same time, the order came for *Coral Sea* aircraft to be readied.

"At 12:40 p.m., word came ordering Carrier Task Force 77 to strike in to North Vietnam," Ltjg. Perez wrote, "and at precisely 3 p.m. February 7, little more than eight hours after the first word of trouble, planes were launched from *Coral Sea* to join with aircraft from *Ranger* and *Hancock.*"

Comprising half the airborne striking force, *Coral Sea* aircraft led the strike in a bombing run over military barracks in Dong Hoi, one of the staging areas for Viet Cong infiltrators into South Vietnam. It was the largest single U.S. Navy air strike since the Korean conflict.

Hancock was steaming toward the Philippines, her crew contemplating Sunday holiday routine, on February 7. But an ominous increase in the flow of message traffic to the ship betrayed action that was to follow.

Loudspeakers blared the command for flight quarters. Holiday routine ended for good when the word was passed that "this is no drill!"

"Engineers in the sweltering 140° bowels of the carrier coaxed 20-year-

old boilers to maximum speed as the ship turned toward South Vietnam," *Hancock* reported. "Bombs and rockets were rushed up from their storage spaces. Flight deck crews prepared aircraft. Pilots planned for the strike. In record time *Hancock* was on station."

Every vantage point was crammed with observers as pilots manned their planes. Although *Hancock's* C.O., Exec, and a few senior officers and enlisted men had combat experience, most of the crew had never undergone the pressures of an actual battle situation. "Even so, 32 heavily-laden aircraft were launched in a brief eight-minute period," the *Hancock* report said. "Grouped together in combat formation, the A-4 *Skyhawks* and F-8 *Crusaders* streaked over the ship en route to North Vietnam.

"The success of the mission was not a foregone conclusion; the jets were attacking well-defended areas in relatively bad weather. Yet the pilots, many inexperienced in combat, attacked targets like veterans and caused heavy damage and destruction to military installations."

All of *Hancock's* planes made it back to the carrier, but Lt. Edward A. Dickson of *Coral Sea* was presumed lost when his A-4 was shot down.

When the first strike was ended, the carrier sailors settled down to wait for whatever came next.

"With the . . . U.S. and South Vietnamese responsive action just a few days past, men aboard this carrier went about their daily jobs as usual—but with a new determination," *Ranger* reported. As the carrier operated in the placid South China Sea, "reveille went, as it always does, at 6:00 a.m. and sailors rolled out of their bunks to begin a day of waiting."

Routine was unchanged. Meals were cooked and served. On the flight deck, plane captains checked their aircraft, pilots sat in the cockpits, and fuel gangs rested in the shade of the aircraft wings.

In *Ranger*, the day ended as it had begun—quietly—but *Ranger* men kept their determination and a high morale. They spent another day waiting, watching, and very ready. They did not have too long a wait.

"On February 11, more aircraft, armed with conventional weapons, were launched from *Coral Sea*," Ltjg. Perez noted. "Once again, a responsive strike was ordered against North Vietnamese-Viet Cong army barracks and staging areas, an answer to further hostile actions against American military advisors in South Vietnam. Once again, *Coral Sea's* planes comprised the majority of aircraft in the combined carrier striking force."

Hancock sent aloft aircraft assigned to embarked CAW-21 and reported, "The strike aircraft were launched with *Hancock* crewmen swarming over the island for vantage points to watch the planes takeoff and rendezvous" for the attacks against barracks and depots around Chanh Hoa, almost 50 miles north of the 17th parallel that divides North and South Vietnam. "The flight jet attack elements consisted of A-4C's of VA-216 and A-4E's of VA-212. Propeller-driven strike aircraft were A-1H's of VA-215. Fighter escort was provided by F-8C's of VF-24 and F-8E's of VF-211.

"Commander W. H. Sells, commander of CAW-21, was airborne strike coordinator for the attack, heading up all the aircraft from the three carriers in the target area."

Three Navy jets were lost during the Chanh Hoa strike. Two pilots were rescued, but LCdr. Robert H. Shumaker was reported captured.

Although he had been aboard the carrier only 26 days when the second strike was made, *Coral Sea* C.O., Captain George L. Cassell, had directed the ship through its most crucial, and

(Continued on page 22)

MARINE CORPS *advisor, Sgt. Jerry LaSalvia, grabs final smoke before Vietnam assault.*

ENEMY FIRE *brings fast action from Vietnamese soldiers and American advisors during resupply operation. Marine Corps helicopter utilizes touch-and-go procedure to get supplies to troops.*

PLOT OF SHIPS *in Task Force 77, including carriers that launched aircraft against North Vietnam, is kept aboard USS Ranger on the bridge.*

SHIPS OF TASK FORCE 77 *maneuver during South China Sea opera*
Included in photo are carriers Yorktown, Coral Sea, Hancock, and R

USS RANGER *crew members line up ammunition on carrier's hangar deck during underway replenishment from USS Sacramento in South China Sea.*

Three carriers represented the aerial strikin given in February and in March to launch in North Vietnam. When planes from USS their flight decks, the launches were made drills. Yet there was a difference. This w

BOMBS ARE LINED UP *on flight deck of Ranger to be loaded carrier's aircraft. In background, the ordnancemen arm A-4 Skyr*

...uided missile cruiser Canberra, and destroyers England, Gurke, Rogers, ..., Walker, O'Bannon, Somers, Jenkins, Bowles, Higbee, Buck, Strauss, Small.

RANGER PILOTS *who flew strikes against targets in North Vietnam as part of responsive action against Viet Cong wait word of new mission.*

...an of the U.S. Seventh Fleet when the order was ...esponsive air attacks against designated targets ...g USS Hancock, and USS Coral Sea swept off ...differently than they have been during countless ...the real thing—and everybody aboard knew it.

...MMENTING *on impending operations aboard Coarl Sea is RAdm Ed...d C. Outlaw (R), who relieved RAdm. H. L. Miller (L) as CTF 77.*

CATAPULT CREWMEN *aboard USS Hancock attach a bridle to A-4 Skyhawk while steam pressure builds up for launch against North Vietnam.*

CONTACT AHEAD *for these RVN soldiers, who leave a USMC helicopter south of Danang to battle Viet Cong holed up in hamlets.*

VIETNAMESE SOLDIERS *of 1st Airborne Battalion move toward Viet Cong rebels in the hamlet of Binh An. Unit was helolifted into battle.*

historic, moments. Not once in *Coral Sea's* 18 years of commissioned service had her aircraft been launched in a real battle situation.

"The first few days aboard an aircraft carrier can be a harrowing experience for any new C.O.," Ltjg. Perez wrote, "but for Captain Cassell, his first 30 days proved more intense and action-filled than most skippers expect when they take the helm of a ship in today's cold war period."

Captain Cassell assumed command of *Coral Sea* January 15 while the carrier was moored at Pearl Harbor, Hawaii. The ship got underway the next day. The first Vietnam strikes were made the 22nd day he was C.O.

The strikes were not all that provided eventful days for Captain Cassell and *Coral Sea* crew members. During the period, *Coral Sea* was at sea almost continuously. Except for a three-hour replenishment period at Subic Bay, R.P., the ship's engines logged more than 720 hours of continuous operating and *Coral Sea* steamed more than 12,400 miles.

All told, the constant operations meant "one of the fastest and most complete carrier indoctrinations a captain can experience in peacetime," according to Ltjg. Perez.

But if the seagoing operations meant a speedy indoctrination for a new C.O., the Vietnam war was old hat for Americans who have been in that nation for months serving as advisors to the South Vietnamese forces. One such advisor is Sgt. Jerry LaSalvia.

He had time to finish his cigarette, check his carbine, make final adjustments to his pack. Then, Marine Warrant Officer C. A. Robinson wrote,

ON THE MOVE *against Viet Cong, the RVN wade through rice paddy seeking the enemy.*

UNDER DIRECTION *from ground, Marine helo brings the badly-needed supplies to soldiers.*

the gaunt, ruddy-complected noncom spoke to a Vietnamese platoon commander and helped him divide his soldiers into teams of ten men for the impending helolift.

"A 12-year veteran, Sgt. LaSalvia serves with Advisory Team Two attached to the 1st Battalion, 6th Vietnamese Regiment, headquartered at Tam Ky. The Marine NCO was one of the first Marine Corps advisors assigned to Vietnamese Army units in the northern part of the Republic. He has been serving in this role since September."

The assault unit boarded 12 UH-34D transport helicopters of a Marine squadron. Four U.S. Army armed "Huey" choppers reconnoitered the landing zone. Sgt. LaSalvia and the Vietnamese soldiers headed for battle.

The sergeant was bound for the heart of South Vietnam's Viet Cong territory less than two weeks after the second carrier aircraft raid into North Vietnam. He and the RVN troops soon routed a group of Viet Cong. To him, the carrier raids probably made little difference, but the action in which he was involved was similar, in a way, to the Navy strikes.

"In terms of the number of Viet Cong killed and captured, this operation could not be considered a large battle," Robinson wrote, "but like everything else in Vietnam, it was another short step forward."

Meanwhile, *Coral Sea* crew members their ship still off Vietnam, held memorial services for Lt. Dickson.

Hancock pulled into Subic Bay for eight days, then returned to her patrol area in the South China Sea.

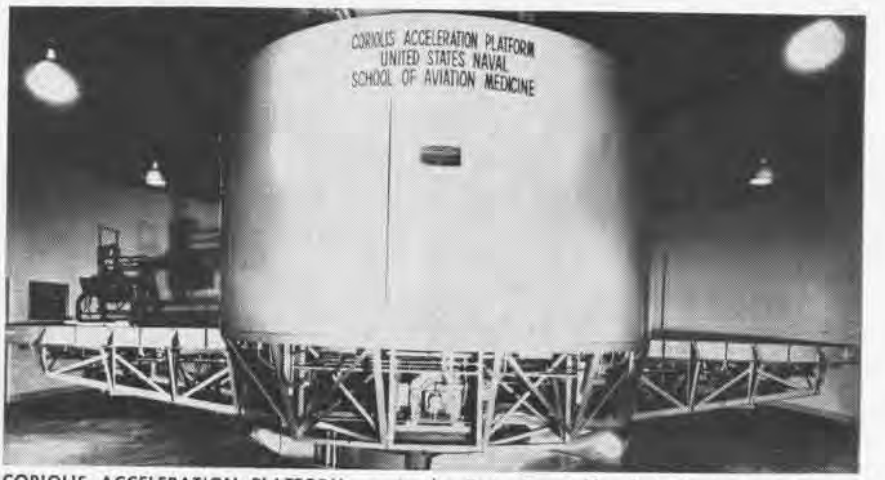
The war in Vietnam continued.

