NAVAL AVIATION NEWS

47th Year of Publication

MARCH 1966

MEASURED RESPONSE

'In the last ten months of 1965, Seventh Fleet attack carriers off Vietnam compiled an enviable record with over 61,000 sorties flown from their decks. There were nearly 14,500 strike missions against North Vietnam targets and more than 22,000 strikes made in-country in South Vietnam. The remaining were support missions (reconnaissance, CAP, aerial refueling and rescue) numbering over 24,000. These carrier operations have spawned numerous instances of heroism, indefatigable willingness to meet round-the-clock schedules and the capability for day or night, all-weather, air attack in support of our commitments. The term, "measured response," is original and synonymous with our sea-based airfield.'

—The Honorable Paul H. Nitze, Secretary of the Navy

NAVAL AVIATION NEWS

FORTY-SEVENTH YEAR OF PUBLICATION MARCH 1966

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■ COVERS

Naval Photographic Center provided cover photo of Marine in helicopter returning to carrier during "Dagger Thrust." Above, rocket launchers emptied, F-8's head for *Coral Sea* in South China Sea . . . Back cover was taken by Jack Weir, PH2.

NAVAL AVIATION NEWS

Vietnam Awards Announced

Navy's Latest Tally is 1,529

As of January 10, Navy personnel had received a total of 1,529 medals and awards for action in Vietnam.

A majority of the medals have been awarded to Naval Aviators and their flight crews for combat missions over the mainland of North and South Vietnam.

The awards and the numbers of recipients are as follows: Navy Cross, 3; Silver Star Medal, 12; Legion of Merit, 14; Distinguished Flying Cross, 66; Navy and Marine Corps Medal, 4; Bronze Star Medal, 40; Airman's Medal, 2; Air Medal, 956; Army Air Medal, 1; Navy Commendation Medal, 305; Army Commendation Medal, 1; Secretary of the Navy Commendation for Achievement, 123; Joint Service Commendation, 2.

Runway Ends for Det Alfa

Record of VR-7 Unit Outstanding

VR-7's Detachment *Alfa* (NA-NEWS, August '65, p. 37), the Navy-manned Military Airlift Command (MAC—formerly MATS) unit stationed at Tachikawa Air Base, Japan, will be disestablished April 1.

Significant increases in other MAC capabilities and increasing costs to maintain the detachment's Air Force C-121 *Super Constellations* brought on the CNO directive that closes down the unit.

Det *Alfa* was originally formed in July 1958 at NAS ATSUGI, Japan, with administrative control assigned to VR-7 at NAS MOFFETT FIELD and operational control vested with MAC. Its assigned mission has been to provide air transportation for airborne forces and their equipment and supplies, air evacuation, and support to theater commanders and other agencies in emergencies.

Initially provided with four C-54 *Skymasters*, the detachment was relocated at Tachikawa in July 1959 and in June 1962 transitioned to the *Super Connie*.

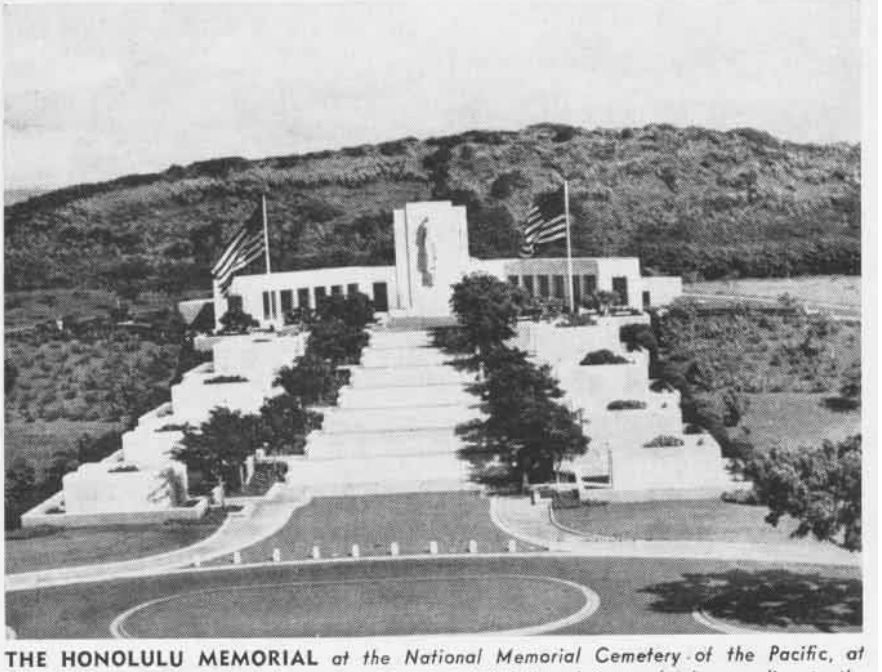
Awards and records won by Det *Alfa* include six consecutive Flying Safety Awards, the Air Force Outstanding Unit Citation, four consecutive grades of "Outstanding" during AdMat inspections, and an unprecedented record of 373 "on time" operational flight departures in a 13-month period.

The detachment's Officer-in-Charge is Commander B. F. Gerdes.

Tophatters Go to Oceana

VF-14 Leaves NAS Jacksonville

Joining other squadrons flying the same type aircraft, Fighter Squadron 14's first contingent of five F-4B *Phantom II* planes arrived at NAS OCEANA on January 5.



THE HONOLULU MEMORIAL *at the National Memorial Cemetery of the Pacific, at Honolulu, Hawaii, will be dedicated on May 1 to WW II and Korea dead, according to the American Battle Monuments Commission. The last of 19 major WW II memorials built by the Commission, it consists of a Court of Honor with a thirty-foot statue on its facade; two galleries, extending laterally from each side of the chapel, and an impressive seventiered stairway. The Puowaina crater in which the Honolulu Memorial and the National Memorial Cemetery are located is in an extinct volcano called the "Punch Bowl." Interred in the cemetery are the repatriated remains of more than 14,200 service men and women who lost their lives in World War II and during the Korean hostilities.*

Beginning their permanent transfer from NAS JACKSONVILLE, the VF-14 pilots were met by their Commanding Officer, Commander Richard C. Adams, who preceded them to Oceana to arrange the transfer.

The *Tophatters* of VF-14 are assigned to Carrier Air Wing One, operating from Mayport-based carrier USS *Franklin D. Roosevelt.*

LTV Opens A-7A Program

Corsair II Training Commences

LTV's A-7A *Corsair II* took a big step toward active service when the eight pilots and engineers of a Navy Preliminary Evaluation Team began flying the light attack aircraft in Dallas January 10.

Headed by Cdr. N. Lee Bausch, the first Navy pilot to fly the new A-7A, the team spent two weeks at the Ling-Temco-Vought plant evaluating the aircraft. Their task was to determine the plane's combat potential, check that it meets operational requirements and highlight any deficiencies.

The A-7A is scheduled for delivery this fall, with the first planes going to the Navy Board of Inspection and Survey at NATC PATUXENT RIVER, Md., for test and to Combat Replacement Air Wings for pilot training.

Members of the team, which made some 30 flights during their two weeks in Dallas, were: Cdr. Bausch, LCdr. Fred P. Hueber, Maj. Michael J. Burke, Lt. Richard Birtwistle, Lt. Fred G. Troutman, all pilots from Patuxent, and Harry W. Down and William B. Rhodes, engineers. Also in the group was LCdr. J. R. Burriss from the BUWEPS office at Grand Prairie.

Their arrival in Dallas marked the beginning of a comprehensive training program LTV is furnishing for the Navy's enlisted technicians, maintenance men and pilots who will be maintaining and flying the A-7A.

On January 17, the first group of Naval Air Maintenance Training technicians arrived for instruction in the use of new 21-unit mobile maintenance trainers for the A-7A. A total of 68 instructors attended classes in electronics, radar, navigation and other systems.

Training Centers for the *Corsair II* are being located at NAS CECIL FIELD, Fla., and at NAS LEMOORE, California.

Five additional pilot ground school classes at LTV are scheduled. These one-week courses will familiarize some 38 pilots from the CRAW's, the Board of Inspection and Survey, ferry pilots and BUWEPS pilots with the airplane. Flight training will be provided in four of the classes.

Nearly 80 BIS mechanics will attend training classes in Dallas from March through June. Another training program is scheduled for some 65 maintenance men from the CRAW's. They will spend up to five months in the shops where the *Corsair II's* are built.

Key personnel from the O&R shops at Alameda, Quonset Point and Jacksonville will go to Dallas early in 1967 to familiarize themselves with all the A-7A systems. Some of this training already has been done by LTV personnel at the O&R shops. This program will train more than 60 technicians. Next fall a number of O&R personnel will attend classes taught by LTV instructors at Alameda on the parts which go into the A-7A.

USAF Selects Corsair II

Adds Two Planes to Inventory

The U.S. Air Force is planning to add two types of aircraft to its inventory. One will be an Air Force version of the Navy's A-7 *Corsair II.* The other is described as a counterinsurgency type aircraft. The number to be purchased has not been announced.

The A-7 light attack, subsonic jet is built by Ling-Temco-Vought, Inc. Manufacturer of the COIN aircraft has not been selected.

Over 500 Hours in the F-111

Development Tests Accelerated

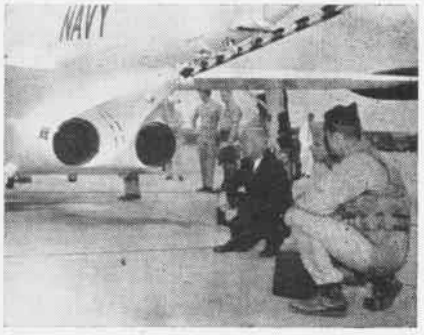
An F-111 supersonic fighter logged the 500th flight hour January 23 in the accelerating program to develop the first variable-sweep wing production airplane. Eleven of the F-111's are flying in the nation-wide test program. They have made 345 flights.

The 500th hour was logged by one of four USAF F-111A's being test-flown by General Dynamics, Fort Worth. Three of the F-111's are located at Edwards AFB.

Three F-111B's, the Navy version, are being flown at Peconic, New York, at the Grumman facility.

At Eglin AFB, Fla., a single F-111A is being used for full-scale subsystems tests of electronic countermeasures and traffic control.

In all, 23 F-111's are being built for the research, development, test and evaluation program. All of them will be in flight by the end of this year.



PARRISH, ROSE, DEFRIES STUDY T-2B

VT-7 Gets New Trainer

Twin Jet Arrives at Meridian

The first T-2B *Buckeye* twin-jet trainer, ordered for the Naval Air Basic Training Command, has arrived at NAAS MERIDIAN, Miss., for use by Training Squadron Seven. This is the first of 46 new aircraft ordered by the Navy.

The aircraft, piloted by LCdr. D. E. Parrish, BUWEPS Representative, was met by Commander Meyer H. Rose, VT-7 C.O., and Mr. C. A. DeFries, North American Aviation representative to the squadron.

The North American Aviation T-2B will eventually replace the T-2A model. The basic difference between the T-2B and the earlier model is the installation of twin Pratt & Whitney engines. The T-2A has only one jet.

In the *Buckeye,* an additional safety factor is available. In case of engine malfunction, the single jet will allow the pilot either to complete his mission or return to base.

The service ceiling of the T-2B *Buckeye* is 42,000 feet and its top speed is approximately 530 mph.

GRAMPAW PETTIBONE

Encore

Four F-11 *Tigers* and eight F-9 *Cougars,* piloted by advanced training instructors became airborne to perform a formation fly-by for a change-of-command ceremony. After rendezvous, the leader in an F-11 experienced intermittent radio problems and subsequently relinquished the lead to the next senior *Tiger* driver. The F-11 airborne spare filled the existing gap and the flight proceeded.

As briefed, the flight was formed in a "V" of diamonds, *Tigers* leading and *Cougars* forming the wings. After completion of the fly-by, the flight headed for home base, maintaining the fly-by formation and intending to execute their prebriefed "spectacular" break. (Right and left simultaneously, *Cougars* first, utilizing both of the dual runways for landing.)

Prior to arrival at home base, the flight leader contacted the tower and declared his intentions to enter the break between the dual runways in "V" formation with a flight of 12. The tower replied that the dual was not the duty runway and requested compliance with normal

traffic. After many transmissions on tower frequency and in spite of a lack of prior coordination between the flight leader, operations and the tower, the controller relented and issued the clearance to break as requested.

Meanwhile, during this interlude, an F-11 wingman made known his plight of being too heavy to land on arrival. With this new information in mind, the leader transmitted his decision that the F-11's would not break, but that he would lead the *Cougars* in and then depart with the *Tigers* to reenter for a normal break.

As the flight arrived at the break, the *Cougars* broke from their diamonds to the right and left. With perfect timing, the original leader, who had relinquished the lead prior to the fly-by and had maintained radio silence to this point, called the *Tiger* wingmen to execute their break. The *Tigers* were forward of the *Cougars* and were blind to the interval, but nevertheless broke.

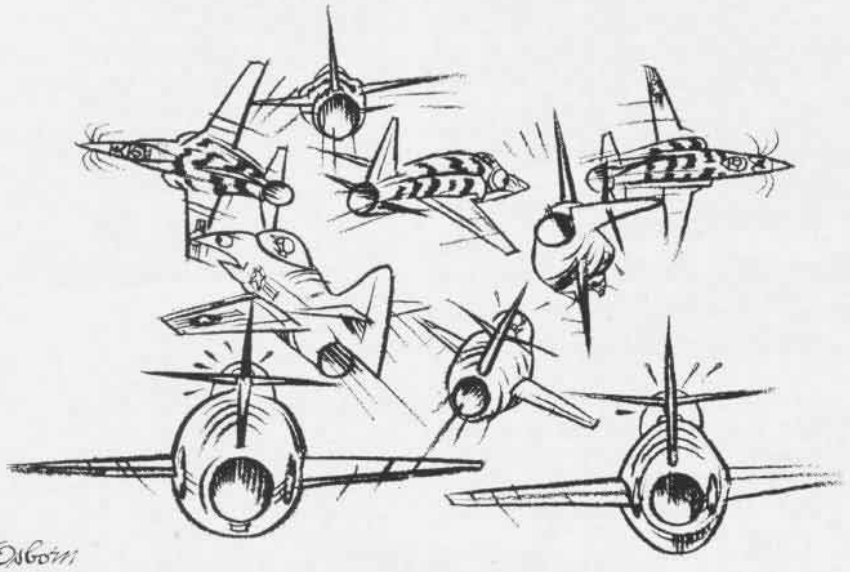
Spectacular! Executed with perfect timing and duplication were two three-plane near-misses, one to the right and the other to the left.

Grampaw Pettibone says:

Whew! Some folks get away with anything. I shudder to think what these boys had up their sleeves for an encore.

Old Gramps ain't so old he's forgotten the urge to look hot, but pullin' a stunt like this is beggin' for troubles. Calamity rendezvoused with these lads when the leader had radio problems and manifested itself with a heavy wingman, duals conflicting with the duty runway and an execution order given by a member of the audience.

A disciplined flight of *Tigers* tucked in nice and close entering the break in the old fashioned way still looks mighty sharp. We got a regular team trained to do the spectacular. This is old hat with the Blues. Let's leave it that way.



Like a Rose

A fledgling *Skyhawk* driver completed his initial day carrier qualification landings and subsequently launched for his night quals. The weather was 1,500 feet scattered, variable broken, with 10 miles visibility. Sea state was moderate with occasional pitching deck.

The first approach resulted in a wave-off for being too heavy and

ILLUSTRATED BY Osborn

was graded as a "fair pass." He called the ball with a state of 3.2 on the next pass and was right on glide slope. Approaching the close-in position, he started to go a little low. Paddles called for power which started him back up on the slope. Just prior to reaching the center, paddles heard an excessive reduction in power, immediately called for power and followed with wave-off on the radio and lights.

The pilot responded with 100% power and struck the ramp with the main gear, aft fuselage and tailhook 12 feet left of the centerline on the angled deck. Continuing up the deck for approximately 250 feet in a shower of sparks, flying debris, and hydraulic fluid, our man in extremis had thoughts of pulling the curtain, but vetoed this course of action in deference to the imposing superstructure on his right.

After passing the island, things looked up. The bent and bruised hawk became airborne, engine instruments read normal, flight controls responded, and salvage of the remains appeared feasible.

Another *Skyhawk* was on the downwind leg in the pattern and was directed to rendezvous, assess the damage and accompany the disabled bird on his divert to the closest air station.

The escorting aircraft directed his charge to "clean up," but this proved futile as a hydraulic failure had manifested itself as a result of the ramp strike. A rendezvous was attempted en route, but never accomplished because the escort overshot and was further hindered by a broken cloud layer. The escorting aircraft did get a glimpse of the damaged machine and it appeared that one main landing gear was missing. This information, however, was not passed to the distressed pilot.

Arriving over the beach with inoperative TACAN, the pilot of the crippled A-4 (after some difficulty) located the field and requested an immediate approach. The tower replied with a request for a fly-by for a gear check and was rapidly rebutted as fuel remaining indicated slightly under 400#. Needless to say, there was insufficient time available to foam the runway and the approach was made with the pilot still unaware of the extent of damage he had incurred. (Nose gear was down intact, port and starboard gear were missing; however, the starboard strut was in trail, the port stub was properly extended about six inches below the droptank, and one foot of the hook shank was missing.)

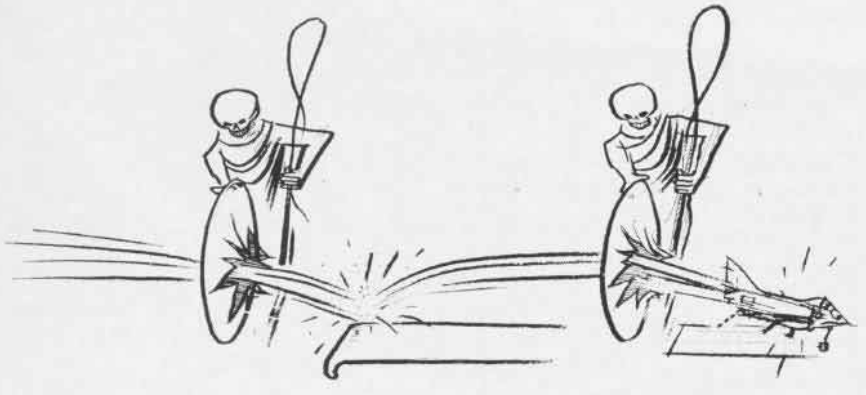
On touchdown, the aircraft slid approximately 1,500 feet before reaching the Morest pendant. The port gear stub momentarily engaged the pendant, causing the aircraft to swerve to the left and correct the right drift which had developed. The plane skidded an additional 150 feet and came to rest. No fire ensued. The pilot unstrapped and got out of the cockpit uninjured.

Grampaw Pettibone says:

Egads lads! Somebody coulda got hurt. With his luck, this lad shoulda been in Las Vegas. There ain't many people who can beat odds like that.

