

NAVAL AVIATION

NEWS

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43rd Year of Publication

AUGUST 1962

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A PICTURE NOT LIMITED BY THE HORIZON

'Our fleet is ever more reliant for its protection on airborne radars. These give the commander afloat a picture of the area around him that is not limited by the horizon, and which does not reveal his own location by emissions from his own vessels. . . . One of our new airborne Combat Information Center aircraft can now do the job of a whole squadron of scouting aircraft. . . .'—RAdm. Ralph Shifley, USN, 1962 Institute of Radio Engineers convention. (For story of the WF-2 Tracer team in action, see pages 12-13.)



NAVAL AVIATION

NEWS

FORTY-THIRD YEAR OF PUBLICATION AUGUST 1962

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■ COVER

At the very instant of catapult, this Douglas A4D Skyhawk from Attack Squadron 46 is shown being launched from the deck of the attack aircraft carrier, USS Shangri-La (CVA-38) at anchor in Genoa, Italy. This action shot was taken by R. E. Hamm, PH2.

Issuance of this publication was approved by the Secretary of the Navy on 3 April 1961

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NAVAL AVIATION NEWS

Collier Trophy is Shared Four X-15 Test Pilots are Honored

Cdr. Forrest Petersen, USN, is one of the four X-15 test pilots named as winners of the 1961 Robert J. Collier Trophy.

The other winning pilots are Maj. Robert White, United States Air Force; Joseph Walker, National Aeronautics and Space Administration; and Scott Crossfield, North American Aviation.

Announcement of the Collier Trophy Award to the pilots "for invaluable technological contributions to the advancement of flight and for great skill and courage as test pilots of the X-15" appears in *Look* magazine.

The Collier Trophy is given annually for the "greatest achievement in aeronautics or astronautics in America with respect to improving the performance, efficiency or safety of air or space vehicles, the value of which has been thoroughly demonstrated by



CDR. FORREST PETERSEN has recently been assigned as commanding officer of VF-154.

actual use during the preceding year."

The *Look* article announcing the award points out that while the Soviet Union was first to orbit a manned satellite, there is substantial reason to believe that, because of the X-15 program, the United States leads in controllable manned space vehicles.

The X-15 has flown higher and faster than any other winged aircraft, having achieved an altitude of 250,000 feet and a speed of 4,093 mph.

The four X-15 pilots who are being honored with the Collier Trophy were selected by a committee of 30 military and civilian aviation and space authorities.

The Seas are their School Midshipmen End Summer Cruises

Some 8000 midshipmen from the Naval Academy and 53 NROTC colleges are completing their summer training. Aboard Navy ships in the Atlantic and Pacific, they have travelled to South America, the Mediterranean, and the Arctic.

The Sixth Fleet was visited by 500 Naval Academy and 300 NROTC midshipmen. USS *Lexington* (CVA-16) took 100 NROTC midshipmen from San Diego, Calif., to Mayport, Fla., around the tip of South America. About 40 participated in an Arctic cruise on Navy icebreakers.

In all, about 3200 embarked in Atlantic Fleet ships from ten ports. They visited ports from Canada to the Caribbean. About 1400 cruised in Pacific Fleet ships in the eastern Pacific and Hawaiian waters. More than 200 cruised in submarines in both Fleets.

Aviation indoctrination courses were taken by 1000 Naval Academy men at Pensacola, and by another 1200 NROTC students at Corpus Christi. Three hundred NROTC midshipmen,

who elected to receive their future commissions in the Marine Corps, received their summer training at Quantico, Va.

Special training courses were given Naval Academy volunteers who chose to participate in paratroop, scuba diving, and survival courses during this particular period of summer training.

F4H Phantom at El Toro Set for All-Weather Fighter Unit

Marine All-Weather Fighter Squadron 314, based at MCAS EL TORO, is the first Marine unit to receive the McDonnell F4H *Phantom II*.

LCol. Robert J. Barbour, USMC, commanding VMF(AW)-314, was scheduled to be at the controls of the first F4H to arrive at El Toro.

A former test pilot, he was the first Marine to fly the *Phantom* when it was in its experimental stages.



HONORED as "Schoolmaster of the Year" in the third annual contest at NATTC Memphis, Donald F. Gohman, ADRC, receives an inscribed tray from RAdm. Joseph C. Clifton, CNATechTra. Some 2800 instructors competed.

Rescue 'First' is Claimed

HSS-2 Sea King Saves Downed Crew

Helicopter Anti-Submarine Squadron Two, based at NAAS REAM FIELD, Calif., claims the first open sea rescue to be accomplished by an HSS-2 *Sea King* helicopter.

The incident occurred while HS-2 was operating from the USS *Hornet* (CVS-12) off the coast of Southern California. Cdr. C. C. Jones and Lt. J. H. Hopp, pilot and co-pilot of a downed HSS-2, their crewman, O. D. Bundeson, ADR3, and Ltjg. J. A. Potter, a passenger, were picked up within 11 minutes by another helicopter from their squadron.

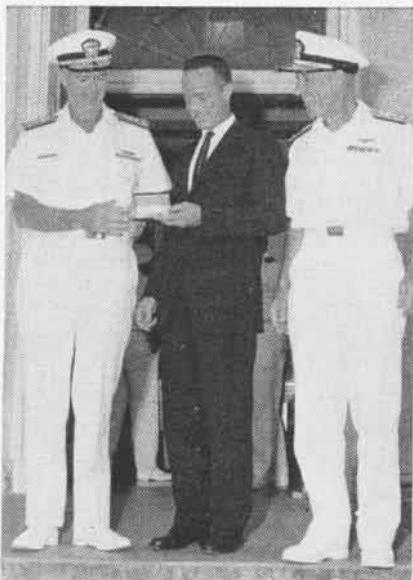
LCdr. E. E. Mellroy and LCdr. J. M. O'Connell hovered their *Sea King* over the crash site as B. B. Marshal, SO2, lowered the sling to Hopp and Bundeson, laying claim to a Pacific Fleet "first." Cdr. Jones was picked up by a second jet-powered helo from HS-2, while Ltjg. Potter was returned by a *Hornet*-based helo.



THE 17,000TH free-fall parachute descent of the Class A Parachute Rigger School, NAS Lakehurst, was made by Robert D. Maloy, AA, who qualified in his jump, along with 39 other trainees of PR(A) class No. 6213.

Air Controlmen Set Record log in 27,105 Operations in May

Air Controlmen of Forest Sherman Control Tower, NAS PENSACOLA, broke a record that was set in June 1960. They logged in 27,105 operations in the month of May. Previous mark was 24,035 operations. This was claimed as a Navy record, since it was accomplished on the single runway configuration of Sherman Field.



CARPENTER presents wings he wore in orbital flight to VAdm. Lee as RAdm. Tuttle looks on.

Carpenter Gives Wings NAS Pensacola to Open Air Museum

In a brief ceremony in NAS PENSACOLA's Pre-Flight auditorium, astronaut Scott Carpenter presented his Wings of Gold to VAdm. Fitzhugh Lee, CNATra, for inclusion in a Naval Aviation Museum. Adm. Lee, in turn, presented the wings to RAdm. M. H. Tuttle who said, upon accepting them, "The Naval Aviation Museum is hereby established."

The museum was authorized by the Chief of Naval Operations and was tentatively scheduled to open this month.

North Islander is Honored SecNav Presents Award to Ray Fife

SecNav Fred Korth presented the Navy Superior Accomplishment Award to Ray B. Fife, O&R employee, during a recent visit on NAS NORTH ISLAND. The award was presented to Mr. Fife for his contributions to the building of two reproductions of the Navy's first aircraft, the Curtiss-Navy A-1.

Fife, an aircraft examiner, supervised a North Island crew in 1961 which assembled two reproductions of the A-1. For this achievement, he received awards from the commanding officer and from the Chief of the Bureau of Naval Weapons.

The A-1 reproductions were a joint project of the Navy and the Institute of Aerospace Sciences, utilizing industry-donated material. They were

constructed to commemorate the 50th Anniversary of Naval Aviation. W. T. Immenschuh of Ryan Aeronautical Corporation was project director for the Institute of Aerospace Sciences. Capt. Paul W. Gill was the official representative of the Navy. Alfred V. Verville served as technical advisor for BUWEPs.

One of the A-1 aircraft built by Fife



SECNAV KORTH CONGRATULATES MR. FIFE

and his crew last year was an exact reproduction of the original one. It is now on display in the National Air Museum of the Smithsonian Institution, Washington, D.C.

The second machine, a flying reproduction of the A-1, was flown during the North Island Golden Wings celebration in August 1961. Reserve Naval Officer Don Germeraad, a General Dynamics-Convair Division test pilot, was at the controls. He reenacted the first seaplane flight—the one made by Glenn Curtiss in San Diego, back in February 1911.

Ney Awards are Announced NAS Miramar Declared Outstanding

The Naval Air Station, Miramar, Calif., has been selected as having the most outstanding general mess in the ashore category for the Edward Francis Ney Memorial Awards for food service. The USS *Kawisbiwi* (AO-146) was selected in the afloat category.

Afloat runners-up are USS *Helena* (CA-75), USS *Decatur* (DD-936), and USS *Northampton* (CC-1). Ashore runners-up are NAS PATUXENT RIVER, Md., and NS ARGENTIA, Newfoundland.

The high level of competition for the Ney Awards indicates all commands are vitally interested in the importance good food plays in morale.



GRAMPAW PETTIBONE

Melee

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

They refueled IFR and departed by divisions for their new destination. No problems were anticipated, since the reported destination weather was light obscuration with 5000 broken, 8000 overcast and 2½ miles in light rain and haze with little change forecast.

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

Arriving overhead at 21,000 feet, they were cleared for a division penetration with latest reported weather as light obscuration, 2800 broken, 7000 overcast and 2 miles in light rain and fog.

The overcast was entered at 19,000

*Antics like these
age a man!*



in a "finger-four" formation under GCA control. At 3000 feet, still descending, they "dirtied up." When they were at 2500 feet, GCA directed them to level off. They were given a climb-out heading and told to report on top. The field was temporarily closed, because a preceding aircraft had missed the MOREST and engaged the chain gear, and had fouled the runway.

During the climb-out, the substitute flight leader's compass was obviously

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

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

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

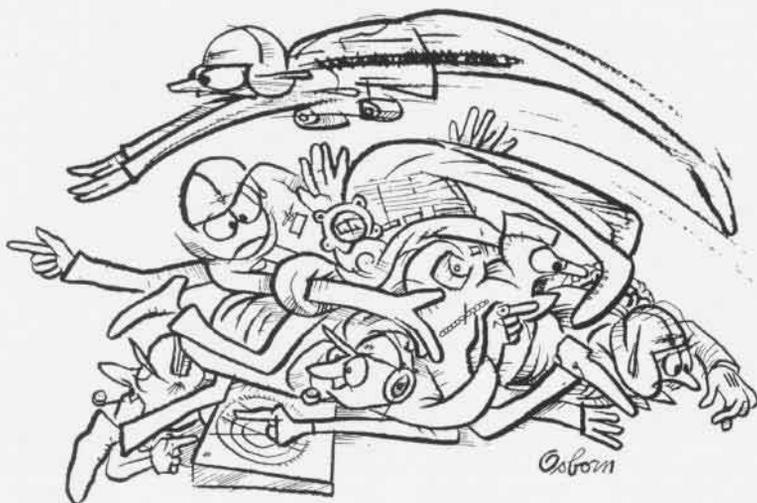
On this pass, they broke contact at about 400 feet and ½ mile and made a section touchdown, No. 2 man to take the MOREST. The section leader landed long, as planned, but the wingman hit fast and flat and porpoised, missing the MOREST and waved off. He reported 1500 pounds of fuel remaining, getting tighter by the minute.

GCA picked him up again and brought him around at 3000 feet, starting and stopping all turns, since he wasn't picking up or flying the headings given, and lined him up for a 12-mile straight-in for the runway.

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

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

He was close aboard and had to chop the power to idle and drop the nose to make the runway, but did make it, setting it down about 2500 feet down the runway at 150 knots. Again the hook missed the wire! He shut down the engine, for the brakes were ineffective on



the wet runway.

Suddenly, with about 2500 feet of runway remaining and still rolling fast, he saw another FSU touch down ahead of him, coming from the opposite direction, then pull up and leap frog over him, touching down again behind. **WHEW!**

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

Meanwhile, back to our hero. He couldn't stop and ran off the end of the runway, ending up in four feet of water, but uninjured. It had been a **RUGGED** day!



Grampaw Pettibone says:

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

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

No more than **ONE MAN** should ride down the glide slope with bum dope. After that, it's a matter of *passing* the word!

Non-Pro

A T-34B had been delivered by a naval air station to the active duty aviator-NROTC instructors at a nearby university to provide flight indoctrination rides for members of the NROTC Unit. This is part of an established program designed to create interest among these lads in selection of a career in aviation.

All went well during the first three days and the two aviators each flew about seven short hops per day with the NROTC students in the rear seat. Each hop usually consisted of a quick orbit around a nearby city, then a few turns,

wingovers and loops over an adjacent lake, a simulated emergency landing to a small field, a waveoff and then home.

One of the pilots had made plans to fly a round robin night VFR hop at the end of the third day's work—a real bear for the blue, this man.

The afternoon's work was completed a little sooner than planned, for the last student had found it necessary to use the handy bag. Rather than sit around and wait two hours for his night hop,



he decided to take a little solo hop in the interim. He took off and proceeded directly to the small airstrip nearby and shot a practice emergency landing, waving off at 75 feet. He kept it low, flew over a ridge and down the other side to a small inlet on the lake shore.

Shortly after arriving over the inlet and at about 40 feet above the water he heard a "screech" followed by a tug on the tail of the T-34. He felt pretty sure he had hit a wire so he "eased" it up to altitude and slow-flighted the bird and tried a stall or two.

All went well and she flew normally so he returned to the airfield and landed.

An inspection of the T-34 on the ground revealed a 10-12-inch gash in the vertical stabilizer about half-way up and no other apparent damage, so he went ahead and flew his night hop as planned.

Next day the indoctrination rides were continued until late in the after-

noon when our hero finally pointed out the damage to his fellow pilot. After a consultation with a civilian metalsmith and another aviator they all decided it looked O.K. and continued the rides for another full day, fortunately without incident.

After return of the "loaner" to its home naval air station, the damage was classified as "substantial" and an AAR Board convened.

Grampaw Pettibone says:

Sufferin' catfish! What a bunch of knuckle-heads! Flat-hatting, damaging a plane and then flying passengers without repairing the damage or having it checked by a qualified maintenance organization, night flying with a gashed up vertical fin—Zowie!

This kind of irresponsible flying is a mighty sad example for someone supposedly "selling aviation".

Memo from Gramps

'Pears from the volume of mail comin' in that more than a few fleet aviators haven't got their hands on a survival beacon. Forty-five hundred PRT-3's were delivered to Fleet commanders for distribution prior to February '62 plus 1750 PRC-32's on May 1. More will be comin' in a continuous flow.

A beacon on a warehouse shelf is worthless. It needs hookin' to a man—then it's priceless.

THE FIRST TO LOG 1000 LANDINGS



WATKINS SETS A HARD RECORD TO BEAT

WHEN THE announcement was made last month that Cdr. George C. Watkins, Commander of Carrier Air Group 13, had made his 1000th landing aboard a carrier, the statisticians and historians hastened to their dog-eared record books.

"Is he truly the first and only Naval Aviator to make 1000 landings on carriers?"

After more than a month of digging, the Navy's history writers are in accord—Cdr. Watkins is, they agree, the "Only and First" man to trap aboard 1000 times.

Enormity of the milestone is placed in focus, historians say, by the fact that only a few men have passed the 750-landing mark while "many" more have passed the 500-landing record. (See *At Sea with the Carriers*, page 30.)

Cdr. Watkins has flown 15 different models onto the decks of 31 carriers during his 16 years as an active duty Naval Aviator.

Cdr. Watkins made his first landing aboard the old *Ranger* (CV-4) in a TBM *Avenger* on May 1, 1946. Since that time, only one year (1951) has passed without at least a few arrested landings in his logbook.

Since taking over as CAG-13 in August of 1961, Cdr. Watkins has made 250 landings in seven different aircraft models while averaging 60 hours of flight time each month. (His average flight time since designation is 35 hours per month.)

To show how this was accomplished, one need only check his log. On Febru-

ary 7, 1962, he made the first take-off and landing aboard the USS *Constellation* (CVA-64) in an A4D *Skyhawk*. In March, he made the ship's first 1000th landing. In April, Cdr. Watkins became the *Constellation's* first Centurion. In leading up to the 100th landing on the *Constellation*, here is a summary of the 94-100th landings and missions:

- #94—AD-6—Night CCA practice
- #95—F8U-1P—Photo mission
- #96—F8U-2N—Night intercept
- #97—WF-2—CAP control
- #98—A4D-2—Loft bombing
- #99—A3D-2—Low level night attack

#100—F3H-2—Airborne intercepts

In that period he flew six different aircraft types (including two *Crusader* models), demonstrating a versatility in both propeller types and jet aircraft associated with his air group. His 1000th landing was made in an AD-6 on May 9.

In the more than 16 years since designation, Cdr. Watkins has logged a total of more than 7400 hours, including 3600 in jets. He has had two tours at the Navy's Flight Test Center at Patuxent River. As a test pilot, he made evaluation flights in many of the Navy's new aircraft and in the F-100 and F-102 Air Force fighters.

An accelerated wartime graduate of the Naval Academy, Class of 1944, Cdr. Watkins actually finished his Annapolis training in 1943, reporting to the battleship USS *Pennsylvania* for duty in the Pacific Islands campaigns. He commenced flight training in 1944 and was designated in October of 1945.

In addition to his test pilot tours, he has had seagoing billets with two staffs and a number of carrier squadrons, including command of VF-191. On April 18, 1958, he set a new world's record for altitude in an F11F-1F *Tiger*. Earlier he had been selected for membership in the Society of Experimental Test Pilots for an unofficial speed and altitude record in a *Tiger*, 1220 mph and 73,500 feet.

Cdr. Watkins' spurt to the landing record is due to end soon. He is scheduled to leave CVG-13 in the fall, possibly land at a desk in Washington, according to BUPERS.

Born in Alhambra, Cal., 41 years ago,

Cdr. Watkins showed his persistence early. Landing as second alternate for Naval Academy entrance in 1937, he spent 1938-39 at the Citadel, enlisted in the Marine Corps in 1939 with the thought that he would take the 1940 competitive examinations again. He succeeded in joining the class of '44 in June of 1940.

Aid is Flown to Honduras Navy Accomplishes Mercy Mission

To help combat an epidemic in Honduras that has killed over 100 children, a giant *Hercules* transport plane from MCAS CHERRY POINT has flown a U.S. Navy medical team and over eight tons of medical supplies and equipment into the Central American republic.

The mercy mission was undertaken at the request of the U.S. State Department after the epidemic of gastroenteritis (inflammation of the stomach and intestines) had attacked 1200 Hondurans, most of them children.

Marine Aerial Refueling-Transport Squadron 252 of the 2nd Marine Aircraft Wing, based at Cherry Point, undertook the mission.

Maj. Robert G. Hayton, acting commander of the squadron, and a crew of seven Marines flew to Andrews AF Base, Washington, D.C., to pick up a medical team of Navy doctors, nurses and hospital corpsmen.

From there the CV-1 *Hercules* flew to Norfolk, Va., to load aboard 17,000 pounds of medical supplies and laboratory equipment.

Less than seven hours later the Marine transport landed in Tegucigalpa, the capital of Honduras. The mercy mission was greeted at the airport by President Villeda Morales and U.S. Ambassador to Honduras, C. R. Burrows.



T. E. CARLTON, AMCS, VF-211's Maintenance Chief, is boosted aloft by pilots in appreciation of outstanding maintenance achieved in March. With nine FSU's, the unit logged 606.3 hours, or 43.3 hours for each Checkertail aviator.



THE F4D-1 SKYRAY auto control panel enables the students to see, hear, and feel how a system works. A training panel is a prime tool of the Naval Air Maintenance Training Group as it "takes the school to the students."

SCHOOL COMES TO THE STUDENT

IT WAS THE AIRCREWMAN'S first experience with one of the Navy's finest, but most complicated fighting aircraft. He was being exposed to all the sophisticated systems including, hydraulic, electrical, fuel oil, air induction, etc. Furthermore, he was learning about these systems, seeing the equipment operate, troubleshooting and correcting malfunctions before the first aircraft of the model was delivered to the squadron.

This training was not being conducted at the factory or at the Naval Air Technical Training Center in Memphis, but right at the naval station or MCAS where the squadron is located, in especially designed classrooms equipped with the most modern of training devices.

This aircrewman was only one of the 64,000 students trained during 1961 by the Naval Air Maintenance Training Group (formerly called Naval Air Mobile Training Group).

Officially, the mission of NAMTraGru is "to provide by means of Naval

Air Maintenance Training Detachments, technical training for officers and enlisted personnel in the operation, maintenance, and repair of aircraft and associated equipment, and to conduct such other training as the Chief of Naval Operations may direct."

NAMTraGru accomplishes its mission through 84 NAMTD's (Naval Air Maintenance Training Detachments) at Navy and Marine Corps air stations from Key West to Seattle and from Brunswick to Barber's Point.