FOUR NAVYMEN 'IN A SPIN' FOR SCIENCE

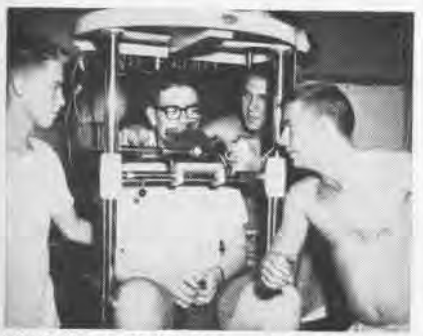
ALL THINGS are relative. Some persons spend a lifetime going around in circles; they earn nobody's respect. Four enlisted Navymen at NAS PENSACOLA, Fla., acted like whirling dervishes for 25 days; they're being praised for their contribution to science.

The reason for the difference in reaction to the two kinds of "spinning" is simple: While those who go around in circles for no reason are no help to anyone, the sailors were an integral part of an important experiment to help determine how well man can withstand the rigors of space.

The test, one of a series being conducted by the Naval School of Aviation Medicine (NANEWS, October 1964), was a check-out of a new procedure for conditioning men for space flight. During long voyages, it may be necessary to rotate a spacecraft to create artificial gravity. Space medical scientists want to determine the spinning rate men can endure without discomfort.



CORIOLIS ACCELERATION PLATFORM, *a circular "room" capable of producing sensory conflicts required for experiment, spins on axis to provide conditions similar to rotating spacecraft.*



WHILE HIS SPIN-MATES *watch, T. C. Duverney sits in chair used to study eye movement.*

Pensacola's artificial "spin" is made in a rotating room known as the Coriolis Acceleration Platform. Windowless, it stands 10 feet high and 20 feet in diameter and is designed specifically to produce sensory conflicts similar to that experienced by a space traveler if rotation is used to produce artificial gravity.

Funded by the National Aeronautics and Space Administration's Office of Advanced Research and Technology, the experiment was run as part of NASA's long-range study to determine man's requirement for artificial gravity and his ability to withstand rotational stresses he may encounter in a space environment.

The four men who participated in this latest test are all volunteer research subjects attached to the school of aviation medicine. They are Curtis L. Browning, Jr., 19; Rodney G. Holzinger, 17; Terrance L. Duverney, 18; and Harold K. Gribbin, 18. All are airmen apprentices.

To allow sufficient time for pre-experiment indoctrination and testing, the Navymen began living in the acceleration room (also called Slow Rotation Room #2) four days before it started its "trip." Their home for more than a month came with all the conveniences, except privacy and beds (they slept on mattresses stretched petal-fashion toward the room's center). It included hot and cold running water, refrigerator, stove, sink, TV, carpeting, and sewage disposal.

CHOW TIME *for two volunteers of spin experiments proves the lack of upset stomachs.*

The 25-day run was the longest experiment of its kind ever conducted at Pensacola, and one of the longest in the world. Pensacola's previous record was for 14 days.

When the spin started, rotation was set at two revolutions per minute. The speed was increased one rpm every two days until it reached a velocity of 10 rpms, maximum for the experiment. Although tests have started at higher rpms in the past, this time a slower beginning was made to determine whether man can adapt to rotation without the onset of motion sickness and disorientation.

The experiment came to an end three days earlier than originally planned because desired results were obtained. All the volunteers had to remain in the vehicle four additional days for post-experiment testing and evaluation—and, incidentally, to regain their "land legs."

DART GAME *when the room is spinning is no cinch. Allowance had to be made to hit.*

'MADE-IN-EUROPE' BULLPUPS TESTED

BULLPUP MISSILES manufactured in Europe for countries of the North Atlantic Treaty Organization (NATO) are undergoing tests by the Naval Missile Center (NMC), Point Mugu, according to Captain Carl O. Holmquist, the Center Commander.

Bullpup, an air-to-surface missile, underwent tests by the NMC during the 1950's. Testing of the newer models of the missile is continuing at the Center. The NATO *Bullpup* is being manufactured at the Kongsberg Vaapenfabrikk in Norway under a coordinated weapons production program involving the United States, Denmark, Norway, Turkey and the United Kingdom.

The program, begun about two years ago, is now in the final phase in which all components of the missile are manufactured and assembled in Europe.

In earlier phases, the missiles were assembled in Europe from U.S.-produced components and later from a combination of U.S. and European parts. The evaluation firings of these earlier missiles were also conducted by the Naval Missile Center.

Additional assistance to the coordinated weapons production program has also been provided by NMC in the form of specialized test equipment, advisors and training of personnel in the U.S. and Europe. Two NMC engineers, Nathan H. Rambo, III, and Thomas C. Campbell, are working with the program at the U.S. Liaison Office in Oslo, Norway. They will return to Point Mugu upon completion of their tour there.

Two airborne camera pods were especially designed, built and tested for the program by Point Mugu personnel. The pods will be used to record portions of the *Bullpup* tests in Europe.

Instrumental in the construction of the pods were Duane O. Windsor and Donald N. Rung of the Pacific Missile Range Technical Services Directorate, John J. Lopez of the NMC Photographic Laboratory, and Edwin W. Uptegrove, AQ1. In addition, Windsor is preparing a handbook for the pod for both U.S. and NATO units.

The actual tests of the NATO missiles are being conducted by LCdr. John W. Weed's Air-to-Surface Weapons Branch of the Naval Missile Center's Aerospace Operations Dept.

Training of civilian and military personnel from Norway has been provided by Point Mugu *Bullpup* specialists, including personnel of Guided Missile Unit 7 and the Martin-Marietta Corporation. These specialists have also travelled to Norway and other countries to provide technical assistance on *Bullpup* matters.

Bullpup, as used by NATO, is 10½ feet long, one foot in diameter and weighs 571 pounds. It is propelled by a rocket engine using a solid propellant. Its range, classed as "beyond 15,000 feet," depends upon the altitude of the launching aircraft.

Leadership School is Cited

Freedoms Foundation Prize Slated

The Naval Air Training Command's Chief Petty Officer Leadership School at Pensacola has been named by the Freedoms Foundation, Valley Forge, Pa., to receive the 1964 George Washington Honor Medal Award.

The five-week CPO Leadership School, a division of the Naval Air Technical Training Unit, stresses "living leadership." It is attended by CPO's from the nation-wide activities of the Naval Air Training Command. The school convenes eight times a year with classes of 60 CPO's. The curriculum covers 240 hours of classroom and military drill.

According to Kenneth D. Wells, President of the Freedoms Foundation, the school was singled out among government unit activities for promoting "Americanism through knowledge, actions and example." Wells praised the school as "an outstanding accomplishment in helping to achieve a better understanding of the American Way of Life."

The Freedoms Foundation award winners are selected by a jury consisting of 30 or more State Supreme Court Judges and executive officers of national clubs and organizations.

Australians Observe VS-30

Study Tracker Use at Key West

In March, six members of the Royal Australian Navy and their U.S. Embassy staff visited VS-30 at NAS KEY WEST to discuss maintenance and training requirements in the operation of the Grumman S-2E *Tracker* aircraft. The Australians recently purchased a number of S-2E's from the United States and are preparing for their arrival.

KANGAROO ON S-2 IN HONOR OF VISITORS

The group, headed by Captain W. J. Lovell, RAN, Director of Aircraft Maintenance, toured VS-30's training facilities.

The *Tracker* will replace the British made Fairey *Gannet*, now being used aboard the aircraft carrier, HMAS *Melbourne*. As one of the U.S.'s strongest allies in SEATO, the Royal Australian Navy often joins in U.S.-Australian fleet exercises.

In the photo, LCdr. R. D. Colvin, C.O. of VS-30, points to the kangaroo painted on one of VS-30's *Trackers* to welcome RAN personnel. All officers to right of the kangaroo are Australian naval officers.

VR-22 Takes Safety Award

Over 45,000 Accident-Free Hours

Air Transport Squadron 22 (VR-22) received the MATS Flying Safety Award for the third consecutive year. The award, presented by Headquarters Military Air Transport Service, requires a minimum of 15,000 accident free hours throughout a calendar year. The award was accepted for the squadron by Captain S. T. Corneliussen, Commanding Officer.

VR-22's missions range from tactical operations with low level air drop of personnel and cargo to transport missions all over the globe. The squadron recently participated in the Army Air Force Exercise *Goldfire* in the midwest and Operation *Polar Strike* involving flights in the Alaskan and Near East areas. Their normal operations take squadron pilots regularly to such destinations as the Azores, Spain, Guantanamo and Puerto Rico.

Pulse Radar Altimeter Used

Will Supplement Barometric Device

The first operational pulse radar altimeter is scheduled for production models of the A-4 *Skyhawk*, F-8 *Crusader*, F-4 *Phantom*, A-6A *Intruder*, T-39 *Sabreliner*, and the A-7A. The Bendix-made altimeter is effective at altitudes of 5,000 feet and below and will supplement the barometric altimeter.

Barometric altimeters measure only distances between the plane and average sea level without regard for the ground or other objects below. The pilot must also make settings to compensate for pressure changes and mathematical computations to determine his altitude. In contrast, the pulse radar altimeter, which is entirely automatic, is sensitive to changes in earth contours and can even detect passage over buildings and power lines. It measures distance as a function of time interval between the pulse transmitted from one antenna to reception of the return pulse by the other.