Cheatin' the grim reaper on the ramp strike was pretty good, but puttin' it in on a dry runway with an unknown combination of legs and walking away from it without any injuries really tears the rag off the bush.

As things turned out, this youngster came out smellin' like a rose, but NATOPS says he shoulda read the instructions on the inside of the face curtain when facin' a landin' on the beach in this configuration. The escort, by not rendezvousing to assess the damage, could have compounded this into a second and fatal accident. What you don't know *can* hurt you!



Attaboy

One fine day a student aviator departed his basic training field in a T-28 on a scheduled solo acrobatic flight. He proceeded to the local training area and commenced wing-overs and barrel rolls.

After completing several of these acrobatics at 5,000 feet, he noted the sump plug light came on. A haze of blue smoke filled the cockpit. Without further ado, he put on his oxygen mask, reduced manifold pressure/RPM, and notified home base of his difficulties.

As he was near an outlying field, the distressed student set up a 130K descent toward this field and commenced a righthand, precautionary, emergency landing pattern for runway 04, hitting the high key at 2,500 feet and low key at 1,700 feet. As he reached the 90° position for runway 36, the #7 cylinder exploded, tearing off the cowling on the port side of the engine and increasing the sink rate considerably. With the emergency compounded, the lad elected to land on runway 36. He intentionally left the gear up to insure making the field, closed the throttle, and placed the mixture control in idle cut-off. (The crash truck was in its normal parking position on runway 36 as 04 was the duty.)

Committed to 36 (in spite of the parked crash truck and a runway watch frantically waving him off), our hero glided over the truck and touched down at 3,100 feet. The plane skidded for 1,000 feet and came to rest 80 feet from the end of the runway. There was no fire, and this cool youngster, uninjured, stepped smartly from the cockpit.

Grampaw Pettibone says:

Give that lad an "Attaboy." It's mighty soothin' tonic to the old achin' ulcer when I come across a lad overcoming a sad situation like this.

UNTIL 3-M'S INTRODUCTION INTO NAVY, MAINTENANCE PROCEDURES WERE FAR BEHIND NEW, COMPLEX PLANES

3-M and 3-Level Maintenance

NAVY'S INTRODUCTION TO 'A NEW WAY'

First in a Series

By John D. Burlage, JO1

"I think I qualify as a typical Navy aviation machinist's mate, and like most mechanics I know I used to feel that if you asked me to sign my name you were over-burdening me with paperwork. When I first discovered that the Navy's Maintenance and Material Management System was going to have the men on the hanger deck filling out literally millions of documents a month, my first reaction was, 'It'll never get off the hangar deck.' My education has come along a little since then."

WHEN HE WAS a chief aviation machinist's mate working the flight line, Fred Hoole was violently opposed to the paperwork and red tape that went with his job.

Today, Fred Hoole is a "mustang" lieutenant commander deeply involved in what must be considered the greatest paperwork project ever to hit Naval Aviation maintenance—and he loves it.

What brought about the radical change of heart?

It came about because LCdr. Hoole is more opposed to inefficiency and poor management than he is to paperwork. Aviation maintenance used to have them all in excess; now, LCdr. Hoole believes, the Standard Navy Maintenance and Material Management System (fortunately abbreviated "3-M") is the foundation of a vastly improved organization for repairing aircraft.

Is the improvement worth the paperwork? "In this case, you can bet it is," he says, "because there really isn't any increase in paperwork—there's just a more systematic approach to the preparation and collection of paper.

"In the past, we had paperwork for paperwork's sake. It was doubtful if the papers we filled out served any useful purpose. In most cases, there was obvious duplication and most papers were filed for six months and then discarded. Under 3-M, we've done away with duplication; we only fill out forms that serve a purpose. The information on each form is now filed in a computer, from which meaningful data is extracted. We've done away with as much paperwork as we've added; consequently, in reality there isn't any more paperwork under 3-M than there was before it. We're just applying more intelligence, along with the newest techniques available because of technological advancements, to our paperwork problem."

A few officials a bit higher up the ladder than LCdr. Hoole believe 3-M provides a more intelligent approach to the problem, too. For example, the whole 3-M system was prompted in the first place by the Secretary of Defense. Dissatisfied with the management of military aircraft maintenance, he wanted something done to improve it. He suggested, in a memorandum to the Secretary of the Navy, that the Air Force maintenance management system — AFM 66-1 — might be worth a look. Today's 3-M system is a direct outgrowth of what was a long, hard study of not only the Air Force management operation, but also of management techniques used by a number of private corporations.

SecDef sent his memo early in 1962. Now, the Chief of Naval Operations is pumping money into Naval Aviation's 3-M system at a rate of about $5½ million a year. It seems safe to assume he expects a worthwhile return for the investment.

What kind of return? Most importantly, of course, 3-M is part of the "big picture" program used by military planners to get the best possible weapon systems for the U.S. Its supporters in Naval Aviation feel their return will come in the form of more Navy aircraft operating more often, more efficiently, and more cheaply—yet with less work. Here's why:

- 3-M is designed to give high-ranking civilian and military leaders the opportunity to understand, virtually at a glance, why aircraft, their parts, their repair facilities, and their maintenance personnel are or are not operating as advertised.
- In an age of vastly increased technological complexity, it allows decision-makers to get the most out of the maintenance dollars they must spend to keep airplanes flying.
- At the other end of the chain of command, 3-M can mean maintenance personnel, who must actually fix those airplanes, will have more reliable parts to install in them—and they will be able to install those parts faster, more easily, and with a convenience nobody thought possible a few years ago.
- As a result, the better maintenance practices caused by 3-M will mean more aircraft in a safe, flyable "up" status more of the time—which in turn means greater readiness.

In some respects, the benefits of certain aspects of the system can best be explained by emphasizing the fact that aviation maintenance is big business. As in business, maintenance leaders must have "balance sheets" which accurately tell them how their business is doing and what its profit (in the Navy's case, readiness) status is. Summary reports obtained from hard data of actual experiences, provided by one facet of 3-M, will give the "balance sheets" that are needed.

EVERY TYPE OF WORK WILL BE REPORTED UNDER 3-M

To learn how 3-M actually provides such information, and how its other aspects are designed to benefit everybody involved in aviation maintenance, necessitates learning how the program got off the ground, how it operates, and what it gives in return for what it demands. It is also necessary to tie 3-M into the three-levels-of-maintenance concept recently implemented in Naval Aviation.

This series of NANEWS articles proposes to provide detailed information about the 3-M system and, with help from personnel aboard naval air stations and aircraft carriers, to show it in operation in the field. Stories will also describe the workings of each of the three levels of maintenance — *Organizational* (that done by squadrons or operating units), *Intermediate* (that accomplished by such maintenance activities as station aircraft maintenance departments or wing and group maintenance departments afloat), and *Depot* (a term that applies only to work performed by sta-

tion overhaul and repair departments or in contractors' plants).

LCdr. Hoole outlines the events that led to 3-M: "A few years ago, the services found themselves involved in a new game called 'cost-effectiveness.' Basically, cost-effectiveness—as it applies to the military—is a comparison of weapon systems that weighs their readiness or capability factor against the cost required to procure or maintain them. Let's say, for example, that the U.S. is hunting for a new airborne weapon system; the Secretary of Defense asks the Air Force and the Navy what they have that will meet his requirements. Both services say they have an appropriate system.

"This leaves SecDef with a problem: Which service's system will best meet the need? To find the answer, he uses cost-effectiveness.

"Before 3-M, the Navy was having difficulty validating the cost-effectiveness benefits of its weapon systems. We found we didn't have the data we needed to prove the worth of our systems when they were compared with those of other services.

"SecDef knew what he wanted. He issued directives that said there would be a standard maintenance data collection system, a standard cost accounting system, and a standard equipment readiness reporting system."

While such standard formats, planners felt, would enable leaders to effectively balance the Navy's systems against others, how the Navy got the information was left more or less up to it. For instance, 3-M creators took into account a variety of special requirements caused by a seagoing service.

The big question was: Could the Navy accurately validate the data it provided for measuring weapon systems under the cost-effectiveness concept?

Before 3-M, it could not.

Cost-effectiveness hit the Navy hard. In aviation maintenance, for instance, all the Navy had that resembled a data collection system were the *Failure, Unsatisfactory, Removal Reports* (FUR's) made by activities engaged in aircraft maintenance. After they were processed by the Naval Air Technical Services Facility (NATSF), the reports ended up in the Aviation Supply Office in Philadelphia and in appropriate Bureau of Naval Weapons offices. FUR's were basically unsatisfactory because they failed to take advantage of modern computerized methods; often, the data provided was difficult to analyze because it failed to give a cohesive picture of a given problem. Another inherent shortcoming of the FUR system was that there was no way to insure that activities were submitting all that was required.

This basic lack of a comprehensive data collection system started the Navy action that led to the establishment of the 3-M program. From FUR's, the Navy obtained perhaps 80,000 documents a month that contained a lot of information that could not be put to any useful purpose. It is anticipated, on the other hand, that 3-M will give between four and six million documents a month containing information that can be used at all levels of aviation maintenance.

How 3-M evolved from AFM 66-1 and other working systems is explained by Captain Howard G. Goben, formerly head of the Aircraft Maintenance Branch of BuWeps' Fleet Readiness and Training Group and now attached to the new Maintenance and Material Readiness Branch in the office of CNO. An aviation maintenance "pro" with experience that dates to World War II, he says:

"My predecessor, Marine Lieutenant Colonel Richard Bauer, set up an evaluation study of 66-1 at NAS Oceana that lasted from the fall of 1962 until early in 1964 [NANews, March 1963, p. 34]. The study was started at the request of the chief of the Bureau of Naval Weapons; assistance was provided by ComNavAirLant, ComFAir San Diego, and the Fleet Work Study Group, Atlantic. The end result was that we proved two points: The Navy is fully capable of collecting data, and we're fully capable of utilizing the data at all levels in the chain of command.

"Then, in April 1964, we initiated a working group in Norfolk under the direction of Captain E. M. Stever [now retired] of CNO's office. It became the job of some 40 full-time personnel to sit down and literally develop for us a Navy Maintenance and Material Management System. We had representatives from CNO, BuWeps, BuSandA, the Marine Corps, ComNavAirLant, ComNavAirPac, CNATra, CNAResTra, Oceana, MCAS Cherry Point [where the Marines also had a go at 66-1], and the Aviation Supply Office—to mention some of them. We were also quite fortunate to have Air Force Lieutenant Colonel E. M. Downing, an AFM 66-1 expert who assisted us throughout the development and implementation phases of 3-M. All told, these people came from all walks of military life, with all sorts of skills and backgrounds.

"During the building of 3-M, we had to take into consideration that the Navy was then in the process of converting to the three levels of maintenance. We acted accordingly and designed the system around this new concept.

"We also knew there were several areas in the world, and especially aboard most ships, in which we would never be able to incorporate data processing equipment beyond the most basic types; so we designed the system at that level of operation. We recognized the unique problems associated with carrier aviation and built 3-M so it would work on carriers just as well as on the beach."

The study's successful conclusion caused several occurrences: CNO directed that 3-M be implemented throughout the Navy, the 3-M Project Center was moved to Washington and expanded as a joint Opnav/Office of Naval Materiel Group, funding started for the mass of equipment and related paraphernalia needed, and the first 3-M Manual was published.

Republished once since its appearance and destined for incorporation into the Naval Aircraft Maintenance Program Manual, the 3-M "bible" outlines in detail every aspect of the new system.

Its opening chapter, for instance, is a joy to behold. In crisp language, the chapter gives the whys and wherefores of 3-M in words anyone can understand:

3-M SYSTEM MEANS CHANGE FOR THIS TECHNICIAN

"The main goal of the Navy is to be ready at any given moment to perform any mission assigned. To achieve this goal, all weapon systems must be maintained to the maximum extent possible to perform 100 per cent of the functions for which they were designed. Though this is a most ambitious aim, anything short of it must be considered a compromise to readiness which cannot be afforded.

"While weapon system readiness is of major importance, the cost to maintain an acceptable state of readiness cannot be overlooked. It may appear that readiness and cost considerations are incompatible—but in reality they complement each other. By analyzing maintenance costs and devising techniques to reduce costs wherever and whenever it is economically feasible, many procedural encumbrances and unnecessary actions can be minimized—if not eliminated entirely.

"Thus, by doing away with that which is not absolutely required, effort can be concentrated on that which is required—namely, increased readiness. The end objective of the Management System, then, is to insure the highest state of aircraft readiness and reliability at the lowest cost in men, money, and material. All other considerations are secondary to this objective. At the same time, the Management System will insure that maintenance personnel, equipment, and facilities are, in fact, utilized to the fullest extent in the actual performance of maintenance and are not squandered in non-maintenance functions or in support functions not requiring highly trained maintenance skills or specialized and expensive equipment and facilities."

In those few paragraphs is incorporated the basis for the most sweeping changes to hit Naval Aviation maintenance since there was a need for it—in other words, since Naval Aviation got off the ground.

The need for effective management of the Navy's maintenance resources became especially apparent after 1962, when a total transition to a new family of aircraft began. These new planes included the F-4 *Phantom*, the A-6 *Intruder*, the A-5 *Vigilante*, the A-7 *Corsair II*, and the F-111B.

Maintenance requirements coupled with tremendous increases in the demand for men, money, and material to maintain these and other aircraft required that the Navy's maintenance and management system be modernized and sophisticated if it was to keep pace with the kind of planes now available.

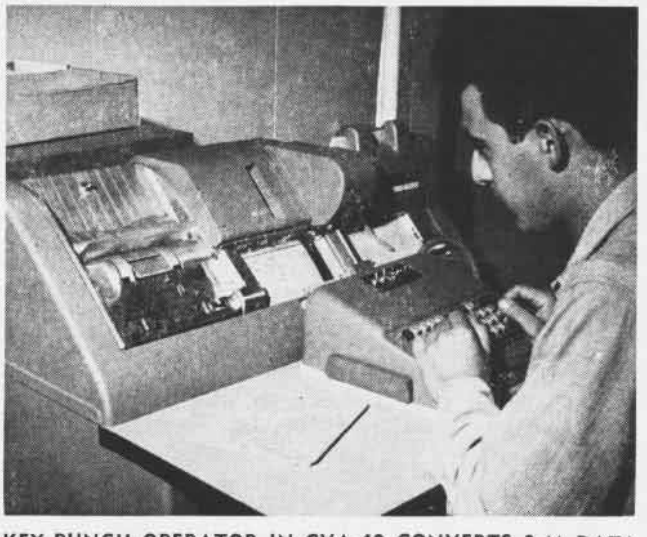
"All we want to do," LCdr. Hoole says, "is to bring maintenance up to the same operating level as the complicated aircraft we fly today. Hitting Mach 1 is a snap for many of our jets, but the men who had to keep those jets flying were forced to operate at biplane speeds because of our antiquated organization. The need was obvious, and the change had to be made in a hurry; 3-M is helping us make the change."

Well and good. But how does 3-M work?

Actually, the system embraces three broad areas: Improved Maintenance and Material Control Procedures, a Planned Maintenance System, and a Maintenance Data Collection System.

Of improved control procedures, LCdr. Hoole says: "It's doubtful that there have been any changes in maintenance or material control procedures at the organizational and intermediate levels since the birth of Naval Aviation. Consequently, the management techniques at those levels have become pretty well antiquated and can rightfully be accused of being a major cause of the poor readiness posture of many of our squadrons.

"Under 3-M, these antiquated procedures have been eliminated and new streamlined, mechanized procedures have been installed. Instead of using 'feet' to carry messages, deliver documents, and pick up parts, we are now in the process of providing radio-controlled vehicles and telephone and electric data transmission devices. This has speeded up the decision-



KEY-PUNCH OPERATOR IN CVA-42 CONVERTS 3-M DATA

AT NAS OCEANA, PLANNERS STUDY AIR FORCE AFM66-1

making processes and the delivery of material, and it has eliminated a number of personnel engaged in non-productive administrative functions; it has also reduced aircraft administrative 'down' time."

The 3-M Manual picks up the description of the other two areas of the system:

"The Planned Maintenance System pertains to preventive rather than corrective maintenance. It systemizes the conduct of aircraft inspections by combining, in convenient decks of Maintenance Requirement Cards (MRC's) for [the majority of aircraft models], information previously contained in the *Handbook of Inspection Requirements* (HIR) and *Handbook of Maintenance Instructions* (HMI). The MRC's and the *Periodic Maintenance Requirements Manual* tell what inspections have to be performed, what skills, tools, special equipment, etc., are required to perform them, what safety precautions should be observed, and in what sequence individual inspection actions should be accomplished. They provide all this information in a form readily accessible to, and understandable by, managers, planners, schedulers, and supervisors, as well as by workers.

"The Maintenance Data Collection System—the [other] area covered by [3-M]—is actually much more than the title conveys. It is, in fact, a Maintenance and Material Management Control and Information System, which includes Maintenance Data Reporting among other things."

Since it is in the area of data collection that the most sweeping changes are being made to maintenance reporting procedures, and since it is here that the maintenance hierarchy obtains the information it needs to make the proper decisions, most discussions of 3-M center around it. Data collection is synonymous with computerized technology, too. Captain Goben discusses the machines that handle the material generated by maintenance personnel:

"BuWeps is providing each of the naval air stations with some type of data processing equipment—key-punch verifiers, sorters, what-have-you. In some cases we're putting in basic data processing equipment. Most of the larger stations already have a certain amount of capability, and, in the case of the industrial naval air stations, the highly complex computer systems already on board can take on the 3-M program and not even know it's there. Capabilities of the stations generally fall between the most complex and the most basic.

"We have established a 'satellite concept' in some areas: Pensacola, Jacksonville, Corpus Christi, and San Diego, for example. In this case, the major station in the area provides support for the allied stations. However, we feel that eventually we can justify installing adequate data processing systems at the majority of stations."

Installing the equipment for data processing is a move in the right direction, but it would be a useless one if there were no documents on hand to provide the information needed to keep the machines rolling. Again, 3-M comes equipped with what's needed to do the job—and here, too, the system's planners tried to find a way to save work. They succeeded: Where aviation maintenance once had 14 forms for collecting information, 3-M calls for eight of them. They represent a good example of the way 3-M does more while seeming to do less.

Next: What to feed a hungry computer.

MACHINE ACCOUNTANT IN CVA OPERATES REPRODUCER

FROM SKYRAIDERS TO SKYHAWKS

LCDR. R. V. SHEA, VA-95, WITH HIS NEW SKYHAWK

OFFICERS OF VA-95 AND VA-127 AT NAS LEMOORE

By Ltjg. Philip S. Gubbins, USN

TEN MONTHS after returning from a WestPac deployment, the *Spad* drivers of VA-95 are ready for another, this time with *Skyhawks*.

When VA-95 returned aboard the USS *Ranger* (CVA-61) on May 6, 1965, they had chalked up an impressive record of accomplishment. In the South China Sea the *Green Lizards* had flown 434 combat sorties for a total of 2,290 combat hours in the Old Reliable, A-1H/J *Skyraider*. In December 1964 alone they had flown 1,225 hours.