The principal instrument with which the NAMTD's accomplish the mission of the NAMTraGru is the training panel. These panels—mostly assembled from actual aircraft parts and components—are working models of aircraft systems, spread out so students can see, feel and hear how the mechanisms work.

With the panels, the various systems are separated and displayed so that several groups can train at the same time. However, on the more modern aircraft,

such as the F4H, the panels may be interconnected to operate together as an integrated system. Thus, the students can learn how the systems interact.

A typical fuel system panel will have plexiglass models of all the fuel tanks, and colored fuel is pumped through the system. To aid teaching maintenance and troubleshooting, the instructor can introduce various malfunctions into the system, such as defective cells, fuel flow transmitter failures, defective fuel level control valves and defective pressure regulators.

Developing the training panels and equipment takes place early in the production of a new aircraft, so that the panels can be ready, the instructors trained and the NAMTD in operation before the first aircraft of the new model is delivered to the RAG squadron.

Instructors may be trained at the factory, or as in the case of the A3J, they may be trained by factory instructors on the site. (See *Getting to Know the A3J Vigilante*, NANews,

November 1961 on pages 19-22.)

There are many advantages to "taking the school to the students" the NAMTraGru way. Probably the greatest benefit is the saving of the time of trained and experienced maintenance technicians. The system is popular with the families too, since it allows the head of the household to have his training updated without leaving home base.

However, the economics of the operation are also impressive. The Navy now has more than 133 million dollars invested in NAMTG training panels and other equipment which is paying off in relatively low cost training. By taking the classroom to the student, training costs amounted to only \$3.51 per student hour for fiscal year 1961. This is a significant saving over what would have been necessary to transport all students to Memphis or to the aircraft factory, provide their training and housing and then return them to their parent command, not to mention the lost working time involved.

The 84 detachments located at 25 Naval and Marine Corps air stations bring a wide variety of training to the Fleet. Courses cover:

- Complete weapon systems including ground support equipment. These units cover the full spectrum of current fleet types. Training units for future fleet types, such as A2F, W2F-1 and HRB-1, have been organized and

will proceed to the field in time to train the personnel who must maintain them.

- Class "C" type maintenance on gas turbine compressors, such as the GTC-85 and RCPP-105.

- Class "C" type maintenance on specific aircraft engines. These units cover the J-65 (A4D, FJ4), J-57 (F8U, F4D, A3D), J-71 (F3H), J-79 (F4H, A3J), T-58 (HSS-2, HU2K, HRB), T-56 (GV-1, P3V), and J-52 (A4D-5, A2F).

- Operational procedures and maintenance of Martin-Baker seats.

- Air launched guided missiles.

- Maintenance administration.

- Atomic, biological, chemical warfare defense.

- Fundamentals of aviation, hydraulics, jet and reciprocating engines, helicopters, electricity.

- Cockpit procedures for pilot and maintenance personnel.

- Check-outs for crash-crew personnel.

The NAMTraGru had its beginning in 1942 as the "Naval Air Mobile Trainers." Squadrons were reluctant to let their key men go to centrally located schools with the resulting loss of time in travel. To solve this dilemma, the Navy decided that instead of sending the man to the school, the school must be brought to the man, and so—*Mobile Training*.

Naval Air Mobile Training dwindled after WW II to about 12 field detachments instructing on a few types

of post-war aircraft. However, the introduction of jets into the Fleet in the late Forties increased the need for specific technical training and the mobile training program grew in response. The "flattening out" of the growth curve is not yet in sight.

With the increase in the amount and complexity of aviation maintenance for the Navy's constantly expanding weapons systems, the need for increased flexibility and independent operation led to the commissioning of the Naval Air Mobile Training Group as an independent command, January 21, 1960.

In its first year NAMTraGru trained more than 51,000 students and in its second year, 64,000 students. Total output for calendar year 1962 will probably be up 30% over 1961.

The rise in students trained has been matched with an increase in course offerings and training facilities. If all the A3J courses were taken one after the other, it would require a student over two and a half years to complete them. The offerings of the P3V unit which opened shop at NAS PATUXENT RIVER on May 15, 1962 are even more extensive. "These two single detachments," stated a NAMTraGru representative, "encompass the same amount of training material as all 70 NAMTraGru detachments had only a little more than a year ago."

The sheer bulk of such training "baggage" led to redesignation of the Naval Air Mobile Training Group as the Naval Air Maintenance Training Group, effective February 1, 1962. The abbreviated title of the parent organization remains NAMTraGru, but the detachments, formerly called NAMO training units were changed to NAMT (Naval Air Maintenance Training) units.

The change in name, however, does not mean that Naval Air Maintenance Training Group has lost the flexibility of movement. To accurately describe the new concept of NAMTG, the word "transportable" has been used as the basis of retaining the important principle of taking the training to the Fleet. Nearly every type of naval aircraft maintenance detachment in this command has been moved at least twice and some as many as six times. Small Naval Air Maintenance Trainers (the Ground Support type, such as



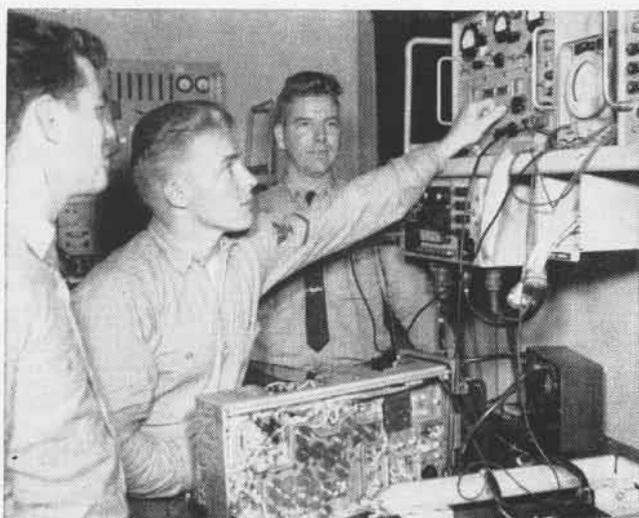
'MOBILE,' once part of the name and way of life for the detachments, now better characterizes the habits of these members of NAMTraGru's "permanent" headquarters staff, at NAS Memphis.



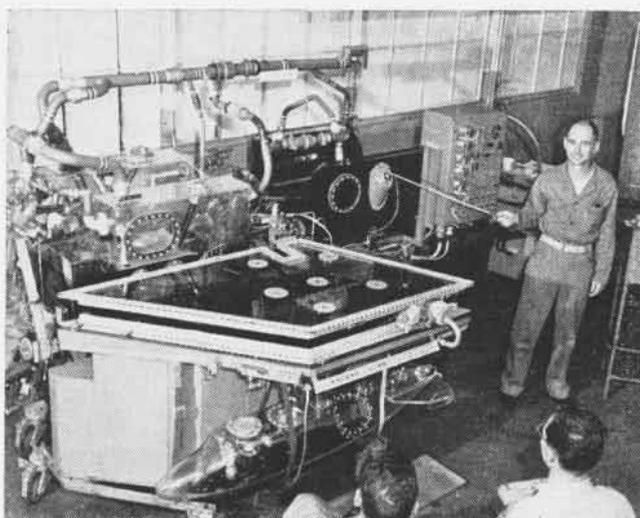
JOHN P. CONNOR, ADI, of the A4D detachment at NAS Jacksonville demonstrates operation of the probe and drogue of the "buddy" refueler.



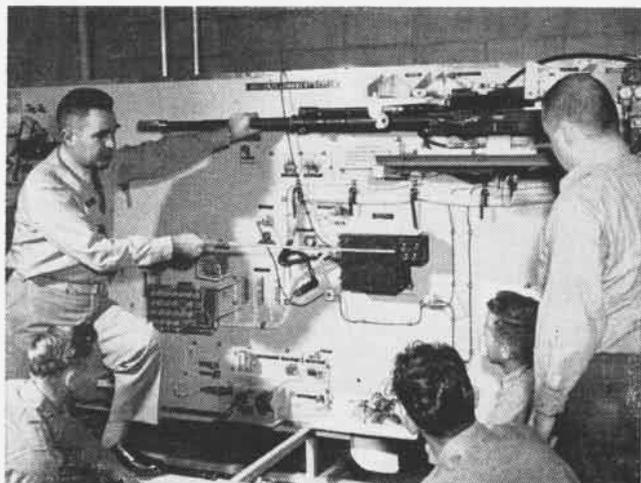
INTRICACIES of the Neptune electrical system are explained by Chief **Atticus M. Adair**, AEC, of P2V Det. 1058 at NAS Jacksonville, Florida.



ELECTRONICS SYSTEMS are vital to ASW effectiveness. Here S2F-3 students get check-out on ARC-52 from Chief Deatherage of Det. 1083.



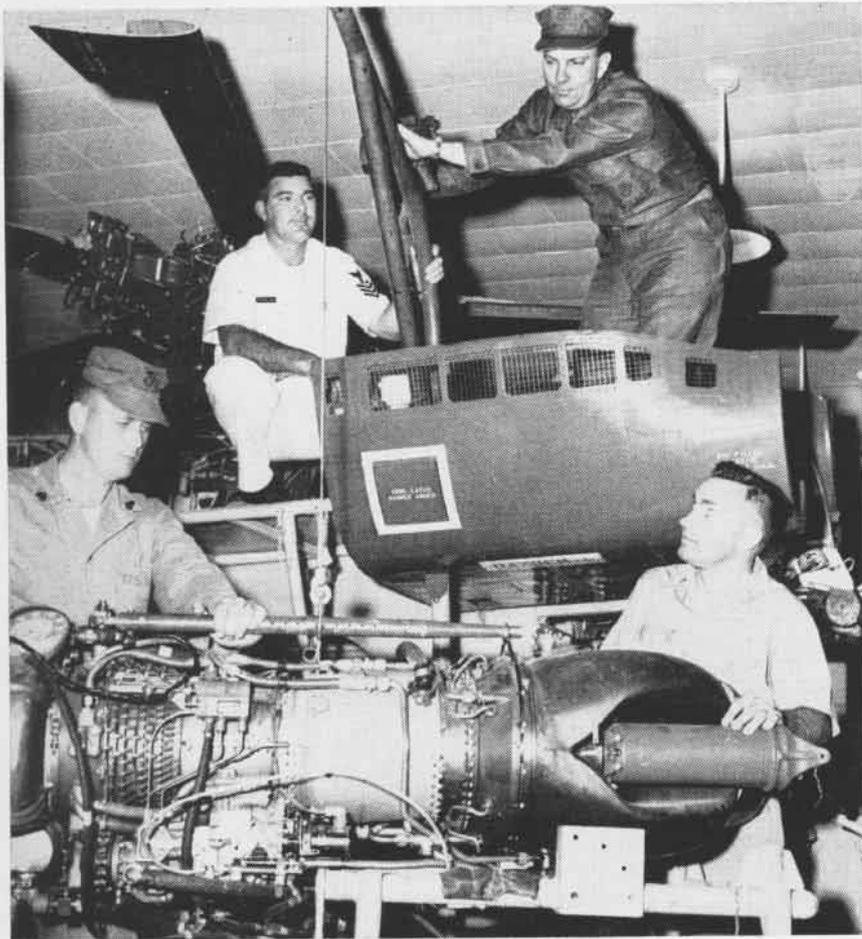
PLEXIGLASS tanks reveal inner workings of F1-4 fuel system. Malfunctions can be introduced for training of system trouble shooters.



SKYHAWK armament system is explained to ordnancemen going through A4D RAG squadron, VA-125, at NAS LeMoore by Chief P. Lapinsky.



CHERRY POINT crash crew men practice pilot rescue from A4D cockpit. Instructor, SSgt. John E. Kester, enacts the part of the injured pilot.



MARINES of maintenance group for Presidential HSS-2 practice changing the T-58 under instruction from Robert E. Scott, AD1, and Ronald L. Scott, ADC, at Naval Air Station, Key West.

GTC-85, RCPP-105, ABC, and Martin-Baker seat) move continuously during the year.

NAMTraGru's organization is as unique as its mission. This command is under the administrative control of the Chief of Naval Operations, the management control of the Chief of BuWEPs, the general cognizance of the Chief of Naval Air Training, VAdm.

Fitzhugh Lee, and reports directly to the Chief of Naval Air Technical Training, RAdm. J. C. Clifton.

Field operational control of the detachments is delegated to the type commanders they serve: ComNavAirLant, ComNavAirPac, Chief Naval Air Basic/Advanced Training. For administrative convenience, enlisted instructors for the detachments are

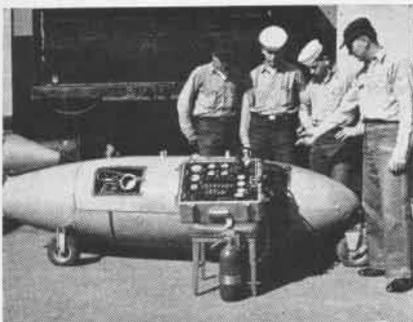
ordered to report to naval air stations or other activities on which the NAMTD's are based.

Cdr. R. E. Larson, commanding officer of NAMTra Gru, has truly a unique and challenging job in keeping his sprawling command "locked on" the goal of efficient and effective on-station training for the maximum numbers at minimum cost.

The field organization is headed by a regional officer-in-charge (East) and a regional officer-in-charge (West) at the headquarters of ComNavAirLant and ComNavAirPac respectively. At major naval activities, an area officer-in-charge administers the local detachments. Should a single detachment be located at a remote area, the leading chief of the detachment may be designated the area representative.

To keep this dispersed organization coordinated, NAMTraGru depends primarily on sound indoctrination of highly qualified and responsible instructors, standard organization of the detachments, and frequent inspections by headquarters groups.

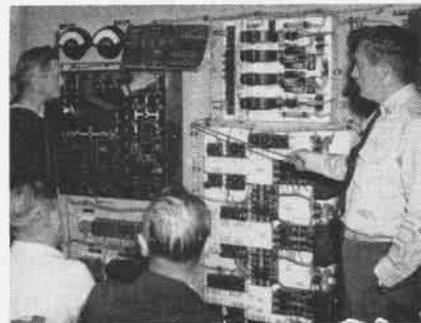
At Group headquarters are 13 officers and 113 enlisted men. Commander Stanford E. Storey, NAMTraGru X.O., has been instrumental in initiating the system of detachment inspections throughout the widely dispersed establishment. Ironically, the personnel of the "permanent" headquarters are generally much more "mobile" than those of the detachments. The headquarters personnel are subdivided into two groups, the technical advisors and the support personnel. One of the major tasks of the technical advisors is the planning, coordination, and implementation of new training programs on future aircraft, being assigned to a neophyte program and following that program through



LEMOORE gas turbine compressor detachment teaches the care and feeding of the GTC-85.



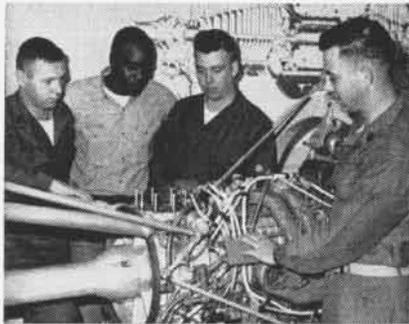
BEAUFORT FBu NAMT Detachment 1007 introduces students to Martin-Baker ejection seat.



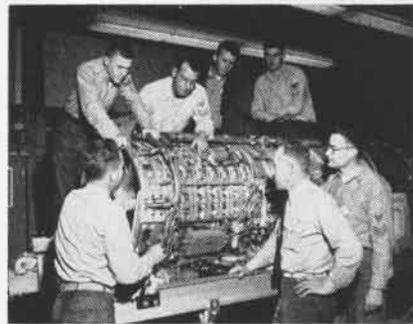
MARLIN electrical system is demonstrated by North Island P5M detachment instructors.



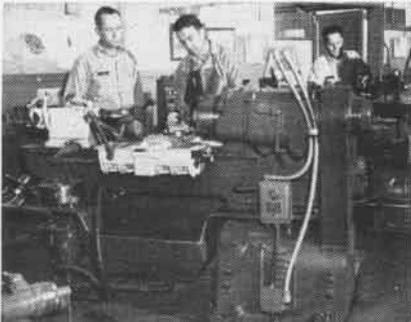
ABC DEFENSE training is provided by highly mobile Detachment 3019 at North Island.



SGT. BRUBECK of El Toro-based GV-1 Detachment 1078 acquaints students with T-56 engine.



MIRAMAR-BASED Det. 3023 teaches maintenance of mighty J-79-8 which drives the F4H.



CRAFTSMEN of Modification Department Memphis headquarters support the detachments.



AIR FORCE prepares to support Phantom II by sending its instructors to NAMTraGru.



TEST is administered by Chief Gore of Det. 1013 to F4H communications system students.

until the detachment has been formed and maintenance training has become a reality.

Another important function of the headquarters is the development, manufacture and repair of training aids. The Modifications Department has skilled technicians, carpenters, machinists and other craftsmen who overhaul and repair panels, make cut-aways from engines, and devise training aids.

Men assigned as NAMT instructors are usually first class or CPO's, and according to NAMTraGru, "above average in all respects." Future NAMTD instructors receive permanent change of duty orders to the station where their detachment will be based, with temporary duty en route at NAMTraGru headquarters for indoctrination.

Instructor Indoctrination—"Charm School"—where prospective instructors learn techniques of effective teaching takes about half the indoctrination period. The rest of the two months is spent learning headquarters operations and NAMTraGru policies.

Duty with the NAMTraGru is counted as shore duty. However, since it frequently involves considerable travel, instructors can request another

consecutive tour of shore duty as an instructor at NATTC MEMPHIS. Conversely, Technical Training Command instructors may request a follow-up tour in NAMTraGru.

As much as possible, an attempt is being made to "close the loop" with personnel highly trained on a particular weapon system or equipment. For instance, if a technician does a tour of duty on an F4H detachment, he will more than likely do his sea duty in an F4H squadron.

Many of the NAMTraGru detachments serve Marine Corps air stations, and the Group is staffed by people from both services. With the addition of the Marine F4H and HRB units, the number of Marine instructors rose from 77 early in 1961 to 177 early this year. Marines have been part of NAMTraGru since mid-1957. They are presently assigned to a variety of aircraft training detachments utilized by Marine Aviation, such as the HUS helicopters, the F4H, F4D, A4D, GV-1, T-56, J-57, J-65 and maintenance administration. Marines have also thoroughly infiltrated NAMTraGru's Memphis headquarters.

Fast reaction to changing conditions is a proud tradition of NAMTraGru. Through a system of dispatches, in-

struction is changed to keep up with the very latest technical directives on aircraft and engines.

Old units are phased out and new ones activated in response to the changing needs of Naval Aviation. For example, within the short span of two weeks, NAMTraGru reactivated its Detachment 1084 (S2F-1, 2 and 3) for the Grumman Tracker in order to meet the training requirements of VT-27 at NAS NEW IBERIA, La.

In this operation, training panels were moved from NAS MINNEAPOLIS to New Iberia. Qualified instructors in power plants, hydraulics, structures, electrical equipment, electronics, and ordnance maintenance were ordered from the two S2F operating detachments at Key West and North Island.

Recently NAMTraGru started helping the Air Force with F4H maintenance. Air Force prospective F4H maintenance instructors are being thoroughly indoctrinated by NAMTraGru personnel in Phantom II. These instructors will train the initial cadre of Air Force maintenance men. Current plans call for Air Force instructors to use NAMTraGru facilities and equipment at NAS OCEANA and NAS MIRAMAR to train Air Force maintenance personnel beginning this fall.

THE CASE OF THE UBIQUITOUS 'MR. C'

By Lt. S. U. Reynolds, VAW-12

DROP IN on a U.S. Navy Attack Carrier today—or tomorrow—or the next day, and ask where you can find "Mr. C." You'll probably be told that he's just where he should be—airborne somewhere ahead of the Fleet with a suspicious eye scanning his radar scope for the first evidence of unwelcome intruders.

Our mysterious "Mr. C" is no longer a mystery. He's the Naval Aviation Observer (Controller) or NAO(C) who is so omnipresent with the forces afloat today, that virtually any launch, from any attack carrier, is apt to find a "Mr. C" in the forefront, putting his extra special training to good use in giving the Fleets the early warning of any "unfriendlies" which they so urgently want and need today. He's the man who's apt to be underscoring the C's in Comprehensive air Coverage—the man who may well be responsible for the big "C's" in successful air intercepts.