The new altimeter has been flight-tested aboard the Lockheed C-130, C-140, F-104 and P-3A, North American F-100, Republic F-105 and Sikorsky SH-3A helicopter. It was flight-tested extensively on the A-4 and F-8 in a military environment by Douglas and Ling-Temco-Vought, respectively, before being released to the Fleet. It was accepted by the Navy in qualification tests for production aircraft early in 1964 and has been flown operationally since then.

The system consists of an indicator, a receiver/transmitter, a switch unit and two identical antennas.

In addition to normal use as a safety of flight instrument, the altimeter may be used as an element of an automatic landing system.

The first planes to use the altimeter operationally are assigned to the Oceana-based air group aboard the USS *Enterprise*. Others are operating from the West Coast in the Pacific.

Jet Training Record Set

VT-21 Pilot Flies 2,026 Safe Hours

Lt. D. T. Watts, flying the AF-9J and the TF-9J, has set a new advanced jet training record at NAS KINGSVILLE, Tex., by flying 2,026 accident-free hours during a 36-month tour with VT-21. The old record was 2,008.5 hours, set by VT-21 pilot Lt. E. D. Howell in April 1964. Commander T. B. Titcomb is skipper.

DEAN ALLEN VIVELL, *Naval Postgraduate School, Monterey, congratulates successful double degree candidate, Commander William L. Murphy, during graduation ceremonies. Commander Murphy, a Navy test pilot, completed work on his B.S. and M.S. degrees in two years. The Postgraduate School, the only one of its kind in the military, graduates 900 students in four classes each year. Eighty-seven Naval Aviators were among the 115 graduates this quarter.*

SKIPPER CONGRATULATES LT. D. T. WATTS

Lt. Watts, who attended Allegheny College, was commissioned and designated a Naval Aviator in October 1958 at NAAS BEEVILLE, Texas. He has flown the F-3H with VF-101 and VF-41. During deployment aboard USS *Independence* in the Mediterranean, he became a double Centurion. He reports next to USS *Shangri La*.

Veteran of Naval Air Dies

Served at Early Aviation Camp

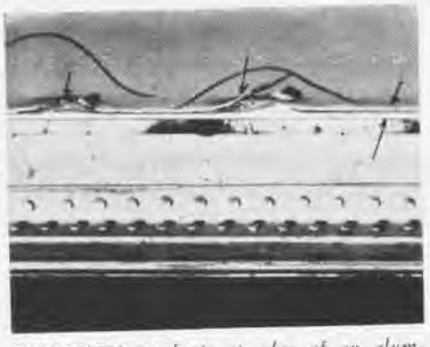
One of the earliest Navy men to be part of Naval Aviation, Mr. Dale Sigler, died March 8 at Portland, Oregon. As an enlisted man, he was assigned to the Navy's original aviation camp at Greenbury Point, Annapolis.

An Electrician, First Class, aboard USS *Nebraska*, he was sent in July 1911 to Dayton, Ohio, to be trained as a mechanic at the Wright Aeroplane Works under Lt. John Rodgers, Naval Aviator No. 2. In early September, Sigler reported to Annapolis where he blasted stumps while helping to clear the Greenbury Point aviation field. He then served as a mechanic for the Wright B-1 aircraft and accompanied the aviation camp to San Diego in early 1912. From there, his enlistment terminated, he returned to civilian pursuits in Oregon.

Mr. Sigler, "rediscovered" during the 50th Anniversary of Naval Aviation, assisted in reconstructing the Navy's first aircraft, the Curtiss A-1. He has since rendered invaluable service by authenticating the engine which powered the Wright B-1, the single major piece of equipment on hand from the beginning of Naval Aviation (NANEWS, January 1964).

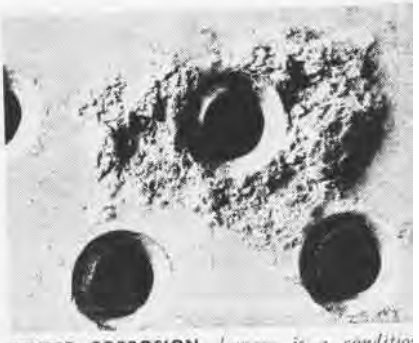
With the death of Mr. Sigler, Chief Warrant Officer J. Alfred Erickson of Annapolis, Md., becomes sole survivor of Naval Aviation's beginning.

BUWEPS' FIGHT AGAINST CORROSION



CORROSION *products at edge of an aluminum part caused metal to bulge and rupture.*

SECTION *of an area where fastener was installed: note corrosion parallel to the surface.*



SEVERE CORROSION *damage is a conditio frequently found adjacent to fastener hole*

By Alfred M. Malloy
Materials Division, BuWeps

THE BUREAU OF NAVAL WEAPONS' anti-corrosion program saves aircraft—and in consequence, money—that would otherwise be lost. In view of the millions of dollars and the great number of man-hours spent annually on maintenance, repair and replacement as well as the increase in "in process" time and down time for the aircraft, BUWEPS recognizes the importance of fighting corrosion continually and efficiently. To do it, BUWEPS has a wide-range program.

BUWEPS' anti-corrosion efforts involve changes in design, scientific and technological research and development, and incorporating improvements in maintenance and exploiting breakthroughs resulting from the R&D program. It also seeks to profit by the experience and research of commercial companies and our sister services.

Aircraft corrosion is a complex subject because corrosion stems from a variety of causes. Stated in simple terms, corrosion under atmospheric or immersion conditions is an electrochemical process which involves the production of ions of the corroding metal at the anode site, leaving electrons behind in the metal. Electrical neutrality is maintained by the consumption of electrons at a cathodic site by reactions, such as evolution of hydrogen gas or reduction of oxygen to form hydroxyl ions.

In a marine environment, corrosion can be of several types which may occur singly or in combination. The various forms of corrosion are designated as follows: galvanic, uniform, pitting, intergranular attack, exfoliation (for example, visible evidence of intergranular corrosion), crevice, stress, fatigue and filiform (thread-like corrosion).

Since many existing aircraft types are getting older, there is a substan tial replacement of parts owing t corrosion; for example, fasteners, gu mounts, piano hinges, brackets, hing fittings, etc. At the same time, ther is much more frequent need for pain stripping and repainting.

In many types of deterioration, spe cifically stress corrosion and intergran ular corrosion, and the phenomeno of hydrogen embrittlement (resultin from plating practices, paint-strippin operations and some other reactions there is not much evidence of damag to the part in the form of corrosic products. However, damage may fact be very severe, and hasty concl sions should not be drawn solely the quantity of visible corrosion pro ucts.

In feed-back to contractors and instructions to the Naval Air Esta lishment, protective measures cor monly employed by BUWEPS includ

- Cladding of the aluminum,

ALCOA TECHNICIAN *inspects chemical conversion surface coating with electron mircoscope.*

• Anodizing or chemical surface conversion treatments for passivating the surface,

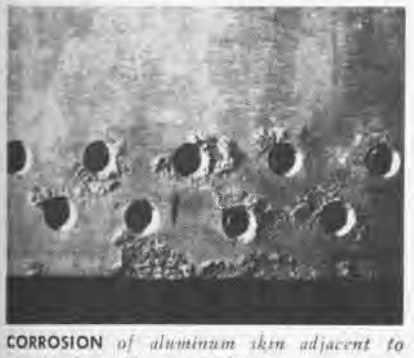
• Sealing joints, crevices, depressions, edges with sealing compounds,

• Use of organic coatings with inhibitive pigments incorporated in the primer coatings of the finish system,

• Insulation of coupled dissimilar metals,

• Passivation of drilled holes and cut edges,

• Alloy selection, albeit necessarily limited by strength considerations,



CORROSION *of aluminum skin adjacent to rivets reduces the metal thickness 35 percent.*

• Rounding of corners and "breaking" of sharp edges to assure complete coverage with protective coatings,

• Shot-peening or other methods of incorporating a compressive stress in the metal to balance future tensile stresses or cancel residual, built-in stresses,

• Introduction of sufficient holes and connecting channels to assure adequate drainage of water,

• Metal spray, and

• Modification of the heat treatment.

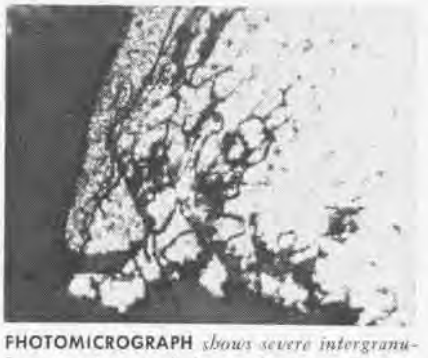
Programs underway in the last several years to prevent corrosion in aircraft engines subject to extremely corrosive marine atmosphere include:

• Changes in structural materials, i.e., steels of corrosion-resistant composition to replace the corrosion-prone steels.

• New methods of protection, such as special coatings.

• A feature of one current program to keep helicopter engines operating successfully under difficult enviornmental conditions is to water-wash the engine after each flight.

• A bright spot in the picture in relation to carrier type aircraft models is BuWeps' operation of overseas intermediate corrosion control stations, such as those at Atsugi and Naples, which are aimed at arresting the progress of corrosion midway in the service tour of the aircraft. This operation is credited with a very significant



FHOTOMICROGRAPH *shows severe intergranular corrosion attack in an aluminum forging.*

extension of the service life of the A-3 and other models.

On the basis of Fleet reports or information from other sources, BuWeps took action against corrosion in a number of ways:

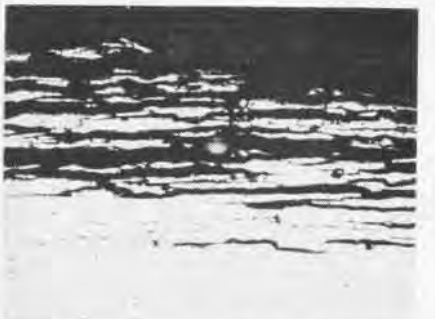
• Changes in the basic aircraft design specification have been made to avoid recurrences of difficulties.

