NAVAL AVIATION NEWS

48th Year of Publication

MAY 1967

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FAILURE PREVENTION TIME

'A sophisticated weapon system which operates effectively only as a result of a sequence of hundreds of interrelated events becomes only a piece of useless hardware if a key event in the sequence fails to happen. The attention to detail that is necessary to prevent such failure begins with our ability to control every moment of the fabrication of that system.'—Rear Admiral R. L. Townsend, Commander Naval Air Systems Command

NAVAL AVIATION NEWS

FORTY-EIGHTH YEAR OF PUBLICATION MAY 1967

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■ COVERS

Photo of USS *Enterprise* approaching USS *Sacramento* during underway replenishment was taken by PH1 J. C. Cote. . . . Above, VA-192 pilots from USS *Ticonderoga* fly *Skyhawks*. . . .On back cover, crewmen of USS *Independence* "man the rail" as ship is relieved by USS *Enterprise*.

NAVAL AVIATION NEWS

First F-4J Is Delivered

VF-41 Welcomes New Phantom

Fighter Squadron 41, home-based at NAS OCEANA, recently became the first operational Navy squadron to fly the newest of the *Phantom* family, the F-4J. On March 1, Commander D. G. McCormick III, commanding officer of VF-41, flew the acceptance test flight in the first F-4J to be delivered to an operational squadron on either the East or West Coast.

The new *Phantom* is similar in appearance to the F-4B but has several new features that considerably enhance its prowess. The F-4J uses the newer and more efficient J-79-10 engines, drooped ailerons and slotted tail. It has increased flying speeds plus slower landing speeds. In its nose is one of the most powerful airborne intercept fighter radars ever developed, the AWG-10 pulse-doppler system.

The acquisition of the F-4J is the second of two "*Phantom* First's" for VF-41. In 1964, the squadron became the first F-4B squadron to add the delivery of conventional attack weapons to its mission.

O&R a Separate Command

Administered by NavAirSysCom

On April 1, the Overhaul and Repair Departments at Alameda, Cherry Point, Jacksonville, Norfolk, Pensacola, Quonset Point and San Diego became separate commands. They are designated Naval Air Rework Facilities and have been assigned to the Chief of Naval Operations.

CNO is delegating the command and support responsibilities to the Chief of Naval Material to be exercised through the Commander of Naval Air Systems Command.

The shift does not affect the mission of the facilities and there are few changes in the working and support relationships with other departments on the stations. Each of seven Naval and Marine Corps O&R facilities now becomes a tenant of the air station. The facilities will continue to be industrial-funded activities, paying for the housekeeping support they receive.

"This is an adjustment within Navy operating procedure, rather than a basic change in operation, and will not change the internal operation of the O&R's in any appreciable manner. The adjustment should, however, support the DOD effort to put into effect its Resources Management Program and effect economies in over-all DOD operations," according to the Naval Air Systems Command speedletter which announced the shift.

VF-126's Historical First

WAVE Joins Fighter Squadron

As the instructor pilots of Fighter Squadron 126 at NAS MIRAMAR held a meeting, Commander R. E. McJunkin, squadron skipper, made an historic announcement, believed to be a Navy first: "Gentlemen, I would like to take this opportunity to introduce our new ground officer, Ens. Sharon Fernando."

ENS. FERNANDO AND VF-126's C.O.

Thus Ens. Fernando, the first WAVE officer assigned to a fighter squadron, assumed public affairs and educational services duties for VF-126, the instrument training squadron for Pacific Fleet fighter pilots. As part of her indoctrination, she was cleared to go through the pressure chamber and ejection seat course.

Miss Fernando is a graduate of the University of Indiana in the field of education. She is looking forward to her tour at Miramar. "Everyone has made me feel welcome in the squadron and has been helpful in getting me settled in my office," she says.

VF-126 is reportedly expecting there will be "renewed interest" in career counseling, public affairs and education among personnel.

(Another WAVE officer assigned to a squadron is Ens. Carolyn R. Baker, USNR, who recently joined —see page 29—VP-30, at NAS JACKSONVILLE, as admin officer.)

VW-4 Gets New Designation

To Be Called WeaReconRon Four

The Navy's *Hurricane Hunters*, based at NAS JACKSONVILLE, have a new squadron title. Formerly known as Airborne Early Warning Squadron Four, the squadron's name is now Weather Reconnaissance Squadron Four. The new designation was approved by CNO effective March 1.

"The new title is more appropriate to the squadron's primary mis-

sion," said squadron skipper, Commander Ronald V. Rimelick, "and that mission is year-round oceanographic and weather surveillance."

The only Navy squadron on the continent providing advance warning against the approach of tropical storms and hurricanes, VW-4 has been performing aerial hurricane reconnaissance since 1943.

The *Hurricane Hunters* were also assigned the task of weather and sea condition reconnaissance flights in conjunction with each *Gemini* space shot. They will provide the same service for the *Apollo* shots in the space program.

Large Units Reorganized

Changes were Made in April

Two large organizations, Carrier Airborne Early Warning Squadrons 11 and 12, based at NAS SAN DIEGO and NAS NORFOLK respectively, have been split up into wings and squadrons.

On April 1, VAW-12 was redesignated Airborne Early Warning Wing 12 (AEWW-12) and established with these squadrons: VAW-121, -122 and -123.

About three weeks later, on April 20, VAW-11 was likewise reorganized and redesignated as Airborne Early Warning Wing 11 (AEWW-11). Its squadrons were numbered as follows: VAW-111, -112, -113, -114, -115 and -116. RVAW-110 is the replacement squadron for E-2A and E-1B *Tracer* aircraft crews.

Dividing the originally large squadrons into smaller units has been accomplished in the interests of better utilization of assets. Carrier early warning crews fly either E-2A or E-1B aircraft from carriers.

WAVE Complement Upped

Will be Used for Air Support

The Chief of Naval Personnel, Vice Admiral B. J. Semmes, Jr., has approved a 20% increase in the number of WAVES in the Navy. This will bring the total strength of the WAVES to 600 officers and 6,000 enlisted women.

More enlisted WAVES are needed primarily to meet expanding medical assignments and logistic support assignments, such as aviation support, supply and disbursing.

TESTS OF CARRIER SUITABILITY WERE CONDUCTED IN USS CONSTELLATION

Carrier Suitability Trials

A-7A Tests on the Constellation

In March, the A-7A *Corsair II* light attack bomber completed its carrier acceptance trials at sea, a key portion of the tests being made by the Navy Board of Inspection and Survey.

Final carrier suitability tests were carried out aboard the USS *Constellation* operating off the southern California coast, March 17-23. Two A-7A's, piloted by Commander Don A. Lynam, Lt. R. L. Coffman and Marine Capt. J. E. Iles, made 35 day and night catapult launches from the carrier deck, bringing to 160 the total A-7 launches made from five Navy carriers the past four months.

Tests conducted on the final sea operation included crosswind launches with asymmetrical bomb loadings, catapult steam evaluation and checks of the plane's approach power compensator. Service test demonstrations also were held of 24 pieces of LTV-designed support equipment for the plane. These included engine test cell adapters, flight line analyzer for radar, weapons station junction box test set, weapons systems release set and engine installation and removal adapters.

With the completion of its sea trials, the A-7A is nearing the end of the test program being conducted by the Board of Inspection and Survey. After running flying qualities tests, the board is expected to submit its report on the plane to the Secretary of the Navy. Six A-7A's were assigned to the board, which conducted tests on plane performance, fuel usage, armament and avionics evaluation, carrier suitability and maintenance.

Three Navy training and test squadrons have received more than 40 A-7 aircraft to date. Company and Navy pilots have amassed more than 4,500 flights in A-7 planes since the first flight September 27, 1965, for a total of more than 7,000 hours.

VX-6 Wins Commendation

Cited for Deep Freeze Program

Air Development Squadron Six has received the Navy Unit Commendation for meritorious achievement during the period of June 21, 1964, to March 5, 1966, in the conduct of flight operations for the U.S. Antarctic Research Program.

Rear Admiral Forsyth Massey, ComFAir Quonset, presented the award to Commander Daniel Balish, commanding officer of VX-6.

Achievements of VX-6 in the period cited include the first mid-winter flight to Antarctica, the attainment of the highest percentage of aerial photographic coverage since Operation *Deep Freeze* was instituted in 1957, the establishment of air contact with the entire Antarctic continent and the setting up of Plateau Station. It is VX-6's second unit commendation.

GRAMPAW PETTIBONE

Cliff Hanger

The ship and air wing were in the middle of an Operational Readiness Inspection being conducted in tropical waters. This particular A-4 driver was returning from a mission that had been normal in all respects. As he approached the 180° position, he checked the brakes and found them to be firm. The pass, touchdown and arrestment were uneventful.

During disengagement from the wire, however, the pilot noted that the starboard brake was soft. As he commenced taxying up the axial deck, he realized that the starboard brake had failed completely. He immediately announced his predicament over the radio to the air officer, opened the canopy and gave visual signals for chocks to the flight deck crew.

In spite of several crewmen trying to restrain the wayward A-4, it continued up the axial deck. Ladders and other objects tossed beneath its nose wheel had little, if any, effect. Just about half way up the axial deck, the pilot lowered his hook. (By this time it was quite evident to those on deck that he had brake failure.)

The *Skyhawk* continued its jaunt and rolled over the bow on the centerline. The plane fortunately was stopped by the safety net from going over the edge completely. It came to rest in a 90° nose-down position with the drop tanks penetrating the nets, but holding.

The aircraft was secured immediately to the flight deck with chains and, when it was considered safe, Tilley was brought forward to hoist the pilot clear of the cockpit and pluck the A-4 from its perch.

Drooped Troops!

Grampaw Pettibone says:

Holy mackerel! Somebody coulda got hurt and we coulda lost an airplane in this fiasco. It was only a little over a year ago that ole Gramps waxed this same subject, but good. Seems like we need to take a look at this situation.

First thing this lad should've done was to lower the tail hook immediately to let folks know he had brake troubles. Secondly, he coulda secured that engine and used that good brake to ground-loop that bird and keep it on deck. Of course, every incident is different and no set rules can ever replace good headwork.

As the old sayin' goes—Don't worry about what may happen to you; worry about what you're going to do when it happens.

Obligingly

The crew of the *Skywarrior* departed "Heavy Land West" for a series of cross-country training flights which included stops at some East Coast air stations and a pick-up of a squadron mate on leave in the East. Arriving at the agreed meeting place, the plane commander was informed by phone by the person on leave that he was delayed at an air station nearby because an SP-2 had recently crashed and the field was closed.

After some discussion, it was mutually agreed to launch the A-3 for the municipal field which was near the closed field for the pick-up. During the phone conversation, the plane commander was assured that jet fuel and a jet starter would be available at the municipal field and that it was "customary to land at this field when the NAS was closed."

The plane commander had ordered a fuel load of 22,000 pounds while unaware of the required deviation from his original plans. The DD-175 was filed with weather forecast to be 800 feet overcast, one mile visibility in rain and thunderstorms; estimated time en route was 50 minutes. The aircraft's only

ILLUSTRATED BY Oplom

drag chute was repacked and installed by the crew member. All hands climbed aboard and departed for the municipal field.

On the approach to the municipal field, the A-3 was routed in a conventional box pattern and the field was visible from 12 miles out. The plane commander was somewhat concerned over being heavy on landing and decided to extend the speed brakes early in the approach to burn some of the excess. An ILS approach clearance was issued but since visibility was so good, the driver flew VFR to touchdown 500 feet beyond the threshold of the 7,800-foot runway. (Although not called for by the tower, the check list was accomplished after a fashion.)

The drag chute popped at 1,200 feet and shortly thereafter nine suspension lines broke, rendering the chute useless. A sequence of braking techniques failed to slow the plane appreciably and, at about 1,500 feet before the end of the runway, the emergency air brakes were activated. As the plane overran the runway at about 60-80 knots, the tail hook was lowered. The machine traversed a 150-foot macadam overrun, a 210-foot dirt overrun and dropped over a 28-foot embankment, coming to rest on a collapsed nose gear with the lower portion of the forward fuselage burrowed into the ground.

Escape via the lower escape door was obviously impossible. With smoke and flames licking at them from below, the entire crew, uninjured, executed a hasty departure through the overhead hatch. The A-3 was a total loss.

Grampaw Pettibone says:

Oh, my achin' back! It sure is nice to accommodate someone and I ain't taking issue with that, but I don't rightly see how this fella would talk himself into landing a 57,000-pound bird on a wet 7,800-foot runway at a civilian field in direct violation of OPNAV Inst. 2710.7C. That instruction was written by some pretty savvy gents and published to keep us from such embarrassin' situations in spite of ourselves.

