

NAVAL AVIATION
NEWS



47th Year of Publication

JULY 1966
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A LOGISTIC MECHANISM

'In wartime, the Navy must have a logistic mechanism capable of supplying equipment, material and trained personnel to the right place, at the right time, and in the right amounts to support the Fleets in their actions against the enemy. The problem is not new—but its present dimensions are. Only in the last two decades has the flow of materials had to be projected 3,000 miles across one ocean and 7,000 across another.'—John B. Ritch, Jr., Captain, USN, to the Naval War College at Newport, R. I.

NAVAL AVIATION NEWS

FORTY-SEVENTH YEAR OF PUBLICATION JULY 1966

■ IN THIS ISSUE

- All the World's a Stage 6** . . . and members of the Naval Air Reserve have been in the wings for 50 years, ready to go on.
- He's no Stranger 11** Vice Admiral Paul H. Ramsey, DCNO (Air), invited to Australia for the Coral Sea celebrations, is the first honor guest to have actually participated in the famous battle.
- Go East, Young Plane 14** An East Coast squadron gets the E-2A Hawkeye, but the fact is that its pilots were trained on the West Coast.
- The AS is Here 16** It's a fortunate abbreviation for Aviation Support Equipment Technician, a new Navy rating for a job as impressive as its title indicates.
- Sardinesville 18** The Navy and the Air Force are partners in aircraft storage.
- Having its Ups and Downs 20** The XC-142A undergoes trials aboard USS Bennington, and another bit of Naval Aviation history is made.

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COVERS

Front cover of the XC-142A on USS Bennington (see pp. 20, 21) was taken by former NANews editor, Arthur L. Schoeni, now with Ling-Temco-Vought. Above, a Sea Knight hovers over the USS Coral Sea after delivering supplies (photo by Jean Cote, PHI). The patriotic scene on the back cover was enacted one Fourth of July on the USS Shangri La (CVA-38).



NAVAL AVIATION NEWS



THE F-4J, the latest and most advanced model of the Phantom II series of aircraft produced by the McDonnell Aircraft Corporation, made its first public flight at Lambert-St. Louis Municipal Airport May 27. It was the eighth anniversary of the initial flight of the first model of the Phantom II. The F-4J is the sixth model of the Phantom II to reach production. With a higher maximum speed, greater range, higher combat ceiling, shorter takeoff distance, lower approach speeds and improved air-to-air and air-to-ground capabilities than



any preceding Phantom model, the F-4J will be delivered to Navy and Marine squadrons. Among those observing the takeoff of the F-4J's first flight were (above, left to right) Gil O. Fleming, McDonnell's director of manufacturing; Sanford N. McDonnell, vice president; Captain John C. Kane, Jr., NASC representative; and Henry E. Covert, McDonnell project manager for the aircraft. In the F-4J are Ray D. Hunt, McDonnell project pilot, at the controls and Charles E. Rosenmayer of McDonnell who served as the Radar Intercept Officer.

Regulus Sent to Museum PMR Missile in the Smithsonian

The Navy's last operational *Regulus II* missile left the Pacific Missile Range Headquarters, Point Mugu, Calif., early in May for the Smithsonian Institution's Air and Space Building in Washington.

The radio-controlled missile, worth around a million dollars, was originally constructed to be fired from submarines such as the USS *Grayback*. It was to be a tactical Fleet missile. But the missile was doomed before it was born, for in December 1958, the project was cancelled by a breakthrough of the *Polaris* Fleet ballistic missile.

The completed *Regulus II*'s were turned over to Guided Missile Unit

55 at the Naval Missile Center to be used as target drones for surface-to-air and air-to-air missiles. GMU-55 personnel, along with contractor personnel from Ling-Temco-Vought, modified the *Regulus II* by installing a landing gear so it could be recovered after testing. During the project the *Regs* averaged 4.6 flights per missile.

The last flight was made on December 13 with #2048. This was the tenth flight and tenth recovery for this missile and a record for the target drone program.

Outstanding RIO Honored Receives James Memorial Award

On May 13, Lt. Marvin E. Seay, Jr., received the first annual Thurs-

ton H. James Memorial Award as the Outstanding Naval Flight Officer of the Year at ceremonies held at NAS PENSACOLA.

Vice Admiral J. J. Clark, USN (Ret.), Commander General of the Naval Order of the United States (left, in the photo), presented the award to Lt. Seay. Vice Admiral A. S. Heyward, Jr., Chief of Naval Air Training, is at Lt. Seay's right.

The Naval Order and the Chief of Naval Air Training are co-sponsors of the award. The Naval Order, founded in 1890, has over 1,500 members throughout the United States. The award is named for Rear Admiral Thurston H. James, a past Commander General of the organization.

Lt. Seay, a member of VF-14, is

a Radar Intercept Officer in the F-4B *Phantom II*, aboard the USS *Franklin D. Roosevelt* (CVA-42).



THURSTON JAMES AWARD IS GIVEN

New Unit is Established Trains Helo Pilots and Mechs

A new unit, Marine Helicopter Training Group 30, has been established at MCAF SANTA ANA, Calif., to train pilots and mechanics.

Pilots to be trained include both experienced Marine fixed-wing pilots and recent graduates of naval flight training. Upon completing their training, pilots will be assigned to land or carrier-based Marine helicopter squadrons, including those in Vietnam.

HTG-30 will ultimately have approximately 600 permanent personnel and operate some 50 helicopters, mainly UH-34D's and CH-46A's.

TA-4F Trainers Delivered Releases A-4's for Vietnam Use

On May 19 at NAS LEMOORE, Calif., the first three of the Navy's

new Douglas TA-4F *Skyhawk* jet trainers were delivered a month ahead of schedule to operational training squadron VA-125.

The TA-4F's were flown from the Douglas Aircraft Company assembly facility at Palmdale by Navy pilots, including Commander Jack Endacott, C. O. of VA-125.

W. L. Whittier, Vice President and Deputy General Manager of Douglas Aircraft Company's Aircraft Division, formally turned the trainers over to Captain E. E. Stebbins, ComFAir, Alameda.

The early delivery to the operational squadron was made on the recommendation of the Navy Board of Inspection and Survey which had been conducting trials of the trainer at NATC PATUXENT RIVER, Maryland.

The TA-4F is a two-seater trainer version of the Navy and Marine Corps *Skyhawk* attack aircraft. It retains the combat capabilities of the earlier *Skyhawk* versions which have been flying Navy and Marine Corps missions in Southeast Asia.

The use of the TA-4F will help accelerate the training of Fleet pilots for Vietnam operations and release single-seat A-4 *Skyhawk* attack bombers for combat use.

Ream Field Unit Honored Tops in All-Navy Competition

The Naval Weather Service Unit, NAAS REAM FIELD, Imperial Beach, Calif., has won the Chief of Naval Operations Weather Service Outstanding Performance Award.

Commander John W. St. Marie,

Executive Officer of Ream Field, presented the award to Aerographer Chief H. L. Berry, Leading Chief Petty Officer. Other members of the unit were V. T. Langevin, AG2, G. G. Karabetos, AG2, and V. J. Zambri, AG3.

The unit was selected on the basis of Navy-wide competition among all Navy weather units.

The Ream Field unit is the first activity in Southern California to win the CNO award since the start of the program six years ago.

New Fleet Range Facility Telemetry Station Dedicated

The rapidly-expanding Atlantic Fleet Weapons Range added another facility recently with the dedication of a new \$400,000 telemetry station on Puerca Point at NS ROOSEVELT ROADS, P. R.

Manned by members of the Fleet Missile System Analysis and Evaluation Group, the station is a sophisticated electronic data collection center capable of receiving and recording telemetry data from salvoed missiles. Its purpose is to provide ships with preliminary evaluations of the weapons systems and to give the Ordnance Systems Command detailed final analyses of over-all missile operations.

The station was formerly located in the headquarters building at the Atlantic Fleet Weapons Range. Space limitations there caused the move. Now, seven integrated trailer modules (each 10 by 52 feet) comprise the station.



DELIVERY OF FIRST THREE TA-4F JET TRAINERS TO NAS LEMOORE, CALIF., BROUGHT OUT A WELCOMING CROWD



GRAMPAW PETTIBONE

Close Shave

An RA-3B with a crew of four departed a Pacific island early one afternoon on a routine transPac flight to the Philippines. After take-off, the flight proceeded outbound with everything operating normally for the first 20 minutes. While climbing through 29,500 feet with the cabin pressurized at between 8,000 and 9,000 feet, the Plexiglas canopy section over the third crewman's seat suddenly failed, causing an explosive decompression.

The pilot immediately checked the cockpit altimeter and found it had risen to 19,000 feet. He quickly popped the speed brakes, ordered all crew members to check their oxygen systems and initiated a rapid descending turn. Seconds later, the navigator informed the pilot that the third crewman was hanging out of the blown canopy section.

The pilot immediately retarded the throttles and the navigator and plane captain unstrapped and began pulling the third crewman back into the aircraft. He was wearing his integrated torso harness with the oxygen hose attached to the harness but had not been strapped in the seat because he had been performing duties in the photo compartment.

The third crewman was pulled into the aircraft as quickly as possible and oxygen administered with the use of the navigator's mask. He was bleeding from a scalp wound and unconscious with little response. Later he began thrashing about, fighting the oxygen mask. By this time, the pilot had taken a heading for home base at low altitude and landed approximately 25 minutes later.

An ambulance met the aircraft and rushed the crewman to the hospital, a resuscitator on all the way. He regained consciousness in about 12 minutes and full consciousness gradually returned over the next five hours to the point



where his memory was almost completely restored. He remembered nothing of the trip back to the base in the aircraft after the incident, but did have a vague memory of the ambulance.

The other three crew members aboard the A-3 suffered no ill effects other than temporary discomfort to their ears.



Grampaw Pettibone says:

Holy mackerel! That wasn't

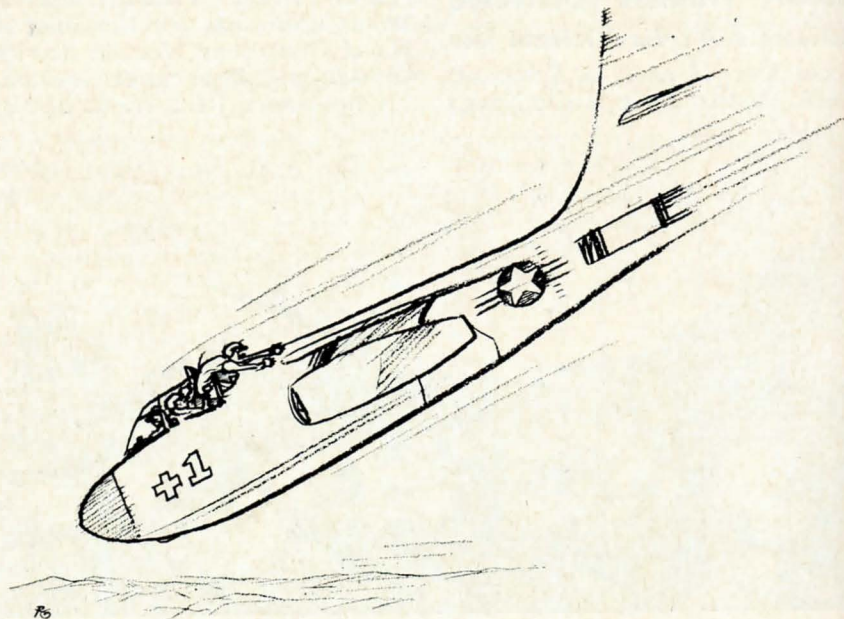
a close shave but a real narrow escape.

Sure wouldn't want to tangle with this lad when sea story time rolls around 'cause it'll be hard to find one to top this.

This lad is downright lucky in more ways than one. Because of his duties aboard the aircraft, he wasn't strapped in and, when the explosive decompression occurred, his feet lodged under the console to keep him from being pulled out of the aircraft. His excellent physical condition without a doubt was a big plus in a speedy recovery. The pilot, navigator and plane captain demonstrated nothin' short of outstanding headwork durin' this emergency. It's a real pleasure to add these names to Gramps' Ole-Pro list. I'll fly with you guys any time.

Home-Field-itis

It all began as an exasperating day for this lad. He was called at home at 0930 and informed that he was scheduled for an 1130 brief. He had planned to visit the Squadron Flight Surgeon that morning, concerning a "catch" in his back, and did so after checking into the



squadron around ten o'clock.

During his visit to the Flight Surgeon he voiced concern about a fleeting mid-back pain, which occurred in certain positions. A thorough examination revealed no definite back disorder. The lad was assured that this shouldn't hinder his flying.

Upon returning to the squadron, he was notified that his hop had been cancelled, but was given no reason for the cancellation. This was somewhat upsetting, but he spent the remainder of the morning and early afternoon as a fairly normal working day. At 1415 he was again notified of the opportunity for a flight. He indicated his readiness to fly and was placed on the schedule with an RIO.

The hop was briefed at 1500 as a Navigational Training Flight, calling for an instrument departure, round robin, Tacan penetration and GCA to the MCAS. NOTAMS indicated the absence of approach lights on runway 32 and forecast weather was 500 feet broken, 1,500 overcast with three miles visibility and fog. (Specified minimums for this youngster were 500/3 and, although the forecast was good, there was no alternate briefed which met requirements.)

The F-4 turned up without incident and, prior to takeoff, the altimeters were checked, an error of 0.03 being set into both of the cockpit altimeters. Flight clearance was given and the *Phantom* departed on runway 32 at 1646.

The flight for the most part went as planned and was uneventful, except that the pilot neglected to turn on cabin pressurization before passing 8,000 feet. Noting this between FL 180-220, he made an attempt to pressurize, but experiencing severe pain in one ear, the driver had to dump the pressure.

Weather at the destination in the meantime had deteriorated to 300/3. Acting on this information, these particular *Phantom* Phlyers decided to attempt one penetration and GCA and, if not successful, proceed to the nearest acceptable alternate. Their fuel state at the time was 6,100 pounds, which allowed ample fuel for an alternate.

The penetration proceeded uneventfully as GCA acquired the flight with no problems and com-



menced the approach to runway 32. (Just prior to this time an F-10 landed and had broken out at 250 feet.) The approach went well initially, but did require several heading changes, made necessary by what the controller described as a wind shear. (The pilot noted that he suffered a slight recurrence of the ear block, a single episode of vertigo, and a feeling that "things were going wrong.")

At about one mile, the final controller called the aircraft for rising slightly above glide path. At three quarters of a mile, he called again for going below glide path. At this point, the RIO, who had been watching for the runway lights, glanced at the altimeter and noted 200 feet. Glancing back out the left side of the aircraft, he saw "bare ground." He was about to tell the pilot to wave off, when he felt a surge of power followed by the crunch of the plane in the trees.

The *Phantom* proceeded into the trees at approximately 50 feet of

altitude. Feeling the machine hit the trees, the pilot braced himself with his right hand against the instrument panel. The ill-fated bird continued cutting a swath through the trees for 750 feet before settling to a stop. The forward portion of the cockpit had been carried away during impact, leaving the seat, left panel, and approximately 1½ feet of the floorboard. Although pinned between the seat and panel and slightly injured, the pilot was subsequently extricated by the RIO who had weathered the mishap without incurring any injury. Fortunately, there was no fire. The station helo arrived shortly and delivered the crew to the station.



Grampaw Pettibone says:

Bust my britches, but not those minimums!

Besides common horse sense, the lack of an acceptable alternate should have been clue enough to stow that flight plan and bone up on OpNavInst 3710.7C. There's some good reading in that manual and it was published to help prevent this sort of mishap.

The requirements set forth in this good book were not plucked from thin air by the gents who wrote it. Besides cold hard facts and statistics, many years of experience were put to good use in arriving at these minimums purposely to help us all remain within our capabilities.

You Can't Win 'em All

For an Armed Forces Day "open house" spectacular, the day was fine and the wind 10 knots gusting to 17. Parachutists commenced their jump. Could you believe it? With thousands of acres available, one parachutist landed on the MAD boom of a parked P-3 *Orion*.





FLIGHT TIME WAS AT A PREMIUM FOR EARLY RESERVE AVIATORS. N3N-1 WAS USED IN THE LATE THIRTIES

FIFTY YEARS IN THE WINGS

FOR 50 YEARS, members of the Navy's Air Reserve have stood in the wings ready and waiting for their chance to go on. There when needed, they have been called on several occasions for a starring role—in WW I, WW II, Korea, Berlin, Cuba. Now, with quiet precision, they stand in the wings again. Some are already on-stage. Some may never go . . . but they are in the wings.