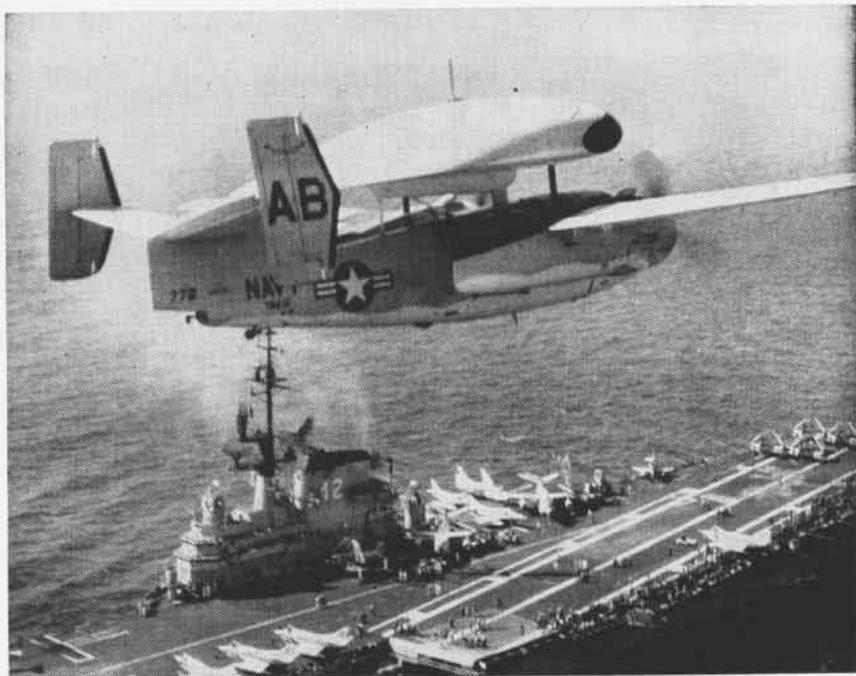
But why not strip away the illusion of mystery altogether and get down to cases. Take Carrier Airborne Early Warning Squadron 12 (VAW-12) at NAS QUONSET POINT, R.I., an outfit that takes special pride in the fact that



PILOTS ARE top men of the team for landing and take-off, but on station, it's "Mr. C."

they have over 60 "Mr. C's" included in their 150 plus officer complement. It sounds like a lot of talent—and it is. With these officers, 450 men and 42 WF-2 Tracers or Willy Fudds (in the approved Fleet jargon), VAW-12 provides early warning coverage to virtually every Atlantic coast attack carrier, and to at least one anti-submarine carrier as well.

Officers with a radar specialty have



POTENT COMBINATION of APS-82 radar and "Mr. C.," the NAO(C) controller, enables "Willy Fudd," shown passing Roosevelt, to give Fleet an early warning edge for effective air defense.

been around in the Navy for some time, but today's NAO(C) is a breed apart. What makes them stand out is the extensive up-to-date training they receive before going to sea. Let's take "Dick" and "Roger," two of VAW-12's NAO(C)'s and see what they did prior to climbing into the radar seat of a WF-2.



EYES BEHIND "the eyes of the Fleet" are usually those of an NAO(C) radar controller.

Dick, is Ltjg. Richard A. Frederick, USNR, who holds a 1355 designator. Upon graduation from college in 1958, Dick went to OCS at Newport and after receiving his commission attended a two-month Aviation Ground Officer's course at NAS JACKSONVILLE. Then he was off to NAS GLYNCO, Ga., for six months in a basic CIC course, which was followed by two more months in the NAO(C) course. He was ordered first to VW-11 at Argentina, Newfoundland, and later to VAW-12.

Roger, who is Ltjg. Roger R. Snodgrass, USN, took another path to reach the same destination. He first enlisted in the Navy in 1944 and rose to the rate of Senior Aviation Electronics Technician Chief before taking a commission with a 6802 designator through the LDO program in 1960. In his case, he first went through a 13-week pre-flight course at NAS PENSACOLA, and an eight-week NAO course at NAS SHERMAN FIELD prior to reporting to NAS GLYNCO, the Technical Training Center for all breeds of NAO's. At Glynco, Roger completed an eight-week CIC "corner-

stone" course, and after that a six-week AEW/ECM course before going to VAW-12.

As illustrated by Dick's and Roger's differing backgrounds, today's NAO(C)'s combine the enthusiasm of the younger officers with the fleet experience of the LDO's and both receive extensive specialty training before they ever pin on their wings. But the training has only begun when they reach VAW-12, for there another exacting curriculum awaits them, designed to familiarize them with the APS-82 radar installation in the WF-2 and the complexities of using it in the Fleet.

The next step for "Mr. C" is one of the detachments, or operationally ready units of the parent VAW-12 squadron which deploy as a group. For example, take Detachment 62, which recently was aboard the USS *Independence*



WHEN 'ENEMY' action is heavy, copilot acts as "tactical director" between the controllers.

ence in the Mediterranean providing the "eyes" for the U.S. Sixth Fleet. Det. 62 consists of 12 pilots, 6 NAO(C)'s and 47 men, of whom 8 are enlisted controllers. Flying four Fudds from the deck of the "Big I," Det. 62 operated as an integral part of Carrier Air Group Seven in conjunction with such well known squadrons as VF-84, VMF-115, VA-72, VAH-1, VA-75 and VA-86.

The tasks they perform? Well, they vary daily. It might be air coverage for an anchored fleet, or providing an airborne relay station for inter-ship communications, or controlling the Combat Air Patrol right down to the "kill on unfriendlies" they detect. In short, any task to be done in which their competent crews, radar or versatile radio installations can help, will probably find a WF-2 on the job getting it done. Whatever the job, it's a dead certainty that the key to its success-

ful performance is, of course, our "Mr. C."

"East meets West" might well describe the pilot-controller brand of teamwork since they are almost from "two different training worlds," and yet, are irrevocably interdependent upon each other. The WF-2, in one sense, is a very complex radar platform that flies. The pilot's job is to put that platform wherever it is needed



'ADEXES'—air defense exercises—provide practice to keep controller skills razor sharp.

and whenever it is needed—day or night in any kind of weather. Like the U.S. mail, the "Fudds must go through" and be prepared to launch anytime and to maintain an airborne station for days and even weeks on end. Then, when on station, the Controller becomes the "leading man" in the AEW "show." When it's time to land, the pilot once again occupies the spotlight.

A different kind of teamwork? Yes, it certainly is, with the pilots and controllers performing distinctly specialized functions. But there's a reciprocal kind of pride and mutual confidence that goes with it. The whole WF crew wants to get the mission accomplished in the most effective manner. All crew members are equally interested in the safe return to the "mare firma" of the flight deck. The result is a unique, yet close and seldom duplicated type of teamwork.

Is the NAO(C) program paying off? Are the funds, effort and training program achieving the dividends desired? Those in the AEW business think so, but a more objective way to answer the questions is to note briefly what is happening in the Fleet today. Squadrons such as VAW-12 are continuing to increase in size. Fleet carriers find they have more and more uses for the services of the Willy Fudd. The WF-2 has now been in the Fleet for



SLATED to join the Fleet in '64, W2F Hawkeye will continue to keep the "Mr. C's" up front.

about two and a half years, and the experience gained in that time is paying off by enabling both pilots and controllers to use this airborne radar platform at close to optimum effectiveness.

Although WF-2 is presently the most sophisticated carrier early warning plane yet utilized by the Navy, its production has already been halted. Behind these seemingly antithetical circumstances is the fact that the Fleet's first acquaintance with the W2F-1 Hawkeye is just around the corner. Another Grumman product, the W2F-1 is billed as a "flying CIC center" and is built from the ground up as an AEW aircraft. It will feature greatly extended capabilities in flight characteristics and radar performance.

Powered by two T-56A8 Allison turboprop engines, the Hawkeye will carry a crew of five. Heart of its electronic equipment is an airborne tactical data system which will collect, collate and relay data with increased speed and accuracy. Its improved radar and airborne computers will be linked with shipboard tactical data systems.

Until the W2F's arrive, the Tracers of VAW-12 and VAW-11 on the West Coast will continue to be the "best in the AEW business." Their mushroom-shaped domes will continue to command the attention of the curious from Istanbul to Yokohama.

It appears that "Mr. C" in carrier-based AEW is here to stay. In the months and years ahead, he's going to be looking for more jobs that he can perform for the U.S. Fleets, wherever they may be. Meanwhile, in units, such as the USS *Independence's* Detachment 62, and in squadrons, such as VAW-12, the pilots and the "Mr. C's" will just take one step at a time, and continue to earn the reputation they jealously guard—"the Eyes of the Fleet."

'ONE THOUSAND AVIATORS' SOUGHT

MEMBERS OF A GROUP known as the "One Thousand Aviators" are being sought out to provide a contribution to heart research that only they can provide.

They will be asked to contribute a physical examination similar to the one that they took over 20 years ago at NAS PENSACOLA. The results will then be compared for clues to long term changes in the human heart and cardiovascular system.

Who the "One Thousand Aviators" are and why they are so important now is a story that dates back to the early part of WW II. A large demand for qualified young men to serve as Naval Aviators pointed up the need for improved means of selection of candidates for flight training. The Naval School of Aviation Medicine, Pensacola, Fla., was assigned the job.

Research personnel at the medical school quickly formed their plan. To be used for the study were flight candidates at the Naval School, Pre-Flight, also located in Pensacola. They were to be given a large battery of tests of every type, and the scores would be related to success in completing the flight training program. A small group of successful aviators, serving as flight instructors in Pensacola, was also included in the group, so that their scores could be used for comparison with those of the flight candidates.

The flight candidates included those in Classes 132 to 165 at the Pre-Flight School July 1940 to July 1941.

First, the men were given a questionnaire on which both medical history and general history were detailed. Psychological tests to evaluate such qualities as mental ability, mechanical aptitude and perception were used. Basal metabolism and breathing patterns were charted. An electroencephalograph was used to measure electrical activity of the brain. Electrocardiograms were taken, both while at rest and when startled. Photographs were taken from various angles and the body-build profiles were studied.

The study provided the background information as to why some men will make good pilots and others will not. Most of the pertinent information was psychological in nature. This informa-



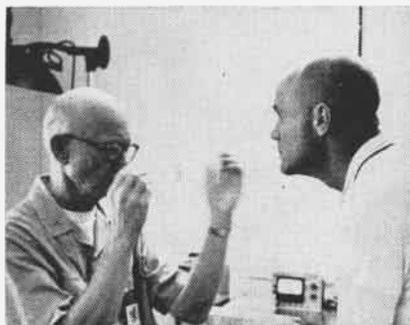
CAPTAIN GRAYBIEL IS RESEARCH LEADER

tion has since been used in developing the tests potential aviators of today take before being selected for the flight program. A rush project, the Flight Aptitude Rating test was in use prior to Pearl Harbor. Often updated, it is still used today.

Some of the tests given proved to have little relation to aviation candidate selection. Others were used to establish norms for healthy young men in the category they measured.

Not until later did the research scientists realize what a gold mine of information they possessed. Research men have a high regard for the group follow-up study. A study of a small group is inconclusive, and a study of a larger group is almost impossible to follow with later studies of the same personnel. In particular, there was and still is today a shortage of this type of study in heart research. If the men in the earlier study could be traced and given examinations again, the information would be very valuable indeed.

In the initial examinations, not all



GLENN GETS GRAYBIEL VISION CHECK

of the men had been given all of the tests. A count revealed that 1056 aviators and flight students had been given the heart examinations, and the search for these men became known as the "One Thousand Aviators" project.

The Bureau of Naval Personnel and the Bureau of Medicine and Surgery were able to provide addresses for many of the men, or the circumstances of their death if they were deceased. For the others, alumni organizations were queried, telephone books scanned and friends of the men called on for help in finding them.

In 1952 the search was halted. Over 76% of the "One Thousand Aviators" had been located. Another 20% were found to be deceased. Of the remainder, 3% were not located and 1% were located but did not answer questionnaires.

A preliminary study of the mortality rate of aviators was completed in 1953 from the gathered information. The report found that the disease death rate among the men was less than one-half that of the civilian population. During WW II, about 26% of the deaths occurred in combat, 73% from accidents and 1% from disease. The survey also discovered that 90% of the "One Thousand Aviators" were still in military or civil aviation.

In the meantime, step two of the planned study was underway, that of getting each of the located men examined for the second time. This took about two years. A special team from the Naval School of Aviation Medicine conducted the examinations at various locations throughout the country. Some of the subjects journeyed to Pensacola to receive the examination. Those overseas received their examinations at the nearest Armed Forces installation. The major tests in the series centered on the heart and the cardiovascular system. The tests were completed in 1953.

A second re-evaluation was conducted in 1957 and 1958, and the results released in January this year after careful evaluation. The 1962 report found among other things that men who had remained in Naval Aviation were in better physical condition than those who returned to civilian pur-

suits. The report emphasized in its findings the relationship of weight, family history and body build.

In May this year, a conference was held at the Naval School of Aviation Medicine and procedures were discussed for the next examinations of the remaining members of the "One Thousand Aviators." Attending the conference were Dr. William Harlan of Duke University Medical Center, Dr. Gerald R. Cooper of the Communicable Disease Center, Atlanta, Ga., and Dr. James Banta of the U.S. Public Health Service.

They met with the cardiology staff of the Naval School of Aviation Medicine. Capt. Ashton Graybiel, MC, USN, Director of Research and senior cardiologist, was a member of the team that conducted the original examinations and is author of two widely-used textbooks in the field of electrocardiology. This spring he received the Groedel Medal of the American College of Cardiology for his heart research. His principal assistants are Capt. Newton W. Allebach, MC, and Cdr. Robert E. Mitchell, MC.

The cardiologists point out that the study is reaching its productive stage, since the individuals involved are in the age group now where cardiovascular disease becomes apparent. More and more information will become available for study, and these projects may be indicated:

- Estimating life expectancy with the ultimate goal of a longer, more productive life.
- The selection of individuals for certain specific tasks, for example, aviation.
- Where individuals are found to have significant disease, a review of data for clues which would have predicted the disease.
- Comparisons between flying and non-flying personnel to determine whether those exposed to the stresses and hazards of flight are more susceptible to heart and other diseases.
- Changes which have occurred in various tests, for information on the aging process in man.

In the 1958 study of the group, 785 men were re-evaluated. The group can be expected to have narrowed further. Soon the search will begin again, and each of the "Thousand Aviators" will be sought out to make his contribution to heart research.

Transit-4A Orbits a Year Completes Over 142 Million Miles

On June 29th, *Transit-4A*, the world's first atomic-powered satellite completed its first year in orbit. The grapefruit-sized nuclear generator functioned flawlessly during 142 million miles of space flight.

Signals from the satellite's radio transmitter are beaming to earth today as strongly as when the satellite was launched. *Transit-4A* is an experimental model for an operational system of navigational satellites planned by the U. S. Navy.

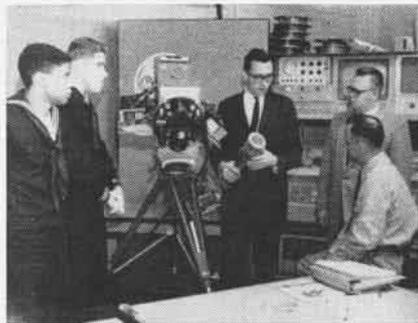
Dr. Glenn T. Seaborg, chairman of the Atomic Energy Commission, said the nation is "observing a most significant milestone" in the development of atomic energy for space purposes. He said the nuclear generator, which weighs less than five pounds, is "doing the job which at one time would have required thousands of pounds of batteries."

The AEC has announced that Martin Company is building a larger version of the nuclear generator, designated SNAP-9A, for the operational *Transit* system.

The *Transit-4A* satellite is considered to be in extremely stable orbit, according to the tracking data.

PLAT System Demonstrated Fleet Technicians Take Short Course

U.S. Navy technicians from ComNavAirLant and ComNavAirPac have completed a ten-day training program in the operation and maintenance of Pilot Landing Aid Television (PLAT) system equipment at the Ampex Corporation, Redwood City, Calif. (See *AirPac Produces PLAT for Carriers*,



INSTRUCTOR ANSWERS QUESTIONS ON 'PLAT'
NANEWS, May 1962, pages 36-37.)

Electronic specialists from the USS *Bon Homme Richard* (CVA-31) and USS *Forrestal* (CVA-59) received nearly 80 hours of instruction in the operation of the television recorder, television camera and related equipment.

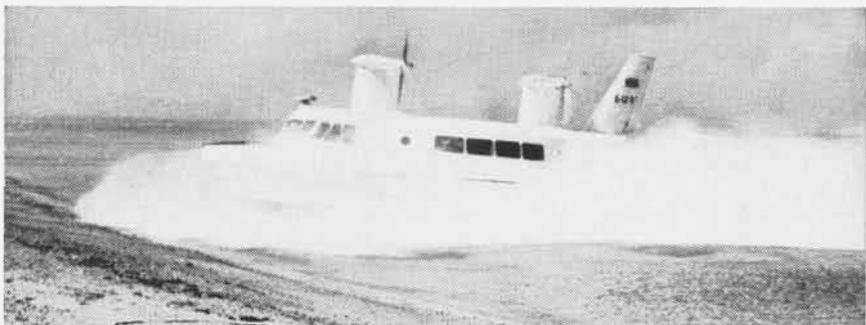
The PLAT system is a new application of TV tape recording. Recordings will be made of planes landing aboard carriers to increase precision in landing control. Recordings can be used for training in many ways.

VF-162 is Now at Miramar Last of Air Group 16 to Transfer

The last of five Air Group 16 squadrons, VF-162, has reached its new home port, NAS MIRAMAR, following the air group's shift to the Pacific Fleet from its former home at NAS CECIL FIELD.

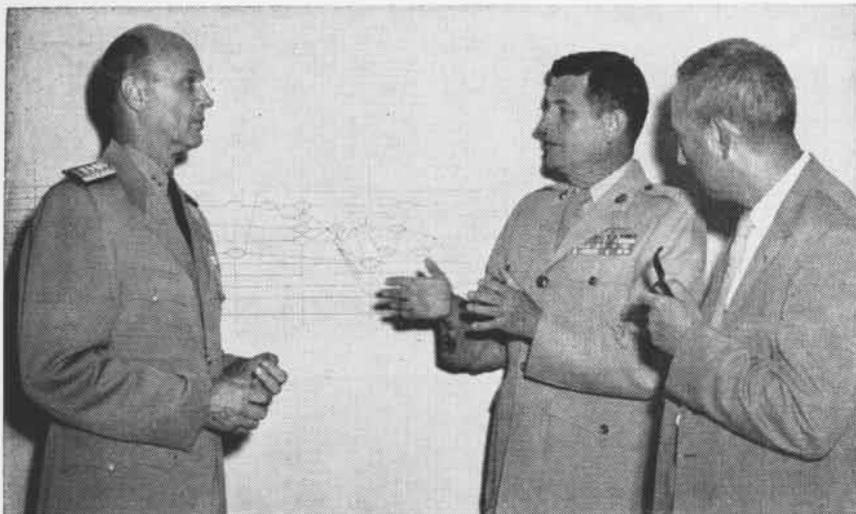
Upon arrival at Miramar, the *Hunters* were aviators without aircraft. They had turned in their F4D-1 *Sky-rays* before leaving the East Coast.

At their new station, VF-162 pilots and maintenance crews enrolled in Fighter Squadron 124's "Crusader College" and will operate FSU aircraft.



HALF SHIP, HALF AIRCRAFT, the British SR-2N hovercraft creates downwash as it commences trials in England. American observer, RAdm. R. K. James, BuShips, called the hovercraft ride "fantastic experience." Two fans push air downward, create air cushion between water and ship, topside engines provide forward speed. SR-2N speed is 60 mph, capacity is 68 passengers. American Craft, Bell "Hydroskimmer" is due to be introduced in mid-1963.

PACKAGED AVIONIC PROGRAMS



DECISION MAKERS, RAdm. F. L. Ashworth, Col. A. C. Lowell, USMC, and Capt. L. S. Chambers, discuss a problem in Project Management Center where current information is displayed.

THOUGH IT MAY have been true in 1815 as Wellington said, that "the battle of Waterloo was won in the playing fields of Eton," in 1962, the next war can be won or lost in our avionic development laboratories. This is an account of some of the new "weapons" being used by BUWEPs Avionics Division in its struggle to win that campaign.

This campaign is being fought in the over 900 research and development avionic projects managed by BUWEPs Avionics Division. About 300 projects are being done by industry under contract, the rest are assigned to BUWEPs field activities, such as NATC PATUXENT RIVER and Naval Air Development Center, Johnsville, Pa.

These programs vary from testing missile launchers and flight testing advanced navigational computer systems, to developing and prototyping a new airborne HF single sideband transmitter and receiver. These plans must be carefully integrated and controlled to accomplish the basic goals. Not only must the avionics effort be integrated and balanced itself, but it also must mesh with BUWEPs aircraft development programs. The BUWEPs Avionics Division is under the Aircraft Officer, Capt. L. S. Chambers, USN.

Capt. Chambers, together with Col. A. C. Lowell, USMC, Director Avi-

By Cdr. Henry M. Kalstad, BuWepS

onics Division, has the job of keeping all avionics RDT&E resources where they will result in the greatest contribution to the operational effectiveness of the Fleet.

The problems encountered by Col. Lowell as a "manager" controlling and coordinating avionics RDT&E efforts have much in common with the problems of the commander of a military campaign in employing the troops and other forces at his disposal in the most effective way.

The battle commander needs to know the progress various elements of his forces are making on their assigned mission. When one of his units runs into unexpected resistance, he needs to make decisions. He may decide to throw in reinforcements, or he may revise his plan and take some alternative action to achieve his ultimate objective. He must be ever ready to redeploy his forces to take full advantage of an unexpected breakthrough.