• A 200-page overhaul manual on "Corrosion Control of Aircraft" has been regularly issued and revised, incorporating the latest procedures which are based on experience and experimentation.

• On-the-spot trouble-shooting on an item-by-item basis has served to pinpoint the cause of the corrosion or cracking failure, and metallographic examination has been made of the failing part.

• Feed-back to the specific contractor has helped him correct deficiencies.

Successful as the remedial process was, it became increasingly apparent that correction of in-servicing failures, breakages and loss of critical components was an "after-the-fact" activity and therefore could never overtake the basic causes of failure. What was needed was accelerated effort toward "preventing" the corrosion problem. With this goal in mind,



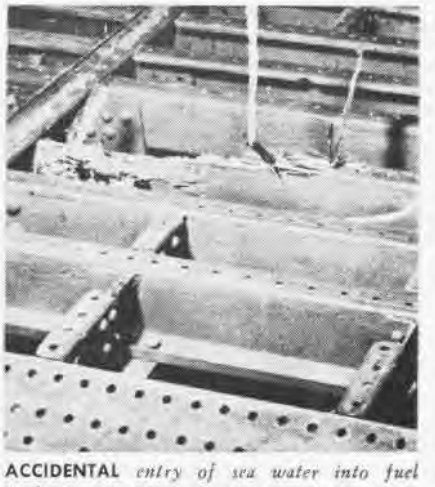
DEPTH *of corrosion attack shown is .042" where normal skin thickness of wing is 0.250.*

BuWeps expanded its search for solutions.

In addition to a comprehensive "in-house" program at the Naval Air Engineering Center, consisting of a number of individual projects in chemical metallurgy and chemical engineering, several R&D projects were contracted with outside firms.

To mount a massive attack on corrosion, these R&D programs are underway:

Heat Treatment. One of the most important procedure recently devel-



ACCIDENTAL *entry of sea water into fuel tank caused this unusual case of corrosion.*

INDUSTRIAL NUCLEONICS *Corporation engineers work to develop beta radiation equipment for the detection of corrosion under paint.*

AT NAVAL RESEARCH *Laboratory, Washington, scientists use electro spin resonance techniques to study magnesium alloy corrosion factor*

oped for BuWeps is the T-73 heat treatment of aluminum alloy. This modification of the present widely-used T-6 temper on 7075 alloy products, such as sheet, plate, extrusions and forgings, produces material resistant to exfoliation, stress corrosion and intergranular corrosion susceptibility, at a penalty of about 10% in strength.

The rudder hinge fittings of the A-4 are an excellent example of successful elimination of a serious stress corrosion problem through the use of the T-73 heat treatment. Many of these hinge fittings had failed at the hinge point adjacent to a tapered bushing. The failures occurred at the forging parting plane. Laboratory stress corrosion tests of new 7075-T6 fittings revealed that failure would occur in only a few hours when the fitting attachment was misaligned. Laboratory failures were identical to the service failures even in specimens with proper alignment, in a few hundred hours exposure, owing to residual stresses in the part. Hinge fittings given the T-73 aging treatment were exposed in the accelerated corrosion test under severe misalignment conditions for over 6,000 hours without failure. All A-4 hinge brackets are being replaced with, or reheat-treated to, the T-73 temper.

A fundamental study of the metallurgical changes caused by this special heat treatment is in progress. It has been determined that the resistance to stress corrosion is accomplished by a change in the amount, size and location of the alloying (precipitate) constitutents. This results in a slight "over-aging" and an increase in the electrical conductivity. This increase in electrical conductivity is being utilized in a routine test to determine whether the alloy has been given the T-73 heat treatment and is therefore resistant to stress corrosion failure. The use of the electrical conductivity test eliminates the need for conducting the lengthy (30-60 days) stress-corrosion test.

Modification of this heat treatment, designated T6 E-106, which results in less of a loss in tensile strength as compared with the T-6 temper, develops exfoliation resistance. Center wing panels on the A-3 are being replaced with this temper. Fatigue tests have shown that this heat treatment will not reduce the endurance limit of 7075 alloy. Tear tests reveal there is an improvement in notch properties of T-73 over T6, particularly in the short transverse direction. When a scientific explanation is developed as to the mechanism by which this effect is accomplished, these heat-treatments can be exploited fully.

Protective Coatings, Inhibitive Pigments, Mechanism of Inhibitor Action. The recent change of BuWeps to epoxy paint has resulted in better-scuff-and-abuse-resistant finishes. However, epoxies embrittle with age and efforts in the paint field are being directed toward synthesis of a more flexible epoxy polymer by actual tailoring of the molecule. This is being done in the hope that the resulting flexible finish will "give" in the neighborhood of rivets and fasteners, thus resisting fissuring prevalent in rivet areas with presen paints.

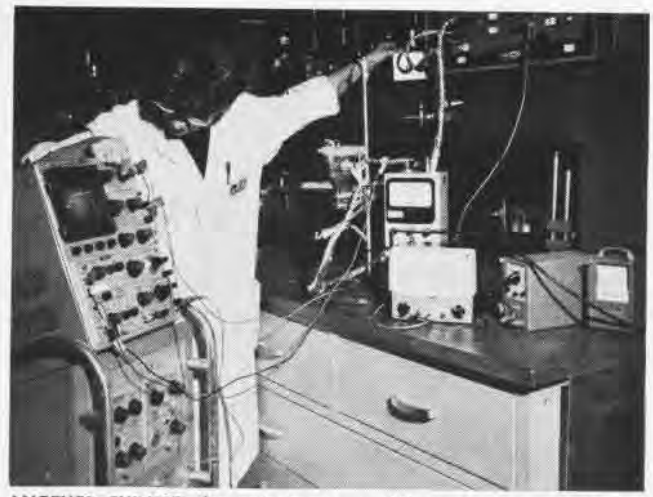
In addition to the deficiency i long-term flexibility, epoxy paint tend to discolor excessively above 325 F, turning various shades of brown For these reasons, a paint system com prising epoxy primer covered wit an all-acrylic topcoat, has been evalu ated in the laboratory and is now be ing service-tested on a number o Naval aircraft in flight status.

However, neither the all-epoxy no the epoxy-acrylic system have the r quisite flexibility around highly stres ed fasteners. Polyurethane formul tions have therefore been develope which, although not as resistant t discoloration as the epoxy-acrylic sy tem, display superior fatigue resistan when tested in the laboratory to sim ulate the cyclical compression/tensi loading on aircraft structures, one the basic causes of paint crackin around fasteners. Service tests of t polyurethanes have been initiated.

Studies are underway to devel primers which will prevent corrosi under the most aggressive conditio

Non-destructive Testing. To fig corrosion successfully, it should be d tected in its early or incipient stag and inspected for the extent or dep of damage during the course of t corrosion process, be it pitting or i tergranular attack. Non-destructi test instruments are needed to "se under an apparently intact paint fi to avoid the almost prohibitive ch of stripping off paint and checki periodically on what is happening t derneath. For this purpose, seve

ROTOGENERATIVE MAPPING *apparatus aids Illinois Institute of Technology in study of kinetics of inhibitive action of aircraft primer.*



ANOTHER SUBJECT *for experiments at Illinois Institute is the polarization reactions and electrical resistance of chromate pigments.*

contract projects are in progress. One is an attempt to employ beta-ray backscatter from roughened surfaces to detect early corrosion damage of the pitting type. Another is designed for the detection of stress concentration points and study of latent fatigue damage on critical steel aircraft and jet engine parts, such as compressor blades, by employing a non-destructive magnetic field anomaly test procedure. Also, neutron activation techniques are being employed to study the course of corrosion damage in hydraulic systems to detect early evidence of corrosion and wear.

Protection of Fasteners. Perhaps the areas on Naval aircraft most generally susceptible to corrosion are those adjacent to fasteners. The failures initiated by galvanic attack as a result of the dissimilar metals involved, are often aggravated by the entrance of moisture and other corrosive elements. These induce an intergranular type of intrusion at the edges of the fastener hole and progress parallel to the skin surface. This type of corrosion is now being experienced in F-4 aircraft. Methods of galvanically insulating fasteners being explored by the military include encapsulated inhibitive primer and specially-formulated ceramic type coatings. A promising material in the latter category is currently being explored.

Space does not permit a listing of all the BuWeps R&D projects in the corrosion prevention area, but the main ones are, listed by title and contractor, as follows:

Non-destructive test (NDT) employing magnetic anomaly, Southwest Research Institute;

NDT employing beta-ray backscatter, Industrial Nucleonics, Inc.;

NDT employing neutron activation, Grumman Aircraft Eng. Corp.;

NDT for paint adhesion, Lehigh University Research Institute;

Insulating high strength steel fasteners, Teleflex, Inc.;

Optimum chemical conversion treatment of aluminum, Aluminum Company of America;

Hydrogen embrittlement effects in the plating of high strength steel, University of Pennsylvania;

Stress corrosion of aluminum, Aluminum Company of America;

Synthesis of a flexible epoxy polymer, Olin Chemical Co.;

Kinetics of inhibitive action of paint pigments, Illinois Institute of Technology Research Institute;

UNIVERSITY *of Pennsylvania scientist studying the effect of stress on the permeation of electrolytic hydrogen in high strength steel.*

Heat-resistant paint, Sherwin-Williams Co.; and

Laboratory method for durability of paint, W. C. McCrone Associates.

The program planned for ensuing fiscal years may be of interest as indicating the trend of BuWeps thinking. These projects are planned:

- Reduction to portable equipment of ultrasonic test apparatus for inspection for corrosion under intact paint films in order to avoid expensive paint-stripping solely for the purpose of metal examination.
- Development of new types of inhibitive inorganic paint pigments for use around high strength steel fasteners and in the countersink areas.
- Optimization of a clear preservative compound for displacing moisture, etc., in hairline cracks in the paint around fasteners.
- Development of sealing compounds with the added feature of water-displacing properties to prevent intergranular corrosion at exposed edges and at joints.
- Exploration of the practical aspects of introducing baked-on finishes on Fleet aircraft, with respect to equipment and squadron maintenance.