For their proficient and valiant service, the officers and men of VA-95 had won six Distinguished Flying Crosses, 38 Air Medals, five Navy Commendation Medals with Combat "V", two Purple Hearts and three SecNav Commendations.

But even with a fine record behind them, their feet firmly on good ol' U. S. soil, and their families to welcome them home, they were sad. VA-95 had flown its last *Spad*. It was going to become an A-4 squadron.

On June 15, 1965, when Commander George E. Jacobssen, Jr., took command of the *Green Lizards*, the transition to the A-4 started. The *Spad* drivers, muttering something about "We'd rather fight than switch," put on their new torso harnesses and went for a ride in the back seat of Attack Squadron 127's TF-9J *Cougars*.

Commander J. R. Harper, then commanding the VA-127 *Batmen*, said, "After several dual flights, consumption of numerous tranquilizers by the *Batmen*, and promulgation of a NOTAM, the *Lizards* were ordered to depart on their jet solo flights."

Once convinced they didn't have to fight, just switch, things really moved along. Quickly the *Lizards* took over the *Cougars* and, with an average of 20 hours of jet flight time, the reluctant dragons were soon spending a large part of their time in near-sonic flight.

Promoted to the "Society of Supersonic Systems" and ready to grant that these stovepipes did deserve a place in the arsenal of the U. S. Navy, VA-95 moved along. Next stop, VA-125. The *Rough Raiders* gave the old boys an accelerated course designed to equip them with a working knowledge of the flight characteristics and mechanism of the A-4C.

Finally, one month after Commander Jacobssen's arrival, the *Lizards* returned home to welcome their first A-4C. But there was no time for reminiscing, VA-95 had to return to VA-125.

In August, after long hours of training and burning the midnight oil, the *Green Lizards* finished their formal introduction to the *Skyhawk*. Leaving the nest with an average of 30 hours per pilot, they set about training themselves.

In August and September the *Green Lizards* concentrated on weapons and low level navigation. October saw them on a weapons deployment to MCAS YUMA, Ariz., where the squadron flew 554 day and 183 night hours for a total of 737 hours in the 21-day period.

Because of a heavy PAR schedule, these 737 hours were achieved with an average of seven aircraft. The maintenance department had provided an 85% availability and the A-4 proved it could do the job.

November and December, 1965, were spent back in Lemoore, doing more weapons work and preparing for carquals. The *Lizards* went aboard USS *Kearsarge* (CVS-33) to become both day and night carrier-qualified. By Christmas the transition was complete and the old *Spad* drivers could go on leave.

This spring, Attack Squadron 95 flying 16 A-4B's will have carrier pre-deployment training, and then —deployment again.

It is interesting to note that even today among the 20 *Lizards*, only six are high time A-4 pilots. Fourteen are former *Spad* drivers.

If there is a lesson in this chronicle, it's this: "You can teach an old *Spad* driver new tricks."

THE CHALLENGE OF OPERATIONS RESEARCH

Making decisions is a major occupation of both military men and men in business. *Naval Aviation News* has received permission to reprint, in part, the following descriptive article from the RCA *Electronic Age*, Autumn, 1965, issue. It is offered as a "backgrounder" for all members of the Naval Aviation Establishment.

By John Ott

SHAKESPEARE'S "Hamlet" has been described as the story of a man who can't make up his mind. Throughout the play, he is presented with so many alternatives, each with its own set of consequences, that he is torn with anxiety, almost totally incapable of reaching a decision.

Although Hamlet's situation and subsequent solution may have been unique, the problem he faced was not. The process of making a decision has always been an agonizing one and, throughout history, those willing to accept the responsibility for making important decisions have been held with respect, even a degree of awe.

Information, in one form or another, has usually been considered essential. If one could only get the relevant facts, or so the reasoning went, one could make a sensible decision based upon experience. And so, the emphasis in the decision-making process is more and more upon the collection and analysis of significant data and a reliance upon the lessons of past performance. This has worked out pretty well, provided the consequences of an error were not disastrous.

There is the widely quoted remark that a man who makes the right decision 51 per cent of the time is a good executive. Today, this rule no longer applies.

It does not apply in our economy where a combination of more analytic management and keener competition will no longer support such a marginal ratio. It does not apply in government where the consequences of even a slight error in the planning and implementation of a major domestic program may result in the waste of millions of dollars and the misuse of precious national human resources. It certainly does not apply to our vast national defense complex where there is a shrinking tolerance for any miscalculation in deployment of nuclear capabilities.

With the consequences of faulty judgment as grave as they are in business, in government, in the management of our military establishment, there is an urgent need to fashion techniques designed to reduce the risk of error in the decision-making process. Experience, intuition, and even the most painstaking staff support are simply not enough for those who manage today's complex society. They need more efficient analytic tools to help them evaluate situations.

Fortunately, these tools and the techniques to go with them are being developed by a relatively small and uncommon breed of specialists who work in a discipline known as operations research.

The O. R. men, as they call themselves, are not strictly advisers or management consultants attempting to uncover the absolute best solution to a problem. An Oriental potentate, on the other hand, sitting in a council of state surrounded by his viziers, did exactly that. The evidence of factual information was weighed against experience, and recommendations were made for a particular decision. The decision was expected to be the right one. If his recommendation led to a reversal, the grand vizier's future was gloomy.

Today's operations research practitioners sensibly adopt a more cautious approach. They begin by defining, as precisely as possible, the nature of the problem as well as the ultimate objective. They recognize that certain actions will probably result in certain patterns of behavior, and they attempt to take into consideration all factors that might influence the structure of the situation. They then determine the probability of certain occurrences under all conditions. This is totally different from recommending a course of action. It is saying, instead, if you do so-and-so, here is the statistical probability of your return and risk. All possible courses of action are plotted, and the over-all picture is presented for selection.

This admittedly oversimplified description of operations research procedure suggests that the field is essentially a modern application of quite a venerable tradition in mathematical inquiry, that of probability theory or, as it is sometimes known, game theory. Such a view is very close to the truth.

One O. R. man credits the eminent 18th century French mathematician Pierre Simon Laplace with being one of the first operations research practitioners to boast a consulting service and a regular clientele. Recognized throughout Europe as the greatest living mathematical theoretician, Laplace was retained by members of the nobility to act as a consultant at the gaming table. Watching the progress of a card game, Laplace would advise his clients on the wager and play with the greatest probability of maximum return with least risk. If the client elected to take a plunge, Laplace was prepared to calculate the discouraging probability of his meeting with success. The final decision was always left to the client.

What Laplace did was to provide a mathematical description of the probable consequences of alternative choices of capital investment, a function that is widely performed by operations research people today. But modern operations research did not find its first significant application in business strategy. That occurred during World War II when mathematicians were enlisted to solve several military problems, the most famous one being the determination of the safest method of transporting men and supplies across a hostile ocean.

Allied intelligence could predict, more or less, how many enemy submarines were engaged in Atlantic

patrol at any given instant. But there was no way to fix their positions. Still, the Atlantic is a vast expanse and enemy patrols could not be expected to cover it all. Intuition led to the conclusion that the least loss of shipping would result if vessels were widely scattered, traveling singly or in very small groups. There would be some loss, of course, but a target, if found, would be a limited one. This reasoning seemed sound, but losses were still disturbingly high. Military men began to have second thoughts about their intuition and turned the project over to mathematicians for a more orderly study.

This type of problem was especially well suited for operations research analysis. The objective was clear: obtain a maximum flow of transport at a minimum risk. There were several known quantities and a number of variables. Within the environment, the task was to select, among many possible combinations, the traveling pattern with the greatest probability of a safe crossing. The O. R. solution led to the development of the modern convoy concept and resulted in a significant reduction in shipping loss.

Having written this success story, O. R. was given additional wartime assignments, such as the scheduling of bombing strikes for maximum effect, optimum selection of alternative targets, and the development of effective search patterns to locate small objects moving in vast areas. All these problems had one factor in common. Their solution rested upon the mathematical consideration of a number of variables in order to establish the most likely statistical occurrence of a predetermined future objective.

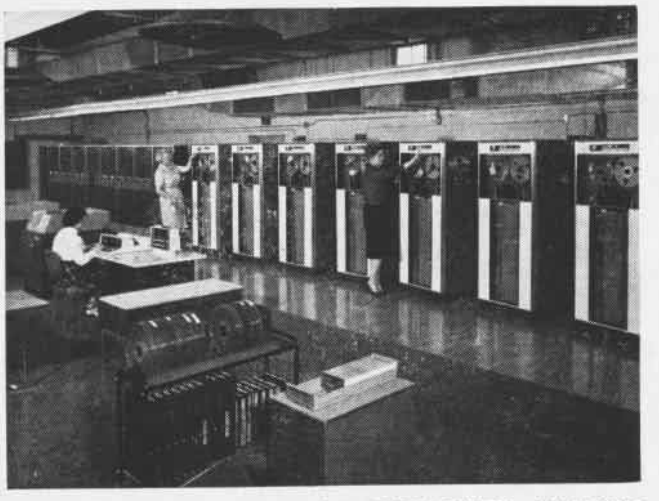
It took no great imagination to realize that O. R. techniques could be adapted to a wide variety of peacetime uses, especially in business management. One of the major problems facing any management has always been anticipating the future. What will people really want five years from now? How much will they be able to spend? Will traditional marketing concepts be sufficient for this new market? Will current distribution systems be adequate? When, where, and how will advertising be most effective?

The answers to these questions were normally sought through sampling techniques. But this was not a very reliable tool. A small error in the quality of the sample can cause a gross error in the prediction. It was thought that O. R. analysis could be brought to bear upon this problem. But, although the techniques of operations research analysis were theoretically adequate to meet the requirements of business management, the problems themselves proved too cumbersome and complex.

It is, for example, a relatively simple matter to draw up a probability table for a throw of dice. The most likely outcome is a combination that results in a seven. The least likely outcome is either a pair of sixes or a pair of ones. But this is based on a cast of only two six-sided dice. The problem is tremendously more complex if each die has, say, 100 sides and there are eight dice. Yet this situation is comparable to an analysis of business investment where there may be scores of variables that must be taken into consideration. Without question, operations research had the methodology to solve the problem, but the sheer number of calculations that had to be made seriously reduced the effectiveness of using such analysis.

This state of affairs changed radically with the advent of the commercial computer. Suddenly, all restrictions were removed. Calculations no longer had to be made manually; they could be performed electronically, and at speeds that could accommodate even the most complex problem. Operations research as a practical management tool had finally come of age.

There is a growing appreciation for the effectiveness of operations research methods in a wide variety of endeavors—in hospital administration and planning, urban transportation, education, general finance, banking, portfolio analysis—in any activity, in fact, that involves an evaluation of the consequences of alternatives.



COMPUTERS ARE HEART OF PROBABILITY ANALYSIS

Even that most unpredictable variable of all, man himself, has been subjected to operations research study. In the behavioral sciences, researchers have speculated on the likelihood of predicting the statistical probability of group behavior under varying conditions. This, of course, leads to the alarming specter of a controlled guided society.

But Dr. Franz Edelman, the Director of the operations research activity at the David Sarnoff Research Center in Princeton, N.J., discounts that possibility. "Operations research," he points out, "dictates no particular course of action. All it does is to express the likely consequences of any choice in a reasonably clear and precise manner. Ultimate selection is still the responsibility of the decision-maker."

It seems, then, that reaching a decision will remain the agonizing process it has always been. Perhaps even more so, since there will be less excuse for a misinterpretation of information. Just like Laplace's client, there may still be the executive with the inclination to take a long shot. But before he makes the plunge, operations research will be able to quote him the odds. The consequences of this could be far-reaching.

A REQUIREMENT *for helmets that was probably unbelievable 50 years ago is shown in the APH-5 modified with a visor to protect the pilot from intense visible radiation.*

NAVAL AVIATOR #3, *Lt. John H. Towers, is shown with leather helmet worn in 1918.*

AN ENTIRELY NEW FAMILY OF HARDHATS

"An aviator fell with his seaplane 800 feet in a nose dive, totally wrecking his machine, on February 13, 1918.

"He wore the regulation helmet, the left front of which was pierced through, the gash being three-quarters of an inch long. He was slightly cut on the head and his face was badly bruised, but otherwise uninjured.

"This is another demonstration of the safeguard of these leather helmets. Were it not for this helmet relieving the force of the fall, the pilot would undoubtedly have been killed outright."

THE PRECEDING quotation from the *Chief of Naval Operations (Aviation) Weekly Report* for the week ending February 16, 1918, is evidence that advances in flight safety are synonymous with those in aircraft technology. The leather helmet worn nearly 50 years ago was effective and a definite step in the right direction. Today it would be next to useless.

In November 1963, representatives of both military and civilian agencies concerned with helmet design and development attended a symposium in Washington, D. C., to consider the problems involved in developing improved helmets for aviators.

Military representation included persons engaged in all phases of helmet development, namely, accident investigation, aviation medicine, research, design and testing, and Fleet evaluation. Representing industry were men concerned with research and development as well as those involved in the testing and evaluation of protective helmets.

The objective of the symposium was to set up guidelines for a comprehensive program to improve life-support helmets.

The results were in the form of suggestions for, and in some cases, actual designs of, helmets that are now in various stages of development. The purpose of this article is merely to acquaint the field personnel, that is, the pilots and aircrews of Fleet aircraft, as to what advances and considerations are being made to give them better survival odds in an emergency.

It was concluded that the helmet is fundamentally a device designed to protect the pilot under adverse conditions, including ejection and aircraft crash. With the advent of jet aircraft, it was felt that the impact forces would be of such magnitude that the chances of survival would be virtually nil, regardless of the protective equipment worn. The development of the ejection seat seemed to eliminate this hazard. In theory, the need for impact protection was removed, or at least reduced, because in most instances the pilot would be out of his aircraft before the actual moment of impact.

A summary of Navy impact accidents for fiscal years 1959 through 1963 showed some surprising facts. For all categories of aircraft, only 11% of the aviators were able to leave the aircraft prior to impact. In the case of jet aircraft, only 27% of the aviators were able to leave before the crash. This simply means that, in a surprisingly large number of cases, the aviator did not choose to, or could not, leave the aircraft. This analysis indicates a genuine requirement to provide an aviator with a helmet with appropriate impact-protection qualities.

Among other things, providing oxygen is recognized as a singularly important function which the helmet must assist in meeting. The oxygen requirement brings with it many problems concerning weight, center of mass, and comfort. In addition, there is the matter of the oxygen itself. At present, oxygen is piped into the helmet and the expired gas spilled overboard. This arrangement creates a logistics problem for remote-area operation

and operation from carriers. Rebreathing systems are being considered to solve this problem, but before they can be built into helmets, extensive engineering-design studies must be tested thoroughly.

Other functions which the helmet design must provide for are protection of the face from burns and protection of the face and eyes from wind blast and cockpit implosion. To a considerable degree, the design will be affected by the need for incorporating communications equipment into the helmet—not the communications equipment being used today, but rather improved and miniaturized components which are available currently and which could be provided.

Finally, a relatively new requirement relates to protection from the excessive thermal radiation and visible energy from any thermonuclear detonation.

These are some of the more important functions of a life-support helmet. When establishing the means by which these functions are to be met, consideration must be given to several vital factors. Paramount among these is comfort.

Military representatives conceded that, if the helmet is uncomfortable, pilots either will not wear it or will wear it improperly. Therefore, factors such as sizing, weight, ventilation, cooling, and stability play important roles in helmet design. Weight and center of mass also are very important. Under crash decelerations, helmet weight and head-helmet center of mass expose the wearer to the danger of "cervical stretch" and head displacement. Concussion and loss of consciousness can result.

The Aerospace Crew Equipment Branch of the Bureau of Naval Weapons is continuing to conduct applied research directed toward the development of improved helmets. One of the symposium recommendations was that a family of helmets rather than one helmet for all classes of aircraft be developed. This recommendation is being implemented in the helmets described on this page.

The AOH helmet is a new design being considered for attack and fighter pilots. Recent tests of this helmet indicate a high degree of reliability even when used under water. Personnel wearing properly fitted AOH helmets attached to emergency oxygen systems had no difficulty remaining under 12 feet of water for periods of six minutes, the helmet visor, of course, being closed.

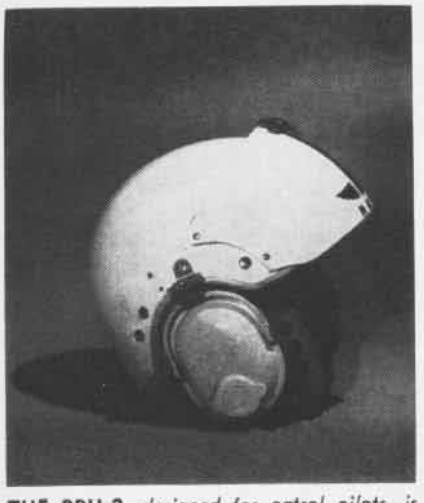
The "clam shell" design enhances the AOH helmet's retention qualities. The helmet has been tested successfully in a sled-run ejection of 568 knots, and it has been subjected successfully to windblast tests of 634 knots. Additional features include integral visor-defogging capabilities and ducting for cooling purposes.

The BPH-2 helmet was designed for use by patrol plane pilots. This helmet meets two unique requirements of patrol missions. First, the long duration of such missions requires that comfort be a paramount feature of the helmet. Therefore, the BPH helmet has a sling suspension to enhance fit and ventilation. Its minimum profile reduces weight and increases comfort for prolonged wear. Second, because normal conversation is necessary between patrol plane crew members, the BPH-2 helmet incorporates aural ports in the ear covering.

The SPH-3 helmet is for helicopter crewmen who require especially effective sound attenuation. This need is met through the use of an inner foam liner and oversized earphone pads, which give the helmet a convex profile. To counteract the sizing difficulties inherent in a helmet that contains a liner, seven different liner sizes are used with three basic shell sizes. The result is seven helmet sizes and good percentile coverage.

This family of helmets conforms to the current design requirements and represents the present procurement practices of the Navy.

A continuing program of research in helmet design will yield improvements in test methods, precise specifications, and more new helmets. With continuing efforts to keep pace with requirements, a new generation of life support helments is sure to follow.



THE BPH-2, *designed for patrol pilots, is lightweight for extended patrol missions.*

THE SPH-3, *designed for helicopter crewmen, furnishes effective sound attenuation.*

THE AOH *helmet, for fighter and attack pilots, features an integrated oxygen system.*

WEST COAST HAS A 'BIG BROTHER'

TALKING *to a compu.er, Vern Biggs RD2, feeds data into system. LCdr. John McGuane, assistant Officer-in-Charge, checks the entry.*

OFFICER-IN-CHARGE *of FACSFac, Commander R. W. Kieffer, monitors communications with offshore plane from his office co>sole.*

By Jim Teague, JO1

TO A PILOT flying his *Crusader* or *Phantom* at the speed of sound, happiness is a thing called "aircraft separation."