Whenever a fellow decides to disregard regulations, the least he should do is start figurin' alternatives in case things don't go so good.

Headstrong Spad

Weather reconnaissance aircraft were launched that morning in search of a suitable operating area, but none could be found. The weather and the wind at the anchorage were satisfactory for the 27C (*Essex* Class CVA) to work the A-1 and C-1 aircraft so the decision was made to carqual the props while swinging on the hook.

The *Spad* driver concluded his briefing in the ready room and proceeded to man his assigned A-1H. (Approximately 70 uneventful arrested landings had been completed when the *Spad* launched.) The Spad driver made three normal approaches and arrested landings but noted the pattern to be a little rough because of gusty winds. He felt a little uncomfortable because his aircraft required a little right rudder pressure in addition to full right rudder trim at slow speeds, but at no time did he feel unsafe.

The three landings were followed by two wave-offs for foul deck and two wave-offs for being too fast. (Several aircraft in the pattern were cautioned by Paddles to "slow it down" and the wind was observed to be 30-40° from starboard at 14 knots.)

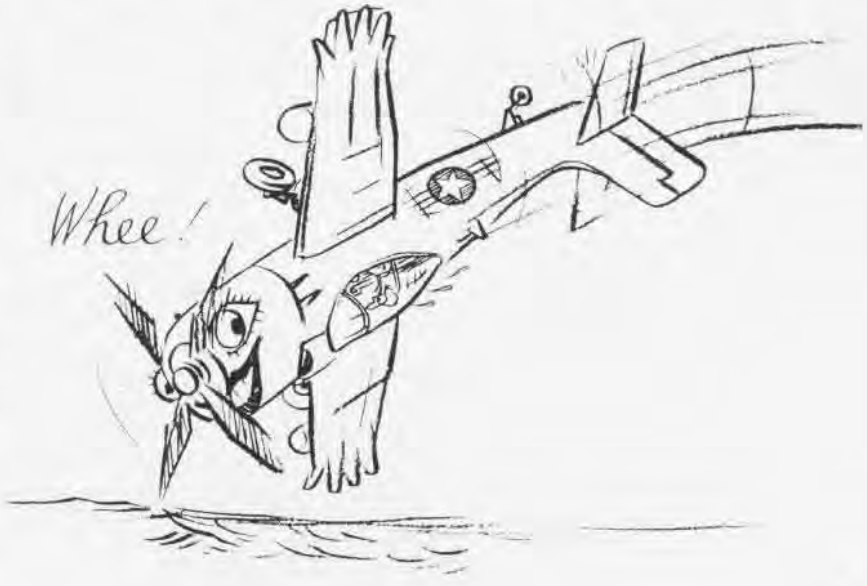
On the next pass, the *Spad* was observed to be flying a normal pattern up to the 180 degree position. At that point, he settled from a normal altitude down to about 100 feet in a 15-degree left bank. Paddles called "wave-off" which the driver acknowledged, and power was applied (confirmed by black smoke) with the aircraft still in a 15-degree left bank. The plane's nose rose slightly slowing the descent and Paddles again called, "Wave off, you're pullin' your nose up." The *Spad* commenced a rapid roll to the left, nosed down and struck the water in a 135-degree bank and 70° nose-down attitude.

The left wing made first contact with the water and broke away from the fuselage. The engine separated next and the hulk settled in the water, right wing low, and slowly departed for the deep six. The pilot bobbed to the surface approximately ten seconds after the impact and swam clear of the sinking wreck for his retrieval and delivery to the ship by the helo.

Grampaw Pettibone says:

Well, for cryin' out loud! I find it hard to believe this fella wasn't told all about torque and rolls and things shortly after he learned about the birds and bees caper. When ya see a pilot with over 1,600 hours in model pull a stunt like this, it kinda makes you nervous all over. How many more fellas are out loose willing to let the old *Spad* have its head in a situation like this?

Don't forget—an airplane is just like a woman. Let it get the upper hand and you'll find yourself in a situation that may affect your entire future, not to mention your present.



AGAINST THE BACKGROUND *of the hangars of the Naval Air Mine Defense Development Unit, an RH-3A takes off from the flight section at the Panama City facility. Equipped for mine countermeasures, Sikorsky helo demonstrates virtues of whirlybird as minesweeper.*

THANKS TO NAM-DEE-DOO

RH-3A'S ENTER ACTIVE NAVY SERVICE

IN NAVAL shorthand, it's NAMDDU. Phonetically (and popularly), it's Nam-dee-doo. Formally, it's the U. S. Naval Air Mine Defense Development Unit at Panama City, Fla.

Nam-dee-doo, established August 31, 1956, occupies hangars, shops and offices on six acres of sand and scrub pine on the west bank of St. Andrews Bay. Significant in its tenth anniversary year was delivery to HC-4, Norfolk, of the first operational mine countermeasures helo in U. S. Navy history, an RH-3A.

Navy acceptance of the RH-3A, a modified SH-3A, followed successful Board of Inspection and Survey trials at NATC PATUXENT RIVER. More important, it followed intensive development effort in mine countermeasures equipment designed to meet helicopter needs.

The primary function of Nam-dee-doo is defined clearly in a Navy directive: "To assist in the development and evaluation of equipment, systems and techniques for countering of sea mines by aircraft." The unit patch shows Neptune, trident grasped in left fist, right hand pointing out a lurking mine.

There are five officers and 30 enlisted men in Nam-dee-doo. Their tools are two RH-3A helicopters and a veteran UH-13P. The OinC is Commander Owen R. Toon, a 24-year Navy man, who has commanded two West Coast SH-3A antisubmarine squadrons, HS-2 and HS-10. A veteran pilot, he has 1,100 helicopter hours among the 6,000 flight hours he has logged in the Navy.

"There's a real place in mine countermeasures work for the helicopter," he says. "It has shown its ability and, by and large, we've had

good luck with the machine."

Sea mines are not new. They can be traced to the days of Alexander the Great when earthen pots containing "Greek fire" (a mixture of sulphur, naphtha and nitre) were used against the wooden ships of invading armies.

During the American Revolution, powder kegs were set adrift on river and tidal currents, aimed at anchored British vessels. Moored contact mines were developed and used during WW I and II.

The sophistication of recently developed mines is new. Some of them don't even look like mines. They lie on the bottom, oftentimes buried; they're hard to detect and they're selective. Magnetic mines are set to detonate when a ship's hull (of selected size) disturbs the magnetic field around them. Some mines have built-in counters—they

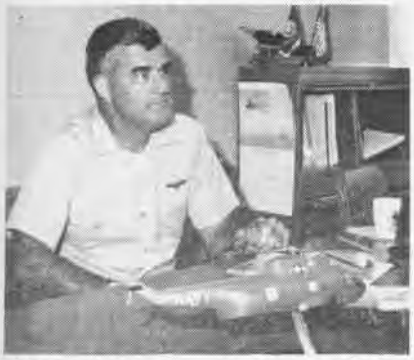
explode when the fourth ship (or fifth or sixth) in a convoy passes overhead. Acoustic mines react to a vessel's sound output. There are mines that respond to the change in pressure caused by a passing vessel. Types are often used in combination to compound the countermeasures task.

Of necessity, mine countermeasures systems also have become sophisticated. The development of mines and mine countermeasures is like a giant game of chess, the white attackers and the black defenders matching moves.

Helicopters have added a third dimension to mine countermeasures work. They can tow countermeasures gear faster than surface vessels; they can operate outside the environment of the mine itself, relatively safe from the mines they sweep or hunt; they can perform their countermeasures missions either independently or in combination with surface ships and their transit speed significantly increases their flexibility and mobility.

Moored mines are still a major

AN RH-3A *dunks its mine countermeasures gear in the sea to determine effectiveness.*



COMMANDER *Owen R. Toon, NAMDDU OinC, displays SH-3A model on his desk.*

ONE OF THE WAYS *an RH-3A helicopter enacts its minesweeping role is to pull a mine countermeasures sled in a wide sweep, thus making the sea-lane safe for oncoming vessels.*

TOWING MOORED *minesweeping gear at some distance behind it, the RH-3A is able to cover efficiently a wide path ahead of the ships that must enter the area. By thus taking the lead as a minesweeper, the helo brings a new dimension of safety against deadly mine warfare.*

threat to shipping in harbors or to supporting amphibious operations. Airborne mine countermeasures research still is directed at improving moored sweeping and influence sweeping as well as mine hunting gear. Lightweight mechanical minesweeping equipment (using floats, otters and cutters, etc.) has been developed specifically for helicopter use and delivered to Fleet units.

The two RH-3A's at Nam-dee-doo have flown more than 250 hours under towing conditions. They have spent more than 500 hours in the air, carrying and testing mine countermeasures equipment and developing appropriate techniques and tactics. Prior to the advent of the RH-3A's in 1965, helicopters picked up mechanical minesweeping gear from surface craft which had pre-stowed the gear. The RH-3A's, however, are equipped to stream and tow gear, independent of surface ship support.

The need for another dimension in the battle against mines was realized significantly during the Korean War. The First Marine Division, ready to land at Wonsan in 1950, found the harbor mined. Two surface sweepers (the *Pirate* and the *Pledge*) were lost to mines early in the game. The entire task force waited while an approach was laboriously cleared. Light helicopters were used to spot mines from the air.

A few men, working in the armament division of BuAer, posed the questions: Why not let helicopters do something more than spot the mines? Why not let them act as the lead, sweeping ahead of surface ships? Air Development Squadron One (VX-1) in Key West used a Piasecki HRP-1 as the first helicopter to tow minesweep gear, using boom and hook to snatch the prestreamed cable from a surface ship. A VX-1 detachment was sent to Panama City.

Four goals were established: evaluation of the then-current helicopters for mine countermeasures work; development of safe and efficient operating mechos; investigation of existing minesweep equipment, and development of new.

A number of helicopters were tried: The Sikorsky HO4S1, the Vertol H-21, the Bell HSL-1 and finally, the Sikorsky HSS-1, already selected as the Navy's ASW helicopter. In 1960, the Sikorsky S-60 (piston-engine prototype of the S-64, now used as the CH-54A by the U.S. Army) was fitted with a pod, made from the center fuselage section of an HSL-1. Thus was demonstrated the helicopter capability to carry and stream lightweight mechanical gear.

Trial and error accompanied the development of the helicopter as a mine countermeasures vehicle. Booms and hooks were tested, redesigned and retested. Tow tension capabilities were increased. Pallets were devised to contain and transport countermeasures systems. (The early years of development at Nam-dee-doo were described by Commander John A. H. Torry, Jr., in the August 1960 issue of *Naval Aviation News*, pp. 20-21.)

Now, when a mission is announced, the system best suited to perform it is quickly wheeled to the RH-3A, lifted by monorail winch, and fastened in the cabin in a matter of minutes. An RH-3A can fly three missions a morning, a different system board each time. Thus the capabilities of the helicopter in this type of warfare are now being firmly established.

WHEN THE NAVY *first considered using the helicopter as a minesweeper, it used an HRP type as a starter. The technique has come a long way since its initial trials and tests.*

LT. THOMAS *W. Gulla receives a plaque from RAdm. John J. Lynch, CNABaTra, for being named the Outstanding Flight Instructor of the year for the command, in ceremonies held at Mustin Beach Officers Club.*

'Tropics' at Pax River
Used for Testing Equipment

In a Quonset-like building at the Weapons Systems Test Division at NATC PATUXENT RIVER are facilities capable of simulating equatorial environments.

The effects of tropical environments on complete systems, such as radar systems and antenna, are tested in the largest room in the building. In this room, temperatures may range all the way from 60° to 125° F. at the same time that the relative humidity is maintained at 95-100 percent.

One of the tests conducted in this chamber involves spraying fungi-containing solutions on the equipment to determine whether the parasites will take hold and flourish. If, after 28 days, there is sufficient fungous growth to cause equipment malfunction, this fact in itself is sufficient cause for rejection of the equipment.

In the same building, there is also a fog chamber for simulating a marine salt-spray environment. Here equipment is usually tested for 50 hours at a temperature of about 95° F., with humidity in excess of 85 percent. By using a solution of 20 percent salt or synthetic sea water, the resistance to corrosion is determined.

Sand is another major hazard encountered in a tropical environment. When carried aloft by the wind, it can penetrate even the smallest opening and contaminate critical relay contacts or bearings. For this reason another room has been equipped to simulate an environment of beach or desert. The test usually runs about 12 hours with the temperature maintained at 77° F. for the first half of the test and 159.8° for the second.