The fight against corrosion in aircraft and aircraft components is a never-ending struggle. R&D now in being may lead to new materials and new methods of preventing corrosion. The improvements stemming from this work are expected to increase safety, reduce maintenance and overhaul man-hours and costs, and increase aircraft availability.

SELECTED AIR RESERVE

THE RECRUITING TEAM *from NAS Twin Cities, winner of the Lockheed Recruiting/Retention Trophy, poses with its "Go Navy" vehicle.*

ENS. RICHARD SCHRAM, *the Flying Professor's son, is being briefe by Lt. N. A. Gillette (R) for a low-level radar navigation fligh*

A Winning Team

When the recuiting team of NAS TWIN CITIES, Minneapolis, Minn., won the Lockheed Recruiting/Retention Trophy for fiscal year 1964, it meant an all-expense trip to the Lockheed Aircraft Plant, Burbank, Calif., and a tour of surrounding points of interest. The Minnesota winners were top recruiters within the 18-station Naval Air Reserve Training Command. In the picture (above, left to right) are Michael Gaston, QM3; Ronald Brottem, YN2; Kenneth Nyblom, YN3; Ronald Shepard, AO3; Lynn Hende, AMH2; Alfred Westerberg, PNC; Neal Aldersen, BM2; and Lieutenant Commander A. R. Ackley (rear).

Glenview Receives Ship's Bell

Captain Albert W. Newhall, C.O. of NAS GLENVIEW, announces that the station is now the owner of the ship's bell from the USS *Cadillac*, a Navy training ship in WW II.

The USS *Cadillac* was formerly a ferry which plied between Detroit, Mich., and Windsor, Ontario, for several years. In 1944 it was acquired by the United States and became a training ship on Lake Erie. After the war, the ship was purchased by the Hamilton Harbour Commission and rechristened the *Lady Hamilton*. In 1962, she was broken up for scrap.

The presentation of the bell to Glenview was made at the station by the chairman of Harbour Commissions, Mr. E. D. Hickey, and the Port Director, Mr. C. W. Morgan.

Another Airman in the Family

The new generation makes its own mark. Ens. Richard A. Schram, Jr., son of the famous "Flying Professor," Captain Schram, has completed his final phase of training as a Naval Air Observer (Bombardier-Navigator) in VA-42. Now he reports to VA-65 at NAS OCEANA, Va.

Captain Schram is a Naval Air Reserve Captain at NAS GLENVIEW. At many a Naval Air Show, father and son have performed in an aerobatic comedy act which has been tremendously popular throughout the country.

Olathe's Two New Units

Two new Naval Air Reserve units now belong to NAS OLATHE, Kansas: Naval Air Reserve Division 881 (NARDiv-881) and Naval Air Reserve Patrol Squadron 883 (VP-883).

Naval Air Reserve training in Denver was resumed with the commissioning of NARDiv 881 at Buckley Field. There has been no reserve training there since March 1959 when NA DENVER was closed.

The commissioning of VP-883 a Olathe also involved Denver, for th 35-man nucleus of VP-883 was fro that city and was until recently a tached to VP-704 at NAS DALLA Since Denver is in Olathe's recrui ing and drilling area, these men we transferred to NAS OLATHE to for a new patrol squadron. Estimat strength of the squadron will be 17 officers and men with the majori being recruited from the Kansas Ci area.

The mission of both new outfi is training Reservists in various avi tion specialties. The main differen is that VP-883 will place more er phasis on patrol squadrons and plan VP-883 will be utilizing the EP- Lockheed *Neptunes* based at Olat

LCdr. John B. Ashby comman NARDiv-881 and Commander T. Gravitt is the VP-883 skipper.

Travelling Parson

A much travelled man in the Na Air Reserve is Chaplain William Powell attached to Air Wing Staff A former submariner and a newcon to aviation, he is one of only two m in the world, according to NART ATLANTA, to wear the silver dolph and the chaplain's cross.

INSPECTING NARTU *Norfolk, RAdm. George P. Koch, CNAResTra, is accompanied by Captains G. R. Crittenden and J. M. Hestilow.*

CAPTAIN J. J. HINMAN, JR., *C.O., NAS New York, congratulates new four-stripers: Captains Ray Pingrey, Paul Kenney, Tom Owenby.*

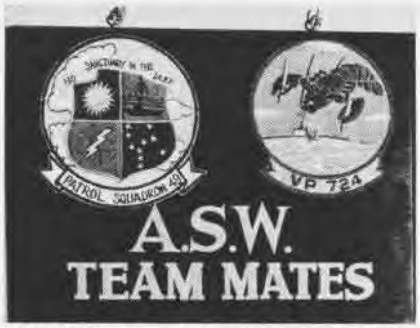
In civilian life, the chaplain travels for the Southern Baptist Convention Home Mission Board throughout the United States.

On January 1, 1964, he decided to become an aviator and began lessons two days later. Since then he has purchased his own plane and flown more than 500 hours.

Enlisting in the Navy in 1943, he served aboard the submarine USS *Pomodon*. In 1946, he was released from active duty with the rating of ET2. Ten years later he was commissioned a Ltjg. in the Chaplain Corps after his graduation from the University of Alabama and the Theological Seminary in New Orleans. He is now a lieutenant commander.

VP-49's Reserve Team Mates

In March 1965, Patrol Squadron 724 arrived in Patuxent River, Md.,



OPERATING *together for training made VP-49, Norfolk, and VP-724, Glenview, team mates.*

for two weeks of active duty training with Patrol Squadron 49. VP-724 fell right in step with the operations of VP-49.

The temporary integration of the two squadrons brought the Weekend Warriors from the Mid-West and the sub-hunters of the East Coast together for the exchange of ideas and information. This cross pollination has resulted in a better understanding of the problems facing each squadron. It also provided Commander R. D. Campbell, C.O. of VP-49, and Commander T. C. Thompson, C.O. of VP-724, the opportunity to exchange ideas on a command level.

Salute to a New Commander

When LCdr. John F. Murphy, a San Francisco import executive and Weekend Warrior, became Commander Murphy at NARTU ALAMEDA, he received an appropriate gift, the "scrambled eggs" officer's hat. Senior Chief Aviation Machinist's Mate Wesley Frederick made the presentation, explaining that the hat was a gift from squadron chiefs, past and present, in recognition of Commander Murphy's service to the squadron.

CHAPLAIN W. A. POWELL, *attached to Air Wing Staff 67, NAS Atlanta, a Weekend Warrior, a former submariner, flies his own plane.*

JOHN F. MURPHY *(L), Alameda reservist, beams gratitude as Chief Frederick presents him with VA-876 Chief's gift, a commander's hat.*

AT SEA WITH THE CARRIERS

F-8 CRUSADER *is launched from USS Lexington during an Atlantic Fleet squadron's carrier qualifications program in "Fleet Week,' a title attached to carquals by carrier crewmembers.*

ATLANTIC FLEET

ESSEX (CVS-9)

Ens. C. E. Spitze of HS-9 set his SH-3A *Sea King* on *Essex* flight deck to mark the 15,000th helicopter landing for the Navy's oldest operating carrier, some weeks after Ltjg. O. D. Smith, VS-34, made CVS-9's 121,000th arrested landing in an S-2.

FORRESTAL (CVA-59)

With more than 50,000 miles and 10 foreign ports behind her, *Forrestal* has returned to Norfolk, Va., after an eight-month Mediterranean cruise. During the deployment, pilots of embarked CVW-8 logged more than 17,000 hours in the air, and made approximately 11,000 catapulted takeoffs and arrested landings.

Forrestal's port calls included stops at Genoa, Naples, and Livorno, Italy; Barcelona, Valencia, and Palma, Spain; Cannes, France; Istanbul, Turkey; and Athens and Rhodes, Greece.

FRANKLIN D. ROOSEVELT (CVA-42)

When *FDR* returned to Mayport, Fla., after a three-week training cruise in the Caribbean Sea, there was an air of regret. Something was missing.

The ship came back minus an entire squadron of its venerable A-1 *Skyraider* attack bombers. Twelve of the "Spads" were turned over to the U.S. Air Force while *FDR* was participating in Operation *Springboard 1965*, a Fleet training exercise off Puerto Rico.

Formerly the property of VA-15, the *Skyraiders* were accepted by 25 Air Force officers from Ramey AFB, Puerto Rico, during mock ceremonies on the carrier's flight deck. VA-15 pilots are transitioning to the A-6A *Intruder* so the last "home-owned" *Skyraider* has crossed *FDR's* deck.

WASP (CVS-18)

NavCad Michael Parks and his instructor, Lt. Ed Holmes, both of VT-27, NAS Corpus Christi, made the 58,000th landing aboard *Wasp*. Parks is the first NavCad to log a CVS-18 thousandth landing.

Earlier, *Wasp* underwent an annual administrative/material inspection before she headed for the Guantanamo Bay, Cuba, operating area and an ORI.

USS FORRESTAL, *with flight deck spotted for launch, chalks up some more of the 50,000 miles she put behind her during Mediterranean cruise. The ship recently returned to home port*

SECRETARY OF AGRICULTURE *O. A. Freeman (L) and Secretary of Interior S. L. Udall talk with G. P. Rees, SN, during visit to CVA-62.*

ONE OF THE OLDEST *veterans of the Great White Fleet, William H. Minor, 97, is presented a picture of nuclear-powered Task Force One.*

INDEPENDENCE (CVA-62)

CVA-62 visited St. Thomas, U.S. Virgin Islands, while the carrier was on a shakedown cruise in Caribbean waters after modifications at Norfolk.

OKINAWA (LPH-3)

The first visit to the Fort Lauderdale, Fla., area by a Navy ship since 1948 was made by *Okinawa* when the LPH berthed at Port Everglades, a short distance from the southern Florida city.

SARATOGA (CVA-60)

Thirty men from *Saratoga* became the first American sailors to visit the southern Spanish city of Cardona when they went there to compete with the Cardonians in a soccer game and to entertain them with a band concert. The occasion was the village's celebration of its completion of a fund drive for a new hospital.