He takes comfort in the assurance that other aircraft in his area are flying at altitudes and bearings which give him plenty of elbow room.

With the opening of a computerized control center known as the Fleet Air Control and Surveillance Facility (FACSFac), pilots operating in the San Diego area have achieved this special brand of "happiness."

The Navy has spent approximately $12 million putting together a control center which would make a pilot feel more secure just to walk through it. The main control room resembles a war room. A dark purple glow covers a 20-foot control desk from which all the center's operations are directed.

A score of technicians walk briskly about answering telephones, checking scopes, and constantly updating status boards that fill three walls. The intense activity adds an air of excitement and efficiency to the otherwise quiet, somber, darkened atmosphere.

Looking down on the control room is a glass-enclosed gallery like those found in modern hospital surgery rooms. Here visiting military observers are able to watch local air coordination without hindering the activity below.

In an adjacent room is a long row of surveillance consoles. A man sits at each one staring into a blinking radarscope and occasionally turning dials and pushing buttons to feed data into a waiting computer. The facility now has one Univac computer in operation, with another sitting on the floor waiting to go to work. Eventually, FACSFac will have three computers to carry the load.

The primary job of the brand-new Fleet Air Control and Surveillance Facility is to monitor aircraft using the highly congested off-

SURVEILLANCE *consoles show the positions of all aircraft flying in FACSFac's control area, allowing operators to monitor the situation and re-route traffic if it is necessary.*

shore training areas along the coast of southern California and keep them well separated as they flit through daily training missions.

By means of a complex system of radar, computers, and voice communications, the new control center offers pilots the comfort of a constant monitor.

The eyes of FACSFac are provided by radar stations on the Point Loma peninsula, at NAS MIRAMAR, and in the near future, on San Clemente Island, some 70 miles off the San Diego shoreline.

Eight surveillance consoles operate around the clock at the FACSFac control center on North Island. Each console operator scans an assigned segment of airspace, picking up any aircraft crossing his area and entering a symbol for that aircraft on his viewing screen.

He is advised of the aircraft's operating area, altitude, and other flight plan information by the pilot. He then feeds the data into a central computer. The entry of the flight plan data activates an automatic probe within the computer. The system has already stored the flight plans of all other aircraft operating in the area, and immediately sends a warning signal to the console operator if the flight path indicates a possible collision course.

With the flick of a switch, the operator can quickly contact the pilot and warn him of impending danger. If the pilot has visual contact with the other aircraft, he will initiate his own evasive action. Otherwise, he will be directed on a new heading by FACSFac.

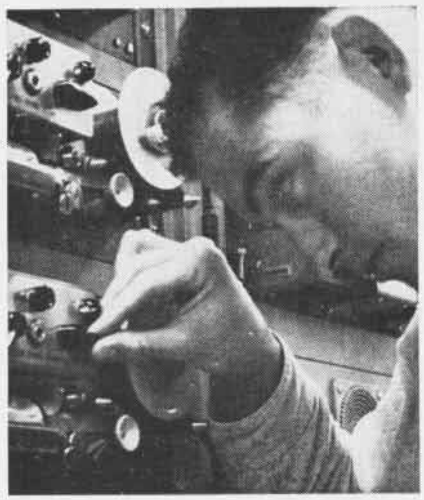
Using this triangular surveillance system involving pilots, console operators, and computers, pilots can be supplied a wide variety of information, including instant coordinates of their position, or hazards such as unscheduled gunnery practice or missile firings.

Providing a watchful eye for a large number of aircraft is not FACSFac's only responsibility.

The new facility, under operational control of Rear Admiral Robert B. Moore, Commander Fleet Air San Diego, also acts as a coordination center to assist area commanders in anti-submarine warfare exercises, air defense alerts, and search and rescue operations.

To perform these multiple roles, FACSFac maintains an up-to-the-minute display showing the positions of aircraft, surface vessels, and submarines in the area.

With a system of numerous "hot lines" to operational control points of various commands throughout southern California, FACSFac can provide almost instantaneous information and assistance when these are requested.



TECHNICIAN *adjusts plastic tape used to store aircraft data in one of 8 computers.*

If asked to help in an ASW operation, the control center can provide surveillance of, and communications with, ASW forces to clear their routes and operating areas of interfering traffic.

A similar service can be given to the local North American Air Defense commander when FACSFac is requested to help in an air defense alert.

A pilot bobbing in the sea after ejection is one who might well be thankful the new facility has gone into operation. In its search and rescue role, FACSFac acts as the rescue coordination center, directing the nearest forces to the scene, providing radar control for search patterns, and in general helping the Coast Guard and/or Naval forces to effect a speedy rescue.

This control center is a pilot program. The original plan formulated in 1959 recommended that the Navy establish interconnected facilities up and down both coasts. There is only one at this time.

Naval Aviators out of range of FACSFac San Diego presumably are looking forward to that time when, like southern California-based pilots, they can take to the air confident in the knowledge that their flight is being accurately monitored by a FACS Facility.

CHRISTMAS TREE *is the nickname given to the Fleet Air Control and Surveillance Facility's brightly-lit radar surveillance consoles. They operate on a round-the-clock basis.*

Army Taken to Cleaners

Long Haul for Soiled Uniforms

The Navy took the Army to the cleaners in Antarctica—but nobody's squawking about it.

This cleaning had nothing to do with all-night Poker parties. It began with a simple request and involved the aerial talents of the Navy's Antarctic air squadron, VX-6. In its 11-year history, the squadron has hauled everything from nuts and bolts to dogs and penguins, but one of its recent missions was to airlift a bag of soiled uniforms to a dry-cleaning plant, effect cleaning procedures, and have the clothes back ready to wear.

It seems, however, that there was one minor inconvenience in complying with this simple request: A dry-cleaning plant is one of many luxuries personnel stationed at the bottom of the world are doing without; the closest such establishment is roughly 3,000 miles away.

The uniforms belong to the aviators of a small Army helicopter unit from Fort Eustis, Va., who are supporting several scientific geological field programs at Camp Neptune in the Pensacola Mountain regions of Antarctica.

LCdr. James Fendorf, aircraft commander of a VX-6 ski-equipped C-130 *Hercules*, loaded the soiled clothes aboard after completing a resupply mission to Camp Neptune and headed for McMurdo Station. At McMurdo, Navy loadmasters switched the garments to another outbound Navy aircraft headed for Christchurch, New Zealand, on a scheduled operational mission. There, the uniforms were promptly cleaned and, in a matter of days, they were headed back toward Antarctica.

Now, thanks to VX-6's 6,300-mile dry-cleaning service, Army helicopter personnel are performing their duties with creases in their pants, and the squadron's motto—"We haul anything anywhere anytime"—is fulfilled.

Gulf Stream being Traced

Airborne Thermometer is Used

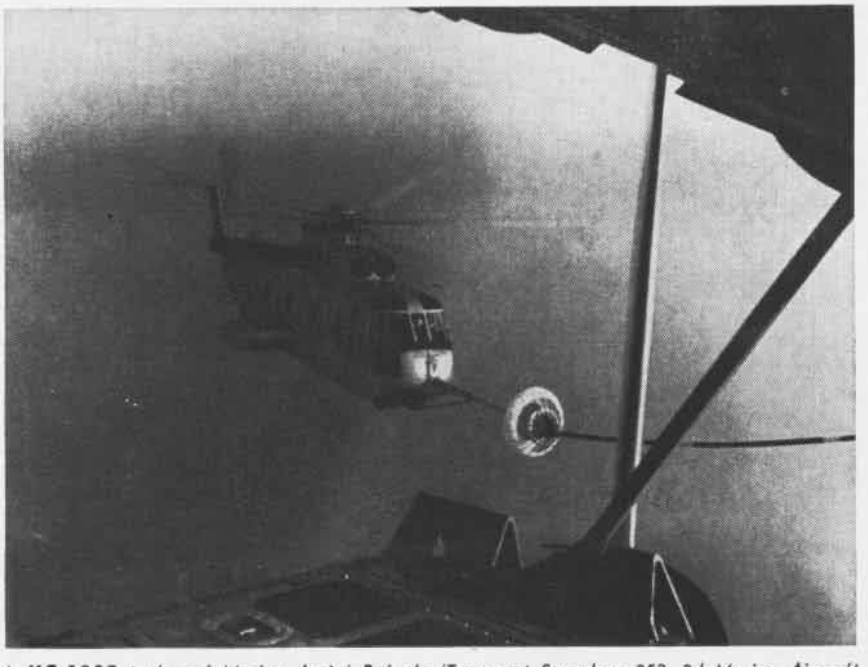
The Oceanographic Air Survey Unit, NAS PATUXENT RIVER, is tracing the meandering course of the Gulf Stream, using an advanced radiation thermometer carried aboard a *Super Constellation*. The work is under the technical control of the U. S. Naval Oceanographic Office at Suitland.

From January 5 to 25, seven airborne radiation thermometer flights surveyed the Gulf Stream in detail from Cape Hatteras, N. C., to the New Jersey coast, a distance of more than 600 nautical miles.

A flight on January 5 east of Cape Hatteras provided data which delineated the exact location of the warm Gulf Stream water as it moved northeastward between two bodies of relatively cold water. Results show that this warm river of the Atlantic is close to its normal position for the month of January.

The airborne radiation thermometer measures the infrared radiation of the sea's surface and converts the readings to surface water temperatures. Combining high speed with a continuously recording instrument, naval aircraft can collect quantities of closely spaced data much more rapidly than ships. Speed in data retrieval is especially critical to Antisubmarine Warfare Environmental Predictions Services, being developed by the Oceanographic Office.

On the January 5 flight, sea surface temperatures were acquired along a 700-mile zigzag track across the Gulf Stream, the plane making ten passes over it. The horizontal temperature gradient averaged 22°F. in 30 nautical miles. Another area was found to change 10° in five nautical miles.



A KC-130F *tanker of Marine Aerial Refueler/Transport Squadron 252, 2d Marine Aircraft Wing, helped make aviation history at MCAS Cherry Point in January by successfully completing a series of inflight refueling tests with an Air Force CH-3C helicopter. The two aircraft demonstrated for the first time the feasibility of refueling a helicopter in flight with a conventional probe and drogue system. With a ten-foot clearance between the helicopter's rotor blades and the tanker's horizontal stabilizer, two plug-ins were successfully completed at altitudes of 4,000 feet and speeds of approximately 105 knots.*

Scores High in Safety

VC-5 Detachment Celebrates

Officers and men of Fleet Composite Squadron Five Detachment Bravo at Naha Air Base, Okinawa, celebrated when they completed three years of safe flight.

Under the leadership of LCdr. Bud Hower and LCdr. Fred West, the VC-5B *Checker Tails* compiled a total of 6,960 hours. The detachment safety officer, Lt. C. D. Ramsey, pointed out that during the 36-month period, the detachment flew F-1, F-9, F-8, P-2, S-2, and H-34 aircraft, and even the venerable B-26.

AN SP-5 MARLIN *swoops low and begins an aerial torpedo attack based on computations of Tactical Coordinator and 11-man crew.*

INSIDE THE MARLIN, *the Tacco constantly analyzes information. From this data, he draws a tactical picture and formulates an attack.*

THE TACCO: ASW'S QUARTERBACK

By William Polk, JOC

ALONE P-5 *Marlin* seaplane scans the ocean on an antisubmarine patrol off the California coast. Inside, barely audible over the monotonous drone of the engines, a curt business-like voice crackles over a scratchy intercom: "Pilot, Tacco . . . we have a contact! Your new heading is 245. Contact intercept point eight miles. Suggested prosecution altitude 200 feet. Begin descent in 30 seconds."

This is a cryptic example of one of the jobs being done by the Tactical Coordinator (Tacco). He is the man who "quarterbacks" the 11-man ASW team aboard one of Navy's P-5 *Marlins*.

Specifically, he is a non-pilot aviation officer. His job is to collect, evaluate, and correlate tactical intelligence information and indicate tactical offensive or defensive measures to the pilot and crew.

For example, the Tacco gets a bearing on a contact from the radarman, a recommended course for contact intercept from the navigator. Additional information is obtained from sonar and magnetic detection equipment operators.

Seated at his bank of scopes, dials, and computers, the Tacco sets the course of events. He determines an estimated time of arrival; weather conditions in the target area; best search patterns; most effective altitude for the attack; number of runs on contact possible with current fuel supply; and type of ordnance to be used.

He must be familiar with every piece of equipment used by the *Marlin* as well as other patrol aircraft. Additionally, he must have a working knowledge of each crewman's job. This requires that he be familiar with basic principles of navigation, aeronautical engineering, physics, aerodynamics, electronics, mechanical engineering, radio, ordnance, radar, and sonar.

A Tactical Coordinator's competence in these and associated areas can often mean the difference between success or failure of a mission. His is a challenging and demanding job. Five years ago it was performed by pilots and navigators. His training is similar to that received by aviators.

Specialization in today's Navy has created a need for a trained non-pilot aviation officer to take some of the tactical load off pilots and navigators. He is called a Naval Flight Officer.

After completing Naval Flight Officer training, he is assigned to a replacement training squadron for 19 weeks. This phase of his training is handled by VP-30 on the East Coast and VP-31 on the West Coast. During this time, he receives instruction on subjects ranging from flight planning to ASW tactics. Nine weeks of the five-month training period are spent at a highly-specialized ASW Training Center at Jacksonville or San Diego.

Academically, the course is broken down into three parts. The first three weeks are devoted to basic ASW tactics, operations and theory. The next four weeks cover ASW systems, the digital computer, sonar, radar and magnetic detection devices. During the final two weeks, students are taught to assimilate, interpret, and project data on an integrated display.

This is a mock-up assemblage of instruments, computers and plastic status boards Taccos can expect to find aboard patrol aircraft such as the SP-5 *Marlin*, SP-2 *Neptune* and P-3 *Orion*.

Upon completion, students return to their parent training squadrons and complete the operational phase of their training. From there they move to the Fleet.

CHIEF INSPECTING OFFICER, *Rear Admiral Alfred R. Matter, is greeted upon arrival at the Patuxent Air Terminal by Commander R. D. Campbell, Commanding Officer of VP-49 and Captain R. W. Huxford of the Test Center. The inspection covered a two-day period.*

INSPECTION, THE ANNUAL YARDSTICK

FIRST *item on the Admiral's agenda for the day was a squadron personnel inspection.*

INSPECTIONS are the military services' way of finding answers to the questions, "How are we doing?" and "How do we look?"

When a coming Administrative/Material and Operational Inspection is announced, the first reactions may be mild expectancy, lack of confidence, a degree of fear, an examination of conscience and the anticipation of leave.

One thing experience has proved: crash programs and emergency measures are both unnecessary and ineffective. A few weeks work cannot hide a lack of achievement nor can it bolster a year's accomplishment.

Each year, inspecting teams descend on units to determine their

DURING *an inspection, clean working uniforms are just as important as liberty blues.*

INDIVIDUAL *assignments are carefully scrutinized by member of the working party.*

comparative rating among similar units. The ORI consists of a practical demonstration of the unit's operational capabilities. An Ad/Mat Inspection reveals the efficiency with which a unit handles its men and materials.

VP-49 at NAS PATUXENT RIVER faced an Ad/Mat Inspection held by Rear Admiral Alfred R. Matter and the ComFAirWingsLant team from Norfolk, shortly after its ORI.

From the arrival of the inspecting officer to the closing remarks of his critique, it was made clear that the best prepared squadron is the one that is constantly prepared. Patrol Squadron 49 illustrated that fact with an excellent inspection grade and these photos.

EDUCATIONAL *practices are checked by a member of the Career Information Center.*

BARRACKS INSPECTION *begins at the Master at Arms Office before proceeding on a complete tour of the enlisted quarters.*

EACH MAN *must have minimum number of items in his seabag for proper appearance. Inspection covers all aspects of squadron activity.*

MILITARY COURTESY, *polished shoes, fresh haircut, a clean shave, upright posture and a good fit are all part of wearing the uniform.*

SQUADRON WORKING *spaces are inspected for cleanliness and efficiency of layout. Inspecting party's remarks are given in a critique.*

NATWP Sets a Record

Ends Third Accident-Free Year

Naval Air Transport Wing, Pacific, only naval unit of the Military Airlift Command (MAC) on the West Coast, set a record when it completed three years of accident-free flying. The C-130 *Hercules* aircraft of VR-7 and -8 were flown the equivalent of 66 round trips to the moon, more than 33 million miles, to establish this record.

General Howell M. Estes, Jr., Commander, MAC, in commending NATWP's performance said, "Your outstanding performance in completing calendar year 1965 with a zero aircraft accident rate is especially noteworthy. . . . This is the first time a transport air force has accomplished such a feat."

NATWP, based at NAS MOFFETT FIELD, is commanded by Captain Sam E. Clark.

NATC Hosts Test Pilots

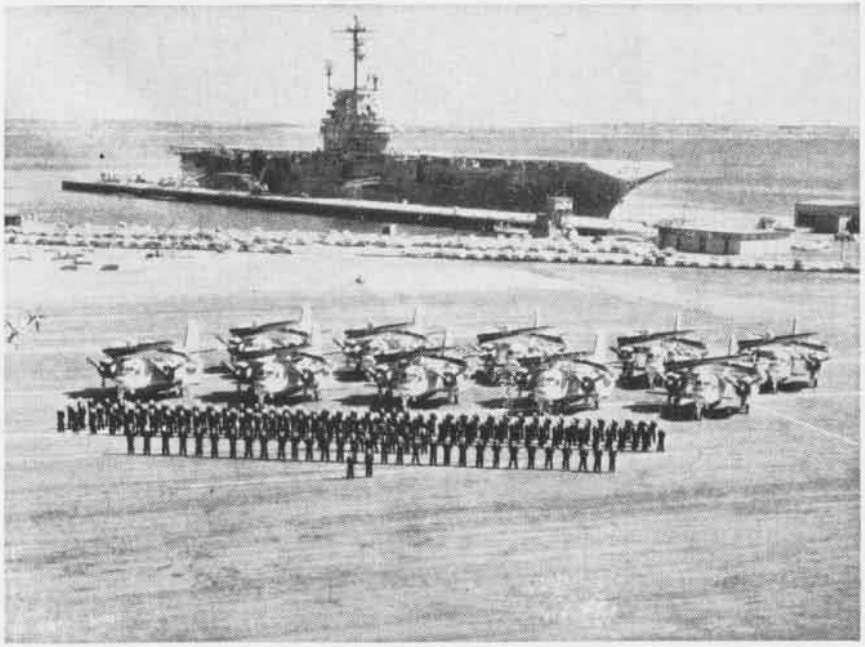
Visitors Exchange Techniques

In January a group of 15 test pilots and civilians from the Empire Test Pilot School in Great Britain spent a week at the Naval Air Test Center, Patuxent River.