New Vanadium Alloy Ready
Tests on the X15A-2 Scheduled

The Materials Research Program of the Naval Air Systems Command has developed a new vanadium alloy sheet material which will be used experimentally for wing tip extensions on the X15A-2 high altitude research airplane. The extensions will be exposed to temperatures as high as 2,400° F. during flight missions.

The new alloy has a vanadium base, with 25% columbium and 20% tantalum. Twenty percent lighter than alloy steel, it has an excellent combination of ductility, weldability and high strength over temperatures ranging from very low to 2,000° F.

Vanadium base alloys require a protective coating for use above 1,300° to prevent oxidation. Aluminum-silicon coatings, effective at temperatures to 2,000° F. and above for short time tensile applications, have been developed for this purpose.

The X15A-2 will have a flight capability of Mach 8, altitude of 100,000 feet and a dynamic pressure of 1,000 lbs. per square foot.

IN FRONT *of Byrd statue at McMurdo Station, Rear Admiral Fred E. Bakutis (L) congratulates Rear Admiral J. Lloyd Abbot, Jr., who relieved Adm. Bakutis as the Commander, U.S. Naval Support Force, Antarctica.*

AT NATC PATUXENT RIVER, *Commander G. M. Clancy, acting director of the Service Test Division, presented aircrewman wings to AQC D. H. Browning, AQ1 D. C. Johnson (at his right) and ADJ1 E. P. Henry (at the commander's left). The wings were awarded after an extensive course in the F-4 aircraft under the tutelage of LCdr. B. C. Elliott, Service Test RIO. These F-4 aircrewman wings are believed to be the first awarded Navy enlisted men.*

PH1 G. R. JOHNSON ADJUSTS A CAMERA POD MOUNTED ON THE WING OF AN A-4 SKYHAWK ABOARD CORAL SEA

STRIKE MOTION PICTURES IN VIETNAM

Story and Photographs
By PHCS Ken Bumpus

IN OCTOBER 1861, early in the American Civil War, the first aerial observation and reconnaissance system—consisting of balloons filled with hot air, carrying artillery observers aloft—was launched over battle lines.

The system of surveying the effectiveness of gunfire and bombing has come a long way since then.

It was in WW II that the science of photography lent itself to combat aerial reconnaissance. Film from "gun cameras" mounted in aircraft provided the first motion pictures of actual aerial combat effectiveness, but they were of less than fair quality and showed only the action taking place when the guns were fired.

Aerial cameras in unarmed reconnaissance planes were used to bring back photos of damage inflicted on enemy targets by bombing and shelling.

Through the Korean conflict, the methods of obtaining aerial photographs of enemy positions remained basically unchanged. There were a few innovations, of course; among them were the creation of the F-9 jet photo plane and installation of continuous-strip stereo cameras.

But the war in Vietnam brought into use many new and exotic weapons. The latest jet aircraft with newly-developed air-to-ground munitions are on the proving ground of battle for the first time.

In response to requirements for a means of measuring the effectiveness of the equipment being used in Vietnam, a program to obtain air strike photography began in April 1965.

Those involved in the program were certain of one thing: The days of the unarmed photo plane flying behind the attack aircraft to get pictures are going; conditions of modern warfare made it too vulnerable. Photographic equipment would have to be mounted on the striking plane itself.

Providing the right gear for the job was not easy. No camera-mounting system capable of withstanding the drag, temperature changes and G forces of high-speed jet flight was readily available. It would be necessary to design a pod which could be mounted on the aircraft, but which would not require replacement of any of the plane's external ordnance.

The assignment of following through on the program was given to the Pacific Fleet Combat Camera Group (then called the Mobile Photo Unit).

To fill the demand, Group personnel would have to design and fabricate an entirely new system, utilizing high-speed 16mm motion picture cameras capable of producing top-quality color and black and white movies of a strike.

Commander Walter R. Fraser,

Group OinC, Lt. C. T. Kirkman, then OinC of the Group's detachment in Yokosuka, Japan, and PHC James M. Hudak began to develop the pod. They made a trip to the Seventh Fleet to study, test, design and fabricate a prototype.

Commander Fraser and his team created the first pods aboard the carrier USS *Coral Sea* with the help of ship and squadron personnel. Less than a month after the requirement was handed to them, pods containing Milliken DBM-4A 16mm cameras were installed aboard A-1 and A-4 aircraft and were bringing back acceptable movies. In 70 days from the date of request, *all* Seventh Fleet carriers were equipped with strike motion picture capabilities.

During this initial 70-day period, the Naval Missile Center at Point Mugu, Calif., provided AFH-7U bomb rack-mounted camera pods, which were adapted to several attack aircraft and flown on combat missions.

This pod, however, occupied space normally carrying ordnance, so ship's company personnel of the carrier USS *Midway* were asked to fabricate a smaller replacement that could be suspended from the existing camera access plate on the underside of the starboard wing of A-1 *Skyraiders*.

These pods worked so well that personnel working on the program recommended enough of them be built to outfit each A-1H/J and A-4C/E squadron with at least two of the rigs.

Built with heating coils controlled by thermo-switches, which keep camera lenses at a constant 104 degrees Fahrenheit to prevent moisture condensation during flight, the pods were designed so their position on the aircraft would not compromise its attack capability.

The pilot operates the camera system from the cockpit; controls are independent of any of the armament switches, so motion pictures can be shot of the pilot's own attack or that of any accompanying aircraft.

More recently, an even newer design has been tested. It, too, is proving extremely effective.

The prototype for this pod was designed and built by AMCS Z. F. Turgeon, assigned to VA-153 aboard the CVA, USS *Constellation*.

PHC HUDAK SEATS CAMERA IN POD

Chief Turgeon's pod is styled to fit along the centerline of the A-4C/E. The leading edge streamlining cap of the centerline pylon was removed and the new pod slung in its place, an arrangement that prevents sacrifice of an ordnance station or radar altimeter.

(Some of the photographs accompanying this article show the A-4 camera pod mounted under the starboard wing, but the pod has been located under the port wing for some time. Recently, a few A-4's have been equipped with the center pylon installation.)

Results of strike photography have been used for bomb damage assessment, weapons effectiveness, intelligence, analysis of weapon delivery technique, documentary and historical purposes and, incidentally, for several news releases to all of the major television networks.

Films obtained by the new camera setup showed the *Bullpup* missile system in action with pictures of hits on the Than Hoa bridge by pilots of VA-192 aboard the USS *Bon Homme Richard*; the films received wide acclaim. Strike motion pictures were also obtained by Navy pilots of their initial bombing of a North Vietnamese thermal power plant.

MOUNT IS READIED FOR A MISSION

The U. S. Marines' Vietnam documentary film, "Sand and Steel," utilized motion picture footage shot during the early days of the strike photography program.

To obtain their motion picture footage, squadron personnel undergo a continuing pre-deployment training syllabus as they prepare for Southeast Asia duty. The syllabus, however, has not replaced "on the spot" evaluation and updating of equipment necessary while ships are on the line off Vietnam.

Since the project started, Commander Fraser, first accompanied by Chief Hudak and later by PHC B. V. Little, has made numerous trips to the Fleet to trouble-shoot the systems, brief and instruct aircraft crews and pilots and to refine and further develop the system.

Knowledgeable in naval photography engineering, research and development, he has spent long hours with his team perfecting the strike photography capability of the Fleet in Southeast Asia. His work has paid off for the Navy.

Recognizing Commander Fraser's "tireless efforts, enthusiastic leadership and invaluable technical assistance," the Secretary of the Navy has awarded him the SecNav Commendation for his work.

An Outstanding Crash Crew

Stood by for 493,747 Landings

During the last calendar year, members of the NAAS WHITING FIELD crash crew compiled the following impressive list of statistics:

The men worked a total of 216,212 hours. During this time they drove a total of 62,091 miles in 16 vehicles.

They stood by as safety observers while 493,747 aircraft made landings and takeoffs. In addition, the crash crew answered 919 emergencies. August was the busiest month with ninety-five emergencies.

3-CARRIER STRIKES HIT ENEMY MILITARY COMPLEX

DAMAGE *to the Dong Phong Thuong transshipment and storage complex is detailed in post-strike photos. Here, picture shows pontoon and railroad bridges were destroyed.*

WHEN THEY completed their strikes against the Dong Phong Thuong military storage and transshipment complex in North Vietnam, Navy pilots wrapped up what was then the biggest carrier-based assault of 1967 on enemy supply routes.

Considered by Navy sources to be one of four major "hubs" in the relay of war supplies to South Vietnam, the complex is located midway between Hanoi and Vinh on a 150-mile rail line that connects the cities.

Rear Admiral David C. Richardson, commander of Task Force 77 operating off Vietnam, said Dong Phong Thuong was a marshalling point for southbound supplies carried by road and rail from Hanoi, and by barges from Haiphong. It was also a major stockpile area for communist war material.

To knock out the complex, aircraft were launched on two-day coordinated strike missions from the Seventh Fleet carriers: USS *Kitty Hawk*, USS *Coral Sea* and USS *Ticonderoga*. F-4 *Phantoms*, F-8 *Crusaders*, A-4 *Skyhawks* and A-6 *Intruders* battered the target area.

Primary objectives included two rail bridges and a 200-foot pontoon bridge spanning the nearby Song Lau River, a ferry, five warehouses, four cave storage areas and supply routes.

But there were also other targets. The missions, some of them described by returning pilots, went like this:

On the first day, planes from CVW-9 aboard *Tico* struck the railroad bridges, scoring missile hits on the spans and cutting the rail line.

LOCATED *between Hanoi and Vinh, target complex was considered a vital facility.*

Commander Billy Phillips led strike aircraft armed with air-to-surface missiles and Commander Ed McKellar headed a group carrying 1,000-pound bombs. The railroad spur just south of the main bridge was hit by Lt. Norman ("Pappy") Morton, Ltjg. Kwang Yum and Ltjg. Bill Cain, all from VA-192.

VF-194 pilots LCdr. Dave Morris and Ltjg. Jack Allen bombed the railroad spur near the main line. "I was pulling out of my bombing run; I looked back at the target and could see that we knocked out a junction of the spur," Ltjg. Allen reported later.

Ltjg. Joe Phaneuf, also assigned to VF-194, was flying as fighter escort for a photo mission over the target. "I saw considerable damage to the railroad spur," he said.

Air-to-surface missiles and rockets were used to silence radar and anti-aircraft sites surrounding the target; they were struck by VA-192 pilots LCdr. Mike Estocin, Lt. Jud Springer and Ltjg. Richard Millson. Several other AA and radar sites were either hit or forced to

shut down by pilots on advance missions.

The next day, the railroad bypass bridge was heavily damaged by *Black Falcons* of VA-85 flying from *Kitty Hawk*. Thousand-pounders, dropped from their *Intruders*, sliced up the span.

"We dropped a number of bombs on the bridge and destroyed at least one span, and maybe more," Lt. Byron Hodge recalled. Another VA-85 pilot, Ltjg. Roger Brodt, said, "As I pulled off I checked our hits and they looked real good. The whole bridge was covered with smoke. You couldn't even see it. Everyone hit the area fast; we were in and out almost before the enemy knew what was coming."

Skyhawks from VA-112 streaked in on a cable bridge and inflicted heavy damage with 500-pound bombs. "We hit the southern end of the bridge," Ltjg. Karl Jadrnicek said later. "I was the last in on the target and I had a bird's-eye view of our bombs coming off as they hit the bridge. I looked back on the area after I pulled out and could see it burning on the southern abutment."

Bomb assessment photography taken by reconnaissance pilots after the strikes showed that all three bridges were knocked out and the ferry sunk. Two warehouses were completely destroyed, three heavily damaged.

As a bonus, a number of boxcars from three trains—trapped on a spur by previous strikes—were destroyed or derailed.

After the missions were over, rail lines were reported out in six places—including the entrance and exit to the transshipment complex.

Besides silencing many AA batteries protecting the complex, the pilots also knocked out several surface-to-air missile (SAM) facilities. Some of the Naval Aviators watched a SAM, launched during an attack, miss its target and explode near a lightly populated area outside the target zone.

Pre-strike photography had indicated that most of the civilian population had evacuated the area while the military complex was being built up during the months before the strike.

Commander Dick Powell, who led the second-day, afternoon strike, said, "The last I saw of the missile, it was heading for earth. I rolled in and had a good bead on the bridge and dropped my bombs. As I pulled out of my run, I looked back and could see a lot of smoke. Even with heavy ground fire from gun batteries, we got in and out without a scratch."

Some were not so fortunate. A VA-85 *Intruder* crew, leading the first *Kitty Hawk* strike, was shot down after he dropped a section of the first rail bridge attacked.