At this very minute there are C-54 and C-118 aircraft, flown by Reserve crews on training duty, flying

By Lt. Richard Booth, USNR

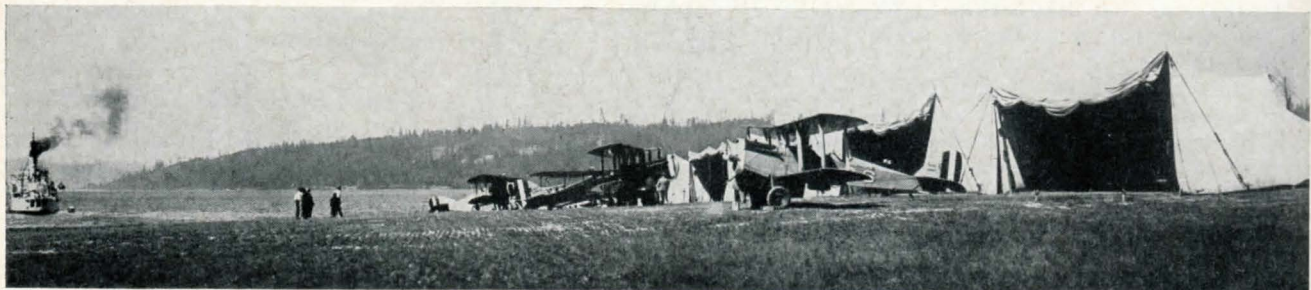
in support of our military forces in Southeast Asia. These men exemplify the spirit that is typical of the Naval Air Reserve in this its 50th year.

Last spring, as military forces in Southeast Asia underwent a rapid buildup, logistic support facilities in the Pacific were faced with an impossible task. High priority military air cargo piled up in California waiting shipment across the Pacific while eastbound military passenger

waiting lists in the Philippines, Japan and Hawaii grew longer.

The Commander in Chief, U.S. Pacific Fleet, called on the Naval Air Reserves for help. The request initiated the Southeast Asia airlift program. Today Selected Air Reservists are flying C-54's to Hawaii and C-118's all the way across the Pacific.

Throughout the country, Selected Air Reservists volunteer for temporary active duty that often takes them away from home and business for an average of nine days.



THE NAVAL RESERVE BASE AT SAND POINT, WASHINGTON, OFFERED PRELIMINARY AND REFRESHER TRAINING



THE LANDING FIELD AT SQUANTUM, MASS., CIRCA 1930 SQUANTUM IN 1941 HAD VASTLY IMPROVED FACILITIES

To date, some 20 flights a month are being flown by CNAResTra crews in support of the Southeast Asia airlift. Well over 27,000,000 passenger/miles and 6,000,000 ton/miles have been logged in the operation. There have been some 300 flights made to date.

This summer the transport squadrons are spending their two weeks of active duty in back-to-back assignments at Barber's Point, Alameda and Los Alamitos.

This, however, is only one face of the Selected Air Reserve. Elsewhere across the country, fighter, attack, patrol and antisubmarine squadrons are maintaining a high level of readiness in preparation for any eventuality.

The origin of today's Selected Air Reserve can probably be traced back to 1916 and a group of undergraduates at Yale University. Their membership contributed the first reserves to be designated Naval Aviators.

Under the guidance of the Aero Club of America, they organized a program of flight instruction that, at its beginning, was completely civilian in nature and financed by contributions.

The group, known as the First Yale Unit, increased in size. In March 1917, the Navy Department urged the group to enlist in the Naval Reserve Force. At that time, the Navy began to contribute men and machinery to the cause. It is believed that pilots from the First Yale Unit were the first in the Naval Reserve Flying Corps to reach Europe in World War I.

Captain H. I. Cone, Commander of the U.S. Naval Aviation Forces, Foreign Service, cited the unit as

"the nucleus of the first Naval Reserve Flying Corps."

This voluntary action was typical of a number of other college groups but the Yale group was the first and most noteworthy.

During the war, thousands of young men entered Naval Aviation and by Armistice Day, November 11, 1918, there were 1,656 Naval Aviators, 288 student aviators, 391 ground officers and 3,881 students in training for a commission. There were 22,000 enlisted men in aviation ratings and almost 9,000 general ratings assigned to aviation.

The War's aftermath included rapid deactivation and the effects felt by the services of the loss of great numbers of pilots and skilled support personnel.

The problems involved in retaining an Air Reserve at the end of WW I were many and complex. The solution came in the form of the Act of June 4, 1920, authorizing retention of 500 Reserve officers in aviation and providing for their transfer to the regular service by

the last day of June back in 1922.

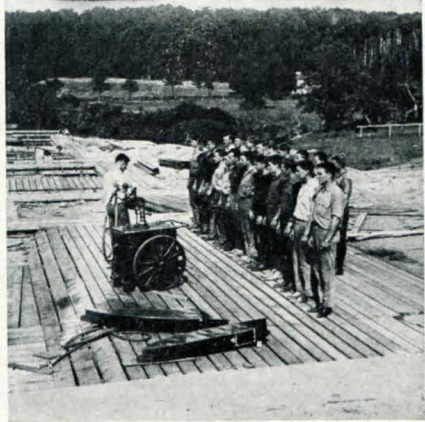
Those who remained were tested and, out of 244 aviators, 160 were recommended for commissions. They comprised half the Naval Aviators on board as of July 1, 1922. Those who returned to civilian life had difficulty maintaining their skills. The lack of available funds caused many pilots to lose their qualification and interest.

Many notable Reserves came out of WW I: Artemus Gates, first Reserve pilot to become a designated Naval Aviator, later served as Assistant Secretary of the Navy for Air and Under Secretary of the Navy. Robert Lovett, Assistant Secretary of War for Air, later became Secretary of Defense. David Ingalls, the Navy's only WW I Ace, eventually became Assistant Secretary of Navy (Air). F. Trubee Davison, the organizer of the First Yale Unit, failed to qualify as a Naval Aviator but later became Assistant Secretary of War (Air).

Another WWI Reservist, a Princeton man, James V. Forrestal, Naval Aviator #154, became SecNav in WW II and was later the first Secretary of Defense.

During the summer of 1923, 33 students underwent ground and flight training as seamen second class at Squantum and Fort Hamilton. They spent the following summer at Hampton Roads undergoing advanced training in navigation, gunnery and bombing. At the completion of this syllabus and after a professional examination, they were commissioned ensigns in the Naval Reserve and designated Naval Aviators.

At this time, the facilities were extremely limited. It was deter-



DAVISON AND THE FIRST YALE UNIT

mined that a tractor, motor over-haul stand, small machine shop, motor boat and a hangar would be needed at each station. Local authorities were expected to furnish most of this because of limited funds.

At Fort Hamilton, N.Y., the New York City Aerial Police air station was used by the Reserves in early 1923. This was so successful that a similar unit was authorized for the former naval air base at Squantum, Mass., and both were

aviation divisions. Provisions were also made to allow 50 ensigns a one-year tour of duty with the Fleet. In addition, formalized primary and advanced training programs were set up for enlisted men.

The Naval Air Reserve organization fared well in an appraisal by the Federal Aviation Commission (FAC), a study group created by the President in 1934. The commission assessed the Navy's force of 481 officer pilots, including 251 ready for immediate duty in its

long, world-wide struggle that lay ahead.

The months immediately following our entry into WW II were dark indeed. The Fleet had been seriously crippled, and trained men were at a premium. Reserve forces were inadequate and few men could be spared for duty as instructors. The staggering task of molding civilians into capable pilots, mechanics, and technicians seemed almost impossible.

Our wartime Naval Air Forces



RESERVE N3N-3'S ON THE FLIGHT LINE AT NAS ATLANTA, GA. IN 1941. STATION IS NOW IN MARIETTA, GA.

commissioned on August 13, 1923. In December 1923, another unit was commissioned at Great Lakes.

In October 1925, the U.S. Naval Reserve Aviation Base at Sand Point, Wash., was authorized. Like Squantum, Great Lakes and New York, it conducted preliminary flight training for Reserves and offered refresher training for those Reserve pilots already qualified.

On March 24, 1926, the Navy Department adopted a Five Year Program for Training Aviation Reserves. Basically, it called for more and improved training facilities for a greater number of aviators. Policy was also established to provide Reserve aviators with not less than four hours training each month with two weeks active duty annually.

In 1927, funds were made available to expand the Reserve program. CNO at that time decided to allow drill pay and 15-day training periods for 275 aviation officers and 500 enlisted men assigned to

31 Fleet Reserve squadrons, as "an admirable organization . . . close to the ideal of military readiness . . . as are the nine squadrons of the Marine Reserve."

The FAC concluded its study by recommending additional reserve funds because "the effective air force Reserves should be at least double what it is now." That recommendation was a keynote in the struggle for funds that the Navy was to wage for five years after the study was completed.

The magnitude of the job confronting the Regular and Reserve aviation teams on December 7, 1941, became starkly apparent in the total enrollment recorded June 30, 1939, of only 226 Organized Reserve officers and 118 volunteer officers—some 344 Naval Aviators.

This was in marked contrast to a mobilization requirement of 2,905 considered necessary to implement a war plan through the first three months and develop a training program adequate for the

had to be built almost from scratch. The process cost money, time and lives. Bitter lessons were learned during those dark months by the Navy and Marine Reserve and Regular air teams. They held two vast ocean fronts while training over 50,000 pilots plus aircrewmembers and ground personnel. Almost half a million aviation Reservists in all were trained to man an air fleet that mushroomed from 1,740 planes in 1940 to more than 41,000 on 122 carriers and a vast, expanding network of bases by 1945.

When President Franklin D. Roosevelt declared a national emergency on September 8, 1939, the Secretary of the Navy was authorized to call those members of the Naval Reserves deemed necessary—on a voluntary basis. Certain critical aviation ratings were ordered back on an involuntary basis.

The results were less than the requirement and, in the fall of 1940, it became necessary to issue

an involuntary recall. There was considerable disagreement as to who should be exempt, based on civilian jobs such as those in the aeronautical industry. Basically, mobilization was a long, complicated process with varied problems involved in meeting immediate military needs without disrupting the supporting industrial program.

On October 24, 1940, the Bureau of Navigation announced plans for mobilizing aviation squadrons calling for one third to be on active duty by November 7 and for all to be on active duty by January 1. According to a BUAER Annual Report, general mobilization was completed in January 1941.

Early in 1945, the Secretary of the Navy appointed Rear Admiral Irving McQuiston as senior member of a board with the responsibility of re-establishing the Naval Reserve Training Program. The precept under which the Board operated called for the new Naval Reserve Program to be an integrated program rather than a separate one. The Board was also charged with the responsibility of establishing certain billets on the Navy Department level in which Naval Reserve officers would serve on active duty for the purpose of advising on Naval Reserve policy.

Billets were also established at Staff Headquarters having responsibility for the Naval Reserve Training Program, namely, the Chief of Naval Air Reserve Training (CNAResTra) and Commandants of Naval Districts in the United States.

The report of the McQuiston Board was approved and, in late 1945, 21 Naval Air Reserve activities were commissioned, employing 860 Reserve officers and 9,849 enlisted personnel on active duty. The Reserve officers and enlisted personnel were called CAD (Continuous Active Duty) personnel.

The Naval Air Reserve Program was formally activated on July 1, 1946, when the Chief of Naval Air Reserve Training officially raised his two-star flag at NAS GLENVIEW, Ill. CNAResTra was centrally located among more than a score of naval air stations that were reverting from wartime missions to realign with their reserve training mission. The effort was to pay off in big dividends in just four years. At that time, Communist North Korean troops invaded the free Republic of Korea and we were at war again.

A major reorganization of the Air Reserve was completed on December 9, 1949. Its purpose was to



RESERVES FLEW F6F AFTER WW II

conform more closely to Fleet requirements, to provide better utilization of facilities and equipment and to permit greater flexibility in organization and administration. Air Groups were replaced by Air Wings which assist in the administration of Reserves. The size of the squadrons was adjusted to conform to Fleet organization and their locations were related to pilot potential in a particular area. As a result, there were 128 VF, 41 VA, 25 VC, 29 VP, 26 VR, 5 ZP squadrons, 57 FASRons, and 27 Air Wings which were located at as many Reserve air stations.

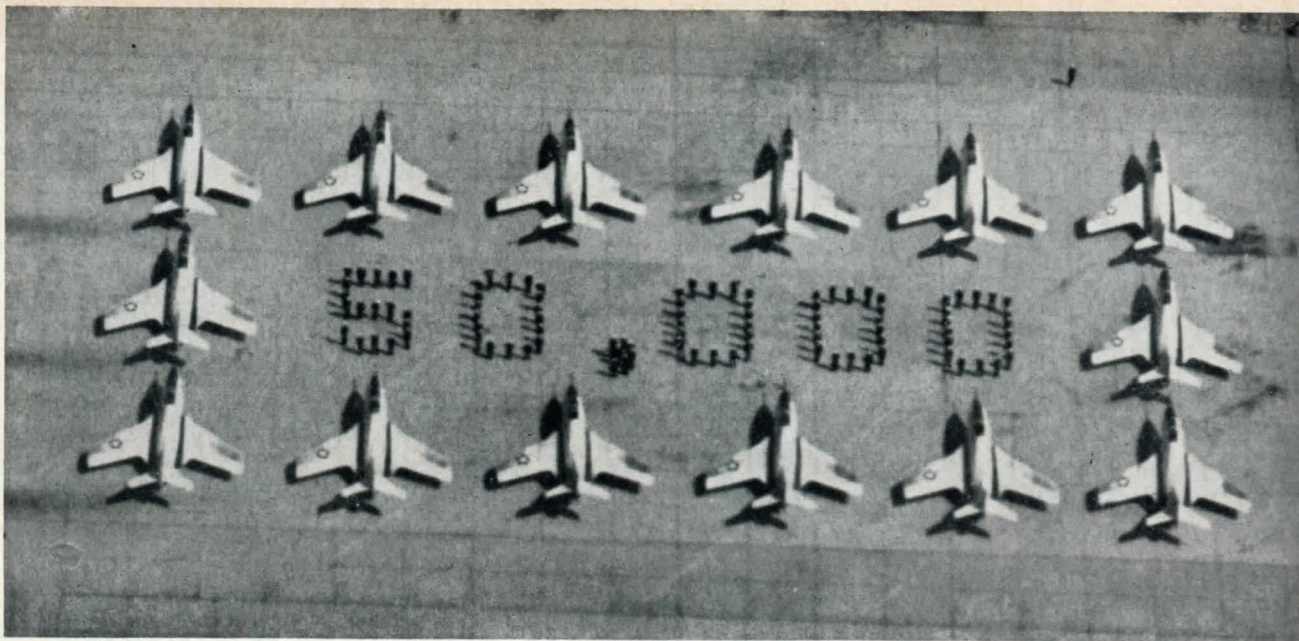
When the Korean Conflict broke out, the Reserves were ready. The United States entered the war on June 27, 1950. Less than one month later, 14 squadrons were activated for duty aboard carriers that had been pulled out of mothballs and land based patrol activities. Up through May 1951, a total of 42 squadrons, including 16 VF, four VA, nine VP, six VS, three CV and four VP FASRons, had reported for duty.

The first all-Reserve squadron to operate in the Korean war zone was VP-892 out of Seattle. Their base of operations was Iwakuni, Japan. The first all-Reserve air group was Carrier Air Group 101 aboard the *Boxer*. They entered the action March 29, 1951. CVG-101 was composed of squadrons from Dallas, Glenview, Memphis and Olathe.

By early summer 1951, ten out of



JACKSONVILLE P-2 STOPS AT GIBRALTAR EN ROUTE TO MALTA ON EXERCISE



IT WAS A RECORD to be proud of, so men of VF-126 at NAS Miramar, within a border of TF-9J aircraft, formed the figures, 50,000, to illustrate the squadron's number of accident-free flight hours. Commander V. R. Hubka, the "Fighting Sea Hawks" C.O., landed his Grumman Cougar to score the 50,000th safe hour. The last accident

the unit was involved in occurred January 18, 1961. Since that date, VF-126 has trained 2,000 Navy, Marine and Air Force student aviators in all-weather flight. Twenty-one instructor pilots, three ground officers and 215 enlisted men constitute the squadron under the operational control of Commander, Readiness Attack Carrier Air Wing 12.

Battle-tested Unit Returns Near-Year Tour is Outstanding

One of the most battle-tested helicopter squadrons in South Vietnam has been rotated home, after chalking up an enviable record.

Arriving in Vietnam June 21, 1965, Marine Medium Helicopter Squadron 261 has participated in some of the largest Marine Corps operations.

HMM-261 made the first night strike against the Viet Cong.

Operation *Starlite*, now famed as the first Marine Corps offensive operation from Chu Lai, found HMM-261 performing troop lifts, resupply missions, medical evacuations and strikes in support of Marine ground forces. *Starlite* was an unparalleled success and the U. S. Navy awarded the squadron the Navy Unit Commendation Medal.

Squadron personnel received two Silver Stars, 22 Distinguished Flying Crosses, 12 Bronze Stars, 2,000 Air Medals, five Navy Commendation Medals and 45 Purple Hearts.

The Vietnamese Government awarded '261 personnel ten Vietnamese Crosses of Gallantry, the highest award given to an ally.