The school, located near London, is the English counterpart of the U. S. Navy Test Pilot School. Its mission is to train Royal Navy, Army Air Corps and Royal Air Force pilots in test skills (NA-NEWS, Jan., 1966, pp. 8-12, "The British Way with Test Pilots.")

During their visit, the English pilots made familiarization flights in dual control test planes and toured facilities at Pax River. Before returning home they visited the USAF Aerospace Research Pilot School, Edwards AF Base.

COMMANDER *R. C. Mandeville, Executive Officer of Oceana-based VA-65, receives an inscribed memento from Grumman representative Ralph Kaiser after becoming the first pilot to log 1,000 hours in the A-6 Intruder.*



30,000 ACCIDENT-FREE HOURS *is the proud record of Air Antisubmarine Squadron 39, chalked up between July 1961 and December 15, 1965. Called the "Hoot Owl Squadron," the outfit added new luster to its name while deployed on Amphibious ASW Exercise '65. During this exercise, VS-39 pilots and aircrewman logged over 700 hours of flight time. The 30,000 hours included 3,700 accident-free day and night landings on aircraft carriers.*

Midway Due for Overhaul

Arrives at Hunter's Point Yard

A $75-million overhaul is scheduled to begin aboard USS *Midway* after the 21-year-old attack aircraft carrier enters the San Francisco Bay Naval Shipyard at Hunter's Point.

Officials say the intensive modernization, designed to save some 60 per cent of the $200 million cost for a new aircraft carrier, will allow *Midway* to actively participate in Fleet operations for at least a decade after work is completed.

A major project during the yard period will be partial stripping of certain deck areas to install steel inserts designed to strengthen the carrier's decks so new, heavier aircraft can land aboard. The inserts will be patterned after a type being used in nuclear submarines.

Coupled with the deck strengthening will be the installation of new catapult equipment. Larger capacity steam catapults will require extensive modification of *Midway's* steam system.

Ammunition and bomb stowage and handling equipment are to be modified to utilize latest devices. Other new facilities include a series of avionics shops to permit handling and repair of the latest aircraft equipment, a complete air-conditioning system for both berthing and working spaces, and modernized radar and communications systems.

Major efforts already underway at the shipyard in anticipation of the carrier's arrival include full-scale preparations of plans and procurement specifications, which call for an expenditure of more than $4 million for major components.

First of three 45,000-ton CVA's built near the end of WW II and in the early post-war period, *Midway* was launched March 20, 1945, at the Newport News (Va.) Shipbuilding and Dry Dock Co., 17 months after the keel was laid.

The carrier recently returned to home port, Alameda, Calif., after 8½ months of combat operations off Vietnam, operations that won her and her embarked air wing, CVW-2, the second Navy Unit Commendation given a carrier for action in the Vietnam conflict.

FLIGHTS AGAINST MALARIA

FLYING LOW, AN HMM-263 HELO DOES SOME AIR-TO-GROUND FOGGING

In July 1965, when a Navy entomologist predicted an upsurge of malaria cases in Vietnam because of the influx of servicemen and the coming rainy reason, a request for aerial application of insecticides was made to the Armed Forces Pest Control Board.

The request was forwarded to the Disease Vector Control Center at NAS Jacksonville where research, funded by BuWeps, already had on hand equipment for insecticide fogging by helicopter. The equipment had been developed and tested by D. L. Hayden, entomologist, and Lester Branson, biological technician, at the Center, and by W. V. Weeks, Jr., and C. E. Woodson, aircraft loftsmen with the O&R Department. The exhaust of the helicopter is used to spread organic phosphate insecticide which is effective against both larval and adult female anopheles, the malaria-carrying mosquito.

Late in 1965, on the basis of reports indicating 500 servicemen a month were malaria victims, the equipment was shipped to the West Coast and airlifted to Vietnam. With the dispersal tube mounted on a helicopter of Marine Helicopter Squadron 263, Hayden and Branson made several flights teaching the Marines how to use the equipment.

The fogging equipment can be dismantled in about ten minutes and does not affect the combat capability of the helicopter. Plans are underway to furnish other squadrons with the new device.

In its war on the mosquito, the government has also stepped up research to develop new drugs more effective against malaria.

* * *

Improved Air Traffic Control

More Automation for N. Y. Area

Air traffic control radar equipment, which can automatically display the vital third dimension of aircraft position—altitude—in addition to distance and direction, will go into service in the New York City metropolitan area late in 1967, according to the Federal Aviation Agency.

Present radar equipment employed by FAA air traffic controllers provides only a two-dimensional (distance and direction) picture of air traffic. With this equipment, ground controllers learn altitudes of aircraft only through time-consuming radio communications with pilots. Controllers then write the altitude data on paper flight progress strips.

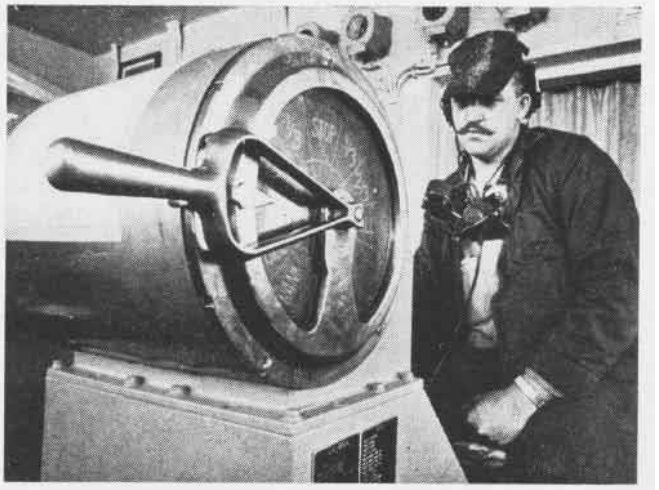
The automated equipment, on the other hand, is capable of providing a luminous data block of flight information, which is coded in letter, numerals and symbols, and electrically attaching it to the correct radar blip. The data block, called an "alpha-numeric" tag, automatically follows the blip. It contains such information as the flight identification number, assigned altitude, and flight attitude (whether climbing, descending or in level flight). For aircraft which have automatic altitude-reporting transponders, the alpha-numeric tag will also indicate the actual altitude of the aircraft, instantaneously reported in 100-foot increments.

To accomplish the automation plan, FAA will shift an entire automation system from Indianapolis, where it has been undergoing tests since April 1965, to the N. Y. air route traffic control center located at MacArthur Airport, Ronkonkoma, Long Island. The MacArthur facility is responsible for control of traffic at higher altitudes (generally above 6,000 feet) in the en route portion of flight as opposed to local, airport traffic at lower altitudes handled by the airport control towers.

Initially, the automated equipment will be installed only in those sectors of New York (MacArthur) center which feed arrivals into or accept departures out of the metropolitan area airports. The Indianapolis system will be installed at the center this spring.

For airport traffic at lower altitudes, another automated system will be located in a specially designed "Common IFR (Instrument Flight Rule) Room," a consolidated airport radar room, soon to be constructed by FAA in Hangar 11 at John F. Kennedy International Airport. Radar control of all traffic arriving at or departing from Kennedy, LaGuardia, Newark, Teterboro and 12 other local airports will be centered in this room.

ANOTHER *"connecting link" involving ship's engineers is the telephone switchboard, manned in USS Kitty Hawk by Lloyd L. Barker.*



FROM BRIDGE *of USS Ranger, G. E. Morrison, SN, can relay C.O.'s speed changes to Engine Room by using the Engine Order Telegraph.*

The Modern Aircraft Carrier

THE WORK OF THE SNIPES AND THE NUKES

'The Engineer Officer . . . shall be responsible . . . for the operation, care and maintenance of all propulsion and auxiliary machinery, the control of damage, and, upon request . . . those repairs which are beyond the capacity of . . . other departments.'—U.S. Navy Regulations, 1948, Article 0946.

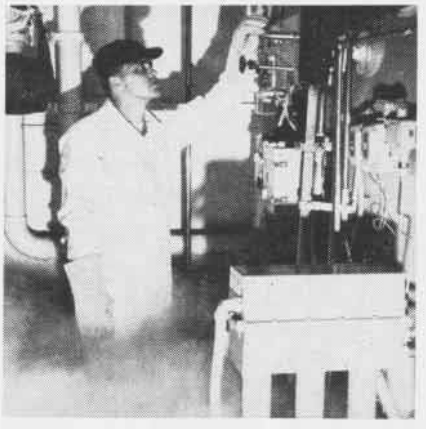
'Nuclear power combines the advantages of sail with those of fossil fuels. We can have platforms self-sustaining in fuel, which move on or below the surface of the seas. A nuclear powered naval ship is not merely an improved ship; it is, in fact, a new weapon.'—VAdm. Hyman G. Rickover, USN, Director, Naval Reactors, AEC.

By Scot MacDonald

CONSIDER these vagrant statistics: Each of the *Forrestal's* propellers is equivalent to the height of an average two-story home.

The amount of horsepower generated aboard the *Independence* could supply electricity to a city of 100,000 inhabitants, while the *Enterprise* has enough potential electrical generator capacity to supply the needs of a city of two million.

The air-conditioning system in the *Forrestal* could keep cool two buildings the size of the Empire State Building in New York City.



W. L. JAVINS, *MM2, a crewman aboard the USS Shangri La, transfers liquid oxygen.*

LOX SAMPLE *is taken by B. D. Holmes, BT2; in Shangri La, LOX is handled by A-5 men.*

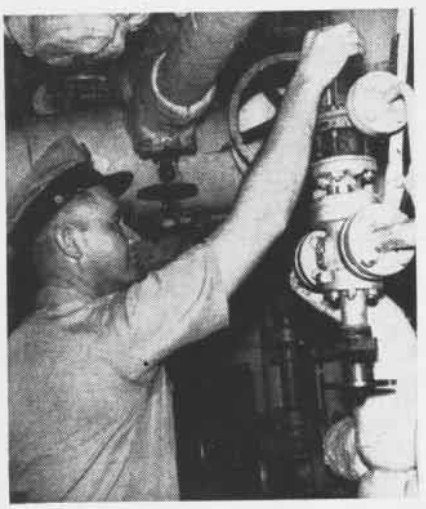
T. K. SHAIN, *MM1, adjusts settings in one of CVA-38's three oxygen-nitrogen plants.*

There are over 300 miles of electric cable in the *Constellation*, and over 900 phones in the *Enterprise*.

There is enough fuel oil in *Intrepid* to heat a home for centuries. *Enterprise*, by comparison, was not refueled at all during three years of operations which included three Med cruises, the Cuban Quarantine and a 30,650-nautical-mile speed voyage around the world.

Shangri La has an overload capacity and, under optimum operating conditions, can produce in excess of 130,000 gallons of water per day. *Independence*, whose steam cats gobble water, makes 300,000 on a typical day.

In ferrying planes between the hangar and flight decks of the *Kitty Hawk*, only 15 seconds are required for each phase: loading, lifting, unloading and descending. Thus, when operating at top speed, her four deck-edge elevators can feed the flight deck with four 40-



CHIEF *aboard USS Intrepid operates steam regulator in one of the carrier's firerooms.*

ton bombers every minute.

Each of the four steam catapults in the *Kitty Hawk* can move a 100,000-pound aircraft from a standstill to 140 knots within the short space of 250 feet. During her last deployment, using four C-13 steam catapults, *Enterprise* achieved 17-18-second average launch intervals between aircraft and 15-second intervals were not uncommon.

All these figures are impressive and they are all related. In one way or another, they reflect a facet of work accomplished by men in the Engineering Department aboard a modern aircraft carrier.

"While the Engineering Department of *Kearsarge* is organized the same way as most other shipboard Engineering Departments," says CVS-33 Engineering Officer, Cdr. Ralph E. Wilson, Jr., "there are one or two features that we stress that perhaps receive different emphasis on other aircraft carriers.

"We have taken the attitude that we are largely a service-providing organization to the embarked air wings and the other departments of the ship. Even the operation of the main en-

RADM. *F. E. Bakutis, then ComASWGru One, accepts Honorary Snipe Card in Kearsarge.*

gines merely produces the wind across the deck to enable the safe launching and recovery of our aircraft. Occasionally, we are called upon merely to propel the ship through the water from one place to another.

"We provide a myriad of services besides the generation of wind."

Just what those services are—and they are considerable—can be best described by studying the various divisions that comprise the Engineering Department of a modern aircraft carrier. These divisions are identified by letters of the alphabet. The AirLant/AirPac Standard Ship Organization and Regulation Manual places the A (auxiliaries) and R (repair) Divisions in the Damage Control Group, the B (boiler) and M (main engines) Divisions under the Main Propulsion Group, and the E (electrical) Division under the Electrical Group.

Journalist Richard Graddick of the *Independence* reports: "*Independence* is the first oil-fired ship in the U. S. Navy to divide its Engineering Department in order to form two departments, the Engineering Department and the Damage Control and Repair Department."

He describes the mission of the latter: "To prevent, minimize, and correct the effects of operational and battle damage to ship and personnel in order to maintain (1) fire power, (2) mobility and maneuverability, and (3) floatability."

The breakdown is common to all carriers with the exception of *Enterprise*. She has no B Division. Instead, she is the only carrier in the Navy which has a Reactor Department. The Reactor Department is responsible for the production of all steam for the user—the Engineering Department. The dividing line is between the reactors and the main propulsion or auxiliary machinery spaces.

TEMPERATURE *check for one of USS Kitty Hawk's two evaps is made by B. L. Norris.*

The A Division is subdivided into six sections in the *Shangri La*, each reflecting an area of responsibility generally common to similar divisions in other aircraft carriers: A-1, hydraulics and elevators; A-2, diesels (boats, emergency diesels, firepumps, etc.); A-3, refrigeration; A-4, machine shop and outside repair; A-5, liquid oxygen (LOX) plant; and A-6, ship service air compressors.

In the *Oriskany*, the "Hydraulics Gang" coddles three aircraft elevators, the boat and aircraft

crane, the anchor windlass, the escalator, the winches, hoists and dumbwaiters.

There are two compact air compression plants providing the air needed to start the jet aircraft in the *Big E*. These develop the equivalent of the horsepower needed to drive a modern submarine.

When *Kitty Hawk* was built, she was equipped with the largest aircraft carrier elevators known. They were so designed that should the ship's electric power fail for any reason, there would still be enough pressure in each elevator's hydraulic system to raise one plane to the flight deck. A 60-foot-long hydraulic engine, with a horizontally-po-

OPERATION *of the ship's service electrical switchboard is this man's assignment.*

sitioned plunger more than three feet in diameter and over 18 feet long, pulls the suspension cables up and down by a pulley.

The air-conditioning plant in the *Independence* consists of seven centrifugal refrigeration machines which give a cooling effect of 1,050 tons.

The air-conditioning system in the *Kitty Hawk* performs four functions. One type of equipment cools water for air conditioning. All habitable spaces aboard ship are cooled and dehumidified by chilled water from these plants.

Another type of equipment cools water for photographic purposes. This makes possible the rapid development of high quality, well-defined photographs. Thus, accurate reconnaissance information can be given to air crews as strikes are planned.

A third plant is for cooling drinking water. Two such plants, with a combined output of 14,400 gallons of drinking water each day, cool the water from 100° to 70°.

A fourth system takes care of refrigeration for the ship stores. Completely automatic, the system cools 18,665 cubic feet of space.

The maintenance of all this equipment is the responsibility of the A Division. This division operates a machine shop designed to overhaul and repair any kind of equipment. In the *Independence*, this shop contains five metal working lathes, a milling machine, a shaper, two drill presses, a cylindrical grinder, and several other small pieces of equipment. Most of the work done here is on pumps, turbines and valves, but it is not at all unusual to find men there making a shaft for a generator or a special bolt for one of the boilers.

"During peak workloads, the A Division Machine Shop and the E Division Electrical Repair Shop maintain a continuous 24-hour-a-day watch on a two-shift basis, to expedite these repairs," says Commander W. T. Spellman in *Shangri La*.

Seeing that liquid oxygen is available on the *Shangri La* is the job of the A Division's A-5 section. Oxygen, reduced to a liquid state for space reasons, is converted into breathing gas form by an apparatus in ship's aircraft. It is also used in the sick bay and metal shop.

The importance of this section of the A Division is evident when it is realized that jet aircraft have no standby oxygen system. The planes stay on deck if the liquid oxygen supply is interrupted and this, obviously, would greatly reduce the carrier's fighting strength.

COMMANDER Wilson describes the R Division in *Kearsarge*:

"The R Division operates the Shipfitter Shop, the Pipefitter Shop, the Damage Control Shop, and the Carpenter Shop. This division has the responsibility of continually checking on the ship's watertight integrity and fire-fighting capabilities to ensure that the fittings will operate properly and that equipment is properly distributed and maintained.

"Because of the varied skills found in this division, they are often called upon for what can only be described as major shipbuilding projects.

"Major projects must be resisted, however, and limited, because of the deleterious effect on damage control readiness that is caused by even the loss of a few man-days from routine checks."

This division in the *Oriskany* is staffed by 70 men, almost equally divided between damage controlmen and shipfitters. Cdr. F. O. Spencer, Engineer Officer for CVA-34, describes the R Division:

FEED WATER *control valve on one of Kitty Hawk's boilers is opened by D. J. Short.*

"Despite the fact that each division is responsible for the maintenance of damage control and firefighting equipment located in its spaces, the damage control shop makes many non-routine repairs to such items as fire hoses, CO_2 bottles, and portable pumps. An important factor in the ship's firefighting capability is its high capacity for foam stations. These stations, manned and maintained by the damage controlmen, are able to supply large quantities of foam instantly for fighting oil and gasoline fires. Other functions of the damage control shop include carpentry work as well as repair of doors, hatches and scuttles.

"Since R Division's primary interest is in the material security of the ship, this is reflected in the divisional watches. A round-the-clock watch is maintained in damage control central. In addition to this, security patrols roam the ship constantly during the

ship's non-working hours. These patrols sound voids to check for flooding, watch for fire hazards, and insure that the proper material condition is set."

This division must also maintain and keep up the ship's ventilation systems.

Most Engineer Officers couple the A and R Divisions in their thinking as they do the B and M Divisions. It is especially the men in the last two divisions who are known Navywide as the Black Gang and the Snipes, not at all derogatorily. Cdr. Wilson gives a general description of these divisions in the *Kearsarge*:

"The Main Propulsion Assistant supervises the operation of the Main Engines Division—or M Division—and the Boilers Division—or B Division. These two divisions operate the main engines and the boilers to provide propulsion power and steam to operate the other services furnished by the department.

"The M Division operates and maintains the steam turbines of the four ship's service turbo-generators in addition to the main engines and the many auxiliary pumps and piping systems associated therewith.

"The B Division, in addition to the prime responsibility for the boilers and their associated machinery, is also responsible for the transfer and accounting of the ship's fuel oil and the production, accounting for and distribution of ship's fresh and feed water.

"Thoroughly dedicated to the premise that the imposition of water-hours only occurs nowadays on a ship which is poorly managed, a close check is kept on the usage of water, both fresh and feed, so that prompt action can be taken to avoid waste. The evaporator output is continuously monitored to ensure the maximum output and the desired quality is maintained.