Commander Powell, skipper of VA-144, considered the multiple strikes "eminently successful." Rear Admiral Richardson had more to say on that subject: "We know we really hurt the enemy on this job. Besides destroying another stockpile of war material and tearing up an important marshalling area, we added to his labor problem." He explained that, because there were few civilians in the area, laborers will have to be pulled off other jobs to patch up the damage.

ANOTHER *reconnaisance photo of the Dong Phong Thuong complex shows intensity of bomb strikes by aircraft from the carriers Kitty Hawk, Coral Sea and Ticonderoga.*

F-4 PHANTOM *crosses the ramp for a landing aboard the Franklin D. Roosevelt as the carrier operates off Vietnam. FDR spent eight months in the combat zone after deploying from the East Coast for the first battle deployment in her 21-year history.*

FDR BACK FROM FIRST COMBAT CRUISE

By JO1 Haywood Mitchell

"First combat duty in the ship's 21-year history." That was the way news accounts described the arrival of the USS *Franklin D. Roosevelt* on Yankee Station in the Gulf of Tonkin early in the morning of August 10, 1966.

From that day until December 27, *FDR*, as a unit of the Seventh Fleet, hurled air strikes against the North Vietnamese military machine during several periods "on the line."

Pilots of the carrier's embarked air wing, CVW-1, flew more than 7,000 combat missions against the enemy, dropped more than 3,500 tons of bombs and fired more than 26,000 rockets and missiles—resulting in heavy damage to a wide variety of military targets.

It was a long, hard eight months that *FDR* spent away from home port, Mayport, Fla., and as the cruise ended hundreds of dependents, friends and well-wishers lined a Mayport pier to watch the ship as it came in to dock.

This return was reminiscent of many others *FDR* has made—but, like the beginning of the deployment (NANEWS, November 1966, p. 26), it had a different ring to it. This time, *FDR* returned a combat veteran.

The ship got to where the action is by a long, circuitous route. She left Mayport June 21, 1966, and steamed south to the Roosevelt Roads operating area off Puerto Rico, where ORI inspectors pronounced her "as ready for combat as any ship we've inspected."

After a stopover at Rio de Janeiro, Brazil, *FDR* men took their carrier around the Cape of Good Hope and into the Indian Ocean—but not before the usual Shellback initiation was held. *FDR* reached the South China Sea by transiting the Straits of Malacca (separating Indonesia and Malaya) in late July, and arrived in Subic Bay, R.P., August 1 for five days of preparations for combat.

Then, well within sight of the North Vietnamese coast, flight deck crewmen launched the first planes on a strike mission. The first aircraft off the deck was an F-4B *Phantom II* with VF-14's Lt. Cyrus W. Strickler as pilot and Ltjg. Walter D. Scarboro as RIO.

Other *Phantoms* were soon airborne; they provided protection against possible *Mig* attacks and antiaircraft defenses for the first air combat strike in *FDR*'s history. Led by Commander Wendell K. Smith, CAW-1, a flight of two A-4 *Skyhawks* assigned to VA-72 dealt the first blow to the enemy by destroying a highway bridge with 500-pound bombs. Other *Skyhawks* flew armed reconnaissance missions and, as the day progressed, VF-32 *Phan-*

toms and A-4's from VA's 12, 72 and 172 knocked down spans of another bridge, cut approaches to a river ford on a main highway, destroyed or damaged five large cargo barges, hit two truck parks, destroyed a transshipment warehouse and caused a landslide on a major mountain pass.

That's how it went for 34 days before *FDR* made port.

The crew learned the hard way that combat takes its toll of both ships and men. First, a propeller blade broke off; the resulting damage forced the ship off the line for quick repairs in Yokosuka. Then, a flash fire killed eight men; their saddened shipmates continued to launch their air strikes. Planes were struck by enemy fire; their pilots were sometimes not recovered.

The last blow came after *FDR* left Yankee Station for the last time after spending 38 days on the line. The ship's skipper, Captain George C. Talley, Jr., was stricken by illness and had to be relieved of the command he had held since *FDR* arrived in the Western Pacific. For a time, Captain James D. Ramage, CTF-77's chief of staff, was C.O. He was relieved by Captain Martin G. O'Neill while crewmen were enjoying a hard-earned rest in Hong Kong. Captain Ramage returned to his former duties, and it was up to Captain O'Neill to bring *FDR* and her crew back home.

As they prepared for the long trip home, *FDR* men found that their ship's first trip into battle left them with much to remember.

Ship's pilots could remember flying through bad weather, looking for "holes" through which they could pound enemy targets. Crewmen could recall how monsoon rains and winds whipped the big attack carrier.

And all aboard *FDR* could remember how a COD plane flew aboard December 16 with two dozen freshly-cut Christmas trees from the Philippines. Ship's postal clerks would probably never forget the tons of Christmas packages and mail from home. Crewmen would recall, too, that Christmas Day brought no strike launches but meant work as usual to prepare for the end of the cease-fire.

And everybody would remember visits to the carrier by such stage and screen personalities as Martha Raye, Jennifer Jones and John Gavin, who raised their morale with jokes, songs and acts. They would especially remember how morale skyrocketed when Bob Hope brought his troupe aboard—and wondered aloud if his jokes were that good or if the fact the ship was homeward bound had anything to do with the general hilarity.

All hands would recall the grim satisfaction they got from Hanoi Hannah's diatribes against "the air pirates from the carrier *Roosevelt*."

FDR men did have a lot to remember about the war in Vietnam.

All of them had been there.

MEMORIAL *services are held for FDR aviators lost in combat over North Vietnam.*

COMEDIENNE *Martha Raye clowns for men of the carrier during special program.*

PRIME *targets for pilots of FDR's air wing were bridges such as these two. VFP-62 recon photo shows both have been destroyed.*

CREWMEN *work on aircraft as ship steams in the Gulf of Tonkin. Roosevelt pilots flew them on more than 7,000 combat missions.*

COUGAR NICKNAMED 'THE IRON HORSE'

FIFTEEN years ago, a jet fighter, the F9F *Panther*, was supporting Marine ground forces in the Republic of Korea. Today a swept-wing version of that same aircraft, the TF-9J *Cougar*, is still fighting. The names of the battlegrounds have changed from Won Son to Cam Lo, from Puong Teak to Duc Pho, but the mission has remained the same—close air support for the rifleman on the ground.

Although its role has changed from bombing and strafing to aerial reconnaissance and tactical air control, the *Cougar* can still use its claws. Armed with two 20mm cannon and 14 2.75-inch rockets, it is ready to pounce whenever its firepower is needed.

In January, a *Cougar* from Marine Air Group 11's Headquarters and Maintenance Squadron was launched to coordinate air strikes by a flight of A-6A *Intruders*, 15 miles southwest of Da Nang. The mission was cancelled because of foul weather, but the pilot, Maj. Robert Gore, and his co-pilot, Maj. Don Mickle, found other work to do. An Army special forces unit had engaged a strong enemy force in a nearby valley and called for help. Diving out of overcast skies, the agile cat made four firing runs over the positions, killing 40 of the enemy.

A TF-9J COUGAR ON THE LINE

The *Cougar's* re-emergence as a fighting machine came after more than a decade of service as a training aircraft. For a short time the fighter was shunted to the rear by newer, bigger and faster jets. A back seat was installed and the once proud *Cougar* appeared to be relegated forever to the confines of training and reserve commands.

But with increasing commitments of forces in Vietnam, a new job was found for the old plane. Heavy reliance on close air support in widely separated small actions called for an observation aircraft that could move from target to target faster than the standard propeller-driven light observation plane. The Grumman *Cougars* really filled the bill.

The first four *Cougars* were delivered to Marine Air Group 11 in September 1966. Since then they have flown missions throughout northern Vietnam. In January they totaled more than 50 flight hours of armed reconnaissance missions.

Many of the pilots, who fly the *Cougar* now, received their early jet training in the aircraft. Because of its durability they have given it a new name, "The Iron Horse."

The *Cougar*, of course, is still being used by the Naval Air Advanced Training Command with its headquarters at NAS CORPUS CHRISTI, Texas. Other *Cougars* are in use as pilotless drone target aircraft in missile development units.

PERSONNEL *from the Naval Air Test Center, Patuxent River, Md., have been involved in an evaluation of the sound-attenuating characteristics of various pilots' protective helmets at the acoustic test facilities of the Naval Aerospace Medical Institute, Pensacola, Fla. The helmets shown include the SPH, BPH, APH, a British Mk 2a and the Navy integrated aviation oxygen helmet (AOH). A variable frequency sound generator and a threshold decibel recorder were used in the testing. Results indicate that easily incorporated, modified earcups and liquid-filled ear cushions in the APH-6A helmet would greatly improve the sound attenuation characteristics of the helmets.*

FIVE NEW ORIONS *at the Royal New Zealand Air Force Base, Whenuapai, Auckland, N.Z., are the latest addition to the RNZAF. Maritime Squadron Five formally accepted them for service in December 1966. U.S. and RNZAF P-3's will be joined by Royal Australian Air Force Orions early in 1968. Australia has ordered ten of them.*

USCG HC-130B *ice patrol plane, hedge-hopping a row of icebergs off the coast of Labrador, has selected the berg in foreground for marking by an aerially dropped chloride-rhodamine "B" dye bomb. The Coast Guard is engaged in an intensive assault on huge floating icebergs, locating them and notifying ships of their location.*

TECHNICIANS USE NEW 'MOON ROOM'

On March 8, Airman Apprentices Randy H. Girard and Donald L. Larimore, two volunteers assigned to the Naval Aerospace Medical Institute's human subject pool, spent eight hours in Pensacola's new "Moon Room," the first subjects to participate in experiments in the new facility. On March 14, they went through the entrance port again, on a "shakedown ride" for 11 days.

Moon Room builders are James M. Cloud, Robert E. Lord and Ellis Frencher, civil service employees of the Institute. Primary investigator of the effects of the moon's magnetic field is Dr. Dietrich E. Beischer, Chief of Chemical Sciences at the Institute.

The 8x8x8-foot room has a magnetic environment like that of the moon, one-thousandth of the earth's magnetic field. The low magnetic field environment is achieved by double shielding provided by one-foot-thick walls covered with a special alloy.

The Moon Room and a similar room with normal earth environment have been constructed inside a 50-foot geodesic dome in a wooded area near the Institute. The dome itself looks like something that might have landed from outer space.

During the 11-day period, the subjects were moved from one room to the other while blindfolded so they didn't know which room they were in when their reactions were being recorded.

The rooms have wall-to-wall carpeting, sanitation facilities, two chairs, two bunk beds and a table which can be folded into the wall.

While the men were in the room, they wore dungarees, knit shirts and shoes without nails. Only nonferrous materials are used in the room so that the low magnetic field will not be disturbed. Equipment inside is made of aluminum, brass or plastic. The men did not have watches, belt buckles, razors or television because of the materials used in these items. Music was piped in. They ate their meals from paper plates with plastic knives, forks and spoons. Technicians passed their food in through the entrance port. When the outer door was closed, the men inside opened a similar door on their side, took their plates and closed the door. The men had no special diet for the experiment.

SUBJECTS AT THE ENTRANCE PORT

The entrance port was also used to pass in a 12-foot stethoscope. The men attached the stethoscope diaphragm to each other's chest so that a physician outside could examine them periodically.

Smoking was allowed only two hours a day and during these periods extra fire protection was available. Room temperature was maintained at 75 degrees.

A scientist and a technician were on watch 24 hours a day when the men were inside the Moon Room. The men had routine times for exercise, work, recreation and sleep.

Scientists also studied the effects of confinement. The men had the same amount of space the three astronauts will have in the *Apollo* spacecraft when it is launched.

LOGISTIC SUPPORT AT HIGH SPEED

OFFICERS SCAN HORIZON FOR SHIPS SCHEDULED TO COME ALONGSIDE

SUPPLYING BEANS, bullets and black oil to Seventh Fleet ships off Vietnam is no job for "clock-watchers" as 26 officers and 487 men of the logistic support ship, USS *Sacramento* (AOE-1), will instantly attest.

The crew would be quick to agree that a 24-hour day is best measured in terms of gallons and tons delivered as opposed to the normal cycle of A.M. and P.M.

First of a new breed of auxiliary ships designed to furnish rapid and simultaneous replenishment of petroleum products, ammunition, Fleet freight and provisions to the Fleet, *Sacramento* can serve up more in the way of replenishment in a single day than any ship ever built.

An example of *Sacramento's* delivery prowess in supplying ships on the line with Seventh Fleet is a day described as "slow" by one of her crew, Seaman Luther D. Porter.