The squadron earned its decora-

tions with 11,859 combat flight hours with 121 helicopters being hit by enemy fire 273 times, medically evacuating 2,315 combatants,

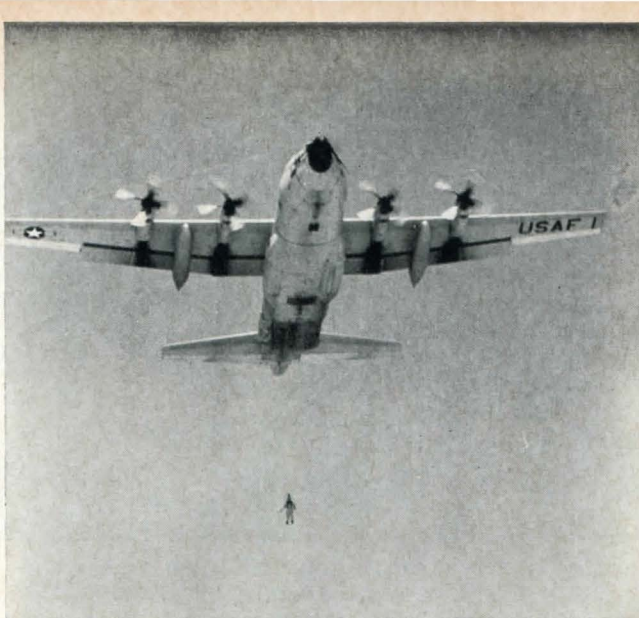
flying 38,090 combat sorties, ferrying 47,522 troops into combat, carrying 7,237,867 pounds of cargo, expending 32,610 ammo rounds.



ON MAY 14, a four-aircraft combat mission was launched from the Marine expeditionary land-based catapult at Chu Lai for the first time in the history of Marine Corps Aviation. The launch brought to a close many months of testing for the catapult now operational in Vietnam. Colonel Leslie E. Brown, C.O. of MAG-12, flew the first A-4 off the catapult. He was followed by LCol. Robert B. Sinclair, VMA-223 C.O.; LCol. Dell A. Davis, VMA-214 C.O.; and Maj. Thomas J. Ayers, VMA-211 X.O. Each Skyhawk was armed with four 250-lb bombs and two 20mm cannon. Power for catapult is supplied by two J-79 jets, the same as in the F-4.



UNITING the Robert Fulton system (originally developed under a contract with Navy's Office of Naval Research) and an HC-130H, the U.S. Air Force demonstrates its new air/sea rescue method. The "victim" in the lifeboat, LCol. T. R. Harris, has donned a suit with a built-in harness and inflated a balloon which lifts the nylon cable.



ATTACHED to the cable, LCol. Harris of the Tactical Air Command is pulled toward the Lockheed Hercules. The rescue plane, developed by the Aeronautical Systems Division and Lockheed-Georgia Company to include the Fulton system, is going into world-wide operation in the USAF's Aerospace Rescue and Recovery Service.

NEW RECOVERY HERCULES IN OPERATION



HIS BACK to the plane, LCol. Harris is safely aboard the rescue Hercules. Aircraft equipped for this kind of rescue will be based at points all over the world: Tachikawa, Japan; Hamilton AFB, Calif.; Eglin AFB, Fla.; Goose AB, Labrador; Lajes, Azores; Prestwick, Scotland; Guam; Vietnam; Honolulu; Wheelus, North Africa, and Bermuda.



THE BEETLE-LIKE protuberances (which can be folded back along the nose) are the "yoke" of the apparatus. The yoke is part of the Fulton recovery system which retrieves objects or persons weighing as much as 500 pounds. The rescue package with nylon cord is dropped to the astronaut or survivor who dons harness and sends up balloon.



FIRST OPERATIONAL *Hawkeye Detachment flew off the Kitty Hawk in support of Southeast Asia operations. Affectionately dubbed the "Super Fudd," the AEW plane carries a crew of five and hrs a seven hour endurance. It also incorporates a nose-tow catapult system.*

E-2A GOES TO EAST COAST SQUADRON

WITH THE WHINE and roar of two Allison turboprop engines and a combined rating of 9,000 horsepower, an E-2A *Hawkeye* lifted off from a snow-covered runway at NAS NORFOLK. It was a cold, clear day in February and VAW-12 had just taken delivery of its first E-2A.

With freshly-painted numerals on the fuselage, it was soon level at 20,000 feet and headed for Dallas, the first stop on its transcontinental trip with a final destination at North Island.

To the casual observer, it was a strange-looking airplane taking off on a cold day from Norfolk and rapidly disappearing out of sight. To the officers and men of VAW-12, it inaugurated a new era. This marked the first of a new type that will eventually replace the venerable E-1B.

The crew on the flight found a much more comfortable aircraft than the E-1B. The E-2A has complete pressurization and an air conditioning system. Navigation on the hop was nearly precise with the Doppler and Inertial Navigational System providing instantaneous information and current winds.

With its Tacan lock feature, the pilots were able to dial in the radial of a Tacan station, push a button and leave the rest to the computers. According to the crews,

By Lt. D. S. Lloyd, USNR

it is comparable to dialing in an interstate route number and pressing a button on the dashboard of your car while it drives itself automatically from Washington, D. C., to New York City.

Five hours after leaving Norfolk, the *Hawkeye* found Dallas on the edge of a severe weather area. After lunch and refiling, the crew took off again and climbed low to the southwest to minimize the effects of the jet stream, which at that time had reported 200-knot headwinds.



VAW-12 C.O., *Captain J. A. Pariseau, accepts keys to E-2A from Captain M. S. Berns.*

Touchdown was made at sunset at San Diego, 10 hours and 40 minutes after leaving Norfolk. It was just after six in the evening at North Island.

Preparations for the flight had literally been made for years. In the fall of 1965, a detachment of 90 officers and men, led by LCdr. Charles J. Berthe, Jr., left Norfolk and became VAW-12 Det NorIs. Their mission at North Island was to become checked out in the E-2A and its electronics systems and eventually to train other squadron members on their return.

Since that time, they have been working with VAW-11, a sister squadron, which received the E-2A in January, 1964, and sent its first operational detachment aboard the *Kitty Hawk* in October, 1965. At North Island, the pilots underwent familiarization and received instruction leading to eventual plane commander designation. The three Combat Information Center Officers (CICO) also became fully qualified in the complex data-link detection/control systems in the airplane.

The training syllabus was augmented by the Fleet Airborne Electronics Training Unit, Pacific (FAETUPac), and the Naval Aviation Maintenance Training Detachment 1025 (NAMTG Det 1025). FAETUPac maintains the multi-

million dollar operational trainer where flight crews simulate flights and operation of AAW systems.

The operation and maintenance of the systems is taught by the NAMTG personnel.

This unusual training situation is dictated mainly by the fact that there are only two such squadrons in the Navy. Also the complexity of the electronic systems aboard the *Hawkeye* demands thorough indoctrination of flight and maintenance personnel. This takes months of instruction.

Now with a nucleus of qualified flight personnel, VAW-12 has received the first of its own *Hawk-*

The fuselage is divided into four main sections: cockpit, forward equipment compartment, CIC compartment and aft equipment compartment. All are pressurized.

The E-2A is the Navy's largest carrier-based plane in size but not in weight. It has a wing span of over 80 feet and is 56 feet in length. It stands some 18 feet high and has a gross weight of 49,000 pounds.

The crew of five is comprised of the pilot, copilot, radar operator (RO), Combat Information Center Operator (CICO) and Air Control Operator (ACO). Utilizing the sophisticated electronic gear mounted in a row of consoles, the

Eventually the computer will take over the fighter, make the run, fire the missile, and initiate the break away while the pilot monitors the hands-off operation.

All the air traffic between Boston and Washington, D. C., the heaviest traveled air corridor in the U.S., is now being tracked by scores of men at various air control centers. One *Hawkeye* could track all these air contacts at once.

With the delivery of the E-2A at North Island, the detachment started out on its own. Two of the attached pilots were qualified plane commanders and three of the Naval Flight Officers were qualified CIC



BIG BUT compact, the 24-foot rotodome lowers almost flush to the fuselage and the 80-foot wing spread folds to 30 feet for stowage.



COMPLETELY pressurized, the *Hawkeye* offers full air conditioning while operating from the deck to service ceiling of 30,000 feet.

eyes. All crews from the East Coast squadron who made the transition into the E-2A before June went to Det NorIs for several months TAD. After completing their training, they reported to Norfolk.

The object of all this attention is the Navy's most sophisticated airborne early warning system in use today. The *Hawkeye* is a five-place, twin-turboprop aircraft capable of both carrier and shore-based operation. Flying at altitudes up to 30,000 feet and at speeds of 300 knots, the E-2A is designed to alert a task force of approaching hostile aircraft and simultaneously control and vector interceptors into an attack position.

The aircraft is powered by two Allison T-56-A-8 turboprop engines with constant speed propellers. Its distinguished feature is the 24-foot, rotating, dish-shaped rotodome.

crew is able to search, identify and store position data on many separate targets.

Previously, E-1B crews evaluated radar targets on their own, tracked them by hand and reported them by voice. The *Hawkeye* will provide automatic tracking, evaluation, reporting, and if necessary, destruction.

Ultimately planned to work in the automatic mode with first line interceptors such as the F-4 *Phantom*, the E-2A computers will track a target and, based on programmed information, decide the relative threat. Simultaneously, based on position, fuel state, weapon load and altitude, the computer will decide which interceptor is in the best position to make the kill. Then it will automatically provide the fighter pilot with a heading, speed and altitude to make the run.

officers. These five officers will now instruct other VAW-12 officers and men in the months to come. Enlisted men in the rate of Aviation Electronics Technicians, second class and higher, are being trained as radar operators. The CICO and ACO positions are filled by Naval Flight Officers.

Although training independently of VAW-11, VAW-12's Det NorIs has remained at North Island until this month. With the E-2A support equipment operational at Norfolk, East Coast training now will be carried on there.

With the arrival of the E-2A on the East Coast, the days of colorful "dogfighting" are left to the pages of history. Today's threat is a blip on the radar, detected a safe distance from the force and intercepted or destroyed by fighters under control of the *Hawkeye*.



ASW'S AX RATING BEGAN IN 1961

WHAT'S NEW IN NAVAL AVIATION RATINGS?



THE AZ WAS ESTABLISHED IN '63

By John D. Burlage, JO1

ANOTHER NEW enlisted aviation rating—the Aviation Support Equipment Technician (AS)—has been approved by the Secretary of the Navy. It's the third new Group Nine rating since 1961, and it brings the number of general ratings in Naval Aviation to 18.

The AS was created to fill a void in enlisted technical ability to repair and maintain certain kinds of aviation support machinery—commonly called “yellow equipment”—and related components and systems. The job was formerly farmed out, in bits and pieces, to men in no less than ten other ratings.

Personnel who enter this new field will join men serving as Aviation Antisubmarine Warfare Technicians (AX) and Aviation Maintenance Administrationmen (AZ) as members of Naval Aviation's most recent additions to the more than 65 enlisted general ratings required by the Navy. The Bureau of Naval Personnel notice announcing creation of the AS was issued late in February. The AX has been in business since 1961 and the AZ was established in 1963.

The BUPERS notice outlines the scope of work the AS will perform. Included in his job are:

- Service, test, and intermediate

level (station aircraft maintenance department or wing and group maintenance department afloat) maintenance and repair of aviation support equipment, its associated components and systems. These include gasoline and diesel engines, hydraulic and pneumatic systems, automotive electrical systems, gas turbine compressor units, power generating equipment, liquid and gaseous oxygen and nitrogen servicing equipment and air conditioning systems; excluded from the AS field is avionics support equipment.

- Structural and body repair and painting of aviation support equipment.
- Periodic maintenance inspections of aviation support gear.
- Training in operation and servicing.

In pay grades E-4 and E-5, the AS rating will be broken down into three service ratings; they include Electrical (ASE), Hydraulics and Structures (ASH), and Mechanical (ASM). Petty officers advancing to E-6 will drop the service designators and may continue to advance in the general category to the rate of E-9.

While the total number of men required in the AS field has not yet been determined, BUPERS plans

to hold initial manning to a level which will facilitate a good advancement opportunity.

Applications for AS have been accepted from the Aviation Machinist's Mate (AD), Aviation Electrician's Mate (AE), and Aviation Structural Mechanic (AM) ratings, as well as from men in other fields who have previous experience in maintaining ground support equipment.

From them, a BUPERS selection board, scheduled to meet in July, will choose a sufficient number of men to sustain the rating. Those selected will be allowed to convert without taking an examination.

Establishment of a rating such as AS, AX, or AZ may begin with a recommendation for it from almost any level of command—including enlisted personnel. In the case of AS, its creation was recommended by ComNavAirLant during the semi-annual General Aviation Technical Training Conference held at NATTC MEMPHIS.

The point was made that the job of repairing and maintaining aviation support equipment, especially at sea, was too fragmented. Men in technical fields even faintly related to the type of systems and components found in support equip-

ment were pulled from their regular duties to work on just the parts of the gear they understood. Lack of motivation, the need for constant retraining of inexperienced personnel, and a high turnover rate made the system an erratic one.

The recommendation went first to DCNO (Air)'s Aviation Training Division for approval, and from there to BUPERS' Personnel Research Division.

Responsibilities assigned the Personnel Research Division concern the Navy's enlisted rating structure. They include:

- Reviewing and making recommendations concerning proposals for additions, deletions or revisions to the rating structure, and to war-

ting a favorable recommendation.

Purpose of the permanent board is to discuss and make final judgment on rating proposals before they are submitted to the Chief of Naval Personnel and his assistant chiefs. Its members include the Deputy Chief for Plans and Programs as chairman, and the directors of the following BUPERS divisions: Personnel Research (executive secretary), Enlisted Personnel, Plans, Personnel Program Management, Service Schools Training, and General Military Training and Support.

When it attempts to reach a decision about a rating recommendation, the board may request data, including personal testimony, from

cause the Navy needed men who were trained to inspect and maintain aircraft ASW systems, equipment and associated gear—including the equipment used to test them. The continuing sophistication of airborne ASW, with equipment bearing such titles as magnetic anomaly detection (MAD), virtually forced the creation of a single rating to handle its gear.

Now, there are almost 3,000 petty officers and 500 strikers in the field.

In the AZ, the Navy came up with a man who could perform administrative, management, and clerical duties needed to implement and support the Naval Aircraft Maintenance Program. He must



T. S. GOEN, AX1, WORKS IN A KEARSARGE SEA KING C. W. UMLAND, AZ1, IS ASSIGNED TO NAS PATUXENT

rant officer and limited duty officer designator code classifications.

- Conducting a continuing study for, and making recommendations that will assure, optimum support for the operating forces, meeting requirements of technological advances, sound preparation for mobilization, and the best use of manpower.

The division's director has the task of assuring that staff work and coordination is completed on proposals for changes to, or addition of, enlisted ratings before the proposals reach the next stage: action by the Bureau's Permanent Board for Control of the Enlisted Rating Structure. In the case of AS, the director asked the U.S. Naval Personnel Research Activity in San Diego to conduct a study; the activity contacted appropriate personnel at naval air stations and aboard aircraft carriers before submit-

BUPERS divisions, Navy Department offices, commands, bureaus and Fleet and shore activities. This is done to assure that conclusions reached are based on full information and that submitted proposals are compatible with modern techniques of personnel administration.

Final action on all proposals is taken by the Chief of Naval Personnel or—again, with AS as an example—by higher authority, such as the Secretary of the Navy.

Men who are accepted for the AS rating will be entering a field that was judged, after a thorough study, to be essential to the proper workings of Naval Aviation. Its two immediate predecessors, now firmly established in the rating structure, were also subjected to the same scrutiny—altogether it can last several years—before they were approved.

The AX rating was approved be-

plan, schedule, and coordinate the aircraft maintenance workload, prepare and route work orders and inspection forms, and collect, compile, and record data concerning aircraft and related equipment. Among his many duties can also be a requirement to organize, maintain, and operate technical libraries—and, incidentally, to file, type, and perform whatever other clerical duties are required by aircraft maintenance offices.

Some 1,230 petty officers and 300 strikers assume these functions.

Regardless of which rating badge they wear, however (and BUPERS is still looking for an appropriate one for AS), enlisted men are in these newer Naval Aviation fields because someone figured they were needed. In each case, the facts backed up that assumption—and an aviation rating was created in line with the facts.



AT DAVIS-MONTHAN AFB SOUTH OF TUCSON, ARMY, NAVY AND AIR FORCE AIRCRAFT ARE CAREFULLY STORED

STORAGE MERGED FOR USAF-NAVY AIRCRAFT

THE NAVY is a partner in a new type of joint account established by the Department of Defense. The account consists of current models of aircraft stored under the sky at a SAC Base near Tucson, Arizona.

Navy aircraft are parked row upon row beside those of the Air Force and Army. The giant wings of Air Force B-52 *Stratofortresses* shelter Navy T-34 trainers. The silver noses of B-47 bombers almost nudge the charcoal and white ones of EC-121 *Super Constellations*.

The sprawling acres of aircraft constitute the Military Aircraft Storage and Disposition Center, Davis-Monthan Air Force Base, managed by the Air Force. The aircraft are preserved so that they can be returned to service upon short notice. They are inspected regularly and preservation is updated as needed.

Movement of the Navy aircraft from the U.S. Naval Air Facility, Litchfield Park, Ariz., the Navy's

former aircraft storage center, began in February 1965 and was completed by the end of last month.

The phasing out at NAF LITCHFIELD PARK is directed by the Naval Air System Command's Fleet Readiness Representative, Pacific, Rear Admiral Paul A. Holmberg. A Navy Field Service Office at the Davis-Monthan AFB is under the command of Captain Thomas Franco, USN. At full complement, the office will consist of five officers, 35 enlisted and three civilians.

The mammoth storage/disposition facility near Tucson grew out of a post-WW II requirement. When the war ended, both the Navy and Air Force had large inventories of late model aircraft in excess of their needs. They decided upon outside storage.