When *Saratoga* drops anchor in a European port, she greets her host city with what crewmembers think is the most unusual display of "port lights" by a Sixth Fleet ship.

On most ships the lights (sometimes called "Med Lights" or "Friendship Lights") are an unblinking stream running from bow to masthead to aft end. *Sartoga's* novel and attractive lights flash in what, at a distance, appears as a running sequence. The system is the brainchild of Commander W. C. Graham, *Sara's* Chief Engineer. A 36-man team set up the lights.

LAKE CHAMPLAIN (CVS-39)

LCdr. Jack Reardon, HS-5, made the 34,000th helicopter landing aboard *Lake Champlain* in an SH-3A *Sea King*.

PACIFIC FLEET

CORAL SEA (CVA-43)

One man was lost and three were rescued when their A-3B *Skywarrior* **plunged into the ocean 45 minutes** after it was catapulted off *Coral Sea*. The aircraft ran into trouble shortly after it left the carrier. Its pilot, LCdr. G. Gedney, ordered his crew to bail out after he tried unsuccessfully to correct the malfunction.

Helicopters from *Coral Sea* and USS *Yorktown*, alerted ten minutes before the fliers bailed out, immediately rescued Ltjg. John D. Berry and Everett Bishop, AQB2. LCdr. Gedney was recovered minutes later. The fourth crewman, Dwight Glenn Frakes, RMCA, apparently became tangled in his parachute shroud lines and drowned.

A Navy U-16 *Albatross* seaplane re-

EXPRESSION UNLIMITED *would seem an appropriate title for these photographs of USS Coral Sea crewmembers. The variety includes stoicism, surprise, and agony, and represents an action that turns brave men to rubber. To find out what it is, turn to the next page.*

corded an aircraft carrier landing aboard *Coral Sea* in what may be a first for both the carrier and aircraft. U-16's are not built with tailhooks.

The seaplane developed engine trouble and its pilot, Lt. N. E. Fisher, feathered the right propeller about three hours after the aircraft left NAS CUBI POINT, Philippines. After he ordered excess gear jettisoned, Lt. Fisher radioed a Mayday that was picked up by the carrier USS *Ranger*.

Notified of *Ranger's* position, Lt. Fisher tried to land in the carrier's wake, but the feathered prop made the craft hard to control and he set down just outside the target area. The *Albatross* bounced three times before it skimmed to a stop. None of its crew or passengers was hurt.

Ranger picked up passengers, including Rear Admiral D. G. Baer, ComNavBase Subic. The carrier's operational commitments forbade an attempt to recover the *Albatross*, so the call went to *Coral Sea* to pick up the craft and four crewmen who chose to remain aboard.

Coral Sea sailors and men from the destroyer USS *Rowan* entered lifeboats to maneuver the plane alongside the carrier, where the ship's crane was used to hoist it aboard. Result: one recovered *Albatross* and one unorthodox carrier landing.

A commendation for saving the life of a Japanese woman has been presented to Airman John L. Bramer, *Coral Sea* crewmember. The presentation was made by Yokosuka, Japan, Mayor, Masayoshi Nagano, after Bramer was flown to Japan for the ceremony. The Navyman rescued a woman who fell from a quay wall near Yokosuka's Seaside Park.

HORNET (CVS-12)

With a seven-month FRAM overhaul at San Francisco Naval Shipyard ended, *Hornet* has rejoined the Fleet.

YORKTOWN (CVS-10)

Eight pilots assigned to VAW-11's Det. Tango have established what is believed to be a double record for VAW detachments by becoming Centurions on the same day and by flying a total of 507.1 hours during one month of CVS operations. The detachment is aboard *Yorktown*.

N. T. CALICCHIO, *PH3, was on hand to get these views of inoculations aboard CVA-43.*

CONSTELLATION (CVA-64)

Commander Thomas B. Russell, Jr., became skipper of *Constellation's* CAW-14 when he took command of the air wing during a ceremony at NAS NORTH ISLAND, San Diego.

HANCOCK (CVA-19)

Seaman Verlyn Smith, CVA-19 crewmember, had a short, unpleasant, and unintentional swim in the South China Sea when he was swept over the side during underway refueling operations. He was picked up by a *Hancock* helicopter a few minutes later.

RANGER (CVA-61)

Landings Nos. 68,000 and 69,000 have been made aboard *Ranger*. The arrested landings were made by Lt. Joseph A. Schaedal, VA-93, and LCdr. Paul A. Peck, VA-94, both piloting A-4C *Skyhawks*.

HELO-TO-HELO *airlift removes downed craft from USS Ranger for needed repairs ashore.*

MIDWAY (CVA-41)

Midway departed Alameda, Calif., for Pearl Harbor, Hawaii, on the first leg of her current WestPac deployment.

LCdr. Harford Field, Jr., piloting a C-1A *Trader*, made the carrier's 127,000th landing.

ORISKANY (CVA-34)

The airborne transfer of a suspected pneumococcal meningitis victim from the cruiser USS *Columbus* was completed by an *Oriskany* helicopter. After he was picked up from *Columbus*, John W. Waugh, radioman seaman, was flown to NAS NORTH ISLAND for transfer to the San Diego Naval Hospital.

An addition to the ever-popular Navy "numbers" game—X000th landings—was made when another *Oriskany* helo made the 3,000th chopper landing aboard the carrier. The aircraft was piloted by Lt. Bob Norris, HU-1. The fixed-wing department also made it No. 87,000 for the carrier when Lt. F. E. Snay, VF-162, landed his F-8E *Crusader*.

Oriskany returned to home port, San Diego, after participating in Operation *Silver Lance*. Four days later, Captain Bartholomew J. Connolly became the carrier's skipper when he relieved Captain William H. House. Captain Connolly previously commanded the Fleet oiler USS *Neches*.

Commander Harry T. Jenkins, skipper of VA-163, made two milestones in one evening when he became a triple Centurion and a night Centurion with the same landing aboard CVA-34.

BENNINGTON (CVS-20)

Families, friends, and guests of *Bennington* officers and enlisted men comprised a group of almost 1,300 visitors who boarded the carrier for a one-day cruise. They included Glenn Ford, actor and Naval Reserve officer.

Bennington played host to an additional 4,000 visitors a day later, but CVS-20 didn't take them to sea. They streamed aboard during an open house in Long Beach, California.

AIR INTELLIGENCE: CHALLENGE AND REWARD

THE STUDENTS REPRESENT ALL BRANCHES OF THE ARMED FORCES

STAFF MEMBERS AT AFAITC CONSTANTLY REVIEW THE SYLLABUS

GENTLEMEN, there is no margin for error in the air intelligence career. Rather than a glamorous existence that smacks of cloak and daggers, this career offers you long hours and hard, painstaking work. Unglamorous as it may appear at first glance, air intelligence is an intensely challenging field with great reward. Accuracy must be your watchword and the safety and security of your country's defense depends on your professional competence and your personal integrity."

These remarks came from the Air Training Command's Armed Forces Air Intelligence Training Center at Lowry AF Base in Denver. The Air Force Director had just addressed a new class of students at the recently activated all-services school. The new joint air intelligence courses are convened for officers and airmen of all branches of the Armed Forces.

Later in his welcoming address, the Navy Deputy Director explained the mission of the Center, provided background information on the development of air intelligence and outlined the student's responsibilities.

"During your course you will be presented with a myriad of small bits of information. We will endeavor to teach you how to sift these bits of information, analyze and evaluate them to enable you to produce cold, hard facts about any threat to the defense posture of the United States. What you learn during your course here will serve only as a springboard for what you must learn through experience to become a true professional in the field or Fleet. We have made available to you staff instructors who represent a wide variety of operational experience, and we also offer you a voluminous library for research and study. We do not issue any study guide labeled 'Student Initiative.'"

The new joint course approved by the Department of Defense is a demanding one which trains the student to make sound decisions. The student quotas for next year include 380 Navy active duty officers and airmen with an additional quota of 400 for naval reserve intelligence officers on two weeks AcDuTra. The officer course is 28 weeks long. The airman photo intelligence course lasts for 15 weeks.

In examining any threat to the United States, the alert air intelligence officer must consistently compare his intelligence in the light of the most current information of the day. After photo identification and area interpretation, he must also evaluate what he sees. In doing so, he may make use of a geographic study or a socio-economic report.

The graduate may feel that he is a jack-of-all-intelligence-trades, rather than the highly trained specialist he actually is.

The purpose behind the new joint intelligence syllabus is to present the student with a complete interrelation and collation of all the intelligence techniques and skills required to keep pace with the scope and the speed of modern weapons of warfare. Additionally, it is believed that all DOD components will be provided with a highly knowledgeable, more versatile and readily assignable intelligence specialist. The graduate of the new Armed Forces Air Intelligence Training Center will be capable of filling any air intelligence assignment in any Fleet or field command.

ON PATROL WITH ATLANTIC AIR WINGS

RECENT ADDITION *to flight line of VP-38's Detachment Alfa at NAS Patuxent River is the Deltic P-3A. The aircraft's new Deltic system includes latest ASW detection devices which are more sensitive than earlier types and include improved tactical display equipment.*

REAR ADMIRAL Alfred R. Matter is serving as Commander, Fleet Air Wings, U.S. Atlantic Fleet, and has additional duties as Commander, Fleet Air Wing Five. Admiral Matter and his FAirWingsLant staff are based at NAS NORFOLK. They coordinate the patrol work of three Fleet Air Wings, 15 operational patrol squadrons and one Combat Replacement Air Group within the Atlantic Fleet. Admiral Matter is also Commander, Task Force 85, the Maritime Air Task Force under operational command of Commander, ASW Force, Atlantic.

A special ASW Task Group Delta, under the Maritime Air Task Force, is charged with the responsibility for development of tactics and procedures to exploit the full potential of patrol aircraft in all phases of ASW. All squadrons within the Atlantic patrol wing are land-based (seaplanes having been phased out in late 1963) and all units will eventually be transitioned into P-3A *Orions*.

The ComFAirWings command, established in 1948, attends to the administration, training and readiness of patrol wings under the administrative command of Commander, Naval Air Force, U.S. Atlantic Fleet.