On this particular day, *Sacramento* rendezvoused at sea with 10 different ships to transfer 490 tons of ammunition of all kinds, pump nearly one and one-half million gallons of fuel for ships and aircraft and supply thousands of gallons of fresh water.

The day began when the carrier USS *Kitty Hawk* (CVA-63) pulled along the port side to hook up for ordnance, supplies and fuel. During the 90-minute underway replenishment interval in the Tonkin Gulf, the destroyer USS *N. K. Perry* eased into the starboard position to collect the items the ship had ordered just the day before.

Finishing the simultaneous unrep (underway replenishment) of the veteran carrier and *Perry*, *Sacramento* headed south from Tonkin Gulf for more of the same off the South Vietnam coast.

Pressing closer to the coast after leaving one task group en route, the 53,600-ton *Sacramento* next began to service small minesweepers patrolling in Operation *Market Time*. She also delivered mail and personnel to replace men rotating back to the States.

Over and over during the remaining hours of the day and night, these scenes were to be repeated while *Sacramento* made her way from the Tonkin Gulf to the Gulf of Siam and back.

Whenever she leaves port, *Sacramento* usually takes along some 100 officers and enlisted men for delivery to their respective ships operating with the Seventh Fleet. The transfers are effected either by high-line or by one of *Sacramento's* three helicopters.

While *Sacramento* can and often does service up to two and three ships at one time during an unrep, her three jet, cargo helicopters deliver mail, goods and personnel to other ships in the area. The addition of the helos, capable of completing a delivery once every three minutes, gives her a quick one-two punch.

Fast elevators go far below deck to bring up supplies while fork lifts speed the merchandise on its way from 15 replenishment stations. This well-organized method cuts the normal replenishment time far below that of another era.

It's no wonder that Captain James R. Collier, commanding officer of *Sacramento*, is enthusiastic about the capabilities of his ship.

"This ship," he says, "saves more time in underway replenishments than any ship heretofore."

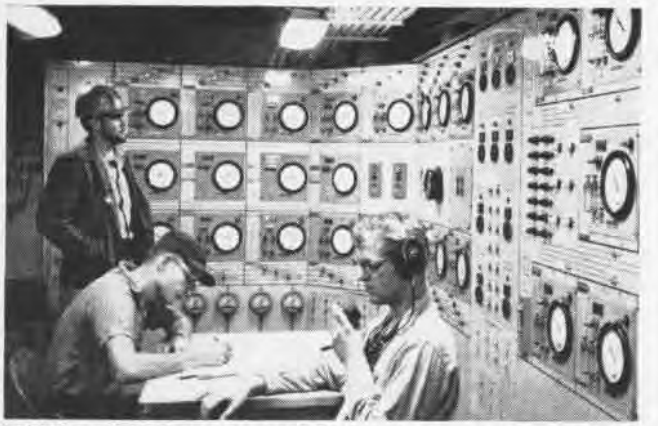
The largest of its type ever built on the West Coast, *Sacramento* combines in one ship the functions of three major service ships—the Fleet oiler, ammunition ship and refrigerated stores ship. She carries all types of anti-aircraft missiles, ammunition and petroleum products and a limited amount of frozen and dry cargo.

Spanning more than the length of two football fields from stem to stern, *Sacramento* is powered by steam turbines that propel her at speeds in excess of 25 knots. The power plant intended for the uncompleted battleship *Kentucky* was pulled for use in *Sacramento*, which explains her power and speed.

The enthusiasm of Captain Collier is reflected in the work of all hands on board. The ship's daily paper, *The Pipeline*, serves to inform both the *Sacramento* crew and those of other ships alongside for replenishment. In addition to current news, ads in a humorous vein for the "Sacramento Shopping Plaza" invite the big ship's customers to use the services of her cobbler shop ("Drop them off today and we'll return them tomor-

Story and Photographs by PH1 Jean C. Cote

NIGHT NEAR, DD MAKES APPROACH TO SACRAMENTO



LIQUID CARGO MEN CHECK ON FUEL BEING PUMPED

row"), bakery ("We have fresh-baked bread daily"), bank ("Send us your pay record and we'll make today payday"), and an ice cream plant ("Featuring all of the well-known flavors")—a welcome treat in the South China Sea.

Whenever *Sacramento* is on the line, she replenishes the same ships every three to four days, delivering mail at the same time. She even provides fresh water to ships unable to manufacture or store large quantities of the precious product. In supplying fresh water by the thousands of gallons, *Sacramento's* crew is sometimes called upon to conserve its water so that others may share it.

"This they do willingly," says Captain Collier. "Our crew realizes the problems and limitations of the smaller craft operating for long periods on station."

Wrapping up *Sacramento's* selected 24-hour stint of unrepping Seventh Fleet ships was replenishment of the destroyer USS *Collett* (DD-730). In moving alongside to take on her supplies, *Collett* became the 190th ship to replenish during *Sacramento's* six weeks of duty in the South China Sea. The following 24 hours would notch well above the 200 mark for her in surpassing her previous record of underway replenishments. The combination of speed and service in so many areas of Fleet need makes the new logistic support ship welcome in the operating areas.

No one can challenge *Sacramento's* adherence to her motto, "Ready Service for the Fleet." And it's unlikely that any Seventh Fleet ship on the line wants to do so.

MEN USE SHIP HELO FOR TRANSFER

HELO LIFTS 4,000 LBS. OF AMMO

DD OFFICER DIRECTS HELO DROP

A CRATE OF BOMBS IS HOOKED UP

MARINES ABOARD USS IWO JIMA RUSH TO WAITING HELOS

HELO PILOT GUIDES HIS AIRCRAFT OVER THE MEKO

AMTRACK PULLS AWAY FROM LST, USS COCONINO COUNTY

'DECKHOUSE V' T

FIRST MEKONG DELT

Photographed by

They called the operatio
U.S. Navy and Marine
South Vietnam's Mekong
assault from the sea by Vi
A 12-ship Navy task forc
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Team 1/9; Vietnamese tro
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in helicopters as well as lar
just 55 miles south of Saig
according to aerial spotte
training and recreation site
installations—plus the al

HELICOPTER OVERFLIES DECKHOUSE SHIPS

SUPPLY HELO HOVERS OVER AN LST

LTA REGION WHERE DECKHOUSE V WAS CONDUCTED

LCU PREPARES TO DISEMBARK FROM APD, USS VANCOUVER

HELOS, CARRYING MEN AND SUPPLIES, HOVER OVER LZ

OOPS GO ASHORE

AMPHIBIOUS ASSAULT

Robert D. Moeser

khouse V. It was the first s amphibious operation in , and the first amphibious ese forces in the conflict. amed into waters off the ce of U.S. and Vietnamese ted area. The first troops ines of Battalion Landing mbarked in a 16-boat con- rol boats to a landing area r. The troops going ashore, craft, penetrated the Delta The area they walked into, ntained concrete bunkers, munition dumps and other lusive Viet Cong forces.

VIETNAMESE MARINES WADE ASHORE

PREPARING A DEFENSIVE POSITION

Naval Aviation in World War I

THE FIRST THREE MONTHS: APRIL, MAY, JUNE, 1917

The small group of Navy and Marine Corps Aviators, whose enthusiasm and persistence had nurtured the early growth of aviation, was neither large enough nor well enough equipped to wage war. When the call came on 6 April 1917, only one air station was in operation, with 48 qualified pilots and student aviators and 239 enlisted men. The Navy had one airship and three balloons, and none of its 54 aircraft had been designed for the work that was now required.

The work of molding this force to meet the requirements of war began slowly and gathered momentum as it went. Its beginning, as marked by the events of the first three months, follows:

PRACTICE TORPEDO DROP IS MADE FROM AN R6L PLANE

APRIL

6—The Secretary of the Navy, by approval of the recommendation of a Board on Flying Equipment, established standard flight clothing for the Naval Flying Service and authorized its issuance as Title B equipage. Clothing consisted of a tan sheepskin long coat, short coat and trousers, moleskin hood, goggles, black leather gloves, soft leather boots, waders, brogans and life belts.

7—By Executive Order, the President directed that the Coast Guard be transferred from the Treasury Department to operate as part of the Navy.

14—The Navy's first guided-missile effort began when the Naval Consulting Board recommended to the Secretary of the Navy that $50,000 be apportioned to carry on experimental work on aerial torpedoes in the form of automatically controlled aeroplanes or aerial machines carrying high explosives.

20—The Navy's first airship, DN-1, made its first flight at Pensacola. Its performance was unsatisfactory on several counts and after only two more flights in the same month, it was grounded and never flown again.

26—In a continuation of the experiment started with USS *North Carolina* in late 1915, the catapult installed on USS *Huntington* was given dead load tests at Mare Island. With a pressure of 40 pounds, the new catapult sent the empty launching car down the track with an end speed of 33.6 mph. With a pressure of 95 pounds and a dead load of 700 pounds, an end speed of 45 mph was achieved. *Huntington* thus prepared for employment as the third ship of the U.S. Navy equipped to carry and operate aircraft.

27—The Marine Aeronautic Company, Advance Base Force, was organized at Marine Barracks, Philadelphia Navy Yard, by the transfer of personnel from the Marine Aviation Section at Pensacola, from other Marine Corps units, and from the Marine Corps Reserve Flying Corps. Capt. A. A. Cunningham was in command.

MAY

1—An expansion of the training program was approved which called for assignment of new classes every three months and the establishment of a course of 18 months' duration to qualify officers as pilots of either seaplanes or dirigibles. The program also provided for training enlisted men as aviation mechanics and for selection of a few for pilot training and qualification as Quartermaster.

4—The Commandant of the First Naval District was directed to assume control of the Naval Militia station at Squantum, Mass., for use in air training. On the same date, arrangements were completed to take over the Naval Militia station at Bay Shore, N. Y. These were two of several actions taken immediately after the declaration of war to expand the flight training program while stations of a more permanent nature were being built.

5—The Secretary of War agreed to a proposal made by the Secretary of the Navy that a joint board be established for the purpose of standardizing the design and specifications of aircraft. The board, subsequently established, was originally titled, "Joint Technical Board on Aircraft, except Zeppelins."

5—Pensacola reported on a test in which a Berthier machine gun, synchronized to fire through the propeller, was fired from a Curtiss R-3 taxying on water and standing on the beach.

15—The Secretary established an order of precedence for work involved in the preparation for war. "Aircraft and their equipment" were ninth on a list of 20 major fields of material procurement.

16—The Aircraft Production Board was established, by a resolution of the Council of National Defense, as a subsidiary agency to act in an advisory capacity on questions of aircraft production and procurement. Membership included a representative from each service, the Navy's being RAdm. David W. Taylor.

17—Aircraft Machine Gun Procurement—The Chief of Naval Operations requested purchase of 50 aircraft machine guns, synchronized to fire through propeller, and another 50 for all-around fire.

17—Cdr. Noble E. Irwin was ordered to the Material Branch to relieve Lt. J. H. Towers as officer-in-charge of the aviation desk in the office of CNO. Lt. Towers was given additional duty orders to the Bureau of Navigation as Supervisor of the Naval Reserve Flying Corps.

19—The first national insignia adopted for U.S. aircraft was described in General Orders and ordered placed on all naval aircraft. It was a red disc within a white star on a blue circular field on the wings, and red, white and blue vertical bands with blue forward, on the rudder.

19—The Chief of Naval Operations requested that two small seaplanes and one pilot be detailed for duty in connection with radio experimentation at Pensacola.

19—Seven student aviators comprising the Harvard unit, with Lt. H. B. Cecil in charge, reported to the Curtiss Field at Newport News, Va., for flight instruction.

23—The initial production program to equip the Navy with the aircraft necessary for war was recommended by the Joint Technical Board on Aircraft. It was to consist of 300 school machines, 200 service seaplanes, 100 speed scouts, and 100 large seaplanes. The N-9 and R-6 were listed as the most satisfactory for school and service seaplanes, but others were not sufficiently developed to permit a selection.

29—A contract was made with Goodyear Tire and Rubber Co., Akron, Ohio, to train 20 men in the operation of lighter-than-air craft.

30—The Navy's first successful airship, the B-1, completed an overnight test flight to Akron from Chicago where it had been assembled. The pilot was R. H. Upson of Goodyear.

JUNE

4—The construction of five prototype models of 8- and 12-cylinder Liberty motors was authorized by the Aircraft Production Board and the Joint Technical Board of Aircraft. Commencing on 29 May, the design of these engines, based on conservative engineering practices especially adapted to mass production techniques, had been worked out in a room in a Washington hotel by two engineers—J. G. Vincent and E. J. Hall of the Packard Motor Car Company and the Hall-Scott Motor Car Company, respectively.