The Air Force selected the Davis-Monthan site because its climate was dry and the soil had a low acid content; thus corrosion would not be a serious problem. Among the first aircraft stored were B-29's and



HERE ARE AF B-47'S, B-52'S AND NAVY EC-121'S



TRUCKS HAULED PLANES FROM LITCHFIELD PARK

*Text by Lt. Warren R. Heidelbaugh, USN,
and Loretta Sudsbury, NAS North Island*

C-47's. Meanwhile, the Navy established NAF LITCHFIELD PARK, near Phoenix, for the same reasons and stored its aircraft there.

During the Korean Conflict, many aircraft were taken out of storage and returned to service. When that conflict ended, storage was again required as operating inventories were reduced. When jets became more common to both services, propeller-driven aircraft were transferred to storage.

From time to time aircraft were removed and made flyable for Mutual Defense Assistance Pact nations. Others were presented "as is" to museums. Those completely obsolete were disposed of regularly; only current models were retained.

In 1963, the Assistant Secretary of Defense (Installations and Logistics) designated the Air Force as the single manager of storage, reclamation and disposal of all military aircraft. The functions were assigned to Davis-Monthan Air Force Base. The phasing out of NAF LITCHFIELD PARK began at that time and will be completed by January 1967.

The first Navy aircraft arrived at Davis-Monthan for storage on January 13, 1965. In the next 12 months, over 800 Navy aircraft were delivered, 500 of them trucked from Litchfield Park to Tucson. The

State of Arizona cooperated in routing the aircraft caravans over the highway. The other 300 were flown in from various parts of the world.

The increased requirements involved in the Vietnam hostilities have stepped up the Air Force/Navy processing for fly-away from Davis-Monthan to Navy Overhaul and Repair activities.

To Chief Petty Officer Brenton E. Beddow, the first member assigned to the Navy office at Davis-Monthan, Colonel Charles L. Stafford, commander of the center, recently awarded a Commendation Medal for his skill and ability in aiding substantially the consolidation of NAF LITCHFIELD PARK and Davis-Monthan. The citation states in part: "Through his achievements and dedicated efforts, complex problems between the Navy and the Air Force acceptance procedures were resolved, resulting in the adoption of a compatible system."

This is a typical instance of the teamwork between the Navy and the Air Force since the merger was inaugurated. The goal is standardization: The Air Force, for example adopted the Navy tie-downs for securing the aircraft and the Navy uses Air Force pallets instead of steel matting for parking aircraft. The best techniques are used in every instance.



ABOUT 500 NAVY AIRCRAFT ENTERED THIS GATE



F-9 COUGAR AIRCRAFT ARE CAREFULLY PRESERVED

XC-142A TRIALS ON USS BENNINGTON

NAVAL AVIATION history was made at sea May 18 when Ling-Temco-Vought's XC-142A vertical and short takeoff and landing (V/STOL) aircraft made its first carrier landing aboard *Bennington* (CVS-20) in the Pacific.

At the same time in the Atlantic, on the USS *Independence* (CVA-62) and the USS *Raleigh* (LPD-1), the jet V/STOL XV-6A—Hawker P. 1127—was demonstrating the feasibility of V/STOL operations. Thirty-three flights were made between May 9 and 18. A report of the trials of this American-British-West German joint effort will be published soon in *Naval Aviation News*.

The XC-142A, the largest V/STOL aircraft in the world, arrived over the *Bennington* at 0852 and landed at 0905 to begin a one-day intensive, preliminary carrier evaluation. Pilots Lt. Roger Rich, USN, and Maj. Eric Larsen, USMC, made short and vertical takeoffs and landings, using only a couple of hundred feet of *Bennington's* 889-foot flight deck.

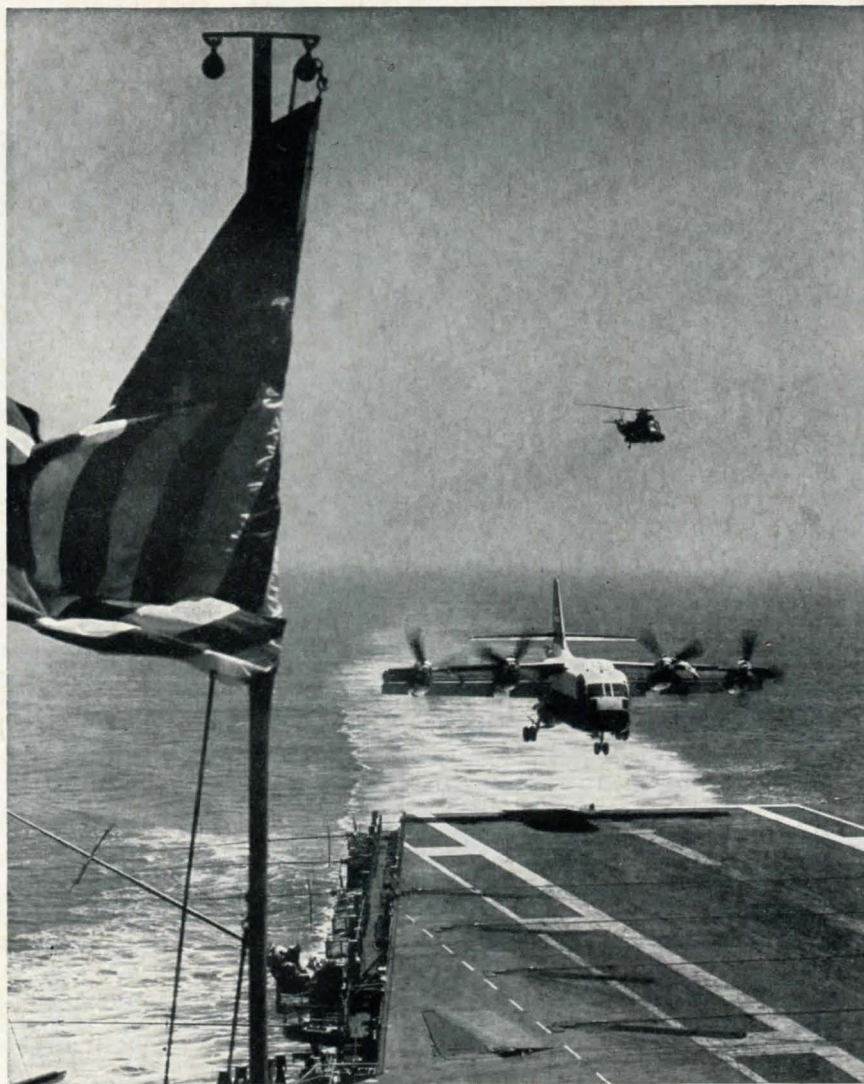
Following this, Lt. Rich checked out Maj. Bob Chubby, USA, on the XC-142A's carrier characteristics. Maj. Chubby had never been aboard a carrier before. In the XC-142A, he made one takeoff and landing under the tutelage of Lt. Rich and then immediately made a landing and takeoff with ease.

The aircraft was evaluated using various glide slopes, approach angles, wind-over-the-deck conditions and aircraft wing incidences.

During the testing the aircraft made a 360-degree turn in the width of the deck and took off.

But the most spectacular maneuver during evaluation occurred when the aircraft made a vertical takeoff, hovered above the flight deck for a few moments, changed wing angle and sped away in conventional forward flight.

The purpose of the day's test was to evaluate qualitatively the XC-142A for shipboard operations in the VTOL and STOL modes of flight with wind over the deck varying from zero to 32 knots. Preliminary data were gathered for use



COMING ABOARD CARRIER, THE V/STOL AIRCRAFT IS READY FOR TEST

in planning other carrier trials.

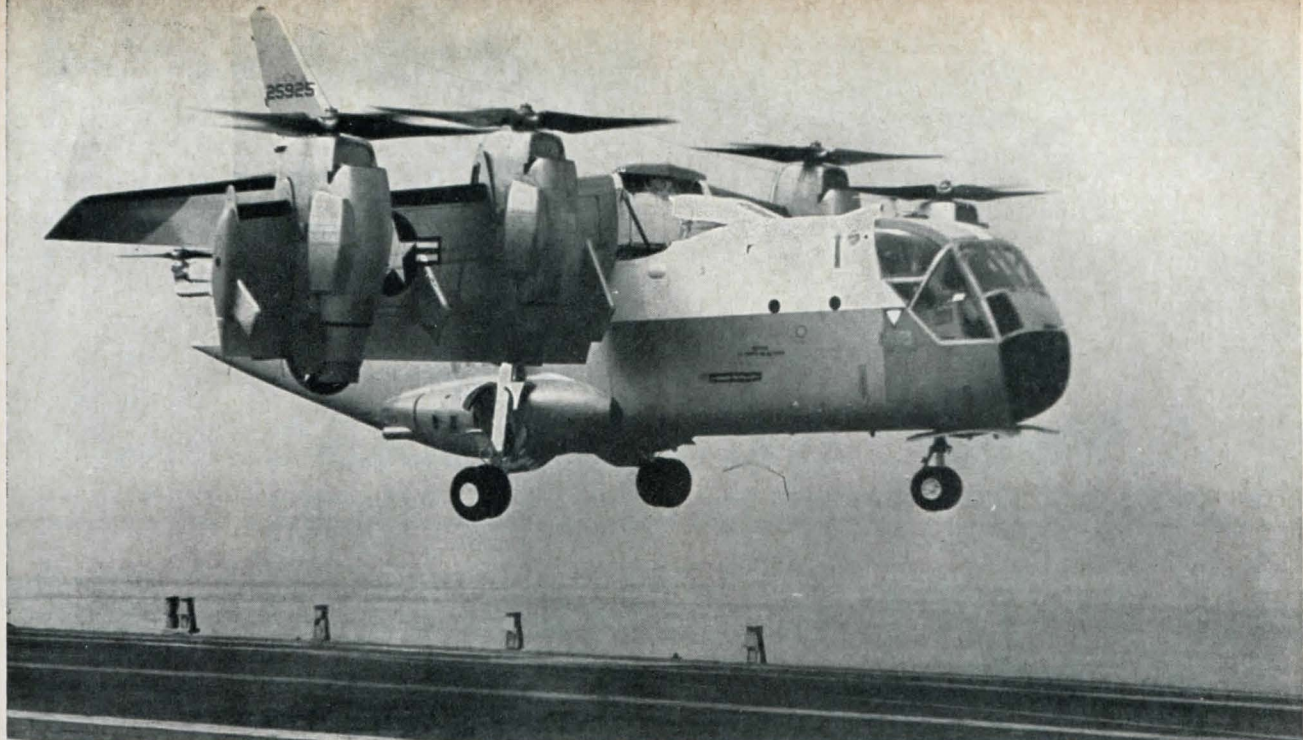
During the day 44 STOL's and six VTOL's were completed. These included touch-and-go, full stop and go-around flight configurations.

Heading up the testing in Pri-Fly aboard the *Bennington* was Test Coordinator, Commander W. L. Cranney, Navy Deputy Director for the Tri-Service Test Force. He was assisted by Commander R. E. Bennie, USN; Army Deputy Director, Lieutenant Colonel G. J. Boyle; and Director of the Tri-Service Test Force, Lieutenant Colonel J. P. Jacobs, U.S. Air Force.

The XC-142A, first flown in Sep-

tember 1964 by Ling-Temco-Vought, has been undergoing testing by the special Tri-Service Test Force at Edwards AFB since June 1965. To date, the aircraft, in addition to the carrier trials, has been tested in operations from sod, desert, dry lake beds, pierced steel runways and membrane pads.

The aircraft has been operated from airspeeds of 35 mph backward in hover to 400 mph in forward flight and to an altitude of 25,000 feet. It can carry 32 fully equipped troops or 8,000 pounds of cargo when operating vertically or up to 15,000 in STOL mode.



LING-TEMCO-VOUGHT'S XC-142'S PROPS BECOME ROTORS AS IT HOVERS OVER USS BENNINGTON'S FLIGHT DECK



DECK CREWMEN FIND XC-142A A FASCINATING SIGHT



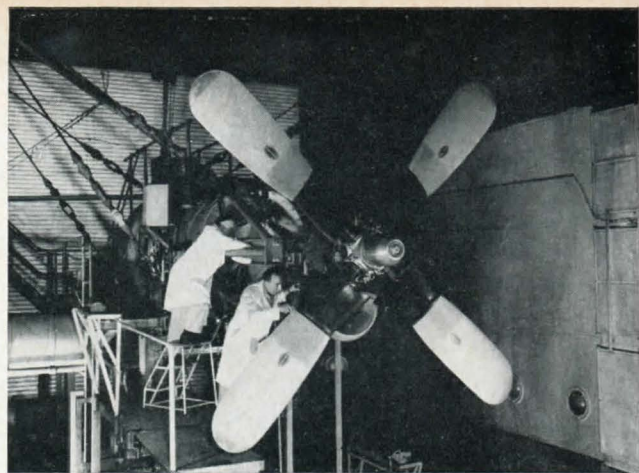
AIRCRAFT CAN OPERATE WITH VARIOUS WING ANGLES



XC-142A HOVERS JUST BEFORE RADICALLY CHANGING ITS WING ANGLE AND TURNING SHARPLY FOR FLIGHT



AT THE BOARD, from left, are Cdr. Hawvermale, AEL Director, RAdm. F. L. Pinney, DCNM, and Captain Clancy, the C.O. of NAEC.



TWO SPECIALISTS in the Aeronautical Engine Laboratory are preparing an oil qualification test. AEL tests all Navy's lubricating oils.

HALF CENTURY OF SERVICE TO THE FLEET

A HALF CENTURY of service is the proud record of the Naval Air Engineering Center.

A pioneer in Naval Aviation, the center had its beginnings in 1917 when Secretary of the Navy Josephus Daniels established the Naval Aircraft Factory to supplement the production of aircraft by private industry during WW I. Subsequently its mission embraced the development and manufacture of experimental aircraft and accessories. The record of its accomplishments includes construction of the airship *Shenandoah* and the development and construction of such famous aircraft as the PN-9 and the N3N *Yellow Peril*. In 1953 the name of the activity was changed to Naval Air Material Center and, in 1963, it was redesignated the Naval Air Engineering Center (NAEC).

The Naval Air Engineering Center's mission today includes design, development, test and evaluation of aeronautical materials, structures and power plants; responsibility for all phases of the development of aircraft launching and recovery devices, visual landing aids, from initial research to limited production and maintenance; and responsibility for all aircrew equipment and aircraft escape systems, and the human engineering of such

By *Hilary S. Czapliski*
Naval Air Engineering Center

equipment and related systems.

The complex the center occupies is a 700-acre site along the shore of the Delaware River, at the Naval Base, Philadelphia, Pa. At work there are some 3,000 employees, of whom more than 600 are professional engineers and scientists. A majority of the others are skilled technical specialists.

The center, under the cognizance

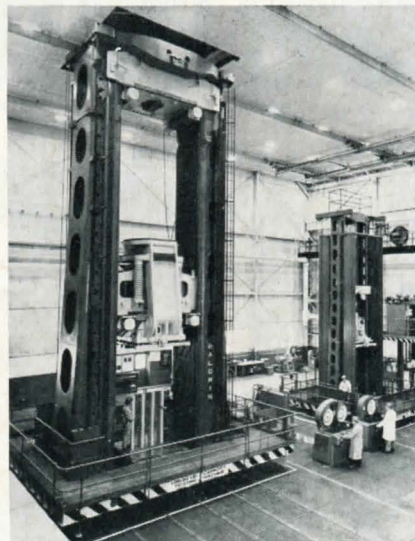
of the Chief of Naval Material, serves not only the Navy, but other agencies, such as the National Aeronautics and Space Administration and the Federal Aviation Agency. It is under the command of Captain A. H. Clancy, Jr.

Five laboratories constitute the Naval Air Engineering Center.

The Naval Air Engineering Laboratory (Ship Installations), directed by Captain A. R. Woolbridge, is the Navy's foremost facility for the development of aircraft launching and recovery devices. It provides the engineering research and maintenance technology required to develop and operate multiple systems used in air operations aboard carriers. One of the most recent developments is the Mark 7 Mod 3, an arresting engine capable of absorbing 48 million foot-pounds of energy.

To NAEL (SI) goes the credit for the powerful hydraulic catapults used in WW II and Korea. The laboratory later perfected the slotted cylinder steam catapult. The current C13 model is capable of providing 72,000,000 foot-pounds of energy.

The work done in the area of Visual Landing Aids has produced the Fresnel Lens Optical Landing System, which gives the pilot a



THE AERONAUTICAL Structures Lab uses this huge 5,000,000-pound universal tester.

visual indication of his proper glide slope, and several other systems, for example, PLAT (Pilot Landing Aid Television).

But NAEL (SI) has not been restricted to carrier operations. It developed the *Polaris* missile air eject system which made possible an air-pressured underwater missile launch. Also developed for the *Polaris* program was a system which provided safe mid-air arrestment for the *Polaris* test missiles.

Other programs extend the Navy's capabilities. *Morest* recovery gear provides mechanical arrestment for carrier aircraft on shortened landing strips. SATS (short airfield for tactical support) is a portable airfield made of lightweight components that can be

maintaining the high degree of reliability of naval aircraft powerplants (see NANews, March 1964, pp. 6-11). With the shift from reciprocating engines to gas turbines, AEL has modified its facilities and programming. Today turboprop/turboshaft engines and their associated projects make up 95 per cent of AEL's workload.