The R&D commander too must know the progress of the various projects which are part of the "campaign" to meet the needs of the Fleet. When a project is in trouble—failing to achieve the required capability or running behind schedule—he must decide whether to throw in reinforcements (more budget dollars) or cancel out

the project and try an alternative approach to giving the Fleet the required capability. He also must be ever ready to move fast to take full advantage of some new technological breakthrough.

To win the avionics "campaign," Col. Lowell and others who are directing phases of the effort must make many decisions. To help them make good decisions, at the time they are needed, requires an effective "intelligence system."

It is the task of the staff of the Assistant Director of BUWEPs Avionics Division for Plans and Programs to supply the "intelligence" needed for the avionics development "campaign."

Heart of the Avionics Division's intelligence operation is its new Project Management Center. This is the primary decision-making facility—the command post—of the division. The room reminds some people of the Decision and Display module of our latest carrier CIC. The walls are covered with up-to-date information, carefully displayed for maximum decision-making usefulness. Since much of the information is classified, the whole room is a safe—complete with a combination lock on the door.

Main decision-making aid is the "Big Board"—something which looks as though it came from Merrill, Lynch, Pierce, Fenner and Smith. Each avionic project being performed by industry under contract is covered by a strip on the board.

For each contract the strip shows:

- Name of the equipment
- Item it will replace
- Estimated cost of the production buy
- Progress in terms of standard milestones
- Total spent in previous years
- Amount budgeted for current year
- Amount budgeted for each of the next several years
- Total projected R&D cost
- Effectivity score—of which more later.

The "Big Board" makes it easy to spot projects lagging behind schedule or running over their budgets. Related projects are grouped together. This

aids in assessing the importance to a total system of "trouble" in one project.

The "effectivity score" is a key element for decision-making. This index gives a measure of the value of the project to the Fleet in relation to its cost. The "cost" of a project we always think of as the value to the Fleet of some alternative development which could be supported with the same money.

Choices have to be made. We do not have enough budget dollars—and if we did have them, there wouldn't be enough engineers and technicians to develop every idea that looks as if it might pay off. The potential value of the development to the Fleet, considered in relation to the cost of developing and procuring the new piece of equipment, is the effectivity score. Accurate calculation of this score is the key to the economical or efficient deployment of our RDT&E resources.

In his book, *The Economics of Defense in the Nuclear Age*—required reading in our shop—Mr. Charles J. Hitch, present Comptroller of the Department of Defense, emphasized that being "truly economical does not mean scrimping . . . rather economics is concerned with allocating resources—choosing doctrines and techniques—so as to get the most from available resources." This is the kind of "economy" we are trying to achieve. Mr. Hitch also pointed out that this kind of "economy" and "efficiency" are the same thing.

With the help of the "Big Board" program decisions—which are, in effect, budget decisions—will be made any time circumstances change, so that a decision is required to maintain or improve efficiency in the employment of avionics RDT&E resources. The "Big Board," with schedule and cost information highlighted, keeps the entire avionics "campaign" exposed to responsible decision makers. Progress, or lack of progress, in a given area can be noted immediately. Needed decisions can be made on the spot, not delayed to the next budget review. Programs will not be allowed to pile up costs for long months—perhaps even years—after their effectivity has dropped to where the money would bring more results on some other project.

The "Big Board" and other informa-



AUTHOR, backed by "Big Board," opens "safe" door of Avionics Project Management Center.

tion on tap in the Project Management Center will greatly simplify the working out of the annual budget. Since lifetime development cost of the programs will have been worked out and posted on the board, it will be possible to calculate the budget by merely adding up the projected development costs for each program for that year.

Under the old system, developing the annual budget was strictly a GQ operation. The problem was not one of adding up the cost of all approved programs for the following year, but one of reviewing all the programs to fit them into a realistic budget. All programs had to be reviewed during a frantic period of about six weeks. Often fairly promising programs—many we had already sunk a lot of money into—had to be cancelled or stretched out, because there wasn't enough money to fund everything that had been previously started and still have money to fund urgently needed new projects.

With the current system, where the projected total costs of programs is worked out, we will not launch a program unless we can realistically expect to carry it through to successful completion.

The old budget review flail was not only a very expensive task taking hundreds of man-days, but was also futile in a way. No sooner was the budget prepared than changing fleet needs and rapidly changing technology would make the old program decisions obsolete. The "Big Board" now makes it feasible to keep on top of all the programs all the time and make needed

program decisions at the optimum time.

The "Big Board" is not the sole source of information on which vital program decisions will be made. Its main function is to flag the occasion when a program decision is necessary. Milestone "howgozit" charts are kept on each of the 900 projects to industry and field stations. Whenever the line goes into the red, the project becomes a "red flag" item and will be brought to the attention of the director.

Another important "intelligence" device is the regular Monday morning program review meetings held in the Project Management Center. Each of the seven branch heads of the Avionics Division presents a detailed briefing of the developments of the week in his programs. All "red flag" items are reviewed and recommended courses of action considered.

The Project Management Center, the Big Board, the Monday morning meetings and the control charts are primarily concerned with monitoring the progress of programs after they have been launched. Just as important is the staff work which goes into the original approval of programs.

PERT is used in planning projects and establishing the development schedule. PERT, which stands for Program Evaluation Review Technique, was developed by the Special Projects Office for use in controlling the *Polaris* weapon system program, and is now widely used throughout industry and government.

PERT uses a network "model" of a program which brings out the important interdependencies in a development project. It will point up that series of jobs which have to be done one after the other and which will determine the time for the entire project. This series is called the "critical path."

It is not unusual to discover by working out the PERT network for a proposed project that it would be impossible to complete all the work required during the time available. In such cases, PERT helps save lots of money.

PERT is also very useful in replanning a project which falls behind schedule and is threatening to hold up an important new system. This handy tool helps us to pack the maximum possible development work into a given amount of time available for project.

We also intend to use a simplified version of the PERT-Cost system which has recently been approved for use throughout DOD and NASA.

What does all this "intelligence" effort cost? The answer is: It will probably actually save time, effort and paperwork. No information will be required which hasn't always been available somewhere in BUWEPs. The new system merely brings the available information together in one place and puts it in a convenient form for the decisions that need to be made.

The new system should actually reduce a lot of unproductive effort. Since program information, complete with schedules, effectivity estimate and cost will be available and up-to-date at all times, it won't be necessary to go through a "fire drill" rounding up a few facts every time we have to answer a question.

Planning projects and controlling development covers only part of the information for decision-making needs of the Avionics Division. If we are to develop the projects which best meet the needs of the Fleet, we have to have a way of knowing what the Fleet needs the most.

To get a feel for the Fleet's most urgent avionics problems, we are building a display which will show the mean times between failures and the maintenance man-hours per flight hour on thousands of the electronic "black boxes" in the Fleet. This information

will show where "fixes" or the development of complete new replacement units will pay off the most.

Our Project Management Center and "Big Board" had their origin in the information needs of the Avionics Division. They are not imitations of other similar tools used in other organizations, but our answer to the problem of developing and displaying the information needed to make the decisions which must be made at the Avionics Division Director level.

Many people had a part in developing these tools. However the greatest push behind the development was Col. Lowell himself.

In his two previous commands, the Colonel had successfully used fairly formalized information systems in an effort to get the highest possible mission effectiveness from the resources available to his commands.

As Commander of Marine Air Group 24, based at Cherry Point in 1959-60, he used visual presentations showing important performance indexes such as the abort rate and *maintenance man-hours per flight hour*. Application of this information led to an average 40% reduction in MMH/FH for the aircraft of his group.

When he left MAG-24, Col. Lowell took command of MCAF IWAKUNI, Japan. There he used systematic information and display systems to continuously monitor the most important factors affecting the cost of air sta-

tion operations. He then related the cost of the various air station activities to their contribution to the station's operational effectiveness. As a result he was able to reinforce those functions which contributed most to operational readiness, reduced other costs 30%.

When he came from Iwakuni to BUWEPs in the summer of 1961, Col. Lowell wanted some way of getting the information he needed to manage the avionics development effort in the way that would give the Fleet maximum effectiveness from the resources going into avionics RDT&E.

He found that technical information on individual projects was readily available. However, getting the information needed to make "rational trade-offs"—deciding when to take money from one project to give it to another where it would bring better return—was a much harder "nut" to crack. Except by bits and pieces, it was difficult to examine total program efforts and at the same time assess their value against the Fleet's urgent needs.

As he wrestled with the various decisions it was his responsibility to make, he developed a clear idea of the kinds of information needed. As his assistant for Plans and Programs, it was my job to develop a system which would bring the information together and present it in a form suitable for the decisions needed to wring the most in future fleet capability from the avionics RDT&E resources.



CLOTHES MAKE THE MAN, and VA-144 pilots decided to illustrate it. Above, "Before" is enacted by Ltjg. W. R. Matthews, and "After" by Ltjg. W. E. Turlay. Both pilots are approximately the same size, but bulky flight gear adds pounds and height to any man. At right, VA-144 pilots on the USS Lexington pose in 16 stages of flight gear that must be worn by carrier attack pilots. Left to right, they are: Ltjg.



Matthews, Cdr. J. S. Roth (C.O.), LCdr. B. E. Berglund, Lt. R. F. Reynolds, Jr., Lt. J. P. Samonds, Lt. E. C. Parker, Jr., Lt. B. C. Harkness, Lt. W. L. Cain, Lt. H. B. Humphrey, Lt. H. E. Nelson, Lt. N. R. Dabstrom, Ltjg. D. M. Walton, Ltjg. J. H. Norton, Ltjg. D. G. Deluca, Ltjg. W. B. Fleming, Jr., and Ltjg. Turlay. From beginning to end, they show the amount of clothing and the steps taken to put it on.



ONE OF FIVE P5M's assigned to Patrol Squadron 31, Marlin flies over North Island-San Diego area. VP-31 trains crews for the Pacific Fleet.



FOUR MEN IN VP-31 Constellation crew were advanced to Chief's rating. LCdr. D. L. Scott, kneeling, second from left, is Plane Commander.

VP-31'S SECOND YEAR OF OPERATION

PATROL SQUADRON 31, U.S. Pacific Fleet Replacement Training Patrol squadron, celebrated its second anniversary in June. It was commissioned 1960 at NAS NORTH ISLAND.

VP-31 provides combat VP squadrons of the Pacific Fleet with a continuous pipeline flow of operationally trained pilots, aircrewmembers and maintenance personnel. It maintains a maximum level of air combat readiness in all-weather ASW patrol forces.

Operational training in ASW has become increasingly important. VP-31 has trained over 461 pilots and Naval Aviation Observers, and more than 1600 aircrewmembers and maintenance technicians. They have flown a total of 18,643.4 hours in five different types of aircraft.

Training programs for replacement personnel are planned and scheduled to

cover courses in maintenance and operation of ASW equipment, as well as familiarization, instruments, navigation and operational training.

Among their many varied tasks, VP-31 has administrative control of shop maintenance for all VP squadrons at North Island, and supplies the majority of sonobuoys to the Pacific Fleet from their sonobuoy buildup shop. The Power Plants Division is responsible for the squadrons aircraft engines, and the engine buildup facility furnishes engines to all North Island VP squadrons.

The Material Office processes an average of 2000 orders for parts and equipment each month, and holds over 5000 custody items. They service 20 aircraft—P5M's, P2V-7's, P2V-5's, SA-16"B"s and one R7V.

VP-31 now operates under the Naval Air Training and Operating Procedures

Standardization (NATOPS) Manual. The Manual is designed to improve combat readiness and reduce aircraft accident rate, and will become the new "Bible" for training replacement pilots and aircrewmembers in the P2V. VP-31 wrote the P5M NATOPS manual.

The squadron's six-man para-loft crew packs 235 parachutes every 60 days. They continually check oxygen equipment on the aircraft, life rafts or survival equipment for reliability or damage, and issue flight clothing to all crew members.

A night check crew, consisting of about 40 men from various divisions, is maintained to work off discrepancies on squadron aircraft after normal working hours.

Cdr. Fillmore G. Koenig, Jr., is Commanding Officer of VP-31.



TRAINING OFFICER outlines program to be followed for more than 20 weeks by AT2-P1 Darden.



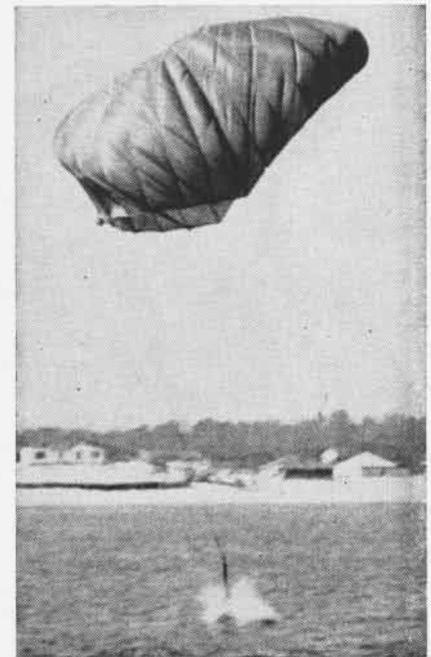
CHIEF HOBBAN helps typist Steffan prepare replacement personnel records for transfer.



NATOPS MANUAL is discussed by ADRI Leja, AMH1 Ferguson and ADRI Puirainen.



UDT MEN DELIVERED TO BEACH BY AIR



PRIMARY JOB of UDT remains unchanged, but parachute adds speed to delivery system. Removal of beach obstacles and reconnaissance are UDT special assignments during pre-landing phase.

SWIM FINS ON, UDT man jumps (top left), lets gear bag dangle in descent (top), hits water.



HELICOPTER DELIVERY brings UDT man to desired point offshore and he makes 10-foot jump into water, starts swimming toward beach (target).



ATTACHMENT OF DEMOLITIONS requires intricate knowledge of all types of explosives, as well as physical strength, swimming skill, endurance.

NAVY UNDERWATER demolition teams — intrepid frogmen who lead the way during amphibious troop landing operations—have added parachutes and aircraft to their bag of tricks.

Since 1956 U.S. Navy amphibious forces have experimented with aircraft-parachute delivery of frogmen in a program designed to speed up pre-landing reconnaissance on beaches.

Training parachute jumps have been conducted during both day and night operations. Following beach recon, the UDT men are picked up by sea craft, utilizing the normal recovery technique; however, there are research experiments underway on a revolutionary pick-up system which will enable aircraft to pluck swimmers from the water at relatively high speed.

Delivery by helicopter, without parachuting gear, is a relatively simple operation but not as speedy as a fixed wing air delivery. Recovery by helicopter is accomplished easily through the use of a pick-up ladder.

Parachute capabilities also are associated with Atlantic and Pacific Fleet SEAL (Sea-Air-Land) teams training at Little Creek, Va., and San Diego, Calif. SEAL teams were commissioned last January and identified as "Navy units trained to conduct unconventional or paramilitary operations and to train personnel of allied nations in such operations. They would be used in operations similar to Army Special Forces but in a Naval environment."

Men in the UDT parachute units are trained primarily as sailors who conduct underwater demolition opera-

tions. Their capability as parachutists is secondary and merely gives them an additional means for reaching assigned beach areas to accomplish the UDT mission.

During practice operations UDT parachutists don swim fins either in the delivery aircraft prior to jumping, or put them on as they float downward. Quick-release parachute mechanisms are designed to prevent entanglement in the parachute upon reaching the water. A flotation bag containing all the necessary tools and explosives for the assignment is carried by the chutists.

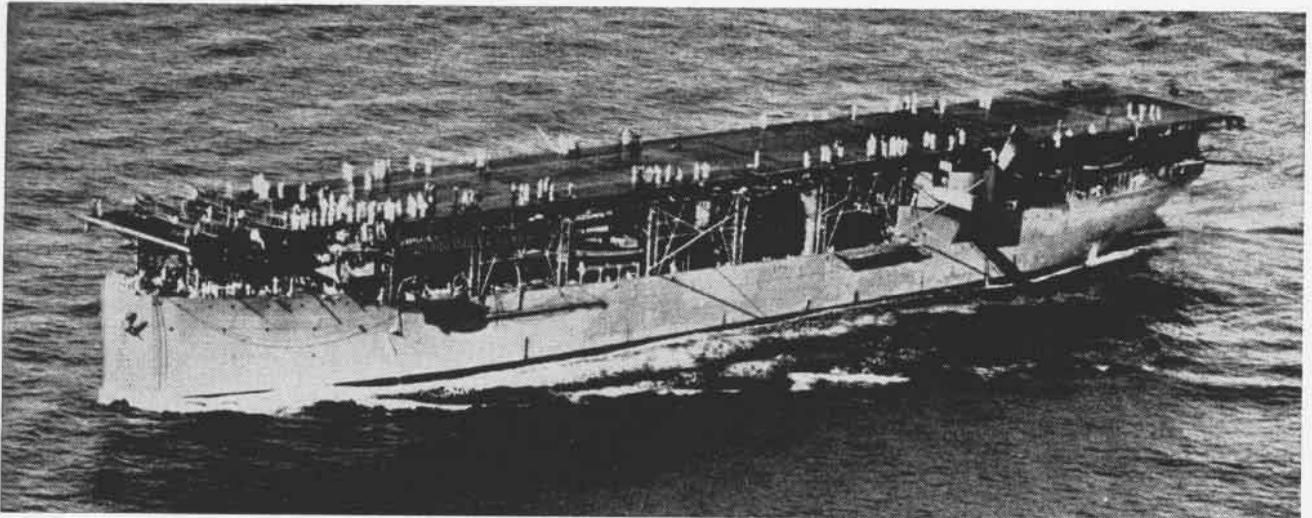
Tests for the program were conducted in the TF-1 *Trader* aircraft, which is utilized by the Fleets for fast carrier-on-deck delivery of personnel and all kinds of supplies.



MOVING HELICOPTER passes over UDT man returning from assignment. He hooks onto ladder, grabs rung and commences climb from the water.



ANOTHER SWIMMER commences climb into cabin after mission. Arm slings on ladder are reminiscent of slings used during water craft recovery.



AS SHE APPEARED in March 1925 when the first aircraft carrier appeared in the annual war games, USS Langley (CV-1) provided actual carrier capability that the first four games lacked. Fleet Problem V was conducted off California. It provided "valuable experience."

Evolution of Aircraft Carriers

FLATTOPS IN THE WAR GAMES

"If the mind's eye is always directed upon the series of engagements, so far as it can be perceived beforehand, then it is fixed upon the direct road to its goal, and thereby the movement of our strength acquires that rapidity, that is to say, our volition and action acquire that energy which the occasion demands and which is not disturbed by extraneous influences."

—Karl von Clausewitz, *On War*

ONE OF THOSE whose untiring efforts helped shape the evolution of the "all big gun battleship," Adm. William S. Sims, did not immediately endorse Naval Aviation—especially ships carrying naval aircraft—upon its introduction as a weapon in the country's arsenal. In 1909, for instance, he wrote: "According to the papers, one of the Wright brothers has stated that it would be impracticable to hit anything by dropping a projectile from his flying [machine]. That Wright man is right, all right."

Sims had a deep appreciation and understanding of the merits of the battleship as a weapon system whose evolution he had fought to promote and he was not about to write it off, except on the basis of sound evidence. During WW I and the years immediately preceding it, aircraft design improved spectacularly. By the end of the war the U.S. Navy still did not have an aircraft carrier. His observation of the limited use of such ships permitted him to state with justification, "All the aeroplane-carrying ships

in the world could not make an attack upon a foreign country unless they were supported by a battleship force that was superior to that of the enemy."

Not until the end of the war, when Adm. Sims assumed leadership of the Naval War College at Newport, did his thinking undergo a profound change. At the game board there in 1921, he recognized not only the advantages and potentials of airpower but also the brevity of the future of battleships. "If I had my way," he said, "I would arrest the building of great battleships and put money into the development of the new devices and not wait to see what other countries are doing."

By March 1922, after witnessing bombing tests off the Virginia Capes (in 1921), he had written, "The battleship is dead."

During Sims' tenure at the War College, the Navy Department inaugurated a series of war games, fleet exercises, that were conducted during the next two decades. Through these prob-

lems, the Navy obtained practical experience in testing the "new devices" under simulated combat conditions.

Naval Aviation had entered fleet maneuvers as early as the winter of 1912-13 when the entire aviation element—pilots, student pilots, enlisted men and aircraft inventory (which then totalled five planes)—was transported to Guantanamo Bay to take part in planned exercises. From their camp at Fisherman's Point where the present air station is located, they worked to achieve three goals: first, to prove the utility of the airplane as a scout under simulated war conditions; second, to test its usefulness in detecting mines and submerged submarines; and third, to stimulate interest in aviation among officers in the Fleet.

Naval Aviation next joined the Fleet in 1914, in connection with actual hostilities in Mexico. At that time, an A-3 and a C-3, put aboard the *Mississippi*, saw action at Vera Cruz. Daily reconnaissance flights kept landing forces informed of the enemy dispositions inshore. (Three planes placed

aboard the *Birmingham* were taken to Tampico but did not see action.)

As a result of the experience at Vera Cruz, Naval Aviators judged the hydroaeroplane more efficient than the flying boat type then in use. Recommendations were also made on the design of aircraft.