* * *

Fleet Air Wing 11 and VP-16, NAS JACKSONVILLE, have renovated a building that has become Bachelor Enlisted Quarters (BEQ) for the squadron's men. Each room houses two men who were responsible for refurbishing their own quarters. TV and game rooms were remodeled also.

* * *

Naval Station, Roosevelt Roads, Puerto Rico, became the official home port for VP-18 on April 1. The last three crews and ground support personnel made the switch from Jacksonville in mid-March to complete the final phase of the change.

First crews arrived in Puerto Rico in a detachment that reported last November. The second and third increments reported during Operation *Springboard*, the annual training exercise conducted in the Caribbean. With the arrival of the final crews, VP-18 ended 12 years of operations at Jacksonville. Cdr. A. J. Carneghi is C.O. of the *Flying Phantoms*.

* * *

VP-8 commenced its third year of operations as part of Task Group Delta. During its first two years with the group, VP-8 participated in more than 15 Delta exercises covering all phases of the ASW problem. As members of a special Submarine Contact Assistance Team (SCAT), units of VP-8 have been on station as far as 2,400 miles from their Patuxent River base within 14 hours after being alerted.

* * *

VP-10 at NAS BRUNSWICK has its own Mae West-saving program. Instead of leaving the lifesaving gear stowed aboard its aircraft, the squadron insists on crewmen checking out the inflatable vests for each flight. At the conclusion of the flight, each man returns the vest to a "burglar-proof"

MADISON AVENUE'S *oft-repeated commercial slogan inspires first reaction of Neptune pilots preparing for arrival of the new Orions.*

THE CUB SCOUT *in the cockpit, Hank Monroe, yanks off the power in P-3A Orion during his Den's visit with VP-30 Detachment Alfa.*

stowage box. VP-10 record-keepers claim that their vests last from two to three times longer without replacement because of the system.

* * *

When VP-5 took over its assigned station at NAF SIGONELLA in February, the change-over with departing VP-11 could not be made official until the incoming *Mad Foxes* found a home for "Useless," the VP-11 mascot. It was reported that "Useless" has his own service jacket, which was accepted by the VP-5 C.O., Commander J. T. Kosnik, from VP-11's Commanding Officer, Commander J. P. Richardson.

"Useless" is described as a brown mongrel dog that "eagerly waits for the leftovers from the crews' box lunches." They have adopted him and had him inoculated at their own expense.

* * *

Patrol Squadron 56 relieved another P-2 *Neptune* squadron at its detachment headquarters in Spain and Iceland during March. VP-56 left its Norfolk home for temporary duty in Rota, Spain, and Keflavik, Iceland, relieving units of VP-23 in both places. VP-23 headed home to NAS BRUNSWICK, Maine. Before departing, a VP-23 crew, with Lt. E. A. Davis as Plane Commander, sighted a burning Spanish ship near the Spanish coast. SAR units were alerted by Lt. Davis and the ship's fire was extinguished within three hours.

* * *

The departure of VP-56 from Norfolk meant added responsibilities for VP-24, which became a member of Task Group Delta, the Atlantic Fleet, group which develops ASW tactics and procedures.

* * *

Commander James Cullen became Commanding Officer of VP-26 at NAS BRUNSWICK. He relieved Commander Robertson Miller.

* *

Two pilots who were early arrivals in the P-3 *Orion* program were involved in a change of command. Commander Allen Balch, who was the second Fleet pilot to qualify in the *Orion*, relieved Commander James McCaig, who had been assigned to the Lockheed plant in connection with the BUWEPS acceptance of the aircraft, as Officer-in-Charge, Detachment Alfa, VP-30, at NAS PATUXENT RIVER. Both were attached to VP-8 during the early transition to the P-3.

WITH NEW COLLAR *and up-to-date rabies shot, "Useless" passes from VP-11 to VP-5.*

Commander McCaig, the outgoing OinC of Detachment Alfa, VP-30, became executive officer of VP-49 and joined the squadron in a P-3A "shooting derby" as NS ROOSEVELT ROADS during Operation *Springboard*. He and 11 VP-49 crews rotated in the use of three *Orions*, delivering practice bombs and rockets. All crews qualified during the nine-hour exercise, completing annual competitive requirements. The squadron logged more than 600 hours during its two weeks of *Springboard* duty.

NAS BRUNSWICK, Maine—home of Fleet Air Wing Three and five patrol squadrons—reached a milestone in aircraft maintenance in March. For the first time in the station's history, according to a station news release, no aircraft were grounded awaiting parts. More than 60 ASW aircraft, each with complex electronic components, were available for duty, clearing the maintenance hangars.

Credit for the unusual achievement was given to the NAS Supply and Aircraft Maintenance Departments and a new Supply Support Center. The latter is a team of maintenance and supply men whose efforts have been consolidated to speed up delivery of needed parts. At the center's disposal are "rotating pools" of new and repaired aircraft parts from which replacements are drawn.

ULTRASONICS CLEAN SEA-SOAKED GEAR

Four scientists at U.S. Naval Research Laboratory, Washington, D. C., recently shared a prize of $5000 awarded by the Department of Defense for their development of a salvage technique which has already saved the government millions of dollars. They are to share another $5,000 award given by the Civil Service Commission. The scientists are William A. Zisman, Curtis R. Singleterry, Paul Leach, and Haywood R. Baker.

The cleaning operation combines special water-displacing chemicals, a cleaning emulsion and ultrasonic sound treatment in large tanks. Entire radios and radars, soaked by long submersion in sea water, are cleaned with no apparent damage to wiring, transistors and other delicate components.

This particular technique got its first test on aircraft in September 1963 when it was used to salvage a big HH-52A helicopter which crashed and sank off Galveston during an attempted rescue operation. The aircraft was submerged in the corrosive sea more than 20 hours before recovery.

Since that first successful operation, the technique has been used in the salvage of several other Coast Guard helicopters which suffered salt-water damage in the Atlantic Ocean and the Gulf of Mexico during rescues.

The same technique, developed by chemists at NRL, also was used to salvage thousands of dollars worth of electronic equipment damaged by the earthquake and tidal waves which hit Alaska in 1964.

Laboratory chemists put the technique to its first real field test in late 1960 when a disastrous fire swept the aircraft carrier *Constellation* at the Brooklyn Naval Shipyard. Smoke, oil and sea water caused heavy damage to electronics equipment.

The chemical-electronic technique salvaged more than 700 pieces of radar, radio and fire-control equipment at a savings unofficially estimated at between $10 and $20 million. The total cost of the salvage was less than $60,000.

Because of its apparent success on helicopters, the Coast Guard has modified its salvage program at its aircraft repair and supply center in Elizabeth City, North Carolina. In addition, Coast Guard air units have the capability of instituting the initial steps in the salvage technique and the complete system in some cases.

One of the recent helicopter crashes is fairly typical of the accidents which have brought the salvage technique into use.

An HH-52A helicopter, valued at $525,000, crashed into the Gulf of Mexico while it was attempting a rescue operation. The three-man crew of the jet-turbine powered aircraft was rescued uninjured.

The aircraft showed only a few inches of its hull above the surface when a buoy tender got lines attached. The chopper was towed to shore, beached and partially dismantled for air transport to Elizabeth City.

At the North Carolina base, a crew of Coast Guardsmen and technicians, advised by NRL technician Paul B. Leach, put the parts through the cleaning process. After cleaning, the electronic gear was checked out and minor repairs were made. Equipment was then tagged for monitoring to determine long term effects of salt-water submersion, if any.

Editor's Corner

HOW TO HANDLE A WOMAN. When USS *Kearsarge* went into the Long Beach Naval Shipyard for a major overhaul, a sharp journalist converted the rework project into a clever man-woman story.

"To the average citizen, who seldom had the opportunity to become well acquainted with her, she probably appeared trim and fit. But, to the sailors, who knew her from (excuse the expression) stem to stern, their concentrated observation revealed she was long overdue for a major facelifting.

"To begin with, it had been a couple of years since she had her makeup changed. Removing the old crusty, faded beauty covering requires strong backs, strong hands and often the aid of automatic chipping hammers. And because she's such an avid swimmer, well, that area below her waterline is receiving particular attention.

"Before work on her (excuse the expression again) bottom could begin, Kay had to be led into a massive beauty bath (known in Navy jargon as a drydock) where the water was drained, revealing her barnacle-encrusted underside to her utmost embarrassment.

"Meanwhile, the sailors, aided by civilian workers, are in the process of replacing much of Kay's wooden flattop with modern, more weather resisting aluminum. There are scores of other changes and repairs being made to the teenage damsel. But the sailors are not dismayed by the complexity of their undertaking. They continue the project with loving affection.

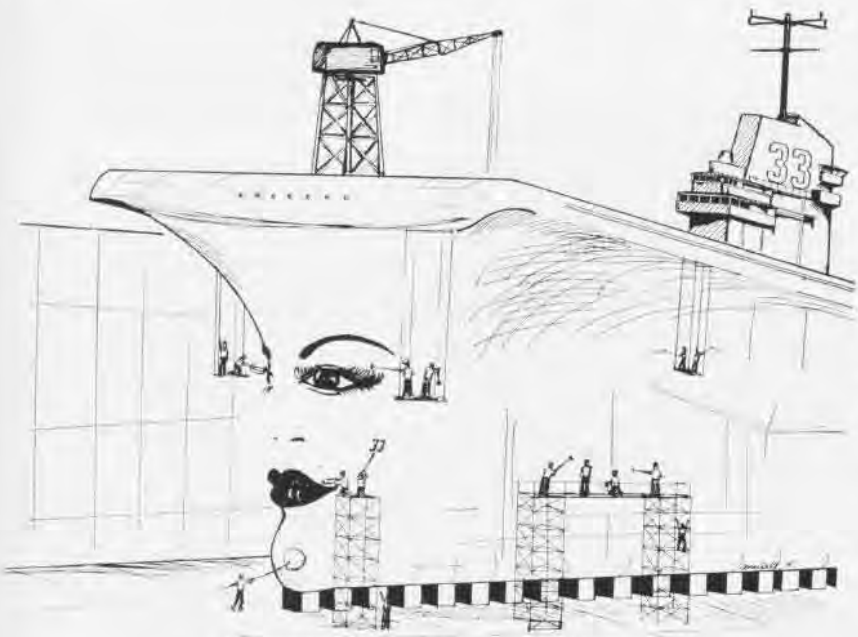
Filler for a Carrier. NavNews (the Ship and Station News Service) reports the following: "Highway statistics show that one person is killed every 14 minutes and one person is injured every 15 seconds in automobile accidents. This totals out to disabling enough people in a 10-hour period to man an attack carrier."