The laboratory conducts military qualification tests on engines, evaluates accessories, such as starters, fuel controls, fuel valves and auxiliary power units, and is responsible for the qualification of all the Navy's lubricating oils.

In the laboratory's test cells, engines are run under simulated altitude conditions. Environmental air can be delivered to the test cells

NANews, April 1966, p. 38) is being procured for the Fleet. Used in conjunction with the AEL-developed solid contaminated fuel detector, it will ensure the delivery of clean jet fuel to aircraft.

The Aeronautical Materials Laboratory (AML), directed by Commander Robert L. Abbott, is concerned with developing, testing and evaluating materials. Established 30 years ago as a quality control laboratory at the old Naval Aircraft Factory, AML has moved forward with the rapid advances in materials research. Metals and alloys, non-metallic materials, materials for personnel protection, specialty processes, mechanical components and hydraulic systems are



IN OCTOBER 1918, the Naval Aircraft Factory, forerunner of NAEC, was building planes for the Navy. Shown is H-16 flying boat.



FAMED 'YELLOW PERIL', designated the N3N-1 landplane trainer, built during the 1930's, was also product of Naval Aircraft Factory.

moved onto a flat terrain anywhere in the world to provide air support for amphibious Marine forces.

NAEL (SI) engineers develop missile-handling techniques, plot ship space arrangement and determine weapon-ship compatibility for air-launched and ship-launched weapons. Special shops provide prototypes for engineering studies and manufacturing for certain Fleet requirements. Technicians are available to instruct Fleet personnel in the operation and maintenance of NAEL (SI) equipment.

The Aeronautical Engine Laboratory (AEL), the oldest of the five laboratories at the center, was established in 1915. Today it is headed by Commander Joseph R. Hawvermale.

During a half century of service, AEL has been instrumental in

at temperatures ranging from -65° to 160° F. and at pressures corresponding to altitudes from sea level to 45,000 feet. Other environmental tests are conducted to analyze effect of icing, rain, water ingestion, sand, dust on performance.

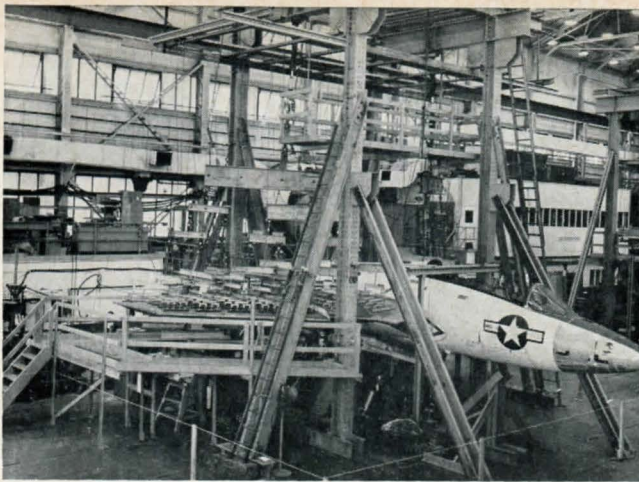
The laboratory has made performance evaluations on all the Navy's turboshaft engines: T-50 for the DASH helicopter, T-56 for the P-3 and E-2A aircraft, T-58 for the H-2 and H-3 helicopters, T-64 for the CH-53, and T-76 for the OV-10A.

AEL research has yielded a specification for new engine oils, MIL-L-23699, which provides superior thermal and gear-loading characteristics. It has also developed recently an instrument that will detect water in jet fuel in concentrations as low as three parts of water in 1,000,000 parts of fuel. This free water detector (reported in

the business of AML. The laboratory investigates the effects of environmental factors, such as extreme temperatures, vibration and radiation, upon aircraft materials and mechanical components.

At AML's facilities, engineers develop materials, carry out research and, on a limited basis, produce the material or item. One fully equipped laboratory formulates, prepares and tests organic protective coatings. Another laboratory is devoted to the development and test of aircraft greases and new dry-film lubricants for extreme ranges. A complete rubber and plastics compounding laboratory has been augmented by an experimental fabric-coating machine in order to develop materials for such items as suits for aviators and astronauts and other survival gear.

Among AML's many accomplish-



TF-9J UNDERGOES fatigue test at Aeronautical Structures Laboratory to see if service life can be extended from 4,000 to 6,000 hrs.



WORLD WAR II spelled tremendous production build-up as this PBN assembly line at Naval Air Material Center (now NAEC) shows.

ments are the development of camouflage paint which defies infrared detection; a melt-resistant fabric for anti-G suits; a sprayable coating to impart weather and waterproofing to fiberboard and wooden boxes; moisture-proof, transparent anti-static envelopes for the protection of *Talos*, *Tartar* and *Terrier* missiles; detectors for leakage of missile propellants; high visibility aircraft coatings; an easily removable camouflage finish for helicopters; a bonded dry film lubricant for a temperature range of 450° to 1,200° F. in the presence of liquid oxygen and gamma radiation; welding procedures for refractory alloys and new structural alloys of aluminum, titanium and ultra high strength steel.

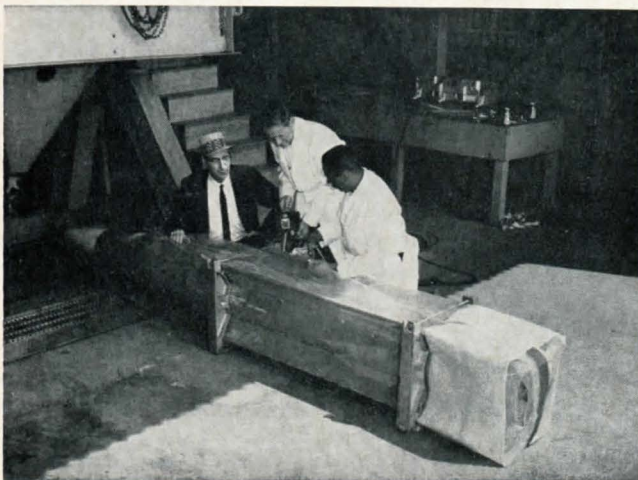
The Aeronautical Structures Laboratory (ASL), under the direction of Commander William D. Harkins, is the laboratory responsible for the structural reliability of the Navy's aircraft and missiles. The many problems still facing Navy aeronautical structure engineers include fatigue, corrosion and hostile thermal and acoustic environments.

The effort of the laboratory is focussed on problems in three primary areas, and these are often interdependent. The areas are:

1. Structures Research and Development involves new materials, such as fiber-glass-plastic, fatigue properties of certain specimens, including effects of loading sequence, corrosive environments and fasten-

ing methods. Engineers in this area also test current Fleet aircraft. The group's 8,000,000-watt high temperature facility has tested Navy missiles under programmed temperature and load.

2. Environments Research is primarily a field program carried on in the Fleet in actual operations to determine the operating environments for which structures must be designed. Environments Research is responsible for flight-load recorders installed in some operational aircraft, counting accelerometers (G counters) in over 2,000 aircraft and high-speed 70mm film surveys of landings at sea. Recently, ASL teams were assigned to two Seventh Fleet carriers in the Vietnam area to obtain flight load data



MOISTURE-PROOF, transparent, anti-static envelope for *Talos*, *Tartar* and *Terrier* missiles, was developed at Aeronautical Materials Lab.



NAEL (SI) is responsible for developing launching and arresting gear. Above, an A-6 Intruder is launched by a waist steam catapult.

recorded in airplanes engaged in attack missions.

3. Weapons Systems engineers deal with specific models of aircraft, supporting the Naval Air Systems Command with regard to airframe structural details from conception through production and Fleet use. This group also assists in developing the basic structures specifications for Navy aircraft.

ASL is currently conducting a fatigue test program to determine if the service life of the TF-9J can be safely extended from the present 4,000 hours to 6,000 hours.

ASL has been conducting fatigue tests on component parts of NASA's human centrifuge being built for installation at the Manned Spacecraft Center in Houston. The centrifuge, with a 30-G maximum capability, is to be used to train astronauts in the *Apollo* moonshot.

One of the special facilities of ASL is the mammoth 5,000,000-pound universal test machine which can accommodate structures up to 50 feet in length. It is capable of applying either tensile or compressive loads. ASL recently tested F-111B wing-pivot lugs for the wing-sweep mechanism of the Mach 2.5 aircraft to a high percentage of the machine's capacity.

The Aerospace Crew Equipment Laboratory (ACEL), directed by Captain Henry G. Wagner, MC, is under the technical direction of the Naval Air Systems Command. In aviation medical research, the laboratory is under the direction of the Bureau of Medicine and Surgery.

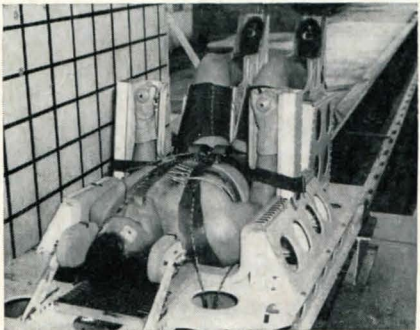
The laboratory was established in 1942 simply as a group within the Aeronautical Materials Laboratory. It was concerned at first chiefly with oxygen equipment and flight clothing. But its mission today takes into account the many human engineering aspects of space as well as atmospheric flight. Three divisions are at work:

1. Life Support Systems: Oxygen equipment, full pressure suits, flotation devices, life rafts, etc.

2. Escape and Crash Safety Systems: Ejection seats, restraint devices, impact energy absorption systems, protection against aerody-



FULL PRESSURE suit is tested for mobility at Aerospace Crew Equipment Laboratory.



ALSO IN ACEL, a live subject is placed in a horizontal linear accelerator test sled.



ACEL TESTS experimental rocket escape system by firing it from jet-propelled sled.

dynamic loadings and techniques for escape from submerged aircraft.

3. Fleet Readiness: Engineering cognizance of in-service items of aircrew personal equipment.

The Life Sciences Research Group is studying the biological and human engineering factors of the aircrewman's integration into the weapons system. Team studies are conducted in the fields of res-

piratory and cardiovascular physiology, thermal stress, psychological factors, biophysics and human engineering, all in relation to man's response and adaptation to the aerospace flight environment.

ACEL's facilities include a number of high altitude simulation chambers, some configured to provide precise environmental temperatures as well as barometric pressure control and explosive decompression; ejection seat test-firing tower; a drop tower which simulates crash impact G's, a sled and track complex for testing acceleration restraint and crash impact, an underwater test facility to study aircrew escape from submerged aircraft; a liquid oxygen processing facility, acoustic and electrostatically shielded chambers.

In addition to the development of the Project *Mercury* astronaut's full pressure suit, ACEL pioneered the Navy's first ejection seat.

ACEL recently completed an evaluation program for selection of a zero altitude-zero air speed rocket-assisted ejection seat for the F-4B, F-8 and A-6A aircraft. It has also done significant work in the development of protective absorption systems against high impact loadings; anti-exposure suits; lightweight liquid oxygen regulators and processing systems; protective helmets, etc. ACEL participated in an FAA program to discover the effects of a controlled survivable crash of a DC-7 aircraft. Other accomplishments include the development of a one-man life raft with low temperature protection and improved sea stability.

Although the designation, "Naval Air Engineering Center," was first used in 1963, the foundation for the emergence and growth of its components was laid when Secretary Daniels authorized the Naval Aircraft Factory 49 years ago. Today NAEC is deeply involved in accomplishing its mission, imbued with the spirit of its beginnings and ready to carry on the fine record of research and development inherited from the original Naval Aircraft Factory and Naval Air Materials Center. It remains dedicated to the service of the Fleet.

SATELLITES USED TO CHART THE EARTH



NEW DEVELOPMENTS in the system keep electrical engineers Richard Heimann, Joseph Podorsek and LCDR. Donald Miller busy with blueprints and plans for new equipment.



DATA received from four tracking stations are recorded on tape and fed into computer.

THE EARTH is not a globe. It is, in fact, shaped like a pear. This long-held theory has been definitely proved by use of the Navy's Navigational Satellite System (NNSS). In ascertaining the gravitational mass of the earth to be offset from the geographical center of the globe, NNSS added another use to its expanding list.

Located at the Navy Astronautics Group (NAG) with headquarters at Point Mugu, the unit is under the direction of Captain L. A. Kurtz, Commanding Officer of NAG. Complex computer equipment accepts information fed in

from the navigational satellites, digests it, and sends programmed messages back to the satellites, which in turn relay them to ships and stations around the world.

Precise fixes obtained from the system are opening new doors to charting the earth and the ocean's floor. Once ships' positions are precisely established, the Navy can accurately plot the bottom of the ocean.

From satellite observation, scientists can develop a more accurate concept of the "astronomical unit," which is the distance from the earth to the sun. Once this is firmly es-

tablished, man will be able to measure accurately the distance to other planets and possibly redefine our picture of the solar system.

Additionally, new techniques in time measurement will make it possible to use satellites to synchronize time universally.

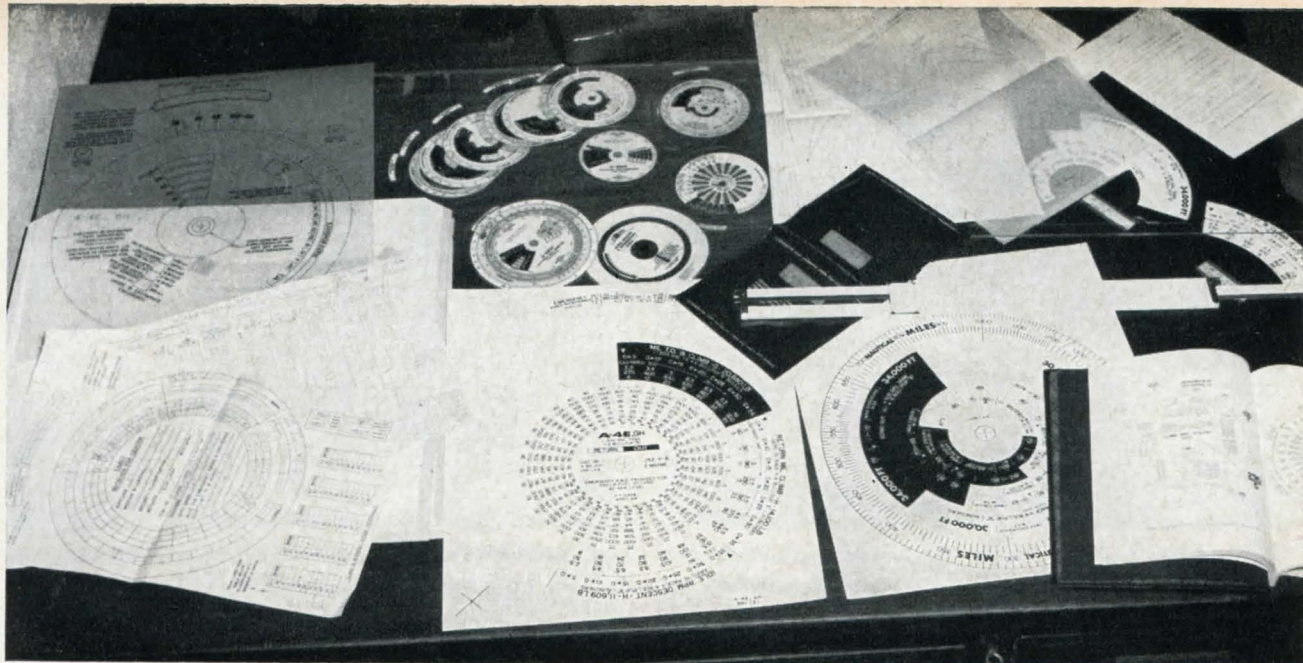
Each satellite is updated twice daily. Reports on the satellite's behavior are beamed to Point Mugu from tracking stations in Maine, Minnesota and Hawaii, along with those received from Mugu's own Laguna Peak installation. With these data, NAG can predict where each satellite will be at all times.



GIANT ANTENNAS atop Laguna Peak are trademarks of the Navy Astronautics Group. They track and relay information to satellites.



MAGNETIC TAPE fed into computers is used to correct and improve orbital information. Computers then predict satellite's position.



U-REST COMPUTER, SHOWN IN VARIOUS STAGES OF DEVELOPMENT, IS PRODUCED AT NATC, PATUXENT RIVER

A U-REST COMPUTER FOR EACH AIRPLANE

ONE PRODUCT every Navy turbo-prop and jet pilot uses during his career is the Universal REST (U-REST) Computer. Whether he flies an F-4, a P-3 or a T-1, he will have occasion to use one. These computers are produced exclusively by the Flying Qualities and Performance Branch, Flight Test Division, Naval Air Test Center, Patuxent River, Md.

U-REST Computers are take-apart, three-disc, hand-held devices which are used to compute airplane range, endurance, speed and time (REST) for level flight. These are on the front face. On the back face, tabulated climb, descent, emergency range and endurance data appear. The top and bottom discs, which form the housing of the computer, are universal in application. The interchangeable middle or insert discs are issued for each airplane and airplane loading. By inserting the appropriate disc, a computer is made applicable for a specific loading.

The Test Center obtains the data by making test flights in instrumented test planes. Where com-

By *Claude C. Parkinson, Jr. and
Lt. Richard Birtwistle III*

plete flight test results are not available, data are obtained from the Fleet and the manufacturer.