The Navy's air arm was still very small when the United States entered WW I. In the next year, seven months and four days, while war raged, its growth was extraordinary. By the time the Armistice was signed, the Navy had 2107 planes, 570 of which were overseas, 15 dirigibles, 205 kite balloons, and 10 free balloons.

Thirteen bases were established in the U.S. and the Canal Zone, only one of which, at Galveston, was not yet in operation. In Ireland, the Navy had four seaplane stations, one kite balloon station, a receiving station and a supply station. Two stations, including a major assembly and repair base, were established at Eastleigh, England. Two more stations and a training school were built in Italy. There were 18 stations in France, including an assembly and repair base at Pauillac and a school at Moutchic. Additionally, the Navy had a base operating in the Azores, one in Canada, and a rest station in the British West Indies. There were less than 300 officers and men in Naval Aviation when the war started in April 1917. At war's end, in November 1918, there were 39,871, of whom 19,455 were abroad.

Naval air operations in this war were predominantly in support of allied shipping, launching aircraft from land bases for anti-submarine patrols. It was not until the years immediately following the war that the U.S. Navy returned to the theory of integrating aviation with the Fleet. Although aviation had proven itself, there was still resistance within the Fleet toward the imminent merger. A CNO newsletter of July 30, 1919 carried a report on Fleet Air Operations:

"Early in January 1919, it was decided to send a Detachment of six H-16 flying boats to Guantanamo Bay, Cuba, to operate with the U.S. Fleet for the purpose of proving to it the use of aircraft in actual naval operations and of demonstrating the practicability of maintaining an Air Detachment with the Fleet. It was accordingly decided to operate these flying boats from moorings and to quarter the aviation

personnel on a ship carrying necessary repair personnel, necessary spare material, etc., for the upkeep of the squadron.

"In addition to the six flying boats there was also an airplane division consisting of two Sopwith Camels and [a Sopwith] 1½ Strutter on board the USS Texas under the command of LCdr. E. O. McConnell, USN." The Air Detachment also had a Kite Balloon Division.

At conclusion of the exercise, the newsletter continues, "Not once when the Air Detachment was called upon to send machines for operations with the Fleet has it failed to send them, and not once when machines have been sent on a certain mission has the Air Detachment failed to accomplish that mission. This has required flying in all sorts and conditions of weather, high winds, rain, fog, and low visibility. It has required duty in spotting, bombing, scouting, passenger carrying, mail carrying, and all types of work which aircraft with the Navy can be called upon to do."

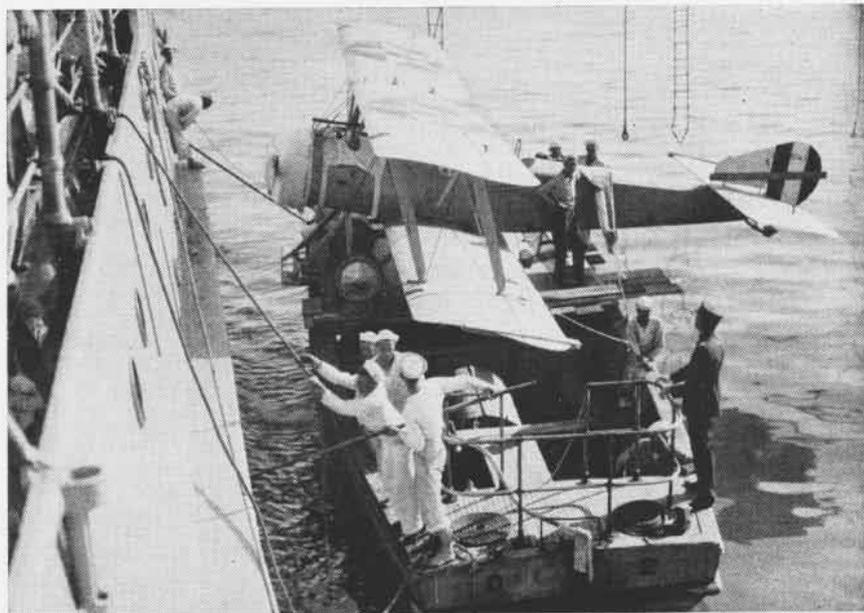
The report ends with an optimistic, though probably inaccurate, note: "The result has been that the officers of the seagoing Navy have been converted to the belief that aircraft are practicable and essential to a well rounded Fleet."

Numerous training periods and exercises were conducted subsequently, in which aviation participated with the Fleet, but it was with the annual Fleet Problem of the Twenties and Thirties that these maneuvers were conducted on the largest scale.

"Taking an ever increasing role in these problems," says historian LCdr. James M. Grimes, USNR, in a monograph on the subject, "Naval Aviation gradually developed and came of age. The Fleet Problem, therefore, serves as the measuring rod for this growth to maturity. It provides an annual check on what Naval Aviation was accomplishing and the reports and recommendations which grew out of each problem show how important the problems and their results were in development of aviation in the Navy."

A study of these problems can be made successfully by breaking them down into five groups, studying each to determine tactics employed and lessons learned. Basically, these groups are: (1) the days of the "constructive" carriers, when other ship types were designated aircraft carriers because of unavailability of the real thing; (2) the period when the USS *Langley*, a converted collier, joined the games as the only aircraft carrier in the U.S. Fleet; (3) the profound effects on tactical thought precipitated by entry of the USS *Saratoga* and USS *Lexington* into the games; (4) addition of the USS *Ranger*; and (5) the years immediately prior to WW II when the U.S. Navy operated five aircraft carriers.

The first of the Fleet Problems occurred in 1923, in the Panama-Pacific area. It was a resounding success for



SOPWITH 1½ STRUTTERS, equipped with hydrovanes in the event of a forced landing in the water, were used by the air detachments in exercises with the Fleet immediately after World War I.



FLYING BOATS, such as this World War I Curtiss H-16, made up the principal portion of the aviation units operating with the Fleet in the early post World War I naval exercises.

and the 18 patrol planes of Scouting Plane Squadron One (half the planes were based at Ballena Bay with the *Sandpiper* and *Teal*, the remaining at Bahia Honda with the *Wright*), the patrol planes based at Coco Solo, and all the available Army planes.

The *Back Fleet* was assigned the battleships *New York* and *Oklahoma* as "constructive" carriers.

Approaching the Canal, one of the battleship "carriers," the *Oklahoma*, launched a seaplane by catapult to scout ahead of the force. Early the next morning, a single plane representing an air group took off from Naranyas Cays, approached the Canal from seaward, flew over Gatun Spillway, and dropped ten miniature bombs. This plane completed its mission undetected and theoretically destroyed the Spillway.

An official report submitted after the problem pointed up the susceptibility of vital parts of the Canal to destruction by air. The report urged, among other things, that air defenses of the Canal be strengthened and that rapid completion of aircraft carriers be effected for offensive and scouting purposes.

Naval Aviation played little part in the next three exercises. It was not until Fleet Problem V in March 1925 that USS *Langley* entered exercises off the California coast. The second phase

the *Black Fleet*, given the mission of attacking the defenses of the Panama Canal, and a shattering failure for the

Blue, assigned the defense of the Canal.

Blue's air forces consisted of the tenders *Wright*, *Sandpiper* and *Teal*,



USS SARATOGA (CV-3) and her sister ship USS *Lexington* entered the war games in Fleet Problem IX in 1929. The extraordinary tactic employing *Saratoga* in this exercise revolutionized naval strategy and spurred requests for more aircraft carriers for fleet operations.

of the problems began; a new element was introduced.

Basically, the supposition for this problem was that strained relations existed between *Blue* (the U.S.) and *Black*, an imaginary country in the area of the Hawaiian Islands. When *Black* declared war, its Commander-in-Chief was ordered to Guadalupe Island where he was to occupy an unfortified anchorage from which he was to operate against *Blue* in the Eastern Pacific.

Black was given the *Langley* and the tenders *Aroostock* and *Gannet*, as well as planes based aboard battleships and cruisers. The *Blue* force was considerably smaller, having only 15 cruiser-based planes and two other aircraft based on the *Wyoming*. Planes aboard the *Wyoming* were useless, however, for the battleship was not equipped with a catapult. Grimes records:

"The Black War Diary shows that the greatest part of the air activity during Fleet Problem V was centered around the Langley. Scouting flights were conducted each day as the Black Fleet proceeded towards Guadalupe. The largest number of planes used at any one time was ten. The duration of these flights ranged from 30 minutes to two hours.

"On the last day before the arrival at Guadalupe, the Langley received a 'well done' for the feat of launching ten planes in 13 minutes! None of these flights resulted in contacts.

"On March 10, the Langley was ordered to have her planes ready for an 0530 take-off the next morning. These planes were to make an aerial reconnaissance flight over the anchorage before the Black Fleet entered. This operation never took place, the problem being terminated at 0508 March 11 by the Chief Observer."

Introduction of the *Langley* to Fleet operations was considered a valuable experience. As a result of this problem, the Commander-in-Chief, U.S. Fleet, recommended that the *Saratoga* and *Lexington* be completed as quickly as possible. He also urged that steps be taken to insure the development of planes of greater durability, dependability and radius, and that catapult and recovery gear aboard cruisers and battleships be further improved.

Details concerning Fleet Problem VI, conducted in 1926, are unavailable. Pertinent documents on orders, instructions and operation reports are lost. It is known, however, through

the Annual Report of the Secretary of the Navy, 1926, that a combined U.S. Fleet participated in a joint Army-Navy minor problem and conducted "strategical and tactical exercises in the vicinity of the Canal Zone until the middle of March 1926. Fleet Problem VI was conducted during this period."

Just before Fleet Problem VII got underway in 1927, a joint Army-Navy exercise was conducted, again testing defenses of the Panama Canal. USS *Langley* provided defense against attacks on ships by land-based Army planes and was also used for spotting submarines. This exercise marks the first time an aircraft carrier was used to protect ships of the line. Battleship-

enemy opposition. This Fleet was then to oppose the *Black* Naval Force from that base. *Black's* mission was to provide search and contact scouting, track submarines, and attack a large convoy accompanied by a strong escort. The *Langley* was assigned to the *Blue* force. Again, the converted collier-made-carrier was to provide protection for ships of the line.

On the last day of the game, *Black* conducted a surprise air attack—delivered by 25 land-based aircraft (Mole St. Nicholas)—against the *Blue* force. Shortly before this, *Langley* maintained a protective air patrol over the convoy, but discontinued it hours before the attack was pressed home. Caught unawares, *Langley's* planes were no help.



TYPICAL OF THE EARLY air-cooled engine carrier fighter, scout, and dive bomber types which flew from the *Lex* and *Sara* in Fleet Problem IX were the Boeing F2B-1's of Bomber Squadron 2.

based planes were used for spotting during bombardment of the Canal installations.

Canal defenses were again found weak, but again, "constructive" planes were used in the attacks. In each of the two attacks on Miraflores Locks, only one plane was launched; it represented the attacking forces. This was not considered an effective test. Grimes noted: "In later problems when carriers were available from which attacks in force could be launched and greater reality could be introduced into maneuvers, the vital necessity for air defense of the Canal was to become even more apparent."

The seventh Fleet Problem provided more experience in carrier operations. Conducted in the Caribbean in March, *Blue* Fleet was given the task of escorting a large, slow, overseas convoy and was then to establish a base under

Even though the problem had officially terminated by the time *Black's* aircraft reached *Blue's* ships, observers considered the attack successful, though the Commander-in-Chief scored the clumsy formation of the attacking planes.

One of the most revealing outcomes of this problem was the need to allow aircraft carriers greater latitude in maneuvering, as dictated by weather and the position of the enemy forces. Commander, Air Squadrons, also felt that he should have complete freedom of action in employing carrier-based aircraft in order to get maximum efficiency in air operations.

Fleet Problem VIII, conducted in the Hawaiian-Pacific area in April 1928, provided further experience in aircraft carrier operations and scouting patrols, *Langley*, *Aroostock* and *Gannet* again participated and again air



A SIKORSKY AMPHIBIAN, similar to this RS-3, based on the *Aroostook*, pilot "bombed" the Atlantic side of the Canal without opposition, represented all the *Langley's* squadrons in Fleet Problem IX. Its landed, and informed the "enemy" of what he had just accomplished.

operations were limited to scouting. Bad weather and heavy seas effectively limited air operations, but despite uncooperative weather, Commander-in-Chief, Battle Fleet, noted that a sufficient number of aircraft were launched from the *Langley* "to show that the use of planes from carriers for all contemplated operations is both practicable and feasible."

Of all the Fleet Problems conducted before 1940, the next, Fleet Problem IX, undoubtedly received the most publicity. Conducted in 1929, it saw the introduction of the world's largest aircraft carriers, the *Saratoga* and *Lexington*. The problems entered their third phase. "The experience gained and the conclusions drawn," says historian Grimes of this problem, "had a marked influence on the development of fleet tactics and strategy in general, and on Naval Aviation in particular."

The Panama Canal was again chosen for the critical area under hypothetical attack. Previous exercises indicated a major weakness in defense of the Canal, protection from air attack, but this problem was to test the conclusions reached in the past by providing actual aircraft carriers and full strengths of aircraft.

The problem assumed that a war had existed between *Blue* (the U.S.) and two enemy nations, *Black* (in the Pacific) and *Brown* (in the Atlantic). In airpower, *Blue* was assigned the *Lexington*, 145 naval aircraft, and the cooperation of the U.S. Army in the

Canal Zone and 37 planes based there. *Black* was given the *Saratoga* and the *Langley*. When it became evident that *Langley* would not complete overhaul in time for the games, the tender *Aroostook* was substituted, the single amphibian aboard representing *Langley's* 18 fighters and six scouts, though these aircraft were actually transferred to the *Sara*. The *Brown* force proved to be a paper power; neither ships, planes, nor personnel were assigned; other than in initial planning and estimates of the situation by *Blue* and *Black*, *Brown* ceased to be a factor in the game.

A detachment from the *Blue* force, including the *Lexington*, transited to the Pacific side before *Black* force could launch a surprise attack. On the same day, the remainder of the *Blue* force was to have left Hampton Roads for the Canal. It was *Black's* intent to destroy the Canal before this second detachment could complete the passage.

Blue's intelligence indicated that *Black* would attempt an attack on the Pacific side. Actually, *Black* planned a surprising two-pronged attack. The "squadron" aboard the *Aroostook* was to make a long-range flight, far beyond capability of return. Its attack was to be made on the Atlantic side, at the conclusion of which, the "planes" were to land and surrender. Simultaneously, *Saratoga*, accompanied by *Omaha*, was to attempt a daring tactic: take a wide, two-day swing to the south and then

launch carrier-based planes for the Pacific attack. This latter demonstration was to make a profound impression on naval tacticians.

On the morning of January 25, 1929, two days before the problem was to end, the main *Blue* force, including the *Lexington*, came upon *Black's* Striking Force. *Black's* Battleship Division Five was steaming down wind while the carrier was steaming up, preparatory to launching her planes for an air attack. The battleships opened fire and, because of the close range, would surely have sunk the *Lexington* in actual battle. For this carrier, it was a disastrous ending to her first important activity in the problem.

Umpires ruled the carrier "damaged," however, for the loss of the carrier at this early stage of the game would have had a profound restriction on *Blue's* capability during the coming "interesting" part of the problem. *Lexington* was instead penalized in speed; she was permitted only 18 knots.

The carrier had already launched some planes. After the attack by the battleships, the carrier, running into rain and reduced visibility, was forced to recover these aircraft under very adverse conditions. Noted the Commander-in-Chief, U.S. Fleet: "Flight deck personnel and flying personnel alike are deserving of great credit for the manner in which squadrons came aboard on this occasion."

The *Saratoga*, in the meantime, was steaming south. She was detected by

an enemy destroyer upon which she opened her eight-inch guns. This had unfortunate results. The destroyer was "sunk," but in the process, one of *Sara's* planes, a T3M, was destroyed. Spotted in the hangar deck just aft of the forward elevator and 68 feet from the muzzle of the gun, the plane suffered 36 crushed ribs and some torn fabric, directly attributable to the blast from the heavy gun. The eight-inchers were destined to be removed from the *Saratoga*, but not before WW II.

Later that day, the carrier encountered another *Blue* ship, the *Detroit*, which continued to track her through the night, supplying the *Blue* commander with vital information. The *Lexington* was ordered to give chase, but because of her reduced speed could not close during the night. At 0525 the next day, the Chief Observer canceled this penalty.

The 26th was an active day for the *Saratoga*, and not an altogether lucky one. Near five that morning, while about 145 miles from Panama, she launched an initial attack of 70 planes against the Canal. Her aircraft in the air, the good times were over for the *Sara*. Because of navigational discrepancies, the carrier and the *Omaha* contacted *Blue's* Battleship Division Two instead of her own Battleship Division Five. The carrier was under heavy fire at short range from three of the enemy battleships and was scored a "sinking." Had she escaped this disaster, four torpedoes "fired" from an enemy submarine at 1200 yards would have hurt her heavily and possibly sunk her. At 0656, *Sara* launched two more

squadrons, at the completion of which, she had 83 aircraft in the air.

At 0600 the same day, the *Aroostook* stopped near Jicaron Island and 17 minutes later her single plane—a Sikorsky amphibian, theoretically representing *Langley's* squadrons—took off to bomb Gatun Locks, Gatun Spillway and Coco Solo. The commander of the *Blue* force, though, had committed a blunder by not advising either Coco Solo or the Army of the substitution. The Sikorsky went about its mission of bombing the Atlantic side of the Canal, encountering no opposition. When he completed the job, he landed at the Atlantic terminal of the Canal, surrendered to a stunned "enemy" and confessed his accomplishment.

Saratoga's problems were not yet over. Shortly after the Chief Observer lifted the speed limitation from the *Lexington*, *Lex* launched her aircraft against her sister ship. The *Sara*-based planes, returning from a successful raid on Miraflores and Pedro Miguel locks and the airfields at Fort Clayton and Albright, were in the process of landing when the *Lexington*-launched planes arrived on the scene. *Sara* "went down" for the third time.

Men in the *Lexington* had little to cheer about, though, on the morning of January 27. Friendly planes of VT-9 took off from their moorings at Balboa and stood out to attack the *Black* carrier and bombarding forces. About 0700 they reached a carrier and started bombing. Later, they learned it was their own ship, the *Lexington*.

"This error was understandable," said Commander-in-Chief, U.S. Fleet,

"in view of the fact that *Saratoga* and *Lexington* were operating within 12 miles of each other at that time and it was not possible to distinguish markings, owing to the presence of a large number of men on turret tops. For purposes of identification, each turret top of the *Saratoga* bore two painted white stripes parallel to the axis of the guns. The turret tops of the *Lexington* were painted conventional war color." In later years, *Saratoga* was made more easily recognizable by the painting of a large stripe down the center of her stack.

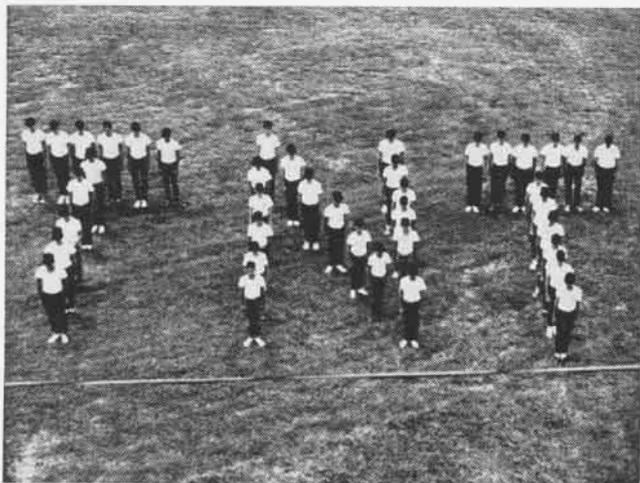
Fleet Problem IX marked an outstanding achievement in Naval Aviation. It marked the first appearance of modern large carriers with the Fleet in a fleet problem. But the most significant event of this problem, and possibly in any before WW II, was the employment of *Saratoga* as a separate striking force. Its effect on the future use of carriers was immediate. In the 1930 maneuvers, a tactical unit, built around the aircraft carrier, appeared in force organization for the first time.

For many historians of naval warfare, Fleet Problem IX marked the introduction of the fast carrier task force. Regardless of its genesis, this tactical weapon was tested and refined during the war games of the Thirties. Addition of the carriers *Ranger*, *Lexington*, and *Saratoga* was to provide more flexibility and realism in future games. A discussion of them, as well as the results of the fleet problems, will be presented in the following chapter describing in detail the evolution of aircraft carriers. ★ ★ ★

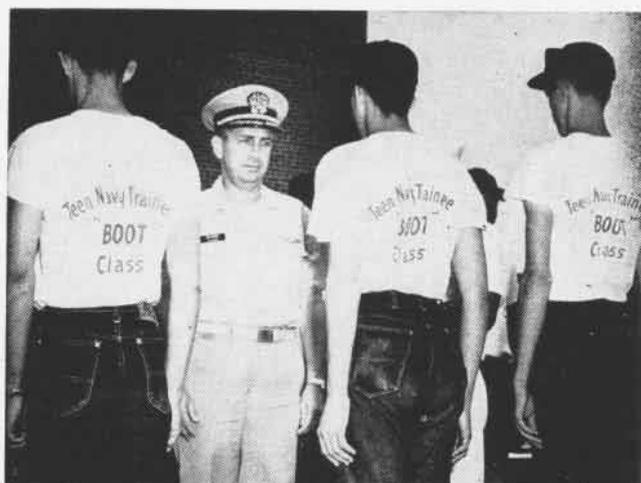


USS LEXINGTON (CV-2) as she appeared in January 1928, a month after she was commissioned. Too late to participate in the war games of that year, she entered the next enthusiastically. Pilots aboard learned much from the experiences of their colleagues in the *Langley*.