"The Engineer is fortunate in that *Kearsarge* does not have steam catapults, so air operations do not have an adverse affect on water usage that can be expected in those ships so equipped."

In *Shangri La* the responsibility for production of fresh and feed water has been assigned to the M Division. This has proven to be advantageous in that B Division has the responsibility of maintaining the boilers and their related components, "in accordance with exceptionally high standards as specified by the Bureau of Ships and the type commander."

MEN AND MOTORS *are two commodities a carriers' Engineering Dept. needs most.*

Readers of *The Presidential*, ship's newspaper in the *Franklin D. Roosevelt*, discovered more of the men who man these divisions.

INTREPIDMAN *operates oxygen breathing apparatus and explosive meter during drill.*

A graduate of Machinist's Mate or Boilerman schools has spent at least three months learning theory and principles of high pressure steam and its use. An engineering officer must spend a minimum of six to eight months on watches, plus completing a complex study course, before he is qualified to give orders for lighting off even the basic equipment. A new fireman apprentice must spend six months or more working around the steam plant before he is considered for an E-3 examination.

FDR was built at a time when submarines and torpedo bombers were the most deadly weapons against aircraft carriers. Her main propulsion plant is especially designed to withstand any torpedo attack. To prevent flooding, each of the four engine rooms has three boilers which are in separate compartments and independent of each other. There is a cross connection system that will allow an engine to lose all of its boilers and still be able to operate by cutting in on other boilers not normally connected with the engine.

FIREMAN *aboard Intrepid performs maintenance on turbo generator, one of his jobs.*

Before a torpedo could reach the *FDR*'s engineering plant, it would have to penetrate the ship's reinforced hull, plus fuel oil and fresh water storage tanks which are situated around the engineering spaces. There are 150 storage tanks and 16 fresh-water tanks.

The oil lab checks these tanks for purity and volume regularly. As the fuel is consumed the remaining fuel has to be transferred to keep the ship on an even keel, a job which keeps 20 men busy.

There are 161 men in the B Division of the *Oriskany*, the largest division in the Engineering Department. Working the evaps are 15 men, led by a junior officer. In three shifts, three rated machinist's mates and 12 firemen work around the clock to produce 112,000 gallons of fresh water each day from the four evaporators located on the carrier's sixth deck. The *Ranger* evaporators have a capacity of 290,000 gallons of fresh water daily.

The three watch sections are comprised of four-man teams: a petty officer of the watch and a

messenger at the main evaporators, a man at the Number Three evap in the Number Three fireroom, and a man at the Number Four evap in After Auxiliary.

M Division in the *Ranger* is comprised of 144 enlisted men who are also led by a junior officer, the Main Engines Division Officer. The six main spaces occupied by the division are the No. 1 and 2 auxiliaries, each manned by 12 men; the No. 1 and 3 main machinery rooms, each with 21 men; the No. 2 main machinery room, with 22 men; and the No. 4 main machinery room, with 20 men.

In these spaces are the four main engines, turbine-driven with 1200-pound superheated steam (950° F.), each having more than 50,000 hp; eight steam-driven ship's service turbo-generators capable of producing 1500 kw; and two 400-cycle turbo-generators which operate the ship's electronic equipment. There are over 200 pumps in the *Ranger*, operated by this division.

THE E DIVISION in the *Kearsarge* is responsible for the generation and distribution of all the ship's electrical power from direct current to a precision 400-cycle supply. They also maintain the ship's service telephones, the hundreds of sound-powered telephones and associated equipment, the ship's gyros and control circuits, the pit log, the degaussing system, all the lights in the ship, including the flight deck and running lights, the fresnel lens landing system, and the closed circuit television or PLAT system.

There are 174 men assigned to this division in the *Kitty Hawk*, 131 light and power electricians and 43 interior communications electricians. Reports John P. Irvin, JO3; "The biggest problem encountered by these men in keeping the 1200 telephones aboard in operating order is a common one: callers neglect to put the phones on the hook when the call is completed. After seven minutes, an alarm sounds in the after IC and the phone's circuit is disconnected. This then requires the IC man to check the unit."

The E Division maintains the engineering alarm system as well as the steering alarm system. The engineering system consists of high and low water alarms for the boilers, smoke alarms to determine the proper air-oil mixture, and fire alarms for the engine room. For the generators, there are alarms for lube oil pressure to keep bearings from overheating.

The alarms for the steering system provide the helmsman with a switch which sounds a siren in After Steering, alerting the standby helmsman to take over. Also provided is an emergency steering signal system which connects the bridge with After Steering.

At this point it is well to put in a word about the "nukes," the specially trained men who operate the nuclear power in the *Enterprise*.

FIREMAN *M. W. Reed closes guarding valve on the No. 2 main engine in Shangri La.*

Aboard nuclear-powered ships, such as the *Enterprise*, officer volunteers are requested and accepted for nuclear power training from the Fleet and directly from normal unrestricted line officer input sources (e.g., the U. S. Naval Academy, Naval Reserve Officer Training Corps and Officer Candidate School). Candidates must be college graduates who have successfully taken college physics and mathematics through calculus and whose records indicate superior performance capability. In addition, prospective commanding officers or executive officers for nuclear powered aircraft carrier assignment must be qualified Naval Aviators of appropriate seniority.

Enlisted volunteers for nuclear power training are also requested from the Fleet and, in addition, are recruited directly from civil life for training and service in the Nuclear Field Program. Volunteers must be high school graduates, must possess above-average aptitude scores and must not have any military or civil record of unreliable behavior or character. Enlisted nuclear power operators are assigned shipboard duties in accordance with the particular nuclear field skill for which they were trained, and the ship's allowance.

OFFICER nuclear power training is divided into two phases, each of six months duration. The first phase is an academic study (generally at the graduate level) of physical and engineering principles related to the design and construction of a Naval nuclear propulsion plant. These academic courses are conducted at the Nuclear Power Schools in Bainbridge, Md., and at Mare Island, Calif.

Students graduate from the six-month nuclear power school with a good understanding of the theory and principles involved in operating a Naval reactor plant. They use this knowledge at one of the land-based prototype plants at Idaho Falls, Idaho, West Milton, N. Y., or Windsor, Conn., to achieve qualification as an Engineering Officer of the Watch.

This qualification means that the individual has demonstrated his competence to be trusted with the controls of a multi-million dollar reactor plant. He has proved his competence in a series of written, oral and operational examinations. All phases of the training are supervised by representatives of the Atomic Energy Commission.

Enlisted nuclear power training is conducted concurrently with the officer training already described, at the same schools and shore-based prototypes, differing principally in the scope of subjects covered and adding specialized training on the theory and operation of plant components, which are the responsibility of particular rating groups.

All enlisted trainees in nuclear power have first graduated from basic Class "A" schools leading to ratings in the electronics, electrical or mechanical fields. Opera-

READINGS *from master control panel in USS Ranger are logged by J. G. Bullmore.*

tional training requires qualification at a shore prototype plant on each watch station applicable to the rating group concerned, and also includes practical experience and instruction on maintenance procedures.

In the nuclear-powered aircraft carrier, nuclear-trained officers and men are assigned to either the Reactor Department or the Engineering Department.

The Reactor Officer, head of the Reactor Department, is responsible for the operation, safety and maintenance of the eight installed reactor plants and their associated auxiliary equipment. His department is subdivided into a Reactor Control Division, a Reactor Electrical Division, a Reactor Mechanical Division and a Reactor Laboratory Division. Reactor Department equipment is manned entirely by nuclear trained operators.

The Engineering Officer is responsible for operation and maintenance of the ship's main propulsion plant (except the nuclear reactors and associated equipment assigned to the Reactor Officer) and of the auxiliary machinery and piping systems; control of damage; operation and maintenance of the ship's electrical power generators and distribution system; repairs to the hull; and repair assistance to other departments. Nuclear-trained operators are assigned to Electrical divisions and Machinery divisions (main engines) within the Engineering Department.

The nukes are particularly proud of their work in the *Big E*, for they are the pathfinders of a new Navy. As the cost of nuclear propulsion decreases and performance rises, more and more nuclear-powered aircraft carriers will join the Fleet.

VAdm. Hyman G. Rickover frequently points out some of the obvious advantages of nuclear power. Most frequently heard are high speed and virtually unlimited cruising range. Operation *Sea Orbit* demonstrated this in 1964. But other advantages are apparent. It frees the Naval commander of the constant necessity to plan for the refueling of his ship.

No longer must upper decks and superstructures be cluttered with large uptake spaces through which conventional boilers get tremendous volumes of air for combustion and out of which pass exhaust gasses. Stack gasses have always presented a maintenance problem for all the ship's topside equipment, particularly radar and radio equipment located high on the masts directly in the path of these corrosive fumes. Soot, which must be blown from the boiler tubes daily, settles on all parts of the ship.

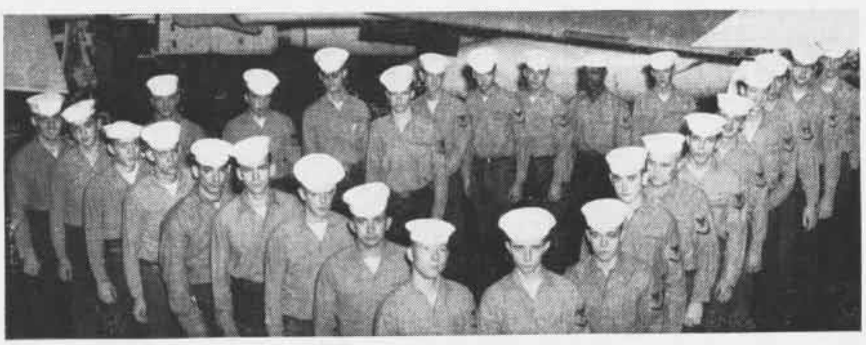
It will be many years before the U. S. Navy's carrier forces are nuclear powered. In the meantime, those running on "fossil fuel" continue to form the first line of defense in the oceans of the world.

"Engineering readiness training is difficult to schedule in an aircraft carrier," says *Kearsarge's* Cdr. Wilson, "because of the natural emphasis on flight operations and the necessity to be able to have the engines respond quickly to any emergency which might arise while aircraft are in the air.

"In *Kearsarge*, Engineering Casualty Control Drills are conducted routinely during the night watches when no flight operations are scheduled and the speed of advance will permit. The Engineer Officer of the Watch conducts the drills and they are observed by the senior petty officers on watch. Valuable training and experience is thereby provided to the entire watch."

Cdr. Wilson encourages Naval Aviators of both the ship's company and the embarked air group to learn and become familiar with his department. "We have been known to conduct guided tours of the plant at the drop of a suggestion." As an added enticement to "come below," he bestows the title of Honorary Engineer on those aviators who visit the spaces, and provides a wallet-size card certifying their designation.

"USS *Kearsarge* (CVS-33), To Whom It May Concern," the card reads. "Know ye by these presents that [name], having demonstrated his interest in Marine Engineering and the generation of steam is hereby designated an HONORARY ENGINEER (sometimes affectionately known as a Snipe). He shall hereafter be entitled to wander through the Engineering Spaces without escort and shall be afforded every courtesy while therein. He shall be further entitled to all the coffee he can drink in Main Engine Control. He may take one 'Hollywood' shower per day whenever the Ship's fresh water supply is connected to shore sources. All Cruiser and Destroyer Engineers and other such exalted persons are requested to honor this card in good faith despite its issuance in a ship that is essentially square, lopsided and with a flat top."



ADVANCEMENT *in the ratings found in a carrier's Engineering Department is usually fast: Brand-new third class Machinist's Mates pose aboard FDR — 31 who advanced.*

SELECTED AIR RESERVE

CAPT. KIELING HANDS CAPT. JOHNSON NRA AWARD

CAPT. CHARLES WELCOMES ENGLAND'S PRIME MINISTER

Reserve Group Honors Andrews

Honors upon honors continue to be NARTU ANDREWS' happy lot. After winning in the past few months the Conway Trophy, five Noel Davis trophies and the first Sheldon Clark Trophy, the NARTU received in January the Achievement Award of the Wardroom Chapter of the Naval Reserve Association.

The award was presented in recognition of the sustained proficiency of the operations of the Andrews squadrons and units as attested by national competition and its position as the most combat-ready Naval Air Reserve Unit in the nation.

The award was presented (see above photo) to Captain John B. Johnson (second from left), C.O. of the NARTU, by Captain R. T. Kieling (right center), Naval Air Reserve Coordinator, Office of CNO. Captain Kieling presented the award for Commander Morton W. Bachrach (right), President of the Wardroom Chapter, NRA, while K. H. Kalmback (left), President, Fifth Naval District, NRA, looked on.

Reservists' New Task

Marine Air Reserve pilots of six detachments have made over 500 assisted takeoffs while testing the Corps' newest experimental catapult at Lakehurst.

The catapult was first assembled in June as part of the Short Airfield for Tactical Support (SATS) at NAS LAKEHURST. Until November, regular Marine Corps aircraft from the Second Marine Aircraft Wing, based at Cherry Point, N. C., had been putting the "cat" through its paces during the experimental development and evaluation phases.

With the escalation of the Vietnam conflict, regular Marine aircraft could no longer support a commitment for the catapult. In the middle of November, Marine Reserve aircraft from detachments based at Andrews, Willow Grove, South Weymouth, Atlanta, New York and Norfolk began shuttling through the catapult.

Prime Minister at Willow Grove

British Prime Minister Harold Wilson stopped briefly at NAS WILLOW GROVE, Pa., on a Saturday in December, after a flight from Washington on President Johnson's Convair. The Prime Minister visited the Philadelphia area unofficially for two days to see his son, Robin, a graduate student at the University of Pennsylvania. Mr. Wilson returned to the station the following day to board an RAF *Comet* for his flight to England.

In the picture above are Mrs. Wilson; Captain N. R. Charles, C.O. of the station; the Prime Minister; Mrs. Charles, and Mr. Thomas S. Tull, British Consul General in Philadelphia. Mr. Tull, a classmate of the Prime Minister during their Oxford student days, was host to the Wilsons during their stay.

Vietnam Fund Grows

The Headquarters of the U.S. Marine Corps announced early in January that the Marine Corps Reserve Civic Action Fund for Vietnam had topped the $100,000 mark in contributions and that an additional $100,000 was being sought.

In announcing a total to date of $105,088, Headquarters Marine Corps noted that $50,000 had been raised in December alone and expected the January total to exceed the December figure.

Michigan's Governor George Romney and Pennsylvania's Governor William Scranton proclaimed December 1965 "Marine Corps Civic Action Month" and urged citizens to support the drive. Kentucky's Governor Edward Breathitt also urged the support of the drive in his state.

In centers all over the country, Marine Reserve units won the support of many organizations. Stu-

dents and faculty of the University of Wisconsin added to the fund with contributions to CARE in the name of Dickey Chapelle, woman war correspondent and photographer, who was killed November 4, 1965, while with a Marine patrol near Da Nang.

New Chapel at New Orleans

On January 8 at NAS NEW ORLEANS, a new station chapel was dedicated. It had been little over a year since the station chaplain, at that time Lt. L. W. Rushing, spearheaded a project to obtain the chapel at Camp Leroy Johnson and move it to the NAS. When the chapel was dismantled, it was moved across the Mississippi River to its new home by volunteer personnel and 8ND SeaBee Reserve units. Ground-breaking was witnessed on October 24, 1964.

From that time, the chapel construction has gone on during weekend drills of the SeaBees and is now in use.

Another new building for New Orleans opened in time to celebrate the twentieth anniversary of the Navy's retail store system in February 1966, the new Navy Exchange complex. The three clubs in the new building are the CPO, Acey Ducey, and EM clubs.

The air-conditioned building, which reflects the Spanish influence in architecture, is surrounded by moss-covered oaks. A 72-car parking lot is in the rear.

Distance Record?

If there was an award for "Weekend Warrior Commuter of the Year," Lyle E. Cagley, AT2, would win the honor at NAS SEATTLE.

Cagley commutes from Crescent City, Calif., to Seattle, a distance of nearly 550 miles, on his drill weekends with VS-892. Although the station provides an airlift from Portland, Ore., Cagley uses it only occasionally as his job as district manager for West Coast Telephone often makes him too late to meet the airplane.

Cagley moved to Crescent City from the Seattle area three years ago. Since then, he recalls missing only three drill weekends. He has been affiliated with the Navy, either on active duty or as a Reservist, for the past 21 years.

'Super Guppy' at Los Alamitos

Naval Reservists at NAS Los ALAMITOS are becoming well acquainted with the world's largest aircraft. In January the *Super Guppy* became the site of exercises designed to train crews in loading the Douglas-built giant *Saturn* S-IVB rocket into the oversize aircraft. The station was chosen for the site because of its proximity to the Douglas Space Systems Center in Huntington Beach.

DRILLS FOR 'SUPER GUPPY' AT LOS AL

Former CNAResTra Honored

In a surprise ceremony January 7 aboard USS *Saratoga* (CVA-60), Rear Admiral George P. Koch, Commander Carrier Division Six, was awarded the Navy's Legion of Merit for his "outstandingly successful tenure" as Chief of Naval Air Reserve Training.

The presentation, made on behalf of the Navy Department by Vice Admiral A. S. Heyward, Chief of Naval Air Training, followed a personnel inspection by Rear Admiral Koch of the Mayport-based carrier.

The citation acclaimed RAdm. Koch for helping to solve many long-standing problems, instituting new and important programs and expanding and improving others. The citation stated in part: "Rear Admiral Koch's outstanding successful tenure is directly attributable to his flawless judgment, discerning and farsighted perception and unrelenting tenacity. His accomplishments are of particular significance in view of the importance of our Naval Air Reserve to the total defense effort."

Rear Admiral Koch assumed command of the nationwide network of 18 Naval Air Stations and Naval Air Reserve Training Units on July 31, 1963, and was assigned to his new post in October 1965.

Honors Come Fast

A chief aviation electronics technician at NAS NEW ORLEANS is setting a good pace for other key petty officers in the command. Bernard J. Orlett returned to his home base in January after winning the "Commander's Award" at the Chief Petty Officers' Academy in Pensacola.

Winning awards in Navy circles is nothing new to the chief. He placed first in the seven-week Data Analysis School at NATTC MEMPHIS last October.

In addition to winning the Commander's Award, he earned the distinction of being the runner-up to the Honor Graduate.

Winners of the coveted Commander's Award honor are so designated by their instructors and fellow classmates. They must possess high scholastic marks and have few demerits; Orlett had no demerits. Their general attitude must be exemplary and they must possess leadership qualities.

In the Leadership category, Orlett accumulated 944 points out of a possible 1,000, to emerge at the top of his class.

Full Dress Inspection

As a thousand guests looked on, RAdm. Richard L. Fowler, Chief of Naval Air Reserve Training, inspected Florida's Naval Air Reserve January 15. The inspection took place at NAS JACKSONVILLE and was Rear Admiral Fowler's first inspection of the Jacksonville unit since he became CNAResTra.