The flight tests must be carried out precisely. Each data point is obtained by flying the airplane to an exact altitude (± 20 feet), an exact airspeed (± 1 KIAS), at a stabilized power setting (no variations) and an exact fuel weight (± 10 pounds).

To enable the pilot to obtain this precision, flight test airplanes are instrumented with sensitive airspeed indicators (readable to $\frac{1}{2}$ KIAS), calibrated altimeters, and special fuel-use counters (readable to .1 of a gallon). The test pilot records these data by means of a photopanel containing a duplicate set of these instruments plus the engine RPM, a sensitive fuel flow meter, and a differential pressure gauge.

The number of test flights required is increasing because of the larger number of armament combinations available for present-day

aircraft. For example, to cover 18 external loading combinations for the F-4 airplane, 175 flights were flown to obtain 3,500 level-flight data points.

The A-7A airplane will have over 100 possible armament loading combinations requiring tests.

An NATC U-REST Computer Bulletin is published and distributed annually to keep every operational unit using turbojets and turboprops up to date on computer procedures, Fleet requirements, available insert discs, etc. An enclosure to the bulletin lists all current U-REST Computer components available for order by item, airplane, loading and classification. Requests and comments should be sent to Commander, Naval Air Test Center (FT2125), Patuxent River, Md., 20670.

At annual conferences held at Patuxent with representatives of the Naval Air Systems Command, NATC, VX-5 and the Fleet, each model airplane is considered. Data are exchanged and a priority of the external loadings or flight conditions needed by the Fleet is set.

FLEET AIR WINGS ON PATROL



CLOSER LOOK: An SP-2H Neptune flies low over junks during surveillance patrol with Operation Market Time off coast of S. Vietnam.



J. K. KOZLOWSKI, PR2, an ordnanceman for VP-49's crew one, tends ill child during emergency flight from Adak to Elmendorf AFB.

IN ANSWER to a recent claim by VP-46, VP-42 sends a request for equal time. It seems that VP-42's crew 2 was also on an Alpha requalification brought about by personnel changes and they also claim a record for a single mission.

Operating from Naha, Okinawa, the crew found near perfect weather conditions and sea state while satisfactorily qualifying in the following areas: (1) basic and (2) advanced echo ranging; (3) progressing from an "unident" to a submarine identification to kill, utilizing all ASW sensors; (4) ECM qualification; (5) radar qualification against a "snort;" (6) a MAD tracking exercise converted to a kill; (7) the use of active sonobuoys to a kill; (8) searchlight qualification and (9) a photopod exercise.

The crew was led by Commander H. L. Beesley and Ltjg. Roger H. Ingwersen, Tactical Coordinator.

* * *

VP-24, headed by Commander F. C. Kolda, recently logged its 60,000th accident-free hour. This record dates to June 1959.

* * *

Patrol Squadron 49, while on deployment to NS ADAK, Alaska, was called on to provide emergency transportation to Elmendorf Air Force Base near Anchorage for a critically ill child.

On short notice, the alert crew launched without delay and flew the child to Elmendorf where immediate attention was given. The rapid response to the emergency is credited with possibly saving the child's life.

* * *

This spring VP-21 deployed to Kindley Air Force Base, Bermuda, and joined with units of the United States, Canada, Great Britain and the Netherlands to take part in Operation *Land Lubber*, a multinational ASW exercise.

The squadron, which claims the Atlantic Fleet patrol squadron record of nine years and 81,000 hours of accident-free flight time, added 1,060 hours to the total during the 18 day period.

Patrol Squadron 21 is a unit of Fleet Air Wing Three at Brunswick, Maine, and is under the command of Cdr. I. W. Orrill.

* * *



SEAPLANE ALLEY is reminiscent of WW II as seaplanes await service from the AV-13.

When VP-1 last deployed to Iwakuni, squadron members decided to "adopt" the orphanage at Tsuda City near Hiroshima. After their return there in February, squadron personnel picked up where they had left off ten months before.

In a short time, they completed clearing an area for the foundation of a 21x30-foot recreation building, built a backstop for the children's baseball field, enclosed a stairwell with plywood, installed protective screening on windows facing the ball field and delivered several boxes of clothing to the orphanage.

The donated clothing is the result of a continuing drive by the squadron's enlisted wives club.

* * *

The seaplane tender USS *Salisbury Sound* (AV-13) steamed into Cam Ranh Bay at 0800 one morning. Before noon, she had set up operations and launched her first aircraft.

While flying round-the-clock for 24 days, crews from Patrol Squadrons 40, 48 and 50 alternated their time in the air, on watch on the plane while it was moored, and aboard the *Salisbury Sound* for a cool shower and briefings.

During her Cam Ranh Bay tour, the *Sally* pumped more than 200,000 gallons of aviation gas, hoisted

airplanes, changed two engines and provided logistic support for airplanes that logged over 700 hours on patrol.

* * *

Two VP-22 men have been selected for the Navy Enlisted Scientific Education Program (NESEP). W. G. Carlson, ATN2, and R. B. Evans, Jr., AX2, are attending a nine-week preparatory school in San Diego this summer and will enter college in the fall.

Carlson, a former radio operator on Crew 9, will attend the University of Colorado to study electrical engineering. Evans, a former *Jezebel* operator on Crew 4, will attend the Massachusetts Institute of Technology to study physics.

* * *

Patrol Squadron Seven, while deployed to Sigonella in May, logged its 20,000th accident-free flight hour. Lt. Frank Gerwe was the plane commander on the flight that set the mark. The squadron is led by Commander W. D. Toole, Jr.

* * *

"I shall never forget you." With these words of farewell to the officers and men of Patrol Squadron 11, Commander J. E. Klaus ended his tour as their Commanding Officer. He was relieved by Commander R. F. Falkenstein. Commander Klaus will report to the *Princeton* (LPH-5) as Navigator.

The change-of-command ceremonies took place at NS ROTA, Spain. Honored guests included Captain J. C. Young, Commander Naval Activities, Spain, and Captain J. C. Fox who represented ComFAir, Mediterranean.

* * *

Stanley B. Grindle, AXC, was recognized at a recent personnel inspection at VP-10 by Commander L. R. Roberts, C. O., and Ernest L. Corbeil, Lockheed Aircraft, for flying more than 10,000 flight hours in the SP-2 *Neptune*.

In amassing his flight time, Chief Grindle has served with five SP-2 patrol squadrons and two Fleet Air Development Units in his 24 years of Navy service.

He was awarded a model of the SP-2 *Neptune* in recognition of his more than 400 days of flight time.



LT. PORTER BROADCASTS daily throughout the nation to connect Hawaii with the "Eye Bank Net." His efforts provide new hope for many blind people on the islands.

VP-22 MAN TALKS SO OTHERS SEE

NAVYMEN HAVE always contributed to the communities in which they live but it is rare that the volunteer services of one man can touch the lives of the people of an entire state.

Lt. Richard T. Porter, a Tactical Coordinator from VP-22 at Barber's Point, is such a man. His participation in a nationwide amateur radio "Eye Bank Net" connects Hawaii with the growing Mainland Eye Bank communications network. Through him, Hawaiian eye doctors are now able to receive information from mainland doctors concerning the availability of human eye tissue for corneal transplant surgery.

With his amateur radio equipment, Lt. Porter contacts mainland "hams" daily to pass and receive information on the needs and availability of the eye tissue. Before Porter arrived, this new medical technique of corneal transplant was almost impractical in Hawaii because of its location.

The amateur short wave radio operators, along with the highway patrol and the nation's airlines, have volunteered their services to arrange for and transport the precious tissue.

Porter is on the air daily at 7:00 P.M. transmitting on 3.90 mcs on the lower side band for Hawaii's

doctors. Now Hawaii's eye bank and its association of ophthalmologists have the same access to eye tissue that other states have, thanks to Lt. Porter.

Mr. Ed Harris, administrator of the Blood Bank of Hawaii, acts as Porter's contact man and informs him of Hawaii's day-to-day needs for the tissue. Porter then broadcasts this information to the other eye banks around the country. Whenever eye tissue is available, it can be brought to or flown out of Hawaii within a matter of hours.

This is necessary because, to be effective, the eye tissue must be removed from the donor within four hours after death and transplanted within 48 hours.

In Hawaii, the more than 50 Lions Clubs have formed the Hawaii Lions' Eye Foundation. Under the direction of Mr. Fred Tamura, they finance the literature and lectures about donating and receiving eye tissue.

Donating eye tissue is much like donating blood, except that it can only be done once. Therefore it is done after the donor is finished with his own eyes at life's end. From the donor, through corneal transplanting, the eye tissue goes on to a new life, restoring sight to a person who might otherwise walk in darkness.

SELECTED AIR RESERVE



REAR ADMIRAL FOWLER (L) AND COMMANDER CROCKER ATTEND FLIGHT BRIEFING BEFORE TRAINING MISSION

Operation '50-50'

Rear Admiral Richard L. Fowler, Chief of Naval Air Reserve Training, took a firsthand look at ASW training when he flew in a helicopter during a recent training exercise at NAS KEY WEST. Involved were destroyers and submarines from Key West and helicopters of HS-911, home-based at NAS SOUTH WEYMOUTH. HS-911 is commanded by Commander Walter Crocker.

The exercise was designated Operation "50-50" in honor of the 50th Anniversary of the Naval Air Reserve and their host for the exercise, CVSG-50.

Every two weeks this spring, a new squadron of Weekend Warriors reported to CVSG-50 for training.

By the time Operation "50-50" was over in May, nearly 500 Air Reservists from Illinois and Michigan in the Middle West and from New York, New Jersey and Massa-

chusetts in the East had received two weeks of ASW training.

Faster Data Processing

According to the Naval Air Reserve Training Command at NAS GLENVIEW, Ill., the command is the first naval activity to receive the new IBM 360 Model 20 computer.



AT NAS New York, Hugh R. Downs, AA, son of TV's Hugh Downs, reported to Captain John E. McQuary, station C. O., for active duty in the Naval Air Reserves. With Downs were his father and mother.

The headquarters staff will use it to process data received from Reserve Air Stations. During peak summer flying months, hourly flight data alone exceeds 30,000 cards a month.

The computer's high-speed card handler prints information at the rate of 350 lines a minute compared with 150 by the older machines. In a test run, Model 20 completed processing a daily flight report in 16 seconds, the older machine took three minutes.

With the new machine, coded cards need not be inserted or removed from several different machines to get the needed results. Less handling reduces chance for human error.

The rotation of training and administration of Reserves (ROTAR) system, used to control transfer of stationkeepers, will be one of the first projects assigned to the 360. Similar to the regular Navy's

Seavey-Shorvey system of rotating men, ROTAR uses punched cards to determine which men are eligible for transfer and to indicate their preferred duty stations.

Still 'Top Gun'

In April 1966, Donald L. Hamilton, AD1, 1965 National Pistol Champion, again won the "Top Gun" award—at the Eighth Annual Inter-Service Pistol Match held at Lackland AFB, San Antonio, Texas.

Hamilton, assigned to NARTU, NAF Andrews, set a new inter-service record when he scored 2,569-146X out of a possible 2,700 in three days of shooting. He was also a member of the Navy team which won the team championship. Among the congratulatory messages Hamilton received was one from Adm. David L. McDonald, CNO.

Ready Reserve Agreements

A new deal on Ready Reserve agreements is ahead as a result of a National Naval Reserve Policy Board recommendation that an agreement of indefinite duration be established for Reserve officers and enlisted personnel. The Secretary of the Navy has directed the Chief



HAMILTON displays form that won him "Top Gun" Inter-service Pistol Award.

of Naval Personnel to implement the recommendation of the board.

The agreement will apply to officers and enlisted personnel who have completed their statutory Ready Reserve obligations. Under the terms of the proposed agreement, once initiated it will continue unless the officer or enlisted man requests release from Ready Reserve status. The only requirement will be that he give a 12-month notice.

The indefinite agreement for enlisted personnel will be automatically cancelled upon completion of an enlistment if a request for

earlier release has not been expressed through proper channels.

The Navy can terminate the agreement if the individual's performance is unsatisfactory or the number of Reserves exceeds authorized strength.

Reserve Association Meeting

A few weeks ago an East Coast regional meeting of the Naval Reserve Association (NRA) was held at NAS Willow Grove, Pa. Arranged by Commander A. W. Tiedemann, Jr., Vice President for Naval Affairs, NRA, the meeting was co-hosted by Captain N. R. Charles, Willow Grove C. O., and Captain Robert I. Barto, National President of NRA. It was the first such meeting to be held in a number of years.

Ranking Naval personnel attending included Rear Admiral Russell Kefauver, Assistant Chief of Naval Operations for Naval Reserve; Rear Admiral D. C. Lyndon, Commander, Naval Reserve Training Command; and Rear Admiral E. A. Parker, Deputy CNAResTra.

On the agenda were Reserve legislation, aircraft and air problems, the Merchant Marine and oceanography. NRA has kits of instructional material on oceanography available for distribution to schools requesting them to be sent.



IT WAS QUITE A PROMOTION DAY AT NARTU NORFOLK WHEN 19 MEN RECEIVED ADVANCEMENT IN THEIR RATE

AT SEA WITH THE CARRIERS



CIMARRON unreeps *Hornet* and the destroyer *Nicholas* during operations in the South China Sea. *CVS* has returned from deployment.



ANOTHER carrier back from the waters off Vietnam is *Ticonderoga*. *CVA* returned to San Diego after second trip to the combat zone.

PACIFIC FLEET

KITTY HAWK (CVA-63)

Kitty Hawk aircraft, on a strike over North Vietnam, cut the heavily defended Hai Duong rail and highway bridge that connected North Vietnam's capital city, Hanoi, with Haiphong.

Flying through intense anti-aircraft and automatic weapons fire, *A-6 Intruders* and *F-4 Phantoms* dropped thousands of pounds of bombs on the target to destroy two of the bridge's five 258-foot spans and dump them in the center channel of the Song Thai Binh River.

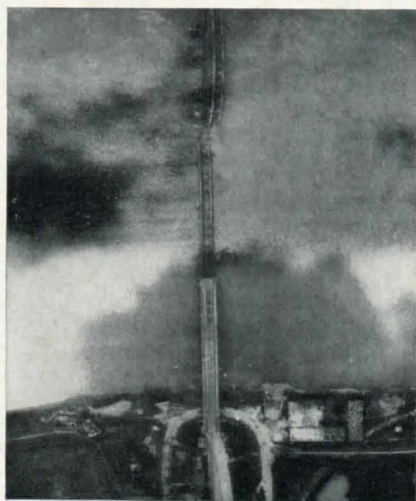
Long considered a major transportation artery, the bridge was protected by the poor weather that hampered earlier attacks against it. The success of the *Kitty Hawk* aircraft strike, however, cut off river, rail and road traffic.

Comedian Danny Kaye and singer Vikki Carr were flown aboard *Kitty Hawk* to perform for the crew while the ship operated off Vietnam. Kaye and Miss Carr joined the growing group of enter-

tainment personalities taking the time to raise the morale of American fighting men through personal appearances in and near Vietnam.

Kaye's only worry about coming aboard *Kitty Hawk*, it seems, was the arrested landing his aircraft made. "It was more like a controlled crash," he said.

Commander Murray C. Cook,



KITTY HAWK aircraft wrecked two spans of a bridge between Hanoi and Haiphong.

C. O. of VA-115 aboard *Kitty Hawk*, has been selected to receive the Navy League's 1966 John Paul Jones Award for "inspirational leadership." The award was to be presented to Commander Cook during the Navy League's national convention in Santa Monica, Calif.

Commander Cook did not win the coveted award through official channels. His name was put in the running for the honor by the officers and enlisted men of his squadron without his knowledge. A letter they sent to the Navy League read in part: "You can select a more famous candidate for your leadership award. Your choice can be a more popular one. . . .

"But you cannot select a better leader than Commander M. C. Cook. Nowhere will you find a man in whom is vested more complete confidence and utter admiration of his men. You could not honor a more deserving officer."

An RVAH-13 *RA-5C Vigilante*, piloted by LCdr. Raymond C. Ve-horn, made *Kitty Hawk's* 50,000th arrested landing. Ltjg. John H. Hurlburt was RIO for the flight.

TICONDEROGA (CVA-14)

An eight-month deployment—the ship's second to the waters off Vietnam—ended when *Ticonderoga* returned to home port, San Diego, after aircraft of embarked CVW-4 flew 10,118 combat sorties in both North and South Vietnam.

Toward the end of the cruise, the 83,000th arrested landing was made aboard *Tico* by Ltjg. R. G. Lyon in a VF-53 F-8 *Crusader*.

ENTERPRISE (CVAN-65)

"Flights of A-1 *Skyriders*, A-6 *Intruders*, F-4 *Phantoms* and A-4 *Skyhawks* from the carriers USS *Enterprise* and *Kitty Hawk* hit a suspected communications structure and tower, railroad cars and warehouses, a railroad bridge, the Phuong Dien storage area and a boat facility. . . .

"Navy pilots from the Seventh Fleet attack carriers USS *Kitty Hawk* and USS *Enterprise* flew 44 strike missions against North Vietnamese targets. . . .

"In-country, Navy pilots from the Seventh Fleet attack carrier USS *Enterprise* flew 133 strike sorties against Viet Cong targets in the Republic yesterday. . . ."