BROTHERHOOD. When *Oriskany* started preparing for its Far East cruise, it counted 15 sets of brothers among the officers and men attached to the ship. Most confusing was the fact that three Theisen brothers, Robert, Dan and Jack, all work in the V-1 Division and on the same section of the flight deck. One set of brothers are pilots, Ted and Tom McClard, both Ltjg's. of VF-162 and VA-164, assigned to CVW-16. Others are the Chilcotes, Vaughn and Lee; the Buckmasters, Marvin and Merlin, twins; the Tillmans, Howard and James; the Nortons, James and Charles; the Robertses, Donald and Charles; the Hambys, Jim and Joe; the Joneses, Johnny and Jerry; the Poindexters, Glen and Billy; the Burdocks, Gerald and Harold; the Coburns, Max and Michael; the Shaws, A.B. and R.R.; the Glasses, R.L. and J.R.; the Teuts, Corvin and Myron.

Plenty of Jumping. Sport parachutists take their sport with them. Witness the case of Richard Clark, AX1, of VP-18, who was assigned to a flight crew participating in the inter-American exercise UNITAS V last fall. Clark made a parachute jump at Argentina's Bahia Blanca airport and announced that he would try to parachute in each of the eight countries associated with UNITAS. A member of the Jacksonville Navy Sport Parachute Club, Clark was called perhaps the first North American to jump in Argentina, "but definitely the first to jump at Bahia Blanca." In contrast to the USA (where FAA reported 30,000 jumpers made a half million jumps in 1963), Argentina has 1000 enthusiasts.

VOICE WITH A NAVY PAST. The voice emanating from "Gemini Control" during the March 24th three-orbit flight of Major Virgil Grissom and LCdr. John Young was that of Mr. Paul Haney. Persons at NAS Memphis remember Haney as Aviation Storekeeper Apprentice Haney who worked as a reporter for the Memphis *Bluejacket* for 18 months during 1950 and 1951. Now Public Affairs director for NASA, Haney left the Navy to work for the Memphis Commercial Appeal and thence to NASA. A Memphis press release recalls that Haney contributed a story about "How to Beat the Heat" to the *Bluejacket:*

"Don't let your imagination run away with you, like one man in the Admin Building. During one heat wave he insisted, 'It's all in your head.' Next day he came to work wearing an overcoat. 'Never felt cooler,' he said. The following day he showed up in a parka, galoshes, ear muffs and wool scarf. The day after that he came down with a severe case of frostbite."



A FIGHTING LADY CHANGES HER MAKE-UP

LETTERS

SIR: I read the fine article in the March issue of *Naval Aviation News* covering the Naval Air Reserve Training Command F-8 transition program. I was pleased to see my picture in *Naval Aviation News* after 22 years of Naval service. The author of the article, however, gave me undue credit for the preliminary planning of this program.

Although, since July 1964, I have been deeply involved, both in the air and administratively, with the F-8 program while performing my duties as the CNAResTra VF Training Officer, I cannot take credit for the preliminary training. This credit should go to my predecessor, Commander Jack Anthony, presently Flight Training Officer at the Naval Air Reserve Training Unit, Alameda and to Colonel J. B. Maas and Lieutenant Colonel J. B. Mason, both of the Marine Air Reserve Training Command Staff.

CLAUDE LEVINGE, CDR.

NAS GLENVIEW, Ill.

SIR: Mr. Thomas F. Gates of 25 Sunset Drive, Berkeley, Calif, recently put on an exhibit of his personal collection of Naval ship models and other Navy souvenirs at the San Pablo Public Library. This elaborate presentation, entited "Seapower," attracted much public attention and aided Navy recruiting efforts.

Mr. Gates, who is head of the San Pablo Library, has literally thousands of Naval relics of virtually all types of Naval warships along with their histories. He is presently in the process of compiling a book on Naval insignias. In doing so, Mr. Gates has asked our assistance in helping him procure insignias, badges, and patches of any and all types of Naval ships and activities willing to donate them.

H. J. HICKS, CAPTAIN, USN

U.S. Navy Recruiting Station
Federal Office Building
San Francisco 2, Calif.

SIR: Readers of *Naval Aviation News* may be interested in learning that Mr. Frank Tallman of Movieland of the Air Museum, Orange County Airport, has recently acquired a Douglas *Dauntless* as part of a WW II collection of flying aircraft.

We are currently restoring the bird to the SBD-3 color scheme used in the Battle of the Coral Sea; blue and gray and over-sized prewar national insignia and horizontal red and white tail stripes.

Suggestions and photos from former SBD crews are welcomed to determine appropriate squadron markings or unit numbers for the finished aircraft.

BUDI DONATO

16800 Saticoy
West Van Nuys, Calif., 91406

SIR: With reference to "Units Win Safety Trophy," in the March issue of *Naval Aviation News*, page 2, I send my congratulations to Training Squadrons 21 and 24 for being named dual winners of the Chief of Naval Air Advanced Training Annual Aviation Safety Trophy for 1964.

In response to their belief that it is the first time two *Cougar* jet squadrons have flown a full year with no accidents, I would like to point out that VA-126 as of 15 March 1965 has amassed a total of 38,687 hours over a 50-month period without an accident, and VA-127, her sister squadron, has a total in excess of 23,450 hours over a period of 44 months accident-free.

VA-126 and 127 provide jet instrument, transition, and refresher training for the pilots of the Pacific Fleet. Though the experience level of Fleet students is considerably above that of training command students, the maintenance personnel must be on par. Since a definite relationship exists between maintenance crew procedures and the safety record, all concerned are to be congratulated.

R. A. BRAID, COMMANDER

Commanding Officer
Attack Squadron 126

ON HAND TO OPEN *the 1965 Pacific Command Typhoon Conference in Tokyo are (left to right) Captain R. W. Sanborn, PacFlt Hdqtrs, Pearl Harbor; Brigadier General R. H. Ellis, Commander, 315th Air Div., Tachikawa AB; J. W. Osmun, U.S. Weather Bureau, Honolulu; and Colonel R. L. Sorey, Commander, 1st Weather Wing, Hickam AFB, Hawaii. The conference discussed typhoon reconnaissance and forecasting in the Pacific. With a yearly average of 19 typhoons, 1964 brought 26 name storms. The Joint Typhoon Warning Center at Guam, manned by Navy and AF personnel, is responsible for predicting and tracking tropical storms.*

Aviators Undergo Long Test

Spend 3 Weeks in Pressure Suits

Beginning March 16 six Navy and Marine aviators spent 34 days in a space chamber at the Naval Air Engineering Center, Philadelphia, as part of a study on atmosphere validation. During this time, the six men from the prospective astronaut pool spent three weeks in full pressure suits and subsisted entirely on dehydrated space food. They were not allowed to bathe or shave but used personal hygiene equipment furnished by NASA.

The six aviators are among eight who participated in the study. The other two officers lived for the same period of time in a small wooden control room and acted as control subjects. The investigation, carried out by the Republic Aircraft Corporation, was the most arduous atmosphere validation study to date.

The space chamber was located in the Bioastronautical Test Facility. The men were exposed to an altitude of 27,000 feet and 100% oxygen atmosphere during one phase of the study which was concentrated on bacteriological research.

The participants reported to the Aerospace Crew Equipment Laboratory on March 1 to undergo training for the study. They were: Lt. K. C. Juergens, NAS CECIL FIELD; 1st Lt. K. A. Foster, USMC, NAS ATSUGI, Japan; Ltjg. J. W. Munger, VP-22, NAS BARBER'S POINT; 1st Lt. C. H. Yung, USMC, MCAS EL TORO; Ltjg. J. B. Abbitt, NAS LEMOORE; Ltjg. W. R. McBride, NS ROOSEVELT ROADS; Lt. R. M. Pipkin, VR-3; Ltjg. C. W. Strickler III, VF-14, NAS CECIL FIELD.

Argentia Hails a New Flag

Canadians' Red Ensign Is Gone

NS ARGENTIA in Newfoundland, the only major U. S. Navy installation in Canada, joined ceremonies held all over the country on the day the new Canadian Flag was raised. The Red Ensign with the Union Jack and the Dominion coat of arms had flown for many years at the yardarm alongside the United States Flag in front of the station's Administration Building. Canada's new official flag is a red and white maple leaf ensign.

In a Navy ceremony, the Red Ensign was hauled down to the strains of "Retreat," sounded by a Navy bugler

SQUADRON INSIGNIA

Commissioned in May 1961, VAH-10 is one of the newest heavy attack squadrons on the West Coast. Her Douglas A3B Skywarriors have been teamed with the USS Constellation. Called 'Vikings' by virtue of a northern home at Whidbey Island, Washington, VAH-10 uses the broadsword on its emblem. The 'Viking' skipper is Commander T. F. Dedman.

ARMED FORCES DAY 1965

"Those who conduct our foreign policy have a very direct interest in and reliance upon the military power this nation cammands. Until peace is strongly organized and assured, we shall need a powerful and flexible military establishment —forces which, with our allies, can surely deter or defeat aggression at any level. The Departments of Defense and State have a vital common objective: 'To secure the blessings of liberty to ourselves and our posterity.'

—Dean Rusk, Sec'y of State

POWER FOR PEACE

ARMY
NAVY
AIR FORCE
MARINE CORPS
COAST GUARD

ARMED FORCES DAY

THIRD WEEK IN MAY