After commenting on the fine appearance of the 1,200 Florida and South Georgia Reservists, the admiral announced 1966 as the Naval Air Reserve's 50th anniversary.

AT SEA WITH THE CARRIERS

MARINE AVIATORS *of H&MS-15 Det. November, normally based aboard Hornet, joined Midway's VA-22 for two weeks of missions.*

HER SECOND *combat cruise off Vietnam completed, Bon Homme Richard steams towards home. Deployment included 276 days at sea.*

PACIFIC FLEET

HORNET (CVS-12)

Seventh Fleet sailors — 2,111 of them—rolled up their sleeves and donated a pint of blood apiece for servicemen fighting in Vietnam.

The Army's 406th Medical Laboratory team made the request for the donations, and *Hornet's* hangar deck was selected as the central donation center. Sailors from *Hornet* and the destroyers of ASW Group One donated blood, as did Navymen from other ships then in Sasebo, Japan.

KITTY HAWK (CVA-63)

Robert H. B. Baldwin, Under Secretary of the Navy, and Charles F. Baird, Assistant Secretary of the Navy for Financial Affairs, boarded *Kitty Hawk* for two days while the CVA operated off Vietnam.

Other visitors to the ship included Mayor Sam Yorty of Los Angeles, Senator Henry M. Jackson (Washington), Rear Admiral P. E. Hartman, Commander of U.S. Naval Forces in the Western Pacific, and actress-comedienne Martha Raye, who presented a show for a standing-room-only audience.

Kitty Hawk received a different kind of visitor when the nuclear-powered USS *Enterprise* joined forces with the conventionally-powered CVA-63 for a combined air strike against targets in North Vietnam.

BON HOMME RICHARD (CVA-31)

Bonnie Dick has returned to home port, San Diego, the first carrier to complete a second combat cruise off the coast of Vietnam. During her ninth deployment, the 21-year-old carrier's Air Wing 19 flew 12,328 combat missions. CVA-31 aircraft dropped more than 11,000 tons of ordnance and expended more than 661,700 rounds of 20mm ammunition on communist targets.

More than 60 of the carrier's pilots became combat centurions, flying 100 missions or more.

Of the more than 1,200 medals and awards earned by *Bonnie Dick* and Air Wing 19 personnel, 38 were Distinguished Flying Crosses and nine were Purple Hearts. Also included was one Vietnamese Cross of Gallantry, presented to Ltjg. Charles Fredericks, VA-196, by the commander of the 37th Vietnamese Ranger Battalion. Ltjg. Fredericks led a flight of aircraft in support of ambushed South Vietnamese troops; his total disregard for his own safety led to the defeat of the Viet Cong force.

Bonnie Dick steamed nearly 110,000 miles during 276 days at sea. Nearly 14,000 tons of ammunition and stores were transferred during underway replenishments that were held on an average of one every 20 hours.

Among those congratulating *Bonnie Dick* after the ship returned was Vice Admiral Thomas F. Connolly, ComNavAirPac. His message to the ship read in part: "I commend you for your outstanding performance throughout . . . your second combat deployment. The achievement of your pilots carrying out more than 12,000 combat sorties is noted with pride.

"Hard work and diligent training of all hands of the *Bonnie Dick* is an inspiration to all who will follow. The fighting spirit and reputation of your predecessors who bore the proud name of USS *Bon Homme Richard* has been upheld outstandingly. We join in

your prayer for those comrades in arms who have not returned with you. Their sacrifice strengthens our purpose and resolve that the people of the great United States will always oppose those who seek to deprive others of their freedom. Well done and welcome home."

TICONDEROGA (CVA-14)

Tico crewmen were presented a variety of entertainment, even though their ship was operating off Vietnam, when both Bob Hope and Martha Raye brought live shows aboard.

CVA-14 men were joined by crew members of the accompanying *Turner Joy* (DD-951), *Lymon K. Swenson* (DD-729), and *Sacramento* (AOE-1), who were highlined or flown aboard the carrier, when Hope presented his annual show on the flight deck. Included among the 85 entertainers and technicians who made the program possible were actresses Carroll Baker and Joey Heatherton; singers Kaye Stevens, Jack Jones, and Anita Bryant; Miss USA 1965, Diana Lynn Batts; and the dancing Nicholas Brothers, Jerry Colonna, and Peter Leeds.

Tico men also had an opportunity to meet a lady who was no stranger to servicemen stationed in Southeast Asia. Her name is Martha Raye.

Miss Raye boarded the CVA at sea to give two performances. Accompanied by a three-man Army combo, she entertained *Tico* men in shows on the forecastle and the flight deck. She was *Tico's* guest overnight.

A visit of an entirely different nature was made aboard CVA-14 when Francis Cardinal Spellman, Catholic Archbishop of New York, was flown aboard the carrier while he was en route to American military installations in South Vietnam.

Also Archbishop of all Catholics in the armed services, the Cardinal was greeted by Rear Admiral Ralph W. Cousins, ComCTG 77.5, and Captain Robert N. Miller, *Tico's* C. O. The Cardinal conducted mass aboard the ship.

The crash of an F-8E *Crusader* aboard *Tico* provided Hope and members of his troupe with a first-hand look at the hazards of carrier landings and the teamwork and efficiency of pilot rescue operations.

Ltjg. William S. Brougher, returning from a combat air patrol, was attempting a night landing when his plane crashed on deck. The pilot ejected from the F-8E and parachuted into the sea. He was picked up, uninjured, by a rescue helicopter.

Hope, Carroll Baker, Joey Heatherton, and several other members of the troupe were watching night flight operations when Ltjg. Brougher's jet scraped against the stern edge of the flight deck, skidded along the angle deck, and plunged into the sea. The anxious entertainers watched the rescue helo crew scan the water with a searchlight. There followed an announcement that Ltjg. Brougher was in the helo, the return flight to the carrier, and a routine check of the pilot by the ship's medical officer.

Then Miss Heatherton said to the VF-53 pilot, "Glad to have you back," and rewarded him with a kiss. Some think Ltjg. Brougher may have been more disconcerted by that incident than by the crash.

COMEDIENNE *Martha Raye gets a windblown welcome after arrival aboard Tico.*

ENTERPRISE (CVAN-65)

The following message was sent to SecNav, CNO, and other officials by Rear Admiral Henry L. Miller, then ComCarDiv 3 in *Enterprise*:

"I have the distinct honor and pleasure to announce to you that . . . the first nuclear-powered task group of your Pacific Fleet and the United States Navy engaged the enemy in South Vietnam. The USS *Enterprise*, with all-jet Air Wing Nine delivering the punch, struck hard against Viet Cong installations in the third and fourth corps areas. *Enterprise* was ably supported by the nuclear destroyer USS *Bainbridge* (DLGN-25) and the conventionally-powered destroyers *Barry* (DD-933) and *Roberts* (DD-823) of DesRon 24. *Enterprise's* memorable performance today testifies that she is worthy of the heritage left by her illustrious predecessor, CV-6."

The 50,000th arrested landing aboard CVAN-65 was made during combat flight operations when LCdr. Edward S. Promersberger, VF-92, brought his F-4B *Phantom II* aboard. Ens. Louis R. Biosca was RIO.

Senator Stuart Symington (Missouri) was an overnight visitor aboard *Enterprise* after he was flown to the carrier from Da Nang, South Vietnam. He was greeted by Rear Admiral Miller and Captain James L. Holloway III, the carrier's C.O.

The pilot and RIO of an *Enterprise*-based F-4B *Phantom II* lost their lives when the aircraft crashed into the side of a ridge during a rocket attack against Viet Cong support activities. Cdr. Edgar A. Rawsthorne, VF-92 Commanding Officer, and Lt. Arthur S. Hill, Jr., were on a night armed reconnaissance mission when the F-4B crashed.

Command of CVW-9 and VA-93 changed hands in a dual ceremony aboard the *Big E* while the CVAN was at sea. Commander F. Taylor Brown turned over control of the air wing to Commander James L. Shipman. The former X.O. of VA-93, Commander W. G. Sizemore, relieved Commander A. J. Monger as skipper of the *Blue Blazers*. Both CVW-9 and the squadron are based at Lemoore.

PRINCETON (LPH-5)

Seven hundred dependents and friends of *Princeton* crew members boarded the LPH in Long Beach, Calif., to spend a day at sea. The occasion was *Princeton's* Dependent's Day Cruise. Visitors watched highline transfers, an underway replenishment with the destroyer *De Haven*, gunnery drills, and helo operations.

NEW MEMBER *of the 10,000-Trap Club is Captain H. S. Moore, CVA-59 C.O. Cdr. O. W. Oberg, CAW-8, presents certificate; Cdr. Burton Shepherd made milestone landing.*

RANGER (CVA-61)

Ranger is operating again in WestPac waters, on her sixth Far East cruise in as many years. The carrier returned to home port, Alameda, in May 1965, from combat operations off Vietnam, spent five months in the shipyard at Hunter's Point, and conducted intensive underway training before deploying again.

Before the ship deployed, Vice Admiral Lawson P. Ramage, ComFirstFlt, and Pulitzer-Prize-winning writer G. D. Layman visited aboard.

A new world of television entertainment is being presented aboard *Ranger*. The carrier is reportedly the first Navy ship to incorporate a video taping system into its closed-circuit TV operation.

The video tape recorder, the first production model of a new series being placed on the market, was presented to *Ranger's* C.O., Captain Leo B. McCuddin, by the San Francisco *Ranger* Committee before the CVA deployed. The committee included Walter McNiff, manager of the Broadcast Communications Group of San Francisco; Harry Jacobs, chief engineer of KGO-TV; and C. Gus Grant, Ampex group vice president.

The video tape recorder may be likened to the standard audio variety, and it is just as versatile. *Ranger's* unit weighs only 80 pounds; by using it, personnel assigned to the ship's TV station, KRAN-TV, can tape live shows from virtually any point in the carrier for presentation later. Pictures caught by the TV camera and recorded on the machine are clear and indistinguishable from those in a live broadcast.

BENNINGTON (CVS-20)

Captain Wiley B. Howell relieved Captain Marvin E. Barnett as C. O. of *Bennington* during a change-of-command ceremony aboard the CVS. The new skipper came from command of USS *Guadalupe* (AO-32); Captain Barnett was bound for duty as chief of staff to ComASWForLant in Norfolk.

CONSTELLATION (CVA-64)

Arrested landing No. 35,000 was made aboard *Constellation* by a ship's company officer, Lt. Jerry Healey, in a C-1A *Trader*.

CORAL SEA (CVA-43)

LCdr. William T. Majors (NANEWS, June 1965, p. 20) has been presented the Distinguished Flying Cross for extraordinary achievement as a VA-153 pilot aboard *Coral Sea*. Despite intense antiaircraft fire, LCdr. Majors made two highly successful *Bullpup* strikes against the Dong Phuong Bridge in North Vietnam. Winner of 11 Air Medals, LCdr. Majors is now attached to VA-125.

YORKTOWN (CVS-10)

A change-of-command ceremony for ComASWForPac was held aboard *Yorktown* during a two-day stopover in Pearl Harbor, before the CVS began an ORI off Hawaii. Vice Admiral J. L. Chew relieved Vice Admiral J. T. Hayward. The former came from duty as ComNavFor Japan, and the latter was ordered to relieve Vice Admiral Charles L. Melson as president of the Naval War College.

Commander Frank C. Gilmore, C.O. of VS-25, made his 500th carrier landing aboard *Yorktown*.

KEARSARGE (CVS-33)

John J. Sitar, Jr., SK1, is the most recent recipient of *Kearsarge's* Outstanding Bluejacket Award.

ATLANTIC FLEET

BOXER (LPH-4)

Captain Albert O. Morton relieved Captain Walter M. Sessums as C.O. of *Boxer*. Captain Morton formerly commanded the oiler USS *Kennebec;* Captain Sessum's orders took him to duty as chief of staff and aide to ComASWGru Five on the West Coast.

ESSEX (CVS-9)

Essex arrived at home port, Quonset Point, R. I., after participating in a major Atlantic Fleet amphibious exercise involving some 50 ships and 12,000 men.

The exercise consisted of an amphibious landing and defense of an amphibious task force en route to and from an objective area. *Essex* aircraft flew almost constantly during the 18-day-at-sea period required by the exercise, providing

ASW protection for the task force.

CVS-9 has a new C.O. Captain William E. Fly relieved Captain Donald K. Issitt during a change of command ceremony.

AMERICA (CVA-66)

Personnel assigned to HC-2's Det. 66 were called into action to help 1,000 *America* crew members get back to their ship. The men were stranded ashore in Livorno, Italy, by heavy seas that made boat runs impossible. *America* was scheduled to get underway the next morning, so the call went out to the detachment for assistance.

Det. 66 took to the air and, during a 12-hour period, logged 16 flights, 26.6 flight hours, and 183 landings. Detachment helo flights transferred 374 passengers, including members of the ComCarDiv Two Band, their instruments, and 6,800 pounds of mail and cargo.

Later, when seas calmed, boats were able to bring in remaining *America* personnel.

Belgium's Minister of Defense, Luc Moyersoen, was a guest aboard *America* when he boarded the CVA for an overnight orientation visit. He was accompanied by Ridgeway B. Knight, Ambassador to Belgium, and a party of Belgian officials.

Commander R. E. Loux, X.O. of VF-102, has logged his 600th arrested landing in *America*. He has more than 3,900 hours of flight time, 1,200 of them in the F-4B *Phantom II*.

SARATOGA (CVA-60)

The Mayport, Fla., based *Saratoga* returned home after 12 days of operations in the Atlantic.

Carrier personnel conducted qualification exercises for pilots from East and West Coast squadrons and marked the ship's 103,000th arrested landing when Ltjg. Donald McCrory and Lt. James D. Tripp, VF-101, brought an F-4B *Phantom* aboard.

The extended at-sea period was *Sara's* first since completion of a $4.5 million overhaul at the Mayport Naval Station. Vice Admiral C. T. Booth, ComNavAirLant, visited the ship to observe operations. He was greeted by Rear Admiral George P. Koch, ComCarDiv Six, and Captain Harold F. Lang, CVA-60's Commanding Officer.

INTREPID (CVS-11)

After five weeks of refresher training in waters off Guantanamo Bay, Cuba, *Intrepid* returned to Norfolk. The training period was the first for CVS-11 crew members since their ship entered the New York Naval Shipyard.

During the operations, Vice Admiral Charles T. Booth II, ComNavAirLant, was flown aboard for a look at the refurbished *Intrepid;* his last visit aboard was made while the CVS was in the shipyard.

SHANGRI LA (CVA-38)

Chief Warrant Officer J. R. Woolyhand, *Shangri La's* Boatswain, has retired after 35 years of continuous naval service. The bos'n entered the Navy December 20, 1930, after completing two years at Loyola University in Baltimore, Md.

WASP (CVS-18)

Astronaut Scott Carpenter helped make USS *Wasp* Day a memorable occasion aboard the 22-year-old CVS.

Proclaimed by John A. Volpe, Massachusetts governor, *Wasp* Day honored the carrier on her "birthday." More than 1,500 invited guests and crew members participated in the event, as did Commander Carpenter. He made a brief speech during an hour-long ceremony.

A 30-pound bronze plaque inscribed by the governor and a citation from Boston's mayor were presented to Captain G. E. Hartley.

F. D. ROOSEVELT (CVA-42)

Rear Admiral George P. Koch, ComCarDiv Six, shifted his command from USS *Saratoga* to *FDR* while CVA-42 was moored at NS MAYPORT, Fla. Recently returned from a 5½-month Sixth Fleet deployment, *FDR* was scheduled to begin routine training operations in the Atlantic.

FIVE WEEKS *of refresher training completed, Intrepid has returned home. Here, the CVS enters Kingston, Jamaica, harbor for a visit.*

WITH 23 YEARS *since commissioning behind her, Lexington operates in Atlantic waters. The CVS serves as student pilot carqual ship.*

FLEET AIR WINGS ON PATROL

PATROL SQUADRON 22 recently returned to Barber's Point after a six-month deployment to the Far East. Charged by ComSeventhFlt with executing *Market Time* operations, the squadron flew over 1,350 hours its first month of deployment. For participating in this operation, every aircrewman was decorated with the Air Medal.

By the second month of its deployment, all VP-22 crews had been Alfa-qualified in the P-3 *Orion*.

* * *

Not long ago, 80 boys from the Caso del Fanciullo Orphanage boarded buses in a small village near Mount Etna. Their destination was USNAF SIGONELLA and VP-7.

Upon arrival, each boy was teamed with a "shipmate" for the day. After a tour of the aircraft, the boys were escorted to the galley for a party with hamburgers, hot dogs, ice cream and cake. And there were gifts — yo-yo's, paddleballs, inscribed pencils and balloons for each boy. VP-7 also presented the orphanage with school supplies provided by *Handclasp*.

SHIPMATE *Kennedy, PR1, demonstrates the yo-yo to Caso del Fanciullo orphan.*

* * *

Patrol Squadron 45, the first Fleet Air Wing 11 unit to serve a Pacific Fleet augmentation deployment, returned in January to its home base in Jacksonville after a six-month Alaska assignment. During the deployment, Commander James H. Chapman relieved Commander David M. Hume as C.O.

* * *

An anonymous philosopher once defined flying as "hours and hours of boredom punctuated by moments of stark terror." In preparation for these moments, Patrol Squadron 17 spent a few hours in the icy water of the swimming pool at MCAS IWAKUNI, Japan.

Everyone from Commanding Officer, Commander L. A. Holdren, down to the relief crews donned anti-exposure suits for the occasion.

With the squadron's flight surgeon on hand, the hardy group entered the pool. A few who discovered leaks came out much faster than they went in. The pool water was a few degrees above freezing and the outside air temperature was below freezing. There were even reports that snow was falling.

The test was considered a success when the crewmen were reassured that, even with minor leaks, the suits worked as advertised.

* * *

Above the Arctic Circle where the Greenland and Norwegian Seas meet is Jan Mayen Island, a bleak, mountainous patch of earth set alone in a wide sea. Few visitors ever set foot on it, but the island's existence is a constant assurance to the pilots, navigators and ship captains whose mission takes them into the regions above North Atlantic trade routes.

On the island, 25 Norwegian civilians man a weather observation station and a vitally important LORAN station. The complex is operated by the Norwegian Joint Signal Administration for the U.S. Coast Guard, under an agreement that is intended to provide navigational assistance to the Free World.

Constant radio contact with Coast Guard officials in Keflavik, Iceland, keeps the communications lifeline open, but personal contact for the men on the island is infrequent. From May through October, Norwegian ships call at the island on a regularly scheduled basis. However, during the long winter months, mail and necessary items are normally delivered only by the U.S. Navy patrol squadron detachment based at Keflavik.

Last Christmas, Detachment 13, VP-21, included an extra Christmas bonus for Jan Mayen. One of the squadron's SP-2H *Neptunes* dropped two cases of fresh fruit, an assortment of fruit cakes and several gallons of eggnog in addition to the regular Christmas mail.