Weekend Warrior NEWS



TEENAGERS SPELL out TNT (Teen Navy Trainee) during NAS Atlanta's second summer of nautical training for high school youths in Cobb Co.



TEE SHIRTS AND BLUE JEANS are uniform for TNT men who muster for flag raising and inspection under program officer, Cdr. Thomas Blanks.

A "LONG WEEKEND"—lasting from October to July—ended for several hundred Naval Air Reserves who had been serving with the Fleet in connection with the Berlin add-on force.

Weekend Warrior squadrons which had been assigned to other than their home stations moved back late in June and early in July. This gave the personnel an opportunity to readjust to their homes and civilian job pursuits prior to release from active duty on August 1.

Among them were more than 300 officers and personnel of VP-661, who recently were flying their P2V *Nephtunes* over such widely-dispersed places as Nova Scotia and the Panama Canal. VP-661 had departed its Anacostia, Md., home station last October but returned June 29 to a NARTU based aboard Naval Air Facility, Andrews AFB. The squadron, commanded by Cdr. Ralph Kauffman, averaged more than 1000 hours of flying each month with the Atlantic Fleet. Friends and families were on hand to greet them on return.

Detroiters in Caribbean

VA-732, Grosse Ile, supported by NARMU-731, delivered enough medical supplies to outfit a clinic as a good-

will gesture during its annual training duty at Roosevelt Roads, Puerto Rico. Five tons of medical and dental supplies, donated by World Medical Relief, were presented to the people of Santo Domingo, Dominican Republic, and West Kingston, Jamaica. Capt. Arthur Schultz, Grosse Ile C.O. and Cdr. Calvin Rock, VA-732 C.O. made the deliveries. It was the first time a reserve AD squadron had visited the two countries.

Together, Memphis Style

Three enlisted men and a Naval Air Reserve aviator have served together in the same P2V *Neptune* crew since 1946. Special note of the occasion was taken when the pilot, Cdr. Carl Weigandt, Jr., assumed command of VP-791 at



EIGHT-HANDED "shake" marks 16 years of reserve duty as members of one P2V air crew.

Memphis. Crew members who have been with Weigandt's crew since formation of the squadron in 1946 are ARDC Johnson, AT1 Blue and AD2 Barton.

Same Location, New Address

Acquisition of a local post office has changed the mailing address of Naval Air Station, Los Alamitos. Mail formerly went to Long Beach. Now it's simply NAS LOS ALAMITOS, Cal.

Ross Trophy to Norfolk

Marine Attack Squadron 233, Norfolk, received the "Pete" Ross Safety Trophy for the third successive year. The Ross Trophy is awarded to the Marine Air Reserve fighter or attack squadron with the highest accident-free hour tally for the year. Presentation of the award was made by Mrs. Joseph F. Ross, who established the trophy award in memory of her son, and BGen. Louis B. Robertshaw, Commander of Marine Air Reserve Training.

Transport Units Are Busy

Transport squadrons from New York and Minneapolis had busy days of flying European and African air routes during active duty periods with VR-24 in Port Lyautey, Kenitra, Morocco.

VR-834, under Cdr. Ray Hirsch,



CHIEF HEISER holds hat and mortarboard to signify end of 10 years of off-duty training.

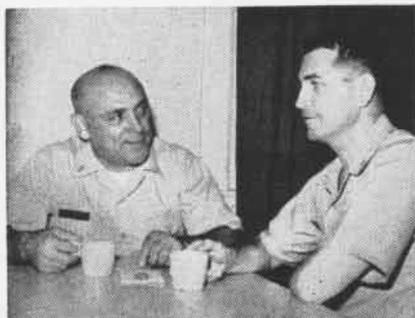
New York, claimed new records by flying 270 hours in eight days in support of the Sixth Fleet. The squadron, which arrived in Lyautey while VR-24 was in the midst of an intensive ORI, assumed much of the Regular Navy squadron's transport traffic.

Minneapolis' VR-811, also based for two weeks at the Moroccan base, logged more than a million passenger miles and more than 30,000 ton-miles with three R5D aircraft. In one week, one R5D racked up 17,000 miles of travel, more than 2700 per day. (Logging air miles comes easy to at least one member of the Minnesota squadron. He maintains a home in Atlanta, Ga., flies an airline route to Minneapolis for weekend drills.)

Both squadrons carried gifts to Morocco, including toys, baseball equipment, clothing and food. VR-834 carried six tons of clothing destined for Algerian refugees in Morocco, a gift coordinated by the American Friends Service Committee.

Dallas Claims New Record

Dallas' VP-203 claims to be the



CHIEF BENAVIDES, Cdr. McMasters conduct mayor-to-mayor talk over coffee during drill.

only Naval Air Reserve squadron anywhere to have two mayors of cities on its personnel roster. The two chief executives are Chief Storekeeper M. F. Benavides, who is mayor of Falfurrias, Texas (population 8,000) and Cdr. D. H. McMasters, mayor of Sapulpa, Oklahoma (population 15,000). No records are maintained anywhere either to refute or confirm the record claim.

Ten Years of Schooling Over

Master Chief Aviation Electrician Wayne Heiser, of Minneapolis, ended



CAPTAIN KIELING, kneeling, left, passes out Minneapolis-donated baseball gear in Tunis.

more than 10 years of part-time education by earning a Bachelor's Degree in Business Administration at the University of Minnesota. Chief Heiser, who has also managed to garner five Navy school certificates along the way, was elected to the National Honor Society, Beta Gamma Sigma.

TNT Program in Second Year

Atlanta's unique TNT program (Teen Naval Trainees) entered its second summer of operation. The program, established last year by Capt. I. J. Schwartz and the Cobb County Chamber of Commerce, gives the boys an advance taste of Navy life and an introduction to first aid, firefighting, weapons, discipline and naval history. While on board, the teenagers are treated as men, have come to expect discipline as it is meted out Navy-style. Military drills and leadership training are included among the daily training chores for more than 40 Teen Naval Trainees this year.

Legion of Merit to Blair

DCNO(Air), VAdm. R. B. Pirie, presented the Legion of Merit Award to the Dallas Operations Officer, LCDr. Leon Blair, "for exceptionally meritorious achievement" while serv-



SQUADRON COMMANDER, LCol. Campbell, accepts Marine Safety Trophy from Mrs. Ross.

ing as Public Information Officer for Commander Naval Activities Port Lyautey from 1957 to 1960. The presentation was made during Admiral Pirie's Armed Forces Day visit to the Texas city.

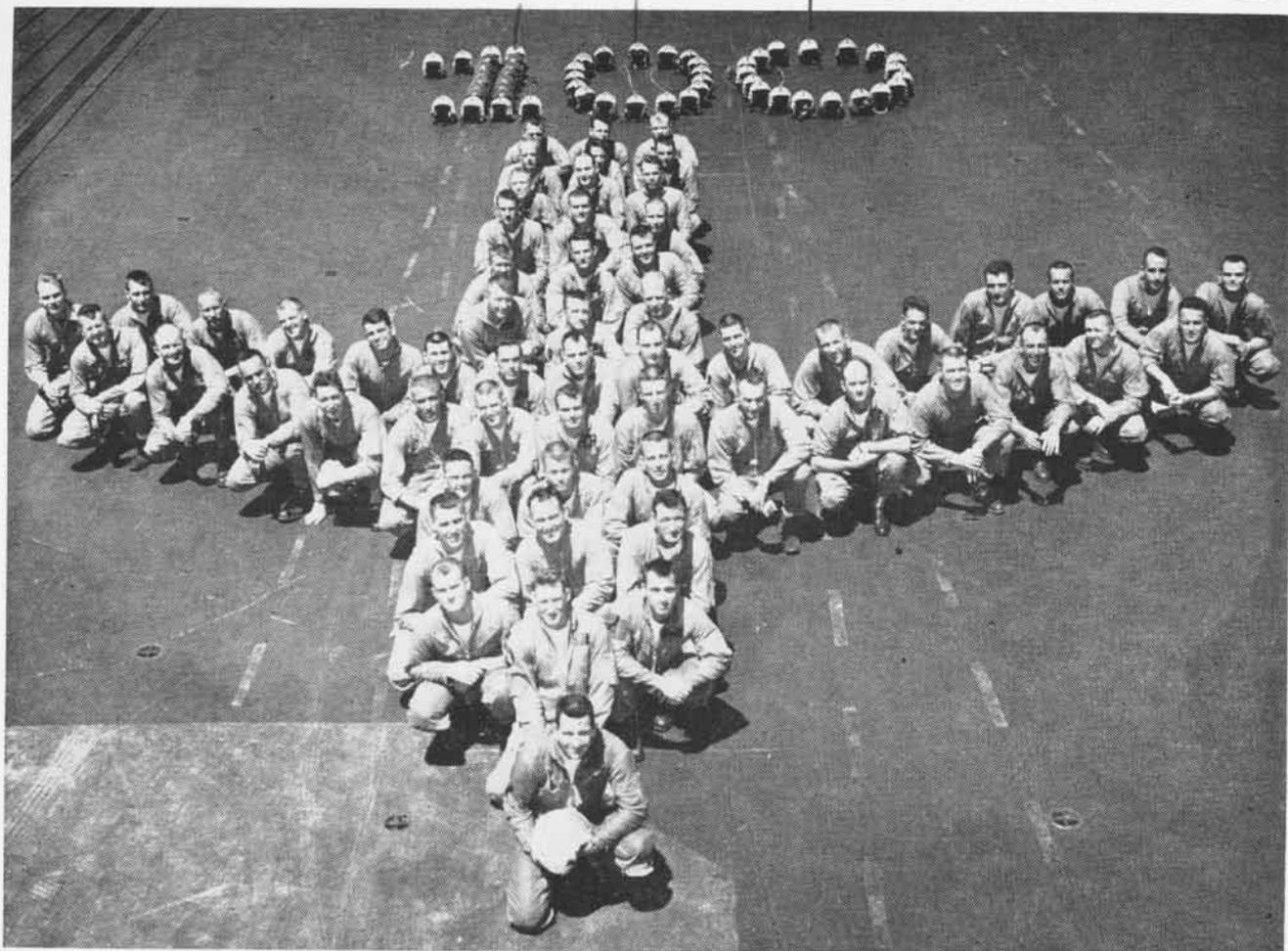
Los Al's Skydiving Captain

Still active at 57, Capt. James R. Smith, associated with the Naval Reserve WEPTU's at Los Alamitos, may be the oldest active skydiving parachutist in America. The captain, who in civilian life is swimming and water polo coach at Fullerton Junior College, manages a swimming and SCUBA diving school when not actively gliding through the air during jumps or training reservists. A former C.O. of the Navy's parachute rigging school and facility at Lakehurst, Capt. Smith has logged hundreds of hours as a test jumper. He has tested experimental canopy designs, automatic openers and exposure suits. He also coached the American water polo team for the 1955 Pan-American Games and 1956 Olympics at Melbourne, Australia.



CALIFORNIAN Captain Smith is equally at home diving into water or skydiving from aircraft.

AT SEA WITH THE CARRIERS



SEVENTY CENTURIONS of CVG-15 form an aircraft on the deck of the *Coral Sea*. Each pilot has logged 100 landings on the carrier, a record touted by the air group as "the most Centurions aboard a single aircraft carrier by a single air group." Helmets form "100."

ATLANTIC FLEET

Shangri-La (CVA-38)



YORKTOWN'S FAMILY DAY guests line the rails to observe air operations during short cruise.

Lt. Don Thomas, VA-176, became the USS *Shangri-La*'s first Double Centurion on June 14 when he made his 200th landing aboard the ship in an AD-6 *Skyraider*. Lt. Thomas has been with VA-176 *Thunderbolts* for two years, is one of the rare pilots who stays with a carrier long enough to log 200 landings.

Independence (CVA-62)

Ltjg. A. E. Victor was elected to the "Hall of Fudd-Fame" while serving with Detachment 62, VAW-12, on board the *Independence*. The young pilot compiled 1000 hours of flight time in the mushroom-topped WF-2 aircraft of VAW-12 over three Med

deployments in 30 months with the squadron. His citation for the accident-free flight period took note of his mastery of the "fudd-amentals" of fly-



MARINE PILOT Ripley's *Skyhawk* abandons cable after USS *Hornet*'s 70,000th landing.

ing the *Tracer* and his attention to the rules of "Fuddmanship." (Note: The WF-2 *Tracer* is also known as the "Willy Fudd.")

Franklin D. Roosevelt (CVA-42)

Marine Attack Squadron 224, under LCol. Paul Noel, completed night carrier qualifications aboard the *Roosevelt* in June during four nights of intensive



TRIPLE CENTURION Ward descends from *Demom* following milestone landing on *Midway*.

training. On June 8 the squadron set a new ship's record of 82 arrested landings at night. During the short tour 28 Marine pilots qualified. Flight operations were conducted from sunset until three in the morning.

Randolph (CVS-15)

Flying an S2F-3 *Tracker* from the *Randolph* while en route to a Med deployment, a flight crew from VS-26 recorded the ship's 65,000th landing. Pilot of the *Tracker* was Ltjg. Fred Spires, copilot Ltjg. Thomas Deffet. The *Randolph*, headed for the Med for the first time since 1958 and for the first time as an ASW carrier, has been the ocean home of VS-26 since the ship was converted to CVS status in 1959. The ship, engaged in a midshipmen cruise for the summer, is flagship for RAdm. James A. Reedy, Commander Carrier Division 20.

PACIFIC FLEET

Hornet (CVS-12)

Marine Lt. Mike Ripley made the 70,000th landing aboard the *Hornet* while landing aboard in an A4D-2 *Skyhawk* on June 14. Attached to



ICE CAPADES performer whirls on improvised rink during show on *Lexington's* hangar deck.

VMA-212, MCAS Kaneohe Bay, Hawaii, Ripley was shooting carrier qualification landings with other squadron mates.

Hornet played host to 17 foreign officers from Nationalist China, Uruguay, Chile, Turkey, Mexico, West Germany, Korea, Brazil, Pakistan and Argentina during a cruise off San Diego. The group observed shipboard drills, air operations and replenishment drills during the cruise.

Yorktown (CVS-10)

Yorktown had three landing milestones in quick succession in May and June. The 81,000th arrestment was made by Lt. Kimzey, VA-122, followed on June 2 by the 82,000th recorded in the ship's *TF Trader* with Lt. C. D. Ball at the left seat and Cdr. R. C. Bartlett, Jr., on the right side. (The press release reported that Lt. Ball corrected for "high" and "fast" approach conditions and that Cdr. Bartlett took care of the "low" and "slow" corrections during a "perfect roger pass.")

On June 16, a VS-23 S2F *Tracker* piloted by the squadron C.O., Cdr. Derrill Crosby, made the 83,000th land-



AIR FORCE PILOT is among 11 VF-213 pilots pictured on flight deck of *USS Hancock*.

ing. *Yorktown*, flagship of RAdm. J. O. Cobb, Commander Carrier Division 19, had been the flying platform for VA-122, VA-125, VAW-11, VAW-113, VS-41, HS-10, VS-872, VS-873 and VS-23 during an intensive re-qualification period.

More than 700 dependents took a short "family day" cruise June 8 on the "Fighting Lady," witnessing rocket runs, submarine exercises, shipboard



RADOME OF WF-2 Tracer forms canopy as LCdr. Overdorf bails "Fudd-Famer" Ltjg. Victor.

drills and weapon demonstrations. Among the visitors was Mrs. Elizabeth Eastburn, mother of Capt. W. W. Barton, USMC, C.O., of the *Yorktown's* Marine Detachment. Mrs. Eastburn celebrated her 80th birthday on board the ship by climbing seven flights of stairs to observe flight operations, then took an extensive tour of the ship.

Hancock (CVA-19)

Eleven members of VF-213, flying the F3H-2 *Demon*, have become Centurions while attached to the *Hancock* operating with the Seventh Fleet in the Western Pacific. Exchange pilot USAF Captain C. E. Eager was among those logging his hundredth landing. Others were Cdr. W. F. McCullough, squadron C.O.; LCdrs. J. R. M. Fisher II, and J. M. Faulk; Lts. R. Beeler, D. P. Duffy, D. A. Pedersen, E. E. Shiflett, and D. L. Huntress; and Ltjgs. D. C. Weaver and D. L. Horn.

Midway (CVA-41)

LCdr. J. D. Ward, VF-21, recently became a Triple Centurion, first in the *Midway's* history, and at the same time made his 100th arrested night landing on the same ship. He was flying a McDonnell F3H-2 *Demon*.

Coral Sea (CVA-43)

Joining a small but select circle of ship's company officers was LCdr. Clyde Alber, aircraft handling officer on the *Coral Sea*. Alber became a Centurion, making his 100th landing on the *Coral Sea* in a *TF Trader*. Eleven years ago, as a member of VF-12 he logged 54 landings, adding the other 46 since becoming part of ship's company two years ago. In his 19 years of flying, Alber has made more than 500 carrier landings. Ship's records indicate he is the first ship's company officer ever to become a Centurion.

Landing #108,000, meanwhile, was logged aboard the *Coral Sea* by LCdr. James Rough in an *F8U Crusader* as the ship operated with the Seventh Fleet prior to returning to the United States.

Lexington (CVA-16)

Using a portable refrigeration device and some ingenuity, the carrier *Lexington* may have become the first carrier ever to stage an ice show as entertainment for its crew. The "Ice Capades" group performed for the crew on the hangar deck, using a 15-foot portable rink for a stage.

The ice show, while rated as out-

standing entertainment by the *Lex* crew, is not likely to be repeated next year. In late July, the *Lex* was due to start a trek around South America, will replace the *Antietam* as the Pensacola-based flight training carrier.

Kitty Hawk (CVA-63)

Carrier Air Group 11 has reported for duty aboard the *Kitty Hawk* as its permanent air complement. CAG-11 is Cdr. Donald Engen. Joining the ship after she had undergone a yard period were VF-111, *F8U Crusaders*; VA-112, *A4D-2N Skyhawks*; VA-113, *Skyhawks*; VA-115, *AD-6 Skyraiders*, and the *A3D-2 Skywarriors* of VAH-13. After a June-July cruise to Pearl Harbor, the *Kitty Hawk* will start preparations for a Western Pacific deployment later in the year.

AF Cadets at North Island Get a Taste of Fleet Operations

Nearly 400 Air Force Academy cadets arrived at the North Island Naval Air Station in mid-June for a round of ship and installation visits to learn how the Navy does its job.

Arriving in a flight of five aircraft, the cadets visited several submarines, dock landing ships and destroyers at

anchor in San Diego bay. A group of nearly 100 went aboard the aircraft carrier *USS Kitty Hawk*.

The ships conducted fleet operations off the West Coast for several days.

VS-30 Sets High Score Logs 20,000 Safe Flight Hours

Air Anti-Submarine Squadron 30 achieved 20,000 consecutive accident-free flight hours on March 15. The squadron flies the Grumman *S2F-1* and *S2F-3 Trackers*.

VS-30, formerly an operational squadron at Norfolk, is now based at NAS KEY WEST. Its mission has been changed to that of operational replacement training of pilots, aircrewmembers and maintenance personnel ordered to all other squadrons based on the East Coast.

Maintenance personnel and aircrewmembers are given a five-week training course while pilots are trained for eight weeks in carrier-based ASW. The goal of the Replacement Air Group is to raise the readiness level of the Fleet by providing a continuous flow of operationally trained replacement personnel.

C.O. of VS-30 is Cdr. N. W. Wilde; Safety Officer is Lt. Tom Campbell.

LCdr. B. A. Otis Honor Man Of Replacement Officer Class 2-62

LCdr. Burdett A. Otis, Jr., overcame grading factors, heavily weighted in favor of the "first tour" officers in an operational patrol squadron, to become honor man of Patrol Squadron 30 Replacement Officer Class 2-62 at NAS JACKSONVILLE.

The grading factors included flight and ground school grades, examinations, and officer-like qualities. They favor first-tour officers, attempting to neutralize the advantage of the experienced aviator.

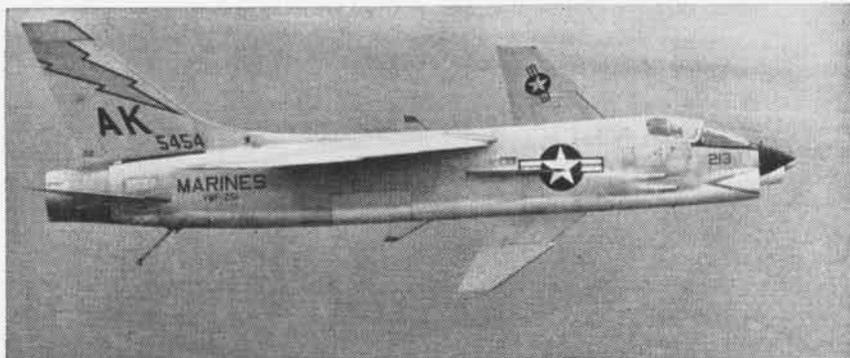
The trophy was presented LCdr. Otis by Cdr. Walter W. Honour, C. O. of VP-30, in informal graduation ceremonies.