5—Part of the First Aeronautic Detachment arrived at Pauillac, France, aboard USS *Jupiter* and its second echelon, on board USS *Neptune*, arrived at St. Nazaire three days later. The detachment, which was the first U.S. military unit sent to Europe in World War I, was composed of seven officers and 122 enlisted men under command of Lt. Kenneth Whiting.

9—USS *Seattle*, which in late 1916 had become the second ship of the U.S. Navy equipped to operate aircraft, made ready for convoy duty at the Brooklyn Navy Yard by transferring all aviation personnel and gear ashore and securing her catapult to the deck where it would not interfere with normal operations. This eliminated *Seattle's* chance to prove herself as an aviation ship in war.

14—The establishment of coastal patrol stations in the United States was initiated when the first base contract was let. Sites covered by the contract were all on Long Island, at Montauk Point, Rockaway Beach and Bay Shore, the last destined to become a training station.

20—The first Curtiss R-5 twin-float seaplanes assigned to naval service were received at NAS PENSACOLA. R types were assigned briefly to cruisers, saw some service in flight training and were used in many of the early experiments with torpedoes.

22—Enlisted men of the First Aeronautic Detachment began preliminary flight training in Caudron aircraft under French instructors at the *Ecole d'Aviation Militaire* at Tours, France.

22—Change No. 11 to Navy Uniform Regulations made the first special provision for aviators. It provided a summer service flying uniform of Marine Corps khaki of the same pattern as service whites, which was to be worn only when on immediate duty with aircraft. The order also provided for a coverall of canvas, khaki or moleskin of the same color as the uniform, as a working dress uniform.

28—Thomas W. Barrett, a member of the First Aeronautic Detachment, was killed in a crash of his airplane while under flight training at Tours. He was the first Navy man killed in France in WW I.

CAPT. IRWIN HEADED U.S. NAVAL AVIATION IN WW I

VS-25 CAN DELIVER VARIED COMBINATION OF WEAPONS

CREWMEN SAFETY-CHECKS ROCKETS PRIOR TO ARMING

LOADING A BOMB ON A TRACKER

SQUADRON SKIPPER BRIEFS PILOTS

VS-25 TRAINS AT FALLON

AIR ANTISUBMARINE Squadron 25, led by Commander G. C. Canaan, recently deployed to NAAS FALLON, Nevada, for two weeks to conduct proficiency training in the delivery of conventional air attack weapons.

Though VS-25 pilots do not fly fighter/attack bombers, the idea of attack is not far from their minds. The S-2 is assigned the not-so-glamorous, but necessary, supporting role in surface and subsurface surveillance. It's the kind of work the squadron is used to doing.

Twenty-four years ago, on February 1, 1943, VS-25 was commissioned as part of CVLG-25. Assigned to the SBD *Dauntless* and later the TBF, TBM-1C and TBM *Avengers*, the squadron was redesignated VC-2 in March 1943; VC-25 in September 1943 and VT-25 in December 1943.

In September 1945, as part of the general cutback in military forces, the squadron was decommissioned. Nearly four years later, on April 1, 1949, the squadron was recommissioned VC-25 and, later, on being assigned the mission of conducting and developing antisubmarine operations, was redesignated VS-25. It was decommissioned June 1, 1956.

On September 1, 1960, the present squadron was commissioned and assigned to fly Grumman *Trackers*. The squadron departed for WestPac aboard the aircraft carrier, USS *Yorktown*. VS-25 moved to North Island in March 1964 and two years later received the S-2E.

When the first strikes were launched on North Vietnam in February 1965, the squadron was assigned to surveillance, anti-infiltration, and search and rescue operations in the South China Sea as part of Task Force 77.

This mission was renewed with another deployment in January 1966 when VS-25 undertook the same kind of operations in the Gulf of Tonkin area. While VS-25 was aboard the *Yorktown*, the first air strikes were launched against the Hanoi-Haiphong Harbor area.

VS-25 returned home to North Island in July 1966 with over four years of accident-free operations.

WHILE TRAINING at Fallon, the squadron flew 181 sorties, amounting to 390 hours, dropped 960 bombs and fired 990 rockets. This was done without one serious breakdown of any aircraft.

During the last two days of deployment, VS-25 worked with a forward air controller from Tactical Air Control Squadron One.

A competition among the officers as to the best bomber and best crew was won by LCdr. M. Parsons and Ltjg. C. Barney and his crew.

ASO COMPUTER SYSTEM SPEEDS SUPPLY

A U. S. MARINE helicopter, returning to a field hospital from an ambulance evacuation mission in South Vietnam, loses ground radio contact ten minutes short of touchdown. Though it gets back to the hospital, it cannot fly more missions without its transmitter. The radioman can't repair it. The copter supply shack doesn't have a replacement. Neither does the Naval Supply Depot at Subic Bay. The request must be relayed to the States. It comes to the Navy's Aviation Supply Office (ASO) in Philadelphia which is responsible for the world-wide spare part support of Navy and Marine aircraft.

In a computer at ASO there is a combination of digits that will tell where the needed transmitter is stocked and punch out a shipping order to have it sent to Vietnam.

Most of ASO's work is done with the discs, drums and tapes of data processing. In January of this year, ASO expanded its computer capacity and standardized procedures. In recent years ASO has operated one of the most advanced data processing systems in the Department of Defense. However, stock status information of the computer lagged behind actual status at the time of the reading. There has also been a lack of standardization of automated systems between ASO and other naval activities outside of the Naval Aeronautical Supply System. The new data processing system will close these gaps.

"With this system," says Commander Bob Austin, Director of ASO's Data Processing Division, "we will be able to accelerate the movement of spares from the time they are purchased until they leave the system as excess, obsolete or scrap."

The movement of aviation material in the Navy supply system is reported daily from 27 major stock points. Receipts, issues or other changes in stock status are transmitted to ASO as they occur over a wire network called AUTODIN. These are fed daily to the ASO computer. This is Transaction Item Reporting. Previously, these transactions, although sent daily, were not processed immediately. Computer limitations hindered rapid updating of files. With daily processing, actual system status is furnished by the computer. It is never more than one day old. This almost up-to-the-minute capability, which approaches a "real-time" reading, is a major improvement.

The record of movement of spares in the field is mixed and matched in computers with information on paper work action at ASO to provide a complete picture of the status of material at both ends of the system. To speed the traffic of business between ASO's personnel and the computer, remote interrogators are being used in key locations throughout the organization. Similar to teletypewriters, they are wired into a computer's circuits. Inventory managers, buyers, technical personnel and others can feed decisions to, or extract information from, the computer with these units.

When an activity's assets fall below a re-order point, the computer will set the wheels in motion for automatically redistributing material to the activity so that shortages can be balanced out with assets from other stock points or with purchases. Based on a record of an activity's issues, the computer also forecasts an activity's expected quarterly requirements. Every three months the computers recompute and project future requirements.

In the second phase of the new program, scheduled to begin after July 1, computers will help decide when to recall disposed material and where it is available. They will provide instant information on outstanding procurements, deciding if they should be cancelled or expedited. They will compute average Navy and commercial repair turnaround-time (the time it takes for a repaired item to get back on the shelves). They will work out averages on contract delivery time and on survival rates of repaired items.

Processing requisitions, of course, is one of the computer's most important jobs. Requests for supplies come in by message, phone, mail and AUTODIN. Until the recent expansion of automated techniques, all requests, except those sent by AUTODIN, had to be sent to key punch areas for translation to punched cards before the computers could handle them. Today, ASO's requisition center is tied into the computers with remote interrogators. With these units, requisitions can be keyed directly to the computer. This directness, together with the capability of the computer to process the requisition immediately, speeds material to the Fleet.

IN THE INSTANCE cited above of a Marine helicopter in need of a transmitter, the requisition was processed through the computer in three hours. The end product of the processing was two punched cards that went to an AUTODIN transmitter. One told the activity stocking the transmitter to ship it. The other notified the requesting activity the item was on its way.

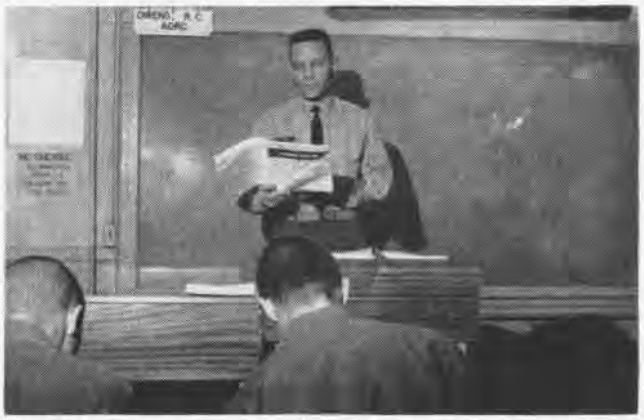
Three-hour processing is possible when a needed item is stocked somewhere in the system. When it is not, the computer prints out an action form for ASO's commodity managers. They will check Overhaul and Repair shops for repairable items to see if any of the items are being repaired. If so, the repair will be expedited. They will also check excess stocks of other services. They will review contracts to see if the item is on order from a manufacturer and expedite completion of an emergency quantity; if not, arrangements will be made for purchase. ASO's computers are put to work in all these actions.

There are about a hundred stock points in ASO's distribution system reaching across the country and overseas. "ASO's computer library, with its up-to-the-minute 'real-time' readings on stock status, is so complete and current," says Commander Austin, "that these widely scattered storage points will provide visibility as though they were one huge warehouse. It will mean quicker response to the needs of the Navy's aircraft whether they be helicopters in Vietnam, cargo carriers in the Antarctic or *Phantom* jets on a carrier in the Med."

Interim Report

PROGRAMMED INSTRUCTION AT NATTC MEMPHIS

CAPT. *R. H. Wood, now CNATT's Chief of Staff, first project officer for programmed instruction, with his chief advisor, Dr. G. D. Mayo.*



CHIEF *R. C. Owens, an instructor at the Mechanical Fundamentals School at Memphis, introduces programmed lesson on basic electricity.*

SINCE THE article on programmed instruction in the July 1965 issue of *Naval Aviation News*, steady progress in applying this new technology has been made in all training commands under the cognizance of Rear Admiral Magruder H. Tuttle, Chief of Naval Air Technical Training.

From a modest beginning with five programmed instruction booklets in use on January 1, 1965, more than 175 were in use on January 1, 1967, with 31 more being printed, for a total of 206 completed booklets. Many more programs, as they are called, are being prepared by the 14 teams throughout the Naval Air Technical Training Command. With five men to the team, there are 70 full time programmers producing material.

All completed programs are "guaranteed to teach." This guarantee is based upon the "90/90 criterion" which must be reached before the program will be approved for use in the schools of the command. This means that the program must be tried out on a representative sample of students and revised until 90% of the students achieve 90% of the objectives. Any deviation from this standard must be justified on the merits of the case and approved by the Chief of Naval Air Technical Training.

Not only are the programmed materials guaranteed to teach, but experience shows that they save valuable training time. The 206 completed booklets correspond to 576 hours of conventional instruction, while the time required to complete the programmed booklets is only 319 hours, a 44% reduction. The 319 hours are not the average time required to complete the booklets, but the time required for 90% of a typical class to complete them. The remaining 10% of the students complete the booklets during a "break" or in the evening. This 44% reduction cannot be used to shorten courses, but the stated policy of CNATT is to use as much of it as possible to shorten courses and thereby make a larger proportion of each student's enlistment available as productive time in the operating forces.

HOW DID it all come about? In mid-1963 it became clear that "programmed instruction" had progressed to the point where it was ready for development in a typical Navy training situation. Some nine years earlier, Professor B. F. Skinner of Harvard University had introduced programmed instruction in his now historic article, "The Science of Learning and the Art of Teaching." In essence, Skinner provided both the impetus and the rational foundation for a new instructional technology stemming from the learning laboratories.

When principles of learning that had proved to be effective in the training of laboratory animals were applied to the teaching of academic material to human students, results were gratifying. They indicated that those principles were sufficiently general to serve as the basis for a new science of behavioral engineering.

At the risk of over-simplification, let it be said that the essential points of Skinner's conditioning approach called for the student to be exposed to a graduated series of lessons under controlled conditions which encouraged and "rewarded" correct responses. Material cast in that form was called "an instructional program"—hence, the movement came to be known as "programmed instruction." Skinner's article was the signal for a greatly intensified research effort. The armed services, including the Office of Naval Research, played a major part in the effort.