Probably the most appreciated item in the drop on the tree-less volcanic island was a Christmas tree that had been cut down in Argentia, Newfoundland, flown to Keflavik, and later dropped to the men on Jan Mayen by VP-21.

* * *

The headquarters in Patrol Squadron 30 changed from Jacksonville to Patuxent River in January. VP-30, at Jacksonville, became VP-30 Detachment, Jacksonville. Detachment Alfa at Patuxent River became the parent squadron. Along with the change, the squadron officially converted to the *Orion*.

VP-30 was established as part of a Navy-wide reorganization which created the Combat Replacement Air Groups. The squadron was commissioned on June 30, 1960, as the Atlantic Fleet's Replacement Training Squadron for Air Antisubmarine Patrol Forces (VP). Coincident with the commissioning ceremonies in Jacksonville, Det. Alfa was formed at NAS NORFOLK for replacement training in the P-5 *Marlin*. This detachment later moved to Patuxent River.

The new Commanding Officer of VP-30 is Commander Donnell Howard. Commander George T. Denmark is Officer-in-Charge of the squadron's detachment at Jax.

* * *

In an effort to keep their surface

counterparts well informed while operating in the Far East, Patrol Squadrons 22, 28, 40, 46 and 50 maintain a project called "Goldust." Magazines, books and daily newspapers are placed in watertight containers and dropped to surface ships of the Seventh Fleet.

Following this example, Crew Nine of VP-46 took a "Goldust" package on one of its exercises with a Seventh Fleet submarine. Between qualification runs, the submarine surfaced and, after a briefing, stood by to recover a "Goldust" drop. With the after hatch open and safety lines around the crewmen, a 200-foot pass was made and "Goldust" was hand launched. A crewman on the sub retrieved the parcel with grappling hooks.

Exercises were then continued for the remainder of the period; but the crew worked even better knowing that their "Goldust" was being enjoyed beneath the surface of the blue Pacific.

THE JAN MAYEN *mail drop is hoisted aboard a VP-21 Neptune for delivery to 25 Norwegians manning a Loran station in the Greenland Sea above the Arctic Circle.*

FATHER HOFSTEE *and VP-50 man entertain a youngster at squadron party in Manila.*

PATROL SQUADRON 50's most recent good will gesture came in the form of a party for some 280 children of the Tala Orphanage in Manila. The squadron is on deployment with Seventh Fleet.

* * *

January 14 was graduation day at the Fleet Air Wing 11 Radio School, Jacksonville. Certificates were presented to 18 enlisted men by Captain H. B. Stott, Commander Fleet Air Wing 11. This ceremony marked successful completion of 13 weeks of training.

Honor man of the class was D. H. Jones, SN, of the USS *Noa*. Second honors went to A. L. Weaver, SN, of the USS *Sabine*.

The primary purpose of the school is to prepare qualified men as prospective radio operators in patrol aircraft. A minimum receiving speed of 18 words a minute is a requirement of the course. The FAW-11 Radio School was opened in August 1952.

* * *

Commander Austin V. Young, Commanding Officer of Patrol Squadron 42, was recently awarded the Vietnamese Medal of Honor, First Class by the Vietnamese Vice Chief of Naval Operations.

The award was based on his close cooperation with Vietnamese sea and shore naval units as well as his looking after the six Vietnamese observers assigned to his squadron.

* * *

Patrol Squadron 23 has been presented the Captain Arnold J. Isbell Trophy Award by Vice Admiral Charles E. Weakley, Commander Antisubmarine Warfare Force, Atlantic.

The squadron is currently headed by Cdr. T. F. Wentworth.

* * *

Five civilians were officially recognized at VP-11 ceremonies at NAS BRUNSWICK for their dramatic sea rescue of four airmen whose *Neptune* had been forced to ditch at sea. Corliss Farrin, B. E. Raynes, D. A. Gilbert, and J. A. Mitchell were crewmen aboard the *Waterbug 1*, a commercial vessel which picked up the men. W. Hartung, a radio operator ashore, was instrumental in coordinating the rescue efforts.

The citation, signed and read by Commander J. E. Klause, C. O., cited the men for their efforts in the rescue of four downed VP-11 airmen from the frigid sea near Sequin Island, Maine, on December 10, 1965.

* * *

Patrol Squadron 45 returned to Jacksonville in January after a six-month deployment to Adak, Alaska. The squadron compiled approximately 6,000 flight hours, in one month flying over 1,300 hours.

While operating out of Adak, VP-45 was under the operational control of Commander Alaskan Sea Frontier in Kodiak and the administrative control of Commander Fleet Air Wing 11 in Jacksonville.

CRASHED SEA KING FLIES AGAIN

THE LIFTOFF AND FLIGHT WERE SMOOTH IN REPAIRED SEA KING

AT NAS NORTH ISLAND on a recent midwinter day, a Navy pilot and crewman completed a helicopter flight they began almost two years earlier.

After the flight in the *Sea King*, the pilot, Commander George E. Smith said, "When I remember the tangled, mangled mess this plane was and how sure we were it would never fly again, it is very gratifying to see it today. It is as good as new."

The pilot was thinking of that day, March 15, 1964, when the SH-3A had crashed on takeoff from the USS *Bennington*. Now he and the crewman who flew with him that day were flying the same *Sea King*. It had been completely repaired by the Overhaul and Repair Department at North Island.

The accident in 1964 occurred when Commander Smith, Ltjg. David Zang and Chief F. R. Martin, all members of Helicopter Squadron Eight, prepared to make a night flight near Pearl Harbor.

The copter went out of control moments after liftoff and before it had gained sufficient altitude to clear the superstructure of the ship. Trouble in the electrical system was the cause.

The pilots wrestled with the out-of-control airplane, trying to avoid landing nose down or colliding with the bridge of the ship. Finally, the *Sea King* crashed on the flight deck in an upright position. The tail was sheared off, the landing gear collapsed and severe structural damages were sustained. It looked like a total loss.

The crashed aircraft wasn't repaired instantly. In fact, it was sent to the salvage yard at North Island for disposition. For months the black-coated carcass of the *Sea King* sat stiffly in splints which held its wheel-less fuselage up from the concrete. Bundles of wire and hydraulic lines showed through the mangled midsection. The broken tail lay near by. Major accessories and components had been removed and sent to the supply system for overhaul or re-use.

After the decision to repair the aircraft was made, the *Sea King* still remained in outside storage while a new fuselage and other replacements were obtained.

On June 25, 1965, O&R NORTH ISLAND began the overhaul. The fuselage was replaced, the tail cone and pilot's compartment were structurally repaired, accessories and components were installed as well as hundreds of other replacement items. After it was painted, the "bird" looked as fresh as one off the manufacturer's assembly lines.

On January 19 of this year when Commander Smith, now C. O. of HS-10 at NAAS REAM FIELD, flew the *Sea King*, Chief Martin, also of HS-10, was again with him. Also on the test flight was LCdr. W. H. McIntyre of ComFAir San Diego, who had been a member of HS-8 at the time of the crash.

The *Sea King* is now being "cocooned" for shipment to Southeast Asia for service. It looks like a new airplane. According to the test crew, it flies like one. The crash-damage overhaul cost half the price of a new SH-3A, according to O&R NORTH ISLAND.

Pictures in Color Ready

Now Available for Official Use

Pictures in color have been made available through the lithographic process for bulkhead decoration, according to the Chief, Bureau of Naval Weapons. Twelve color photographs, representative of the U.S. Navy have been selected. Later, others will be included.

The pictures are suitable for mounting in standard 20x16 frames. All of them are available without charge for official use. Frames are not provided.

Pictures are to be ordered on MILSTRIP format DD 1348 in accordance with the Navy Stock List of Forms and Publications (NAVSANDA 2002). The pictures are not stocked as sets; each must be ordered on a separate MILSTRIP.

Four of the pictures are of special interest to Naval Aviation: *HSS-2 Helicopters* (0619-000-0003), *Nuclear Task Force One* (0619-000-0005), *USS Kitty Hawk, CVA-63* (0619-000-0008) and *Navy Photo Crusader (RF-8) over the Alps* (0619-000-0009).

USS KITTY HAWK AND DESTROYERS

PERSONAL GLIMPSES

Editor's Corner

You Are There. After serving as a combat correspondent in Southeast Asia, Marine Master Sergeant Walter Stewart had the following personal observations recorded in the Third MAF *Sea Tiger*:

"No deodorant known will overcome five days of combat in this tropic climate."

"Hell hath no fury like a night-long ambush operation to an inveterate smoker."

"Vietnamese mountains are never less than four hours and three buckets of sweat high."

"In this war, the rifleman does not have to wonder whether the aircraft he hears in the distance is friendly."

"An infantry officer is a college graduate who lives in a soggy hole in the ground."

CHRISTMAS MAIL. Among the thousands of gifts sent to men serving in Southeast Asia was a three-foot-high Washington State spruce. Sent via air mail (and special delivery), the tree, accompanied by ornaments, was delivered to Lance Corporal Albert Barton, USMC. The tree arrived in good condition and, according to its recipient, "was as green as the day it was cut and smelling like Christmas."

Films from Home. NAS LEMOORE, Calif., families contributed films to the holiday morale of Navy men overseas. One-minute film clips of 275 families were sent to men deployed aboard Seventh Fleet carriers by the air station. Each of the families was interviewed and given the chance to send a personal Christmas greeting to "Dad." It was the third year of "Operation Morale Lift" at Lemoore. Films were edited into reels for each of 12 squadrons in the WestPac.

NEW YEAR AT SEA. The USS *Ranger* (CVA-61) was en route to Southeast Asia when the New Year caught, and passed, the ship. On the day before New Year's Eve, the *Ranger* crossed the International Dateline, gaining a day. After special dinners for crew and officers, the men watched football highlights on the ship's closed circuit TV and movies. The *Ranger* has TV tape equipment and re-runs of popular shows were included in the evening's entertainment. A CVA-61 press account concluded its description of the evening, "All in all New Year's Eve was quiet. There were no hangovers, no mess to clean up." The next day *Ranger* joined the Seventh Fleet.

Three in One Tour. Lt. Gary Gretter of RVAH-6 is completing his first four-year sea duty tour. On his first deployment in the Mediterranean, he flew A-4 *Skyhawks* with VA-172. He then reported for transition to A-3 *Skywarriors* and deployed, in 1964, with RVAH-6. In 1965 he transitioned again, this time to the RA-5C *Vigilante*, for his third Fleet jet within four years.

SANTA GETS A MEDAL. At the annual VS-30 Christmas party, the squadron C.O., Commander C. R. Vollmer, stopped everything and presented a medal to Santa Claus—the Good Conduct Medal, of course. Accepting for Santa was D. R. Iams, AO3.

Good Conduct Bonus. The Long Beach, Calif., *Independent-Press Telegram* (January 9, 1966) took editorial notice of a special policy instituted by Captain Wiley B. Howell on his ship, the USS *Bennington* (CVS-20). It seemed that Captain Howell came up with an idea for recognition of those hundreds of crew members "who do their jobs and stay out of trouble, the solid sailors that keep the ship running at top efficiency." A check of service records showed that more than 450 men (who had been aboard a year or more) had never been "on report," never been late, never had any traffic violations, never had trouble in town, never had been on unauthorized leave, never had been responsible for indebtedness letters. Each of the 450 received a mid-week, 48-hour liberty. Each month an additional 40 men will become eligible for the extra liberty. The newspaper article ended with a bow to the captain. "On the *Bennington* they have shifted the emphasis to run-of-the-mill reliability by rewarding it."

THREE PAYCHECKS. When Guy Merton Nail, ADRC, retires next October, he will reap the rewards of 40 years of service—he will pick up three pension checks each month. Now stationed at VT-28, Corpus Christi, Texas, the chief will receive Social Security payments (he is 65); he also will receive a Navy retirement income for completing more than 22 years of service, and he will receive additional income from a 17-year stint he did as a Civil Service employee before entering the Navy. Not one to sit around doing nothing (as the Seventh Fleet's "oldest chief" last year he was drawing hostile fire pay aboard the USS *Currituck*), Chief Nail plans to stay active in a boat repair business in San Leon, Texas.

"Ships that pass. . . ." Roberto Salinas, AO3, attached to VP-48, was a member of a seaplane crew on a surveillance patrol in the South China Sea area. Down below he spotted the destroyer USS *McKean*. . . . With permission of two C.O.'s, the young ordnanceman spent five minutes talking with his brother, Tomas Salinas, YN2, member of the destroyer crew. Sangley Point's *Canacao Clipper*, which reported the mid-ocean chat, asked, "How big is Southeast Asia?"

ANOTHER HOOKUP, ANOTHER VOICE. A crew from VP-8 was acting as a voice relay aircraft in the Atlantic, relaying traffic for two A-6 *Intruders* which were en route to meet the USS *Independence*. After passing bits of information, the plane commander of one of the A-6 aircraft told the VP-8 crew, "That last transmission was from ComNavAirLant himself, Vice Admiral C. T. Booth." The admiral was riding "shotgun" in the *Intruder* to greet the *Independence* upon its return from Southeast Asia. A VP-8 press release concluded, ". . . Which all goes to prove, when you answer the phone, regardless of where you are, you never know who's going to be on the other end."

LETTERS

Sharp Eyes

SIRS: The photo at top right on page 7, December 1965, states an F-8D *Crusader* is getting ready to take on a load of fuel. Some of our sharp-eyed photo pilots recognized it for what it truly is. It is number 17, Romeo Mike, an RF-8A belonging to VMCJ-1 who worked along with our photo brothers of VFP-63 Detachment during the *Coral Sea's* tour.

We enjoyed your fine article and the rest of the magazine as well. Good luck in the New Year from the officers and men of Marine Composite Reconnaissance Squadron One.

F. C. OPEKA

Commanding Officer
VMCJ-1

Take Another Look

SIR: I believe the VAW-12 Detachment aboard the *Independence* should re-examine its claim found in the November issue of *Naval Aviation News*, that their recent 504 flight hours "were the most . . . ever flown by an E-1B detachment during one month of carrier operations."

While this may be true of records in the Atlantic, it is a fairly common occurrence in the Pacific. For example, our 'Fudd' detachment flew 646 hours just this last October.

K. E. WOLFF, LCDR.

VAW-11

Transport Squadrons Cited

Commended for 1965 Operations

VR-22, formerly of the Naval Air Transport Wing, Atlantic (NATW-Lant) and now a member of the Naval Air Transport Wing, Pacific, and VR-3 at McGuire AFB, N. J., have been cited for outstanding performance in 1965 in a personal message to Captain Charles J. Eastman, Commander NATW, Atlantic.

Major General Donald W. Graham, Commander 21st Air Force (Eastern Transport Air Force), wrote, "I note with considerable pride the consistently fine record of accomplishment by the Navy Aircrews. The fact that this enviable record has been made against a tapestry of many supply and maintenance difficulties which were further aggravated by the necessity of maintaining an unending flow of strategic airlift into Southeast Asia adds to the luster of the crews' accomplishment."

During 1965 VR-22 and VR-3 flew support for U.S. troops in the Dominican Republic and participated in Operations *Desert Strike* and *Polar Strike* and met as well all routine flying commitments.

VR-22 became a member of the Naval Air Transport Wing, Pacific, November 22, 1965, with its transfer to Moffett Field from Norfolk.

New Helo Rework Program

Cherry Point Gets First CH-46

A new helicopter rework program has begun at MCAS CHERRY POINT's Overhaul and Repair Department.

The first CH-46A helicopter has entered the department as part of the progressive aircraft rework (PAR) program. The helicopter, which is assigned to HMM-265, is the pilot aircraft.

Officially accepting the CH-46 during informal ceremonies was Colonel James K. Dill, Overhaul and Repair Officer.

O&R employees at the North Carolina MCAS started preparations for the arrival of the first CH-46 *Sea Knight* for rework some time ago. That helicopter, and others to follow it, will be disassembled and its components reworked or replaced. Afterwards, all aircraft systems will be checked and tested before the helo is returned to service; the entire job is expected to take 60 work days.

The O&R department is now functioning as the single overhaul point for all *Sea Knights* in the eastern U.S. Preparations for the new responsibility included modification of shop facilities, specialized training for civilian workers, and the hiring of new employees.

A Four-Year Safety Record

North Island Notes Achievement

NAS NORTH ISLAND recently marked its fourth consecutive accident-free year. In this period, there were 75,000 hours of flight with an average of a landing or take-off every five minutes.

The Aviation Safety Officer, LCdr. T. M. Murray in speaking of the achievement, says, "Such performance attests to the professionalism of both aviators and maintenance personnel. . . .

"The divisions of the Air Operations Department, headed by Commander D. E. Runion, have worked together to make safety a part of even the smallest daily job."

The Maintenance Department provides approximately 60 aircraft for combat readiness training, and, in addition, handles servicing of from 600 to 700 transient aircraft monthly.

Flight test is the final "proof" of the effectiveness of the Progressive Aircraft Rework performed by O&R on jet fighter, ASW patrol, airborne early warning, utility and carrier logistics support aricraft, both fixed and rotary wing. During FY 1965, a representative 12-month period, O&R NORTH ISLAND reworked 708 aircraft; each received one or more flight tests.

NASA Pilot is Honored

Award Given to Former Marine

At the annual Awards Dinner of the Wings Club in January, Fred J. Drinkwater, III, received the Richard Hansford Burroughs Test Pilot Award. Mr. Drinkwater, former Marine combat pilot in WW II and Korea and holder of the Distinguished Flying Cross and Air Medal with three clusters, is now a test pilot at NASA's Ames Research Center in California.

The Award Board of the Flight Safety Foundation, which administers the award, cited Mr. Drinkwater for "contributions to the safety and efficiency of flight testing, achieved by his devoted and effective efforts in developing, refining, and describing the flight techniques required in the testing of aircraft of advanced design, particularly in the field of Vertical and Short Takeoff and Landing Aircraft (V/STOL) and in the low-speed regime of Very-High-Speed Aircraft."

The award, established by United Aircraft Corporation, honors Burroughs, a test pilot killed in 1946 when he elected to stay with his experimental fighter plane rather than bail out and chance its crashing into an inhabited area.

SQUADRON INSIGNIA

HS-11, home-based at Quonset Point, is a member of CVSG 52 aboard USS Wasp. Flying the SH-3A, the squadron makes a 'hobby' of recovering astronauts when not involved in ASW operations. The Commanding Officer, Commander Norman H. McLaughlin, picked up the Gemini 7 crew. HS-11 also was involved in the GT-4 recovery.

HELICOPTER ANTI-SUBMARINE SQUADRON 11

LOOKING FOR SOMETHING?

NAVAL AVIATION NEWS

A career? Something to do for your country? Naval Aviation has opportunities aplenty for a lifetime of satisfying work as pilot or Naval Flight Officer in an attack carrier. If you're nearing graduation, wondering what to do, see your Navy Recruiter for information.