The graduation roster of Class 2-62, headed by Cdr. William J. Vaught, class leader, included 20 pilots and eight NAO's. They were trained in advanced all-weather ASW techniques.

After graduation, the former students joined air squadrons based along the East Coast and in Bermuda, or deployed to North Atlantic, Mediterranean, and Caribbean bases.



A TERRIER MISSILE from *USS Kitty Hawk (CVA-63)* screeches toward target in one of several successful firings on the Pacific Missile Range. Firings were called a complete success by BuWeps missile experts and observers. A direct hit on a high speed target gave fillip to the firings.



TOO MANY FINS—and this is how it happened. While deployed with the Sixth Fleet aboard the USS Sbangri La (CVA-38), Marine Fighter Squadron 251 was on a routine formation flight during fleet training operations. During the flight, just as the F8U-1 Crusaders began to break off to the left, the pilot of an F8U-1 Photo Crusader from Light Photographic Squadron 62 came abreast of the formation and started his camera. This unusual photo is the end result.

2nd Time Around for Two Pilots Return to Pre-Flight School

Ltjg. Harold S. Riggs and Ltjg. George A. Everding, both Navy pilots for more than 15 years, are completing Pre-Flight's demanding syllabus for the second time at NAS PENSACOLA. The first time they were in the school as Navy enlisted pilots.

Both men were selected for the LDO program because of their leadership and technical knowledge. Their combined flight time tops the 10,000-hour mark.

Ltjg. Riggs, commenting on going through Pre-Flight for the second time, said, "I'm getting a great deal from it just as I did the first time."

He enlisted in the Navy in 1942 and has logged pilot time in patrol aircraft, transports, seaplanes and jet type aircraft. On completion of Pre-Flight, Ltjg. Riggs has orders to the United States Mission at Bogota, Colombia.

Ltjg. Everding joined the Navy in 1939 and served as plane captain on training aircraft, including the N2S's, N3N's, and SBD-type aircraft. Prior to his selection for the LDO program, he was leading chief with VA-144. After Pre-Flight, he has orders to report aboard the USS Lexington.

HS Denison is Launched Largest U.S.-Designed Hydrofoil

The largest American-designed hydrofoil ship was recently launched at the shipyard in Oyster Bay, New York.

The 90-ton HS (Hydrofoil Ship) *Denison* is the result of a joint government-industry project. It is believed to be the first operational, ocean-going hydrofoil ship in the world.

The Maritime Administration, U.S. Department of Commerce, and Grumman Aircraft Engineering Corporation developed the HS *Denison* to investigate the sea-keeping capabilities of large hydrofoils in the open ocean.

The all aluminum-hulled ship is 104 feet long, can accommodate approximately 60 passengers, and achieve speeds up to 60 knots.

Three hydraulically-actuated foils provide the ship's lift. Its two main foils, located forward of the ship's center of gravity, support 85 per cent of the ship's gross weight. A stern foil carries the remaining 15 per cent.

A hydrofoil ship "flies" in a manner similar to airplanes. The foil system provides lift as it travels through the water. As the speed of the ship is increased, the lift is increased. At about 26 knots the hull of the ship clears the water completely, freeing itself from normal water friction. The keel dur-



DENISON'S FOILS IN RETRACTED POSITION

ing this flight condition is approximately five feet above water level.

The project was named in honor of the late Col. Charles R. Denison, the first Coordinator of Research for the Maritime Administration.



A CONTRACT for an additional quantity of HU2K-1 Sea Sprite utility helicopters has been awarded Kaman Aircraft Corporation by BuWeps. The HU2K-1 is capable of operating at night or under instrument conditions.

Sea Knight Now Testing Marine Helo Gets Military O.K.

The first production model of the U.S. Marine Corps' HRB-1 *Sea Knight* twin-engine helicopter has received military acceptance and is undergoing testing at the Boeing Company's Vertol Division, Morton, Pa. Roll-out of the aircraft followed a U. S. Marine inspection tour headed by Col. Marion E. Carl, Deputy Chief of Staff (Air).

Designated a Medium Transport Helicopter, the HRB-1 is the same basic aircraft as the Boeing Vertol 107-II. Special equipment has been incorporated into the 107 design and outfits the HRB-1 for carrier-based assault transport operations.

Mission of the helicopter is to deliver troops and equipment.

VF-142 Claims New Record Sparrow III Shot from Phantom II

Fighter Squadron 142 claimed a new record during their Pre-Weapons Training Exercise deployment to NAS Pt. MUGU in May.

The squadron succeeded in launching 24 *Sparrow III* missiles in five days of flight operations on the Pacific Missile Range. This is the greatest number of missiles launched during a week by any Miramar squadron deployed to NAS Pt. MUGU.

The record is particularly notable when considering that the missiles were launched from F4H-1 *Phantom II*'s.

'SITTING ON TOP OF THE WORLD'



ICELAND DEFENSE FORCE, LOCATED AT THE KEFLAVIK INTERNATIONAL AIRPORT, IS HOME FOR SOME 4000 AMERICAN MILITARY PERSONNEL

COMMANDER TODAY by a U.S. Naval Aviator, there is an American citadel in the Republic of Iceland that constitutes a vital link in the North Atlantic Treaty Organization defense chain. It provides an essential northern bulwark, not only for the defense of the United States and Iceland, but for all North America and other NATO countries.

In July 1961, RAdm. Robert B. Moore, USN, assumed command of the Iceland Defense Force, a multi-service organization designed to provide maximum protection to Iceland and her NATO partners. His preceding assignment had been the command of the Airborne Early Warning Wing Atlantic, and Fleet Air, Argentina, with additional duty as Commander Barrier Force, Atlantic.

Except for those who have been there, most people would be surprised to discover hundreds of American sailors, Marines and airmen stationed a stone's throw from the Arctic Circle in Iceland.

But there they are—and very much at home. For they have been in Iceland, literally "sitting on top of the world"—for almost 11 years.

Though the Iceland Defense Force Headquarters is primarily a naval organization, men clad in Air Force blue and a sprinkling of Army green are seen in its corridors.

Behind the walls of the low single-storied buildings, activity hums for many hours each day, whether it be the square-anchor-decorated home of NS KEFLAVIK or the humpbacked cluster of quonset huts, which houses Headquarters, Iceland Defense Force.

While Adm. Moore's primary job is Commander Iceland Defense Force, this is but a small portion of his responsibilities. He is also Commander Fleet Air Keflavik, Commander Barrier Force Atlantic, and NATO's Island Commander, Iceland.

On the flightline, one finds units of the Atlantic Barrier Force with its radar-equipped *Constellations* adjacent to the sleek Navy *Neptune* patrol planes. Next to these are the bulbous radar noses of F-89D's assigned to the U.S. Air Force's interceptor squadron.

American forces are not strangers to Iceland. During WW II, over 55,000 were billeted in tents, quonset huts, makeshift buildings in over-crowded Reykjavik, the nation's capital. In

that conflict, Iceland naturally became one of the primary North Atlantic filling stations. Without the key U.S. Naval Base at Reykjavik, the continuous routing of shipping on the perilous but imperative "Murmansk Run" could not have been accomplished.

This island of the midnight sun is geographically important, for it is on the direct great circle air route between America and Europe.

The largest airstrip used in Europe during WW II was located at Keflavik, and this is where the majority of American armed forces are stationed today.

It is no secret that this huge air facility as well as the various costly naval installations were largely financed and built by the United States. Its defense today, by the United States force, is certainly in order. Iceland's security against aggression, in fact, is now entirely dependent on strong protection from elsewhere. Though its people are strong, hardy, and proud, there are but 180,000 of them on the entire island—too few to support an Army, Navy or Air Force of their own. Completely unarmed for centuries, their only military force is their coast guard whose

primary missions are the controlling of fishing areas and rescue.

The strategic importance of this great island—some 40,000 square miles in area, and but 500 miles from Scotland's shores—became apparent to the Germans long before WW II.

Actually, the German invasion hardly passed the planning stage. The British occupation, upon invitation by the Icelandic Government, was a very positive undertaking. Their arrival undoubtedly deterred any possibility of a German invasion.

Urged by the desperate need of the Prime Minister of Britain for troops elsewhere, President Franklin D. Roosevelt agreed to take over the defense of Iceland for the Allies. The terms of the North Atlantic Charter, dramatically consummated in the Atlantic aboard the formidable cruiser *Augusta*, did not specify when the change was to be made. The move was effected only upon receipt by President Roosevelt of an invitation from Iceland's late President Sveinn Bjornsson for American troops to relieve the British.

The American visitors were to assume the defense of Iceland until September 1946. It was only then, four long years later, that the last of the American forces discontinued their Arctic vigil and American installations were turned over to the Government of Iceland.

Five years later the Icelandic Government, with the participation in the NATO Agreement in mind, signed an agreement with the Government of the United States, also a member of NATO, to provide for the defense of Iceland.

The North Atlantic Treaty is far more than a defensive military document under which the Allies agree to come to each others' assistance in the event of an armed attack against one or more of them. The allied nations have

also pledged mutual assistance and cooperation in political, economic, scientific and cultural fields.

Among the North Atlantic Alliance members, Iceland occupies a uniquely strategic location—one vital to their mutual defense. The mid-North Atlantic NATO link of radar surveillance can most effectively be covered by operations in Iceland. However, according to the agreement, either Iceland or the United States can terminate the stay of the Americans.

But any notice of termination of the agreement by either country is highly unlikely. Iceland has become strongly pro-West in the few years since it became a republic and tends to become even more so as time goes on.

Unquestionably, the stay of American forces known as the "Iceland Defense Force" has benefited the Icelander's economic welfare. Employment—construction, shipping, clerical, industrial—has been markedly increased. Icelandic shipping, given the enormous task of hauling a good share of the needs of the Defense Force, is now enjoying a healthy boom, and the standard of living is generally continuing to improve.

This situation works both ways. The Defense Force is one of the happiest of American bases in existence overseas today. Since the initial arrival of token forces, many thousands of American servicemen have been introduced to the island's life.

Usually their initial reaction is one of complete surprise for little is known at home of this North Atlantic republic. Its name alone connotes extreme cold, dreariness, attendant hardship. It is pleasant to discover that the worst feature of the country is its name. Its winters prove no colder than many in New England, and its summers, while not warmer, last longer.

Beyond the adjustment of the aver-

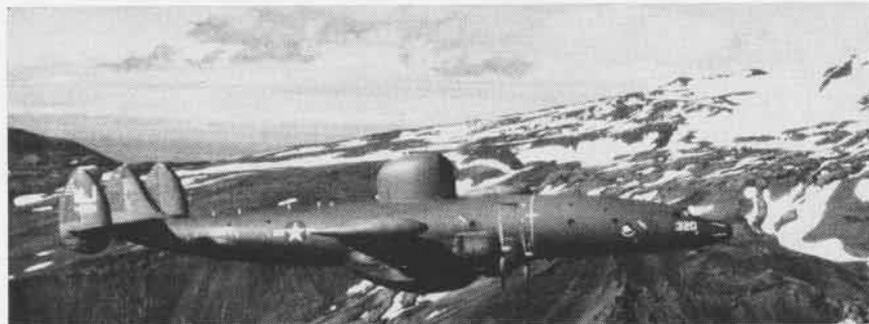
age American to the unexpectedly pleasant mildness of the country comes an even happier one in the discovery of the nature of the Icelander himself. Most speak English. Almost all are familiar with American tastes and interests. There is no illiteracy. Eight years of elementary education is compulsory. The native language has retained its purity for over 1000 years and its Althing, or General Assembly, created about A.D. 930 is the oldest legislative body in the world. There is a university at Reykjavik, a merchant marine academy, and other schools, many of class A scholastic standards. There is complete religious freedom and a national Lutheran Church.

Iceland publishes more books, magazines and newspapers per capita than any other country in the world. The Icelander is intelligent, friendly, warm, hospitable, and naturally resourceful.

Politically, the average Icelander falls somewhere between the American Republican and Democrat. The nation is not without Communists, and while statistically their numbers appear to be about 15% of the population, their concepts of the doctrine are vastly different from that laid down by the Kremlin. Official studies indicate that less than half of the 15% are "active." At the moment they hold ten seats in the Althing; however, their proposals and objections to the present administration in power are rejected out of hand. As one Icelandic news reporter put it, "After last fall's nuclear tests by the Russians, they have just about bombed Communism out of Iceland."

That there are fewer "incidents" caused by the presence of American military personnel in Iceland than occur in any other country in which U.S. Armed Forces are now stationed is a credit both to the American and Icelander. Marriage between U.S. military personnel and Icelandic women is not unusual. The personal as well as the national relationship between America and Iceland could hardly be improved.

This relationship is apt to remain mutually advantageous. Iceland is convinced that she cannot go it alone. Though a proud race, they are not above seeking a partner. Meanwhile, a friendly integration is being firmly established with peoples whose civilization is as ancient as our own is new.



RADAR-CLAD CONSTELLATION, PART OF BARRIER FORCE, FLIES DAILY ARCTIC VIGIL

READY WITH BOMBS, BULLETS, ROCKETS

By LCpl. Norm Boyer

WHEN THE SKYHAWKS of VMA-225 are loaded with a wide assortment of power-packed payloads, credit goes to the unit's aviation ordnance shop at MCAS CHERRY POINT.

The shop is directed by 1st Lt. Thomas J. Collins, ordnance officer. Next in line is MSgt. Victor E. Barlow who supervises 23 ordnancemen. Their mission is to "maintain and handle aviation ordnance, armament equipment and munitions, so that VMA-225 is ready at all times to perform its tactical mission under full load."

Among these payloads are general purpose bombs, napalm bombs, 2.75-inch and five-inch rockets. Chemical spray tanks and flare dispensers are two other items that are mounted by the ordnance section. Any combination of loads, not exceeding 4500 pounds, may be fitted to the *Skyhawk* with the help of multiple bomb racks.

For the first five months of 1962, the VMA-225 ordnance shop loaded 409 tons of explosives aboard squadron aircraft for Caribbean as well as state-side training operations.

In addition to the ordnance shop, other sections include avionics, the hangar division, material supply, flight line and quality control. Each plays its part.

Nerve center for the servicing of VMA-225 *Skyhawks* is the flight line. Tasks of this 34-man section include cleaning, refueling and generally serv-



BOMBS, BULLETS, and rockets, displayed in front of, on and around a VMA-225 A4D Skyhawk, are some of the ordnance payloads delivered by squadron and maintained by the ordnance shop.

icing the aircraft.

The squadron for which all the shops do their important work, VMA-225, is commanded by LCol. Edwin A. Harper, who reported June 1 as relief for LCol. Richard Browning. Senior enlisted man in the squadron is First Sergeant Orville Snow.

Historically, VMA-225 dates back to the Pacific Island raids of World War II. Commissioned as a fighter squadron January 1, 1943, VMA-225 became the first element of Marine Aviation to be stationed on Guam during the reconquest of that island. This tour of duty saw the squadron's *Cor-*

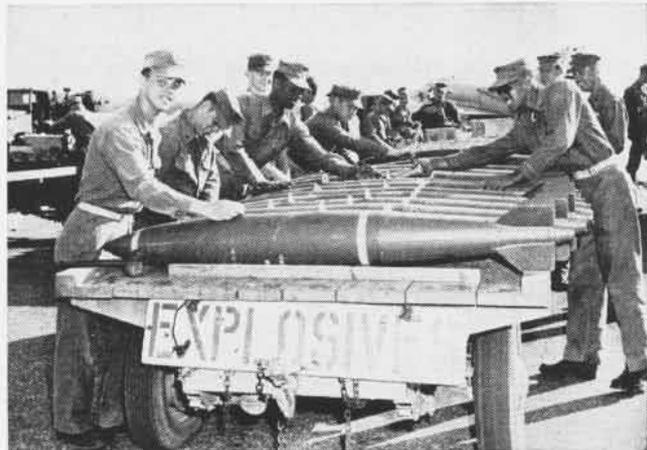
sairs operating as bombers and making runs on the islands of Rota and Pagan.

Designation as an attack squadron came in June 1952 while the outfit was stationed at Edenton, N. C. However, several weeks passed before VMA-225 received her first AU-1's.

During her 19-year career, VMA-225 has been stationed on 11 aircraft carriers, 12 airfields, and has flown eight types of planes. Members have also represented the Marine Corps at the National Air Races in Cleveland. Mission of the squadron is providing air support for Fleet Marine Force operations by destruction of surface targets.



MEMBERS OF VMA-225's ordnance shop uncrate several hundred bomb fuses which are scheduled to be use during an ordnance training mission.



HERE MEN of the ordnance section carefully prepare a load of 250-lb. bombs which are to be mounted on the squadron's sleek A4D Skyhawks.



VF-62 CRUSADERS FRAME THE RUNWAYS AT CECIL FIELD, MAJOR SOUTHERN SUPPLIER OF JET AIRCRAFT FOR THE ATLANTIC FLEET

MASTER JET BASE IS 10 YEARS OLD

NAS CECIL FIELD—the only master jet aircraft base in the South—celebrated its tenth anniversary June 30 with an air show and open house for Jacksonville area Floridians.

Now the home base for five U.S. Navy air groups, including 20 jet squadrons, the 16,000-acre air station took public notice of its tenth birthday since becoming a full-fledged air station. Performances by the *Blue Angels* Flight Demonstration team and the *Chuting Stars*, parachute team, were main features of the air show.

Although Cecil Field came into being as early as 1941, when it was commissioned as an auxiliary air station, Cecil Field did not reach full status as a Naval Air Station until June 30, 1952.

The Navy purchased 2,600 acres of farm and forest land in 1941, for use as an auxiliary landing strip associated with the Jacksonville Naval Air Station. Within six months the field had two hangars, a small number of living, administrative and maintenance buildings, plus a 2000-foot circular landing mat. The field was named after Commander Henry Barton Cecil, who had lost his life in the crash of the dirigible *Akron* in 1933.



Expansion during the pressured days of World War II saw the field install four 5000-foot runways to meet the needs of combat operational flight training. Cecil Field became inactive in July 1946, was revived for a year and settled back into caretaker status again in October 1947.

A new phase for Cecil Field began in 1948 when it was reopened as an operating base for fleet aircraft units. It was the home of the Carrier Air Group 17, which brought the first jets to Cecil, and later was to be the home of CVG-1 and FASRon-9. Except for a brief period of reduced operations in 1950, Cecil has been a continually growing station since that time.

Korean hostilities put Cecil back in business to stay and the proposal for establishment of the "master jet base" system was announced, setting up Cecil

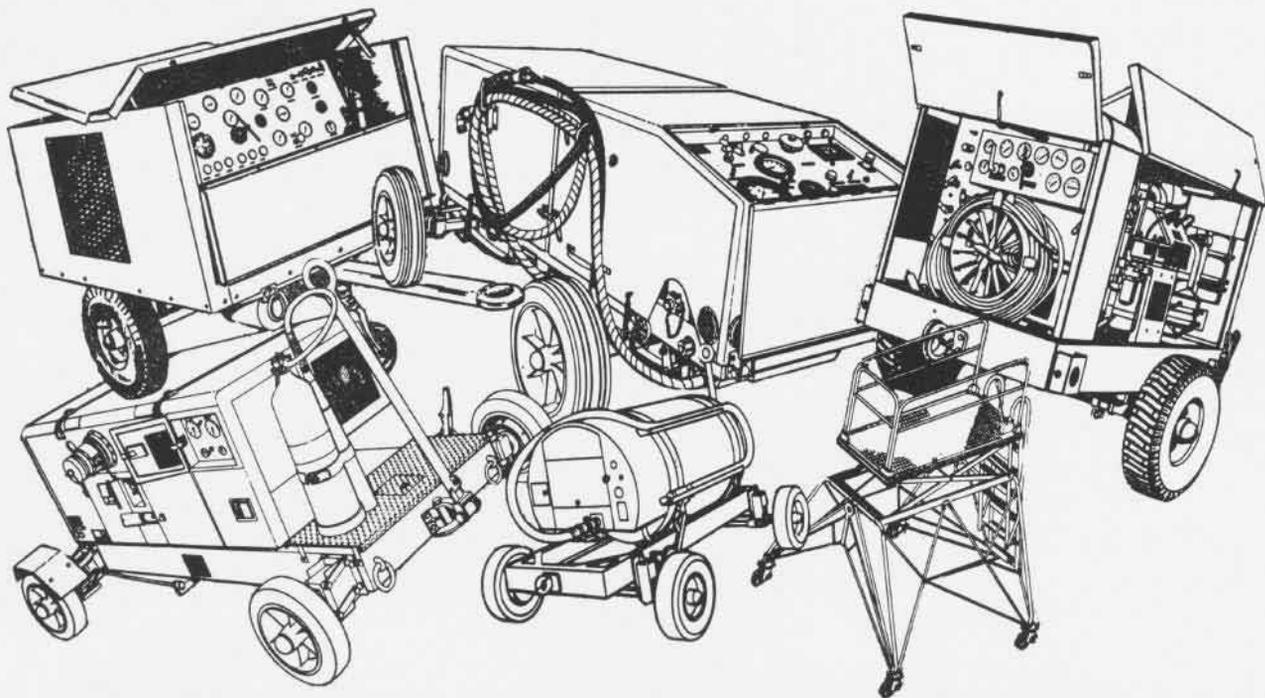
and three other bases for expansion to meet the growing jet aircraft inventory. Master jet bases were defined as stations near enough to the Navy's seaport bases to draw on them for logistic support, yet far enough from main population centers to serve as a base for further expansion in time of emergencies.