As the daily summary reports from the Seventh Fleet detachment's public affairs office in Saigon indicate, *Enterprise* continued to be in the thick of the conflict.



RANGER is replenished from the air by a *Sea Knight* helo from stores ship USS *Mars*.

CVAN-65 crew members were able to take time out from flight operations, however, to welcome aboard Danny Kaye and Vikki Carr, who made *Enterprise* another at-sea stop in their tour of the Vietnam area.

A CVAN-65 news release didn't say why, but Kaye evidently had the opportunity to play barber during his stay in *Enterprise*. During a special program over the ship's closed-circuit TV system, Kaye, the release announced matter-of-factly, "traded quips with As-

sistant Navigator (LCdr.) Leonard P. Kawalkowski while he shaved off the popular officer's beard."

Washington, D.C., visitors boarded *Enterprise* at sea when five members of the House of Representatives flew out to the carrier for an overnight stay.

Members of a special subcommittee of the House Armed Services Committee, the congressmen were visiting U.S. armed forces in Vietnam. They included Samuel S. Stratton (N.Y.), Robert L. Leggett (Calif.), Floyd V. Hicks (Wash.), Charles E. Chamberlain (Mich.) and R. T. Stafford (Vt.).

BENNINGTON (CVS-20)

Danny J. Jackson, AG1, *Bennington's* first "Man of the Month," was honored by his C.O. during a ceremony before ship's company. Jackson received a \$25 savings bond, a letter of commendation and personal congratulations from Captain Wiley B. Howell. He is also eligible for "Man of the Year."

CONSTELLATION (CVA-64)

Rear Admiral Ralph W. Cousins, ComCarDiv Nine, was presented the Distinguished Service Medal by Vice Admiral Thomas F. Connolly, ComNavAirPac, during a ceremony aboard *Constellation* while the ship was at NAS NORTH ISLAND.

The medal was awarded "for ex-



TEAMWORK is evident as Danny Kaye and Vikki Carr sing together during a show aboard *Enterprise*. Pair also visited *Kitty Hawk*.



SACRAMENTO'S 10,000th ton of ammo transferred in five months of WestPac operations came in the form of 2,000-lb. bomb to *Tico*.

ceptionally meritorious service" while Admiral Cousins was commander of Task Groups 77.3 and 77.5. The citation that accompanied the medal, signed by the Secretary of the Navy Paul H. Nitze, read in part: "Under Rear Admiral Cousins' direction, carrier strike groups destroyed over 140 highway and railroad bridges, 300 trucks, 55 watercraft, and numerous barracks, supply dumps and logistic installations in North Vietnam. . . ."

"During the height of the [enemy] surface-to-air missile threat, Rear Admiral Cousins developed anti-Sam tactics and directed the first successful strike against an enemy missile [unit]."

HANCOCK (CVA-19)

CVW-21 aircraft, embarked aboard *Hancock*, provided close air support and helicopter escort for American Marines engaged in Operation *Jackstay*, an amphibious assault designed to clear the Viet Cong from the Rung Sat Special Zone southeast of Saigon. The aircraft were controlled and directed by the Tactical Air Control Center aboard the USS *Princeton*.

KEARSARGE (CVS-33)

Captain Willard L. Nyburg is *Kay's* new skipper. He relieved Captain Merle M. Hershey during a ceremony held while the CVS was in Long Beach. Captain Nyburg's former command was the oiler USS *Haleakala*; Captain Hershey has been assigned to ComNav-AirLant's staff.

ORISKANY (CVA-34)

Vice Admiral Lawson P. Ramage, ComFirstFleet, boarded *Oriskany* during Operation *Gray Ghost*, an extensive First Fleet exercise off the Southern California coast. He was met by Rear Admiral Ralph Cousins, then in *Oriskany* as ComCarDiv Nine, and Captain John H. Iarrobino, CVA-34's skipper.

LCdr. Leon Edney, VA-164, made *Oriskany's* 106,000th arrested landing during *Gray Ghost*.

PRINCETON (LPH-5)

Captain William McKinney relieved Captain John Westervelt as commander of the Seventh Fleet's Amphibious Ready Group during an informal ceremony aboard *Princeton*. The LPH is ready group flagship.

Andrew S. Fleming, QM3, has been selected *Princeton's* "Man of the Month." He was named on the basis of attitude, performance of duty, conduct and appearance.

RANGER (CVA-61)

Ranger crewmen joined in donating 1,448 pints of blood for use by fighting forces in Vietnam. The donations were made while CVA-61 was in Yokosuka, Japan, for a rest and recreation period that lasted ten days. Then the big carrier got underway again for the South China Sea.

With the carrier back on the line, *Ranger* pilots and those from *Hancock* hit designated targets in the North Vietnamese city of Vinh. A *Ranger* report said the combined attack against a storage facility for oil, petroleum and lubricant came just over a year after *Ranger* and *Hancock* aircraft joined forces for the first two-carrier operations against Vinh.

In February 1965, planes from the two carriers destroyed the Vinh radar complex and an army barracks. The second attack was reportedly considered even more successful. Besides the storage plant, a storage area in the outskirts of the city was destroyed, an anti-aircraft battery was silenced and seven railroad cars were demolished.

VALLEY FORGE (LPH-8)

Valley Forge returned to home port, Long Beach, from a deployment to WestPac that lasted more than seven months. The LPH's duties as flagship for CTG 76.5 included participation in several combat operations, including *Blue Marlin*, *Dagger Thrust*, *Harvest Moon* and *Double Eagle* — the largest amphibious landing, a report said, since Inchon.

During the nearly five months *Valley Forge* was an Amphibious Ready Group LPH, more than two months were spent in combat operations, 8,578 combat sorties were flown and more than 17,500 troops were flown from the ship.

YORKTOWN (CVS-10)

Captain William M. McCulley, formerly skipper of the attack cargo ship USS *Skagit*, became *Yorktown's* C.O. during a change-of-command ceremony while the ship was in Sasebo, Japan. He relieved Captain James B. Cain, who was under orders to report as chief of staff to ComCarDiv Three.

ATLANTIC FLEET

AMERICA (CVA-66)

Vice Admiral C. T. Booth, ComNavAirLant, was a guest aboard *America* for a day while the new CVA was bound from Beirut, Lebanon, to Valletta, Malta. He and his party were welcomed aboard by Rear Admiral James O. Cobb, ComCarDiv Two.

Eight Air Force broadcasters from the Armed Forces Radio Service in Athens, Greece, boarded *America* while the ship was in Falirikon Bay to tape-record a remote show for use over AFRS Athens next day.

SARATOGA (CVA-60)

Two VA-46 pilots have been decorated for heroism and extraordinary achievement in combat over North Vietnam. Lts. Thomas J. McClard and James B. Abbitt were awarded Distinguished Flying Crosses in a presentation ceremony aboard *Saratoga* while the carrier was anchored off Valletta, Malta.

The lieutenants were cited for their participation in a highly successful attack against a surface-to-air missile site 50 miles southeast of Hanoi. At that time, they were attached to VA-164 embarked in *Oriskany*.



F-4 PHANTOMS from *Forrester* overfly the carrier during her Mediterranean operations.

Sara's tenth "birthday" was celebrated by members of her crew while the ship was 4,000 miles from home port, Mayport, Fla. The historic island of Malta was a backdrop for the ceremony.

SHANGRI LA (CVA-38)

Medal presentations and preparations to leave the Philadelphia Naval Shipyard were the big stories aboard *Shangri La*.

David C. Swenson, SN, was presented the Navy and Marine Corps Medal by Rear Admiral G. P. Koch, ComCarDiv Six, during a ceremony aboard the carrier. The award honored Swenson's attempt to save a shipmate from an oxygen-starved space in the ship.

At the same ceremony, James H. Kendall, RD2, received the Navy Commendation Medal from Admiral Koch for rescuing a man who fell from a pier in Naples.

More than 500 Philadelphians were the guests of Captain August W. Elliott, *Shang's* C.O., during a reception held in honor of their city and its council as the carrier's crew prepared to take their ship out of the yards.

During the affair, Paul D'Ortona, president of the city council, read a resolution commending Captain Elliott and *Shang's* officers and enlisted men for their attitude and interest in community affairs during their six-month stay.



COMNAVAIRLANT, Vice Admiral C. T. Booth, is welcomed aboard *America* by Rear Admiral James O. Cobb (L), ComCarDiv Two. Admiral Booth boarded deployed CVA at sea.

The carrier was scheduled to leave the shipyard for sea trials, then return to Mayport.

LEXINGTON (CVS-16)

Lexington crewmen have laid claim to the record for the most carrier arrested landings.

Reporting their ship was the first to log 152,000 arrestments, they celebrated the event with a ceremony and a ship's party which was hosted by Captain G. A. Snyder, the training carrier's C. O. Guests included Vice Admiral A. S. Heyward, Jr., CNATra; Rear Admiral J. J. Lynch, CNABaTra; Ltjg. Mark D. Jarrett, an advanced student pilot assigned to VT-31 who made the 152,000th landing; and VT-31's C.O., Commander C. H. Sell.

Ltjg. Jarrett, flying a TS-2A *Tracker*, made the landing shortly before *Lexington* completed a week of carquals for advanced students from Corpus Christi. A VT-31 instructor, Lt. C. E. Collem, was copilot on the flight.

Lexington reported the arrested landing record was actually broken when Ltjg. W. I. Harris made No. 151,085 in a T-2A *Buckeye*. His landing caused the VT-28 student pilot to pass the record reportedly held by *Coral Sea*.

Home-ported at NAS PENSACOLA, *Lexington* is assigned to the Air Training Command. Her primary

mission is conducting carquals for basic and advanced student aviators of the Navy and Marine Corps. Additionally, the ship provides carrier services for refresher training of Fleet squadron pilots. *Lex* has held this job since 1962.

Those who contributed to *Lex's* record claim by making the ship's last three X000th landings were:

Naval Aviation Cadet Robert K. Doane, VT-5, NAAS SAUFLEY FIELD, 151,000th, in a T-28 *Trojan*.

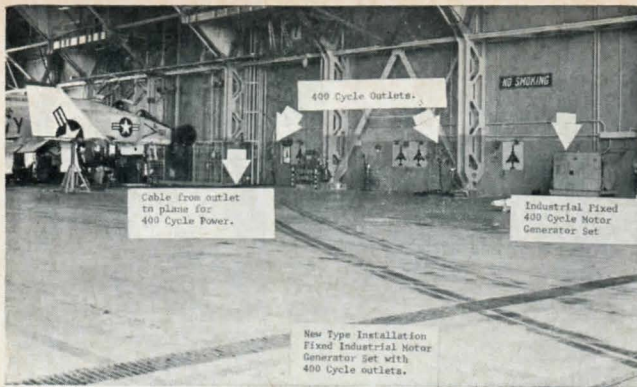
LCdr. W. E. Ramsey, VA-44, 150,000th, in an A-4E *Skyhawk*. LCdr. Ramsey's father is Vice Admiral Paul H. Ramsey, DCNO (Air).

Lt. Carleton E. King, Jr., VS-39, 149,000th in an S-2F *Tracker*. Lt. King's father is a Congressman.

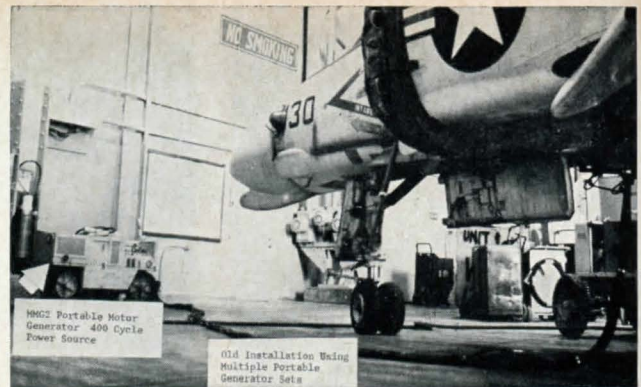
Later, Ens. Richard Wendelken, VT-5, helped *Lex* pull away from the competition by making arrestment No. 153,000 in a T-28 *Trojan*.

FORRESTAL (CVA-59)

Captain Howard S. Moore was relieved as C.O. of *Forrester* by Captain John K. Beling in a ceremony aboard the carrier at the Norfolk Naval Shipyard. Captain Moore had orders to become CinC-Pac representative, Strategic Target Planning, Offutt AFB. His relief reported from ComNavAirLant's staff, where he was force training officer and an assistant chief of staff.



BY USING a fixed industrial motor generator set with 400-cycle outlets, Miramar engineers have provided more power for more planes.



THE USE of portable motor generators as a 400-cycle power source did not meet the need effectively and was far more expensive.

DESIGN FOR 400-CYCLE POWER OUTLETS

NAS MIRAMAR has developed a design to provide 400-cycle electric power for the maintenance of the complex electrical and electronic systems in new fighter aircraft. Such an engineering design was prompted by the need to provide power in quantity at multiple locations in support of hundreds of aircraft. The improvement Miramar has developed may be used by other naval air stations to solve the same pressing problem.

Each aircraft undergoing electrical/electronic checkout requires power ranging as high as 27 KVA. Owing to the number of aircraft being serviced simultaneously, power sources in hangar areas have been insufficient to meet maximum load requirements. In the past, portable MMG-2 30 KVA motor generators connected to 60-cycle outlets, provided three-phase, 400-cycle power to an aircraft.

In a few areas where multiple 400-cycle outlets were installed, four airplanes could be serviced at once with only one portable generator. In either case, total load capacity was limited to 30 KVA. A few fixed installations of older, non-synchronous motor generator units provided adequate power for F-8's, but these were an unsuitable power source for the increasing number of the more sophisticated F-4 aircraft aboard the station.

Still another problem was that it has become increasingly difficult to obtain portable units in the quantities needed. This created delays in maintenance and decreased over-

By R. E. Mannion
Engineering Director, Miramar

all readiness. To solve this critical problem, the Public Works Engineering Division at Miramar developed a design utilizing fixed industrial type, synchronous motor generator units. These supply a series of receptacles which can provide a varying amount of power and still make it possible to give high power electronic checkouts to several aircraft concurrently.

A word on the costs involved. A typical contract for installation of three 60 KVA synchronous motor generator sets with 12 outlets was let for approximately \$32,000. The cost of providing an equivalent number of checkout points and power for 12 aircraft with 12 MMG-2 portable units would be \$80,000. A feature incorporated in all the fixed units saved approximately \$1,500 per unit.

These savings were based on the theory that standard built-in environmental and electrical protective components could be simplified in fixed hangar-installed sets where weather is not a factor and power input is stabilized. Maintenance cost for a fixed system is approximately \$100 per year as compared with \$3,600 per year for 12 MMG-2 units.

In the light of the lower maintenance cost and the unavailability of portable MMG-2 units, the program to provide fixed 400-cycle power with multiple outlets in all hangars was speeded up at NAS

MIRAMAR and is now almost complete. Since the three hangars at the station provide space for approximately 87 aircraft, the total savings will be substantial.

P-3 on Mission to India Studies Desert Climatic Riddle

A U.S. Navy P-3 *Orion*, which usually hunts submarines, flew to India in April to seek an answer to a scientific riddle involving the great desert of Northern India.

A group of scientists from the University of Wisconsin turned one of Navy's Lockheed *Orions* into a flying laboratory to probe the atmosphere and determine why the Rajasthan Desert remains dry and arid when scientific calculations indicate it should not be so dry.

The scientific team left Patuxent River April 20, operated out of New Delhi April 24-27, and then returned home by way of Wake Island and Honolulu. The scientists were returned to Madison and the *Orion*, belonging to Air Development Squadron One, returned to its base, Key West, Fla.

The unusual research expedition was made under an ONR contract with the operational support provided by the Commander of the Operational Test and Evaluation Force, Norfolk. The Navy was interested because it is believed that the dust over the Indian desert is related to the mechanism involved in the Southeast Asia monsoons.



AO STUDENT, 1st Lt. Lester L. Amann, photographs artillery barrage damage inflicted on target area. UH-1E turbojet helicopters are AO's primary observation aircraft.



TO INSURE close coordination, Lt. Amann (right) briefs pilot who will fly helicopter.



PLOTTING completed, ground alerted, Lt. Amann gives command to commence firing.

MARINES' ALERT AND OUTSTANDING AO'S

By Sgt. Rene Browett, USMC

THE AERIAL OBSERVER (AO) of the Marine Corps today, equipped and trained, is one of the new breed of airborne military specialists. He is a graduate of the Marine Corps Aerial Observer School, located at MCAF NEW RIVER, N.C., commanded by Maj. L. E. Kobler. The seven-week course at the school turns out qualified aerial observers trained to assist, via voice communications, the Corps' ground forces.

For AO's, "many are called, but few are chosen." The qualifying requirements are stringent. During WW II it was determined that to be effective, an AO must first be an infantry officer, preferably a member of the unit utilizing his support, aware of his unit commander's problems.

Today, a six-month course of leadership instruction at the Marine Corps' Officers Basic School at MCAS QUANTICO, Va., and another six months commanding a Marine infantry rifle platoon are prerequi-

sites. The future AO must also pass the Navy's aviation flight physical.

Students soon learn why entrance requirements are stiff. The AO School covers a wide range of subjects. Included are aerial reconnaissance, airborne radiological monitoring, radio relay, wire-laying, camouflage penetration and aerial photography. All are required to make the AO adept at gathering information vital to the conduct of war.