CNATT moved quickly to establish a special project for programmed instruction throughout the Command and to designate an officer to be responsible for it. One of the first actions of the special project officer was to train an initial cadre of ten in instructional programming theory and techniques. Upon completion of this training, five of the personnel were formed into a pilot programmed

instruction team that began programming course material in one of the schools and developing procedures which would be used by a much larger number of instructional programmers. The second group of five was assigned the task of developing and conducting a course for instructional programmers. Personnel to be trained in this course would be drawn from each of the seven training centers.

Before the course for instruction programmers was established, a one-day workshop was held at each training activity, attended by about 25 of the activity's key training personnel. The workshop acquainted training administrators with the new technology and dispelled erroneous impressions. Included in these sessions was a discussion of the policy of the Command with respect to programmed instruction.

In July 1964, the course for instructional programmers was ready for its first class of 15 students. It consisted of three weeks of formal instruction followed by two weeks of instructional programming under the supervision of the pilot-programmed instruction team.

By December 1964, all seven training activities of the Command had at least one team of programmers preparing material on a full-time basis. A team normally consisted of four petty officers, at least one of whom was a chief petty officer, and one civilian educator. The latter served the dual function of giving the team continuity and providing specialized knowledge of training matters, learning theory and programming techniques.

AT THE END of two years, on January 1, 1966, the project had achieved all its objectives and programmed instruction was declared fully operational in all training activities of the Command. In his final report to the Chief of Naval Operations concerning the success of the project, CNATT could point to the following achievements:

- A total of 70 personnel, formed into 14 teams, was engaged in full-time instructional programming.
- Based on feasibility studies conducted by these teams, the special project officer had approved a total of 1,600 hours of conventional instruction for programming.
- A total of 77 programmed instruction booklets had proved appropriate for teaching at the level prescribed and had been approved. These booklets called for 119 hours of programmed instruction, which represented 213 hours of conventional instruction.
- A considerable number of additional programs were in the later stages of validation and final preparation for printing.
- Each team had produced one or more programs, and each was well established in its work.

Two research studies had been conducted. The first study compared 13 hours of conventional instruction with nine hours of programmed instruction covering the same material. The second study compared 26 hours of conventional instruction with 19 hours of programmed instruction. The results indicated that the students learned well from programmed instruction in a substantially shorter period of time. Several other studies are being conducted or are in the planning stage.

The Chief of Naval Air Technical Training does not consider programmed instruction to be a "cure-all" or a shortcut to accomplishment in all instructional situations. In the Command the first step in any consideration of subject matter for programming is a careful analysis of the teaching situation to ensure its adaptability to the programming approach.

To date, the development effort reported at Memphis has involved only printed programs. No teaching machines have been used. The relatively simple teaching machines that sprang up in response to the initial enthusiasm for the new technology have not shared equally with printed programs in the growth and acceptance of the technology. It appears probable that the next major advance in Navy training technology may result from the union of programmed instruction and computer technology in the form of computer-assisted instruction. Should such be the case, the instructional programming capability at Memphis will not only be of operational value in the years that lie immediately ahead, but will greatly facilitate the next major advance in training technology.

CIVILIAN ASTRONAUTS *Vance D. Brand (2nd from left) and Fred W. Haise, Jr., (4th from left) began in March a two-week helicopter flight familiarization course at Ellyson Field, Pensacola, Fla. A total of seven two-man teams are scheduled to take the course which is intended to help the astronauts who fly in a lunar module of the Apollo capsule. The capsule, when falling toward the moon landing, will feel and act much like a helicopter. Rockets will be used to slow and stop it, however. On their return to Houston, the astronauts will continue training in NASA-owned helicopters there. With Brand and Haise in photo are: Capt. Don Muyskens, USMC, instructor (left), Captain R. Q. Wallace, USN, C.O. of Helicopter Training Squadron 8 (center) and Lt. C. E. Brooks, USN, instructor (right).*

FLEET AIR WINGS ON PATROL

MINUTES AFTER A 'KILL,' A VP-5 ORION FLIES OVER A U.S. SUBMARINE PLAYING THE PART OF AN ENEMY

'Mad Foxes' Increase Readiness

The *Mad Foxes* of Patrol Squadron Five, commanded by Commander J. V. Josephson, conducted intensive operations at NS Roosevelt Roads, Puerto Rico, a few weeks ago. Using their new P-3 *Orions* for the first time in a *Springboard* exercise, the flight crews greatly increased their readiness. Many *Orions* now display the gold "A" on the nose, signifying Alfa status.

Immediately upon their return to home base, the Operational Readiness Inspection of the squadron was held.

VP-30 C.O. Receives Medal

Commander L. R. Roberts, Jr., Commanding Officer of Patrol Squadron 30, was presented the Navy Commendation Medal by Rear Admiral A. R. Matter, ComNavAirLant, at ceremonies held at NAS Patuxent River, Md.

Commander Roberts was awarded the medal for meritorious achievement while attached to VP-10 from January 28 through July 21, 1966, as commanding officer. During this period, while deployed to Keflavik, Iceland, he was instrumental in developing new and effective ASW techniques.

PIREPS Leader

Lieutenant Colonel M. F. Bennet, USAF, commanding officer of Det. 14, 20th Weather Squadron, has presented the PIREP Award for January to Commander A. H. Balch, C.O. of VP-46. The award is given to the squadron transiting Naha, Okinawa, which submits the most PIREPS (pilot weather reports) per month.

The PIREP Award of the Month was initiated only last January to encourage more pilots to submit PIREPS. The competition immediately showed results, for more PIREPS were submitted to the weather detachment in January than in the entire previous year.

The PIREP, a pilot's written report on visual weather, constitutes approximately 70% of the weather information received by weather stations across the Western Pacific. Satellites by themselves are not sufficient for the accurate determination of weather. Weather satellites can give cloud presentations but clear air turbulence, precipitation and other weather phenomena cannot be spotted. PIREPS are, therefore, necessary to complete an accurate weather picture.

VP-46 submitted 146 PIREPS for the month of January.

VP-22's First-Tour Pilots

Patrol Squadron 22 finds itself in a unique position as a P-3 squadron. Eight of its 12 crew PPC's are first-tour pilots. In addition, a few of the crews are commanded from time to time by the first-tour alternate PPC. All these pilots are getting their chance to prove them-

selves in the wintry weather at NS ADAK, Alaska, having contributed the greater share of the 1,375 hours flown one month by the squadron.

While deployed to Adak, VP-22 has kept in touch with the families back home at NAS BARBER'S POINT, Hawaii, through phone patches via ham radio operator. This has been a big morale booster for both the men and officers.

LT. Richard Porter, call sign K7TQA/KL7, handles the calls originating from the BOQ. Though winter weather damaged his antenna twice, he fixed it each time and continued to relay messages.

VP-6's Availability Record

In eight months, from July 1, 1966 through February 28, 1967, Patrol Squadron Six flew its P-3 *Orions* 9,220 hours while maintaining an average availability of over 80 percent.

This record, high above Fleet average, was effected through the efforts of VP-6 officers and men and the outstanding cooperation of supporting commands.

During this period, VP-6 operations ranged from Alaska to Hawaii and from the continental U. S. to the Far East on operational, training and humanitarian missions. The *Blue Shark* squadron, based at NAS BARBER'S POINT, under the operational control of Fleet Air Wing Two, is commanded by Commander John C. Wold.

Foreign Officers Visit VP-31

Twelve military officers from around the world inspected ASW aircraft at Patrol Squadron 31 Detachment, NAS NORTH ISLAND, in March. The tour was part of an extensive briefing that included cram courses at the Fleet's ASW school and shipboard training.

Three types of aircraft used by the Navy for tactical ASW operations were on display: the P-5 *Marlin*, last of the Navy's seaplanes, the Lockheed P-2 *Neptune* and the Lockheed P-3 *Orion*, newest of the ASW aircraft.

The officers were from Peru, Norway, Spain, Chile, Korea, Uruguay, Republic of the Philippines, Mexico, Brazil, Venezuela and Japan.

Officers of the Fleet ASW School acted as escorts for the VP-31 tour.

FOR DEVELOPING ASW TECHNIQUES

Commander G. A. Surovik, VP-31 Det. OinC at North Island, welcomed the guests and conducted a short briefing before the aircraft tour was made.

Well Travelled

When VP-45 ended a six-month deployment at Kindley AFB, Bermuda, under the command of Commander J. W. Townes, Jr., the *Red Dart* squadron could look back on its tour with satisfaction.

The *Red Dart* was seen for the first time in Sigonella, Sicily. A VP-45 crew visited a West German Maritime patrol squadron in October and a German crew made a return visit in the latest NATO patrol aircraft, the *Atlantic*.

VP-45 is exceedingly well travelled. It was deployed to Adak, Alaska, in 1965 when it patrolled the Bering Sea north of the 68th parallel as well as the Pacific south of Hawaii and as far west as the Philippines and Japan. During the Bermuda deployment, the squadron carried out its missions over the Atlantic Ocean, west to the United States, east to the Azores.

'A Woman's Place' in VP-30

ENS. Carolyn R. Baker, a WAVE officer, has broken a tradition of the once all-male squadron, VP-30, by becoming its new assistant administrative officer. The squadron claims that she is not only its first WAVE officer, but also the only WAVE officer in a training squadron on the East Coast.

She is principally in administrative work, but she also has a variety of collateral duties. These include welfare and recreation responsibilities for the unit, processing security clearances and acting as custodian of technical publications.

IN ALASKA, CPO NELSON LINKS VP-22 MEN WITH FAMILIES IN HAWAII

SELECTED AIR RESERVE

Commander Commended

Recently, a Naval Reserve pilot from NAS Los ALAMITOS was presented a plaque by Mayor Harry Miller, Stanton, Calif., for his heroic and quick-thinking action in avoiding a populated area when his jet attack aircraft lost power and crashed.

Commander Ed L. Bethel, a member of VA-771, was cited for risking his life by remaining in his A-4B *Skyhawk* until he could find a vacant area. He ejected when he was only 100 feet above the ground.

The veteran of 2,000 jet flying hours was also honored by representatives of the Sunshine Village housing area which lay in the path of his disabled aircraft.

Ceremonies took place at morning muster of VA-771 in the presence of Captain James G. Hedrick, commanding officer of NAS Los Al.

CDR. *E. L. Bethel receives plaque from Mayor Miller in recognition of heroic action.*

ASW Exercise

In March, NAS Los ALAMITOS hosted personnel from Olathe, Seattle, Dallas and Alameda during a two-day antisubmarine warfare exercise. A dozen P-2 *Neptunes* from Los Al were used to train Reservists in the technical skills utilized in tracking and "killing" enemy subs.

USS *Pomfret* (SS-391), operating off the coast of southern California, acted as the enemy submarine.

Model Meet Planned

The 1967 National Model Airplane Championships Planning Conference was held at NAS Los ALAMITOS in February to get ready for the event to be held at Los Al July 24-30. Members of the Academy of Model Aeronautics and representatives from Los Al, Glenview and Olathe discussed plans associated with the "World Series" of model airplane flying.

This will be the 36th annual championship event and the fifth held at Los Al. The week-long event will be climaxed by a two-day air show featuring the Navy's *Blue Angels*.

Fowler Memorial Projected

The office of the Chief of Naval Air Reserve Training has announced the establishment of a CNAResTra Memorial fund to erect a memorial to the late Rear Admiral Richard L. Fowler.

The memorial will consist of 18 flagpoles, one for each Naval Air Reserve activity, adjacent to the driveway at the headquarters building. From these poles, individual flags of each activity will be flown on ceremonial occasions.

It has been proposed that the funds for the memorial be raised by voluntary contributions of active duty personnel, Selected Air Reservists and civil service employees of the Naval Air Reserve Training Command.

Approximately $7,500 will be needed to complete the memorial. This figure covers the cost of the flagpoles, walks, landscaping and the flag of each activity.

Expeditionary Medal Awards

The Navy Expeditionary Medal has been awarded to 20 Weekend Warriors at NARTU LAKEHURST.

Thirteen officers and seven enlisted men received the medal which was awarded "only to those members of air crews who actually conducted flights into Cuba" during the Missile Crisis. The members of VS-751 made the qualifying antisubmarine patrols from June 4 to June 30, 1962, in support of the Naval forces blockading Cuba.

VS-751 was called up during the Berlin Crisis October 1, 1961, for an active duty period of 10 months.

The presentation of the medals was made by Captain B. G. Preston, commanding officer of NARTU.

Trained to Survive

Alone in a one-man parachute lean-to, without food, using lines from a parachute as a fish net, in the wild bush country of Canada, is all part of a winter survival course. Lt. Newton A. Wilson, a Weekend Warrior from Naval Air Reserve Intelligence Unit (NAIRU) 751 of Lakehurst, N. J., is one man who took the course during an active duty for training stint this winter.