From its 2600-acre beginning, Cecil has expanded to 16,000 acres. Its main runway system includes two 12,500-foot strips. The field represents a taxpayer investment of some \$75,000,000.

Cecil Field's operational commitments have given it an average of 16,000 landings and takeoffs each month. Its housing takes care of some 5000 men on a daily basis.

In addition to the more than 20 jet squadrons and air groups, Cecil is the home of a new physiological training center, which keeps the fleet pilots up-to-date in high altitude flight requirements, and a giant jet engine repair shop which has complete repair facilities for all types of aircraft based aboard.

On 29 June, Capt. J. A. Smith relieved Capt. T. W. Hopkins, as commanding officer of the U. S. Naval Air Station at Cecil Field.



NEW 'CARD SYSTEM' FOR SUPPORT EQUIPMENT

By N. S. Ray, AMCS (Ret.)

Inspection Requirements Branch, NATC, Patuxent River

A FIRST CLASS problem confronting Naval Aviation is the exploding population of Aircraft Maintenance Support Equipment (AMSE) and the need to keep it in good condition.

AMSE is playing an ever more important role in the operation and maintenance of modern fleet aircraft. The latest planes, such as F4H, A3J, A2F, and W2F, depend on a multitude of different kinds of AMSE—starters, jennies, carts, check-out equipment, etc. These items cost on the average over \$10,000 a unit and several run over \$100,000.

The complexity of much of this equipment makes its maintenance inherently difficult. The problem is further complicated by the fact that the equipment users are not its "owners," but only temporary custodians.

Permanent custody and prime maintenance responsibility for AMSE is assigned air station Aircraft Maintenance Departments (AMD's) and carrier Aircraft Maintenance (V-6) Divisions. The equipment is then loaned to the mobile fleet squadrons while operating from the carrier or air station.

Last fall BuWeps gave the Inspection Requirements Branch (IRB) of the Service Test Division of NATC PATUXENT RIVER the job of developing a system to cope with the AMSE maintenance problem. The job was a natural for IRB which was first set up by BuAER in 1955 to develop standardized check lists for naval aircraft. A new section was established within IRB, staffed with military and civilian experts, to handle the new task.

IRB chose for its model the "card system" used for the

F4H and A3J (see "WRAP Unwrapped," NANews, April, 1962 pp. 32-35.) Currently available card sets and their order numbers are NC-5, -5A, -5B (NAVWeps 19-600-1-6/7); GTC-85 (NAVWeps 19-600-5-6/7); NC-7A, -7B (NAVWeps 19-600-3-6/7); NO-4, -5 (NAVWeps 19-600-15-6/7); P4R-15G-B (NAVWeps 19-600-4-6/7).

IRB believes its card system will give both the lenders and the users of AMSE just the tool they need to keep this vital equipment up. What WRAP (Weapons Readiness Achievement Program) does for aircraft, IRB's card system spells out for preventive maintenance and inspection of AMSE: What must be done, when it has to be done, who is responsible for doing it, and the materials, equipment and technical information required.

Inspection requirements are broken down into daily, periodic or calendar, and special. Two sets of cards are prepared for each piece of equipment: a daily and special set, and a periodic set. Special inspections must be performed more often than the regular periodic, but less often than daily. Users are responsible for daily and special items while AMD/V-6 performs the periodic maintenance.

The introductory cards of both sets show the periodic maintenance and overhaul intervals, a picture of the AMSE and a definition of its numbered work areas, and lists of reference publications and special tools and equipment.

Cards are arranged by work areas, with all work required in one system of the AMSE on one card or on consecutive cards. For each check list item the tools, equipment and parts required—and their federal stock numbers—are listed.

The reverse side of the card is used for any needed diagrams, for instance a chart showing all grease fittings and the MIL specification for the lubricants required.

The Periodic Maintenance Work Cards follow the same general format as the Daily Maintenance Card set, however the depth of the inspection and service required is greater.

The cards cover the technical requirements for AMSE maintenance. However, many people who have attempted to solve the AMSE maintenance problem are convinced it is at least as much "human" as "technical." IRB's card system deals with both aspects.

The Maintenance Requirements Cards make clear what has to be done and the organization responsible for doing it. The system goes one step further, for record cards provide for detailed personal accountability.

Each piece of AMSE will have its own Daily Maintenance Record, carried in a plastic envelope bolted to the piece of equipment. Before the equipment is used each day, the man making the daily inspection will date and sign this card. His supervisor will also sign, verifying that the inspection has been properly completed, and will note any discrepancies existing at the time.

The AMD/V-6 will maintain a history of usage, maintenance, parts replacement, and custody for each item of AMSE. Custody and Periodic Maintenance Record Cards have been developed for this purpose.

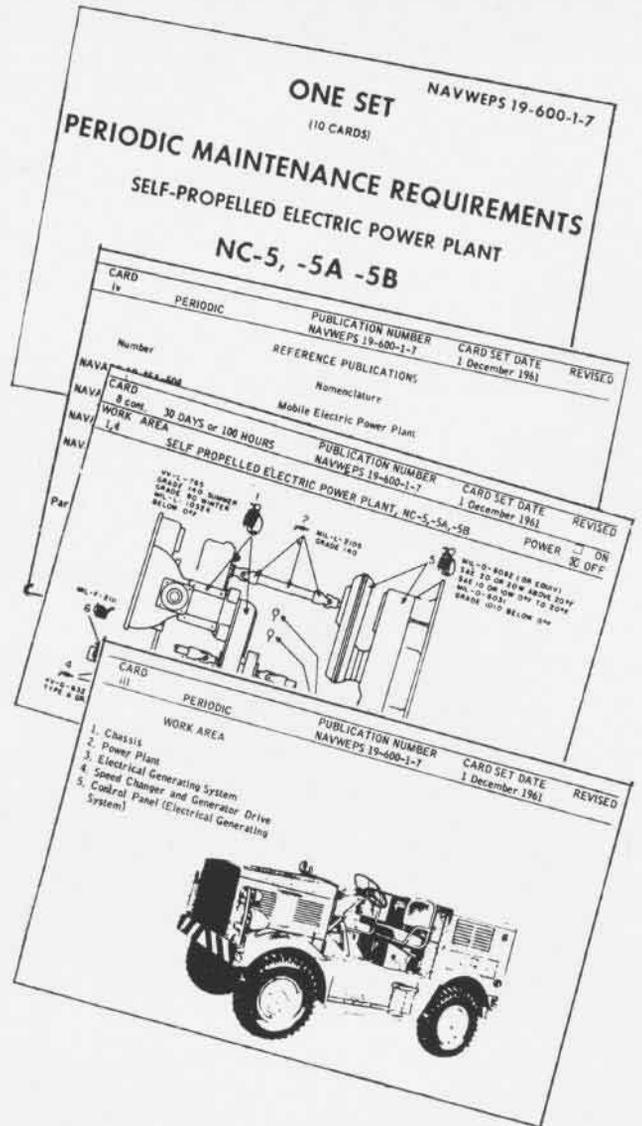
This card shows the date the equipment was drawn from the AMD/V-6 by the squadron, its condition, and the signatures of both the man releasing the item for the AMD/V-6 and the man accepting it for the squadron. The reverse side of the card has blanks for the date of each periodic inspection and the signature of the inspector, and for recording all parts replaced.

This card, together with the Daily Maintenance Record will provide the necessary framework for enforcing personal accountability for the care and condition of AMSE.

As card sets are completed, they will be listed in the current NAVWEPS 00-500 Supplement.

Maintenance Officers should request card sets on the appropriate publications request forms, since the cards will not be distributed automatically.

IRB invites users to help improve the system by forwarding specific suggestions for changes. Recommendations should be forwarded through the chain of command to Inspection Requirements Branch, Service Test Division, Naval Air Test Center, Patuxent River, Md.



HANDY CARD DECKS outline preventive maintenance program. User's set covers daily and special items. Periodic check list is on AMD/V-6 deck

PERIODIC MAINTENANCE				REPLACEMENT OF MAJOR PARTS RECORD			
Compl Date	Hrs/Mi/Starts	Activity	Inspector's Signature	Date	Nomenclature	Serial No.	Reason For Removal
7/18/62	89	260 starts	AMD	3/11/62	Starter	7649972	Burnt Out
			J. Butler	5/27/62	Oil pump	4-A1622	Cracked case

AIRCRAFT MAINTENANCE SUPPORT EQUIPMENT CUSTODY AND PERIODIC MAINTENANCE RECORD						
Nomenclature		Model/Type	Serial No.	Manufacturer	Activity	
GAS TURBINE COMP		GTC-85	7765932	AIRESEARCH	AMD	
Date	From	To	Condition/Remarks	Recd	Transf	
3/12/62	AMD	VF-13	Excellent - New tires, battery, paint	J.C. Jones	R.B. Smith	
4/16/62	VF-13	AMD	Periodic Maintenance	R.B. Smith	J.C. Jones	
4/13/62	AMD	VF-13	Excellent	J.C. Jones	R.B. Smith	

AIRCRAFT MAINTENANCE Support Equipment Custody and Periodic Maintenance card (low right) shows chain of custody and condition.

Card back (left) records maintenance history. This card, plus Daily Maintenance Record bolted to unit, will help fix personal accountability

LETTERS

Sirs:

At the present time the *Blue Angels* Flight Demonstration Team is considering applications for new members. Two very important and very demanding billets will be filled within the next few months. They are that of our Public Information Officer and our Maintenance Officer. Let me give you a brief idea of what these billets entail.

The PIO's duties are many and varied. He spends approximately five hundred hours a year in our F9F-8T, normally travelling ahead of us, setting up our schedule, flying news media on jet indoctrination rides, narrating our shows, etc. While at Pensacola, he is busy answering the continuous flow of fan mail and handling advance liaison work concerning future appearances.

Our Maintenance Officer is responsible for maintaining the team's six *Tigers* and the *Cougar* on a 100 per cent availability status, a demanding job by any man's standards. He flies about 600 hours a year in the team's R5D and is airborne in the *Cougar* or a *Tiger* every chance he gets. The team has about 50 of the finest jet mechanics in the world. Their loyalty and devotion to duty would gladden the heart of any Maintenance Officer.

These in brief then are the billets that will soon be available. I would again like to emphasize their importance and the integral part they play in our organization. They deserve your honest consideration.

If you are interested in either of these billets, contact us at your earliest convenience.

Kenneth R. Wallace, LCdr. USN
Officer-in-Charge, *Blue Angels*

SIRS:

Your article with its eye-catching layout on the Douglas AD *Skyraider* in the April issue of *Naval Aviation News* is greatly appreciated.

To correct one small item that we are sure is a typographical error: 3180 rather than 3160 were built, as your article stated.

It may be of interest to your readers to mention in detail the 30-odd versions by designation (see below). If there were additional service modifications, we would appreciate knowing about them.

In addition to those used by the U.S. Navy, the English Royal Navy used the early warning version of the AD-4 (some of these are in the process of being converted to tow target aircraft for Sweden), while the French have AD-4N and South Vietnamese are using AD-6's.

H. L. WALKER
Douglas Aircraft Co., Inc.

Manufactured or Modified AD Versions

- | | |
|-------------|-----------|
| 1. XBT2D-1 | 21. AD-4L |
| 2. XBT2D-1N | 22. AD-4N |

- | | |
|-------------|------------|
| 3. XBT2D-1P | 23. AD-4NA |
| 4. XBT2D-1Q | 24. AD-4NI |
| 5. AD-1 | 25. AD-4Q |
| 6. AD-1Q | 26. AD-4W |
| 7. XAD-1W | 27. AD-5 |
| 8. XAD-2 | 28. AD-5N |
| 9. AD-2 | 29. AD-5Q |
| 10. AD-2Q | 30. AD-5S |
| 11. AD-2QU | 31. AD-5W |
| 12. AD-2D | 32. AD-6 |
| 13. AD-3 | 33. AD-7 |

AD-5 Kit Versions

1. VIP transport
2. High density passenger
3. Cargo
4. Ambulance
5. Long range

Sirs:

In the June issue I detect a note of sarcasm in the letter written by "Non-Helo Pilot." Here in Air Group 50 and specifically HS-1, we feel that such a stupid cure is the type expected from one who probably couldn't hack a transition to a hover in the black.

Furthermore, we can't understand why he didn't include the procedure for all non-helo types. The latest statistics still show wheels-up landings for the non-helo types.

Jack Harkins, Cdr.
COM CVSG-50

Bruce L. Clack, Cdr.
C.O. HS-1

SIRS:

Reference the June 1962 *Naval Aviation News*, and Non-Helo Pilot recommendation on what to do about wheels-up landings in the HSS-2. As a qualified helo pilot and fixed winged pilot, I find myself flying both aircraft in one day.

I agree with the non-helo pilot's recommendation, but he should have thought of this when Uncle Sam bought his first retractable gear aircraft. Don't down-rate our helo pilots. We will be more than pleased to give you a helo ride to show you that more coordination is required to fly a helicopter than any other aircraft.

D. E. BLISH, Lt.
SIO, HT-8

NATOPS NOTICES

Latest Manual Changes Issued

- | | |
|-----------------|-----------------|
| WF-2 | Change 1 |
| HSS-2 | Original manual |
| SNB-5 | Original manual |

Watch this box for notice of changes to NATOPS manuals.

Sirs:

In 1952 and 1953 I was in Pensacola following the training to be a Navy pilot. There I know two good fellows. But, since I returned to France I never had the chance to have any news from them. I would be very glad if you could give me the address of these men. The first is B. Thomson, an instructor at Chevalier Field in December 1953; I think he was a Captain, USMC. He also was my instructor at Whiting Field, November 1952 until March 1953. The other was J. Trippe. We got our wings the same day, 18 December 1953 at Pensacola.

Every month since 1953 I read *Naval Aviation News* and that reminds me of all the good times I had in your very nice country.

Maitre Pilote P. Hosteing
31 S. Ban Lebourget
Seine, France

Editor's Note: A quick check of the registers failed to show any officers who would fit the initials and spellings given by Maitre Pilote Hosteing. Perhaps *Naval Aviation News* readers may furnish current information.

Sirs:

In reference to the news item titled "Okinawa is Commissioned," on page 3 of your June 1962 issue, you committed, manifestly, a grievous error in stating, in substance, that all LPH's prior to the commissioning of the *Iwo Jima* August 1961 were converted *Essex* class carriers. The USS *Tbetis Bay* (LPH-6), the avant-garde in the LPH business, was converted in 1956 from a *Casablanca* class CVE.

Daniel M. Wilson, Maj., USMC
USS *Tbetis Bay* (LPH-6)

Editor's note—You're right!

ABOUT THE AUTHORS

Cdr. Henry M. Kalstad (*Packaged Avionic Programs*, pp. 16-18) won his wings and commission in February 1943 after completing flight training as an Aviation Cadet.

His first squadron was VP-52, a black-cat outfit flying PBV's in the Southwest Pacific. His later flying career included duty as flight instructor in operational training at Jacksonville, and tours in VR-6 and VP-2, a P2V-7 squadron based at NAS WHIDBEY ISLAND and deploying to MCAF IWAKUNI.

While with VP-2, Cdr. Kalstad served a year as X.O., then fletted up to C. O. On completion of its WestPac deployment, Commander Fleet Air Wing Six commended VP-2 for "outstanding performance during this deployment." He cited in particular the "highly effective maintenance procedures" and "close integration of maintenance and operations [resulting] in the squadron's meeting all commitments precisely on schedule."

A graduate of the Naval Postgraduate School with a degree in aeronautical engineering, Cdr. Kalstad is now completing his second tour of bureau duty. On this tour with the Avionics Division, he served in the Instrumentation Branch before assuming in mid-1961 his present billet as assistant Director for Plans and Programs.

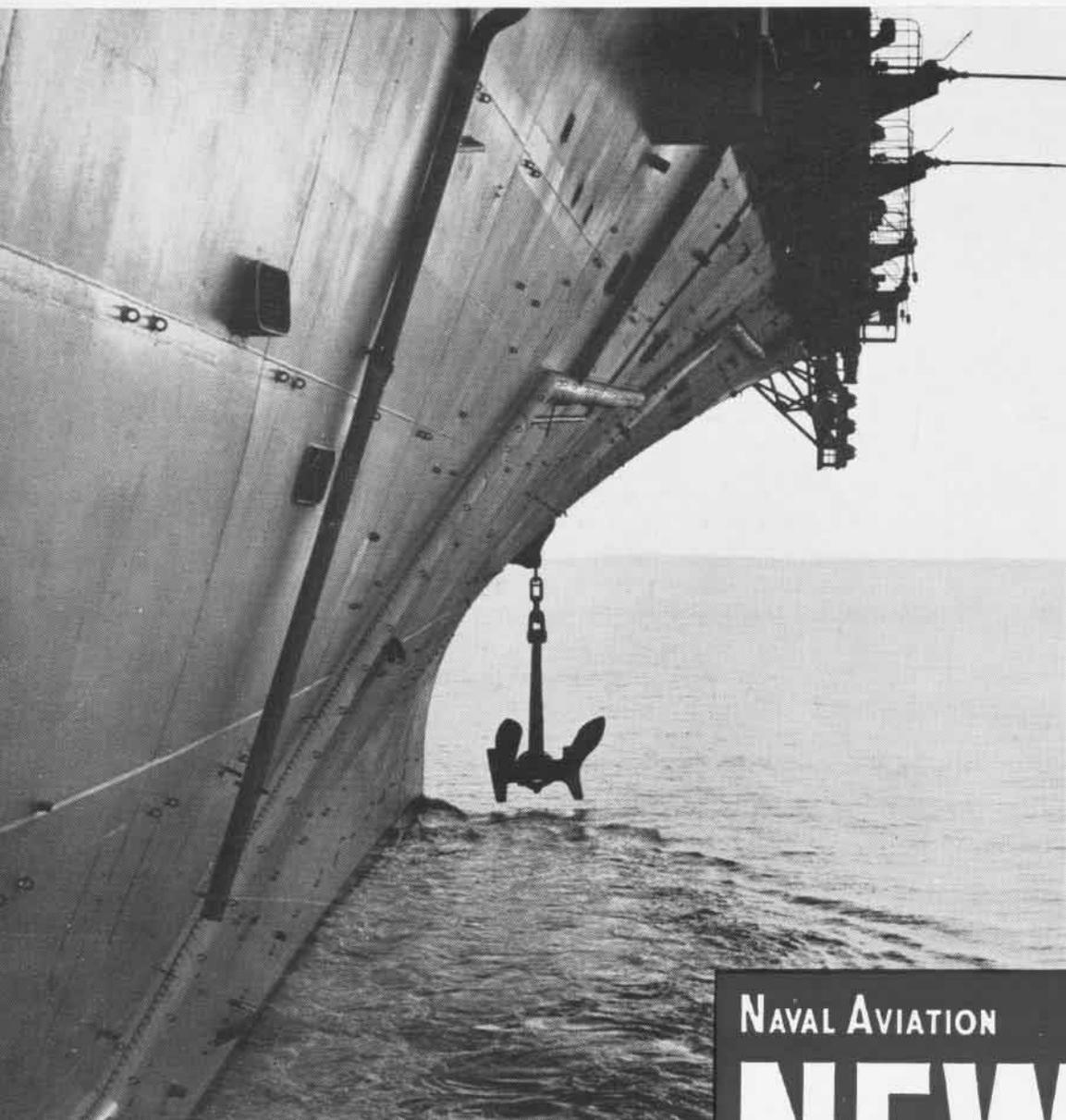


SQUADRON INSIGNIA

With more and more emphasis on anti-submarine warfare and the need for skilled navigators, the role of Training Squadron Twenty-Nine becomes increasingly important. Corpus Christi-based VT-29 uses its R4D-7 and -8 'flying classrooms' to help student officers and Naval Aviation Cadets master the art of aerial navigation. The squadron is led by Commander J. M. Savacool.



AROUND THE WORLD EACH 30 DAYS



NAVAL AVIATION

NEWS

Whenever a U.S. attack carrier drops anchor—whether in mid-ocean or in the bay at Naples or Tokyo—*Naval Aviation News* is there, too. Each month hundreds of journalists, photographers and information officers “cover” the news beats of the Atlantic and Pacific Fleets for the News. Keep yourself informed on the latest facts and developments in Naval Aviation by reading *Naval Aviation News*. Annual subscription, \$2.50; foreign mailing, \$3.50. Send check or money order to Superintendent of Documents, Government Printing Office, Washington 25, D. C.