Most of the course is conducted either in the classroom or in one of VMO-1's UH-1E *Huey's*. The students also spend a week at the Naval Amphibious Base, Little Creek, Va., to learn the techniques of directing artillery fire from the air. Hand-in-hand with the artillery spotting goes the responsibility for airborne close air support coordination.

With his diverse background, the

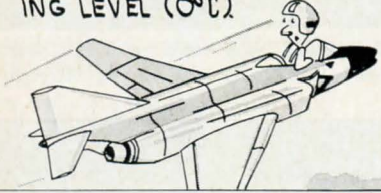
AO School graduate becomes a key member of a commander's staff—constantly on call. Unit commanders employ his close air support capability as well as his aid in troop and armor movement control, motor transport route surveillance, map correction and terrain analysis. The contribution he makes to combat effectiveness is immeasurable.

In Vietnam scores of AO's now work around the clock to supply desperately needed information to Marine units. An AO often takes off at dawn and remains airborne all day, landing only to refuel or because of darkness. As the Marine commitment in Vietnam rises, and as manpower needs continue to increase, AO's there, and the ones to be sent, will be doing an even bigger job. AO's now serve major Marine commands at Da Nang, Chu Lai and Hue Phu Bai.

AO's are an elite group. Not everyone has the ability or background to become an observer.

Warm Cloud Lightning

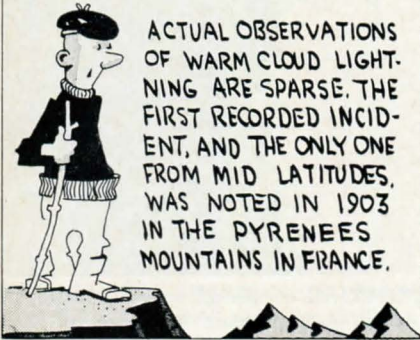
UNTIL RECENTLY IT WAS THOUGHT THAT LIGHTNING DID NOT OCCUR IN CUMULIFORM CLOUDS UNTIL THE TOPS PENETRATED THE FREEZING LEVEL (0°D).



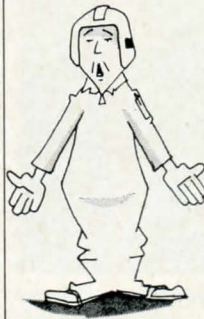
RESEARCH BEING CONDUCTED IN PANAMA INDICATES THE POSSIBILITY THAT LIGHTNING MAY OCCUR IN THUNDERCLOUDS BEFORE THE TOP OF THE CLOUD ARRIVES AT THE FREEZING LEVEL.



ACTUAL OBSERVATIONS OF WARM CLOUD LIGHTNING ARE SPARSE. THE FIRST RECORDED INCIDENT, AND THE ONLY ONE FROM MID LATITUDES, WAS NOTED IN 1903 IN THE PYRENEES MOUNTAINS IN FRANCE.



ALTHOUGH WARM CLOUD LIGHTNING IS RARELY WITNESSED, IT WAS OBSERVED TWICE IN 1958. ONE OF THE OBSERVATIONS WAS MADE AT KEY WEST, WHILE THE OTHER WAS NOTED AT BERMUDA.



IN MAY 1963, A WARM CLOUD THUNDERSTORM WAS DETECTED OVER PT. ARMUELLES, IN SOUTHWESTERN PANAMA. THIS ONE STORM WAS WELL DOCUMENTED, HAVING BEEN TRACKED DURING ITS LIFE CYCLE BY X-BAND RADAR (3.2cm.), AS WELL AS BY SURFACE AND UPPER AIR OBSERVATIONS.



THE CONTROVERSY OVER THE WARM CLOUD THUNDERSTORM WILL PROBABLY CONTINUE UNTIL ADEQUATE OBSERVATIONS ARE MADE OF THE LIFE OF THE CLOUD.

O'Connor

Fuselage Escape Capsule New Helicopter System is Tested

In May at the Naval Aerospace Recovery Facility, El Centro, Calif., the Navy conducted its second successful test of a unique "helicopter fuselage capsule" escape system. The first test was held earlier this year.

The escape system was installed on two H-25's configured for remote control. The helos were flown at 2,000 feet, one at 55 knots, the other at 42.

The system was actuated in the following sequence: (1) rotor

blades jettisoned — providing a clear area for parachute deployment, (2) fuselage severed—separating the occupied and unoccupied fuselage sections, (3) separation rockets ignited on the unoccupied section—thrusting it away from the occupied section and (4) parachutes deployed on the occupied section.

How the Eye Searches Subject of China Lake Study

A study of one of the important elements in any weapon delivery system, commonly called "Mark I

Eyeball," is being conducted at the Naval Ordnance Test Station, China Lake, Calif., by Ronald A. Erickson, a research physicist in the Aviation Ordnance Department.

Object of the study is to develop more information about the process of visual acquisition of targets by Navy pilots. Erickson (in cockpit in the photo) is assisted by Ray Main, a psychologist, and Carol Burge (in photo), a mathematician who writes all the statistical analysis computer programs.

The trio is working on two visual testing programs at Hangar 3. A TV monitor in the A-4 cockpit installed on the roof shows target pictures and various patterns on charts through a television camera mounted in a laboratory below. The cockpit provides realistic light and viewing conditions.

In the other program, slide pictures of abstract as well as realistic target scenes are projected on a screen by two slide projectors connected in time synchronization. This "tachistoscope," with audio equipment and charts, is mounted in a 22-foot trailer.

This summer the trailer is being parked first at a test sight in Albuquerque, N. M., and later at England AFB, Alexandria, La. Over 300 pilots are to fly at low altitude across the terrain, identifying various military-type targets, in this field test. The same pilots will be tested in the trailer.

Erickson says, "We hope to correlate data produced in the trailer with data from the field tests to find out how well what we're doing in the lab corresponds with the real operational world."



MOUNTED COCKPIT USED IN STUDY

Editor's Corner

EM Club at Da Nang. Because the Seabees (Navy Construction Battalions) in Vietnam are too busy building airfields, roads, warehouses and other high priority projects, they couldn't take time to build themselves an Enlisted Men's Club at Da Nang. So, taking \$600 in profits from their old club (a leaky tent with dirt floor), the Seabees hired a Vietnamese crew to build a new club. The new 40-by-60-foot club is built with bamboo sticks and thatch, put together entirely without nails. The Navy's Engineer Corps publication reported, "The straight from nature roof has proven leak-proof under heavy monsoon rains."

CAPSULE WISDOM. "If every aviator faced losing his wings for first mistakes, there wouldn't be too many aviators around."

"It takes several thousand bolts to hold an aircraft together . . . and only one nut to scatter it all over the countryside" (the Second MAW *Hot Dope Sheet*).

Reminder to the Homefolks. The following was carried by the NAS ALAMEDA *Carrier*, in the C.O.'s column:

"Every day we read of deaths in Vietnam and soon these messages and newspaper articles lose their true import because of their repetition. It is only a person from your own station whose death brings the reality of the fighting home to you.

"We on the home front are not always mindful of the heroic actions that take place every day on Vietnam soil, on her waters and in the air. Every man on the carriers feels the effect of 24-hour flight operations. Flight crews are launching at all hours, and it is true to say that the ship never sleeps.

"We who go home to our soft beds every night, eat our meals on a regular schedule, and often complain about petty matters, must bow our heads in tribute to the men who are fighting through

every hour of the day. We are working in support of these men and each and every action must reflect the thought of these men. Let our tribute be not only vocal but exemplified in every action."

CREDIT CARD-ITIS. The Navy's *Medical News Letter* reported in its May 13 issue that a new distress cause had been isolated in the case of a Cleveland, Ohio, attorney. The man had complained of frequent backside pains and had submitted to many examinations and treatments. Then it was discovered that his wallet had grown large with many credit cards and that the removal of the wallet from his left hip pocket brought relief. Said the *News Letter*: "The physician attending the patient described it as 'perhaps an example of exogenous compression neuropathy related to our affluent society.'"

When is a boat a ship? The Bureau of Ships (before it became the Ship Systems Command on May 1) published a Glossary of Management and Shipbuilding Terminology, Standards for U.S. Naval Shipyards. The booklet sets forth standard terms and definitions to be used by personnel in preparation or interpretation of instructions and in management practice.

The following definitions were gleaned:

"SHIP—Navy usage of this term refers to self-propelled structures over 70 feet in length designed to operate on or under water, manned by selected personnel and equipped for navigation in any navigable water.

"BOAT—Generally the term refers to either non-propelled or self-propelled structures usually 70 feet or less in length that can be operated on the water, its navigation facilities are not equivalent to those of a Ship, it has no armament; one exception being a motor torpedo boat.

"CRAFT—A term sometimes used in the very broadest way, such as 'all Naval craft,' implying applica-

bility to all Navy ships and boats (except lifeboats, launches and the like). Recent practice is to use the term *Ship* in its broadest sense and limit usage of *Craft* to cases where it follows types generally called 'craft,' such as 'service craft' and 'landing craft.'"

(Editor's Note: The word **VESSEL** is not listed.)

ZIPPY MAIL. A hospital corpsman aboard the USS *Ticonderoga*, William Adams, received a letter and package from his wife, 9,000 miles away in Kansas, in the incredible time of three days, the ship reported. Inside the package? Instant diet breakfast food and a box of instant fizzing soft drink pellets.

Command at Sea. When Navy squadron commanders take their units to sea they are entitled to wear the Command at Sea emblem. But does a Marine C. O. rate the same privilege? On CVW-8's recent Med cruise on the *Forrestal* this question arose because a Marine squadron, VMF-451, was aboard. To "equalize" the situation between C.O.'s, the Navy commanders designed a new emblem, super-imposing the Marines' anchor and globe on the Navy's Command at Sea insignia. The new emblem, reportedly being sent for consideration at Marine HQ in Washington, was then presented to 451's C.O., Lieutenant Colonel Robert Smith. The emblem was fabricated by the ship's dental department.

PLAIN TALK. The Philadelphia Naval Shipyard's *Beacon* recently took note of a shipyard notice updating regulations and organization charts. According to the *Beacon*, it contained this instruction: "Substitute for 'functional responsibilities' the word 'work.'"

Plane Talk. In his notebook, a 10-year-old visitor to the Miramar Naval Air Station wrote: "If you saw all the equipment in these airplanes, it would be practically impossible. But it is not. If it were impossible, we would be pretty far behind in aeronautics.

"The reason the *Phantom* is called the *Phantom* is because it strikes and is gone before you know what has happened." (Quoted from the *Miramar Jet Journal*.)

LETTERS

Credit Given

SIRS: With reference to an article in the April 1966 issue of *Naval Aviation News*, p. 16, concerning the CH-47 "flying united" with an A-1 *Skyraider*, I would like to give the many personnel of VP-42 credit for the hours they devoted to removing the A-1's engine, propeller and armament systems. Their work enabled the CH-47 *Chinook* to complete the airlift from Tay Ninh to Bien Hoa for assembly.

M. J. GARRISON, LTJG.

NAVAL AVIATION FILMS

Among the latest motion picture films released by the Film Distribution Division, U.S. Naval Photographic Center, the following should prove of particular interest to personnel in Naval Aviation:

MH-9732 (unclassified) *Wings of a Marine*. Advanced training of a Marine pilot; rocket and gunnery runs. 19 minutes.

MN-8984W (unclassified) *Navy Screen Highlights—Strike from the Sea*. Operations off the coast of Vietnam. Navy gunfire support missions, carrier strikes over North Vietnam, Swift Boats on Operation *Market Time*, and amphibious warfare. 13 minutes.

MN-9856 (unclassified) *Escape From Ditched Jets*. Methods of underwater escape. 22 minutes.

Instructions for obtaining prints of newly released films are contained in OPNAV Instruction 1151.1C.

VT-27's 35,000 Safe Hours

More than a Year's Operations

Training Squadron 27 has now logged its 35,000th accident-free hour. The mark was reached during more than a year of extensive operations. It represents more than 87,000 field landings, almost 2,500 carrier arrested landings, and the completion by 217 flight students of the squadron's advanced flight training program.

VT-27's new mark was made with the landing of a squadron S-2 *Tracker*. Its crew included Lt. R. E. Allsopp, flight instructor; NavCads S. H. Dixon and J. E. Lane III, students; and J. A. Bradberry, AA, plane captain.

Commander Paul L. Filson is Commanding Officer of VT-27.

AIRCRAFT AND ENGINE SHIFTS

SHIFTS BY TYPE AND MODEL

<u>Type and Model</u>	<u>Shifts to be Effected</u>	<u>Basic Transition Period</u>	
		<u>Begin</u>	<u>Complete</u>
A-4	From Quonset Point to Jacksonville	7/66	7/67
A-6	Quonset Point to Norfolk	Now	10/66
A-7	Quonset Point to Jacksonville/Alameda	1/66	1/67 (Jax) 1/68 (Ala)
C-45	From Pensacola to Commercial	Now	7/66
F-9	From Norfolk to Pensacola	Now	10/66
H-2	From Jacksonville to Quonset Point (less transmission)	1/67	1/68
H-3	From Jacksonville to Quonset Point (less transmission)	9/66	1/68
H-34	From Jacksonville to Pensacola and phase out of North Island	1/66	1/67
H-46	From Jacksonville to Cherry Point (less blade repair)	Now	7/66
S-2 (ASW)	From North Island to Quonset Point and phase out Pensacola	7/66	7/67
S-2 (Utility)	Phase out of North Island to Pensacola	1/66	1/67
T-1, T-33, T-34	From Pensacola to Commercial	Now	7/66
J-52	From Quonset Point to Jax	7/67	7/68
T-58	From Jacksonville to Cherry Pt.	7/67	7/68
QH-50C/D	From Jacksonville to Quonset	Now	1/67

THE MULTIPLE shift of aircraft (both fixed and rotary wing) to maintenance and overhaul points is well under way on the East Coast. The new allocations are being made by the Naval Air Systems Command (formerly BUWEPs). The aim is to assign certain aircraft to centralized maintenance stations. For example, in the grouping of attack aircraft, NAS JACKSONVILLE will be the East Coast overhaul facility for A-4 *Skyhawks*. Previously the facility had been located at NAS QUONSET POINT.

In developing Aeronautical Depot Level Planning and Programming, as the initial study was titled, certain considerations were paramount: the relative importance of strategic requirements, combat readiness, responsiveness to Fleet operations and training, mobilization potential, cost effectiveness.

Major aims in developing an optimum workload distribution were as follows:

1. Assignment of organic airframe and engine rework points to enhance support of each operational aircraft complex.

2. Assignment of rework effort to match functional base loading.

3. Consolidation of rework effort for one line of equipment at a single facility, where practical.

4. Assignment of types and models together as a "family" group in order to minimize costs.

5. Assignment of some selected family groups, such as certain training type aircraft, to commercial sources when advantageous.

6. Optimizing workload levels at existing overhaul and repair facilities to realize maximum economy.

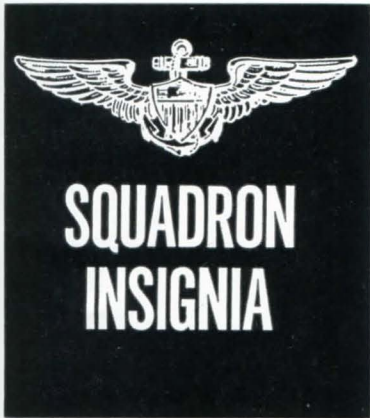
Three Accident-Free Years

110,000 Hours Total for NATWP

Naval Air Transport Wing, Pacific, has been awarded a Military Airlift Command (MAC) Flight Safety Achievement Award for flying 44,000 accident-free hours in 1965.

The award marked the third consecutive year without an accident for the Wing—more than 110,000 hours.

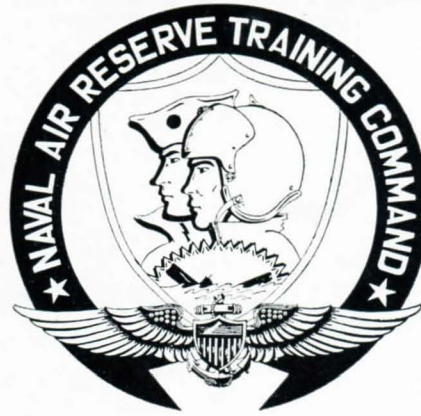
Captain G. W. Smith, Senior Naval Officer, MAC, presented the award to Captain Sam E. Clark, the Wing's C. O. NATWP is home based at NAS MOFFETT FIELD, Calif.



Miramar-based VF-143, currently serving with Carrier Air Wing 14 aboard Ranger, flies the F-4B. Cdr. M. W. Townsend relieves Cdr. Walter Spangenberg this month as C. O.



NAVAL AVIATION
NEWS



NAVAL AVIATION
NEWS



FIFTY YEARS OF RESERVES

For 50 years there have been Naval Air Reserves, civilians who devote weekend and summer drills to the maintenance of their Naval Aviation skills. Like the first members of the Reserves—the Yale men of 1916 who paid their own flying training expenses in preparation for WW I—the Naval Air Reserve of 1966 is an American who asked, 'How can I serve my country?' It's the spirit of '76 in modern dress.