The Royal Canadian Air Force runs the Survival Training School at Jarvis Lake, Alberta, more than 250 miles northwest of Edmonton in the Canadian Rockies.

Lt. Wilson, Ens. Manny Isaacs from Underwater Demolition Team 11, Coronado, Calif., and AT2 William Gilliland, an instructor at the U.S. Navy Survival School, Brunswick, Maine, were the only Americans in the course. The other members of the nine-man class were all Canadians.

The first three days were devoted to classroom work on survival techniques. "One unexpected part was the swimming; we had a lot of work-outs in the indoor pool. We had to pass the RCAF swimming test," Lt. Wilson said. "It's quite a workout, still the exercise and effort out in the bush were much more strenuous."

The class spent three days at a Jarvis Lake base camp. From there,

the group set out on orientation treks to learn bush lore, such as recognition of animal tracks and identification of edible plants.

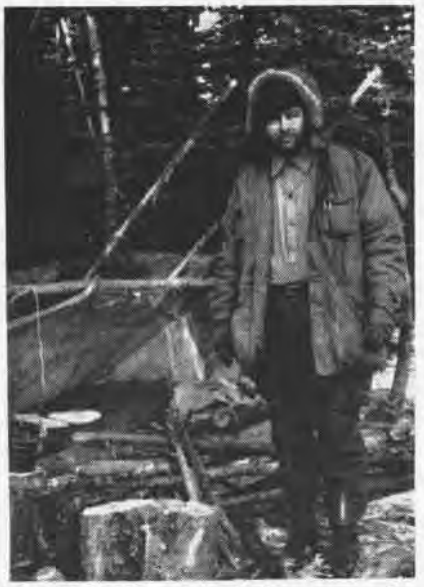
Later the class split into groups of two's and three's with an instructor assigned to each group. Then they moved to camps back in the woods, away from the lake.

The last two days of the course, each man was on his own, living in a one-man lean-to without food.

The school offers three courses: a summer bush course, a winter bush course and an Arctic survival course. The last, which can only be taken after completing the winter course, is held 1,500 miles into the Arctic.

As assistant training officer of his unit, Lt. Wilson conducts classes on cold weather survival.

INSTRUCTOR *at RCAF survival school teaches students how to build a stretcher.*



LT. WILSON *stands by his lean-to as he begins the last two days of survival school.*

Back Again

On February 12, 1942, 25 aviation cadets checked aboard NAS GLENVIEW for flight training. Nine months later, all received their Wings of Gold. They comprised the station's first pilot-training class and were known as members of the *Wildcat* squadron.

Twenty-five years later, 15 of these pilots returned to Glenview. They held their first reunion where they had taken basic flight training.

Those who attended the reunion (see picture) are from left to right, front row: Lt. Robert Johnson, school principal at Chula Vista, Calif.; Lt. Orlando Spigarelli; Lt. Toivo Lauri, business educator, Roseville, Mich.; Lt. Walter Bietila, with New York Life Insurance Company, and Capt. Clinton Goudreau, USMCR, school teacher, Jackson, Mich.

Second row: Lt. Blake Foard, food broker, Kansas City, Mo., who was the first pilot for the former Secretary of the Navy, James Forrestal, and is credited with sinking a Japanese light cruiser while a member of the *Black Cat* squadron; Lt. George Buckley, mayor, city of Appleton, Wisc.; Lt. Robert Hupy, real estate broker in Gladstone, Mich.; LCdr. Albert Jokela, aerospace engineer at Wright-Patterson AFB; Lt. Patrick Brennan.

Standing: Lt. Thomas Fagan, lawyer, Lansing, Mich.; LCdr. John Pellow, contracting officer for the Army in Joliet, Ill.; Lt. Ira Kepford, plastic manufacturer, Clinton, Conn., the first Navy ace of the South Pacific, credited with shooting down 16 Japanese planes in aerial combat; Lt. Norman Kukuk, credited with sinking a Japanese light cruiser and holder of six air medals, two DFC's and a Navy-Marine Heroism Medal; and LCdr. Lloyd Allen, mayor of South Bend.

Empty slots represent seven of the original members who could not attend the reunion and three killed in action.

AT NAS GLENVIEW, *25 aviation cadets pose in front of an N3N Yellow Peril. They were members of the Wildcat squadron. At right, members of the same group pose 25 years later. Empty slots represent seven who could not attend reunion and three killed in action.*

AT SEA WITH THE CARRIERS

WITH HER *crewmen forming an oversized heart on the flight deck, the Pacific fleet CVA Coral Sea returns to home port, Alameda, after a seven-month deployment with the Seventh Fleet. Coral Sea was scheduled for a yard period soon after her return home.*

PACIFIC FLEET

CORAL SEA (CVA-43)

With the strains of the song, "I Left my Heart in San Francisco," playing loud and clear over the ship's 1MC, *Coral Sea* sailors and embarked CVW-2 personnel formed a huge heart on the flight deck as CVA-43 slipped under the Golden Gate Bridge.

Coral Sea was returning to home port, Alameda, Calif., across the bay from San Francisco, after her second, seven-month deployment in the waters off Vietnam—for which the ship and her air wing won their second Navy Unit Commendation.

And quite a homecoming it was: Whistles screamed, horns blared and fire boats tossed sheets of water into the air as officials, dignitaries and pretty girls escorted the ship through the bay in yachts, small boats and airplanes.

The human heart on the flight deck didn't hold up very long, however; it was quickly "broken" as crewmen headed below decks to greet families and friends.

Shortly before *Coral Sea* completed the transit from Yokosuka, Japan, to Alameda, Captain Frank W. Ault, C.O., presented plaques to the seven "plankowners" who have served aboard the carrier since she was recommisisoned Jan. 25, 1960. Receiving the plaques during a special ceremony were MM1's Donald H. Scott, Richard L. Jensen and Theodore G. Casaus; MM2 Whitney J. Hunt; BT1 Ronald D. Pullian; and SH3's Chelsey C. Carney and Robert L. Green.

Coral Sea was scheduled to start a restricted availability at the San Francisco Bay Naval Shipyard, across the bay from Alameda, after she returned home.

CONSTELLATION (CVA-64)

LCdr. Robert R. Loomis, VF-124, made *Connie's* 55,000th arrested landing in an F-8E.

Members of the San Diego Chapter of the American Institute of Architects toured CVA-64 while the ship was in San Diego.

Dental technicians volunteered their free time on two successive Saturdays to provide fluoridation treatments for 224 children of *Connie* crewmen.

BON HOMME RICHARD (CVA-31)

Bonnie Dick has returned to the Seventh Fleet, and the South China Sea, for her third tour of duty on Yankee Station.

Flagship for Rear Admiral Thomas J. Walker, ComCarDiv Three, CVA-31 is commanded by Captain G. F. Colleran. The ship has embarked about 75 aircraft of CVW-21, under Commander Albert J. Munger.

Fresh from an eight-month overhaul in the Long Beach Naval Shipyard, *Bonnie Dick* made port in Hawaii, Japan and the Philippines before she steamed to Yankee Station.

Bad weather forced CVW-21 pilots to divert from several primary targets after the first strike missions were launched from the carrier, but *Bonnie Dick* was soon deeply embroiled in the air war over Vietnam (pictures on p. 36).

ORISKANY (CVA-34)

Officers and enlisted men serving aboard *Oriskany* have been decorated for heroic acts they performed when a major fire struck the carrier as she operated off North Vietnam.

Captain John H. Iarrobino, *Oriskany's* C.O., presented the medals and awards during a ceremony held at San Francisco Bay Naval Shipyard, where the carrier is undergoing repairs.

He presented the Navy and Marine Corps Medal to Commander Francis T. Brown (the ship's X.O.), Lt. Howard C. Petty, AB2 Henry K. Brooks, AB3 Walter C. Fletcher, SK3 Romey A. L. Rose and AN Francis J. Soave.

FLIGHT *deck crewmen aboard the Bon Homme Richard check out catapult system.*

Receiving the Navy Commendation Medal were AMC Thomas L. Mizak, ABC Claudius W. Clemens, DC2 Billy F. Coleman, AB3 Theodore O. Smally, AB3 Curtis W. Broussard, AD3 Ronald M. Arko, EN3 Donnie R. Thomas, AN Frank F. Mazurek, AN James L. Wolfe, AN Bill P. Thompson, AN George C. Balboa, AN Floyd W. Pelt and AA Phillip G. Cartwright.

ENTERPRISE (CVAN-65)

When their *Enterprise*-based RA-5C *Vigilante* was hit by enemy ground fire and they were forced to eject over the Gulf of Tonkin, Commander Donald H. Jarvis and Ltjg. Paul M. Artlip had a lot going for their rescue—Navy ships, jets, prop aircraft and helos, not to mention an Air Force amphibious plane combined forces to get the two fliers out of danger.

While A-1 *Skyraiders*, F-4 *Phantoms* and A-4 *Skyhawks* silenced enemy shore fire and drove off an enemy junk, an SH-3A *Sea King* from the cruiser *Long Beach* picked up Ltjg. Artlip and the amphibious aircraft, an HU-16 *Albatross*, landed in the water to recover the injured pilot, whose arm was broken.

Admiral Ulysses S. Grant Sharp, Jr., CinCPac, flew aboard the *Big E* for a briefing while the carrier operated off Vietnam.

During a brief ceremony aboard *Enterprise*, the commander of South Korean forces in Vietnam, Lieutenant General Chae Myung Shin, presented his country's Order of Military Merit Medal to Commander James L. Shipman, ComCarDiv Nine staff, and Commander W. "Billy" Phillips, Air Wing 19 C.O. They received the award for "their outstanding and meritorious service to the cause of human liberty and understanding."

PRINCETON (LPH-5)

AT2 Eric L. Jewett was so excited about the good news his life "skipped" a day. Not really. *Princeton* was in the middle of the Pacific Ocean when Jewett received word of his selection for OCS; just moments later *Swee' P* crossed the International Dateline—and Jewett's assignment was a day closer.

THESE *Oriskany crewmen received medals and awards for heroism during a fire aboard the ship while she was in the Tonkin Gulf.*

CAPTAIN *James L. Holloway III presents a ship's plaque to the Korean forces commander in Vietnam during Enterprise ceremony.*

KITTY HAWK (CVA-63)

Seven minutes after he fell overboard during an ammunition replenishment at sea, *Kitty Hawk* airman apprentice Charles D. Dougherty was back aboard his ship—wet but unhurt. He was picked up by an HC-1 helicopter piloted by Lt. James N. Flynn and Ens. Richard Kearley.

The seas may have been calm in the South China Sea, but *Kitty Hawk* was "rockin' and rollin' "—thanks to a special show presented by singer Nancy Sinatra.

An F-4 *Phantom*, piloted by VF-213's Ltjg. Ted Trebel, made *Kitty Hawk*'s 61,000th arrested landing. Ens. Bruce Bang was RIO in the plane.

RANGER (CVA-61)

As *Ranger* continued to undergo overhaul at the Puget Sound Naval Shipyard in Bremerton, Wash., Rear Admiral W. E. Ferrall, 13th Naval District commandant, presented CVA-61's C.O., Captain W. E. Donnelly, Jr., with a bronze plaque honoring the carrier as *Our Navy* magazine's "Ship of the Year."

Ranger was nominated for the award by ComSeventhFlt during her second combat tour in waters off Vietnam.

With the departure date from the shipyard scheduled for late May, *Ranger* was moved out of drydock to a Puget Sound pier where workmen continued working in the ship's interior.

TICONDEROGA (CVA-14)

Two Silver Stars were among medals presented to 67 officers and aircrewmen during a ceremony on *Tico's* flight deck while the CVA operated in the Gulf of Tonkin. Commanders Billy Phillips and Ernest M. Moore received the decorations for acts of bravery during an air strike over North Vietnam.

BENNINGTON (CVS-20)

Rear Admiral Ralph Weymouth relieved Rear Admiral Evan P. Aurand as ComASWGru One aboard *Bennington* as the CVS operated in the Gulf of Tonkin.

INTREPID, *shown here operating in the South China Sea, has returned to the Atlantic from duty as a light attack carrier with Seventh Fleet forces stationed off Vietnam.*

IWO JIMA (LPH-2)

In an extension of Operation *Deckhouse VI*, Marines of the Seventh Fleet's special landing force were pulled out of Sa Huynh, South Vietnam, and sent ashore the next day about six miles southeast of Mo Duc.

After Marines landed in amtracks from the amphibious transport USS *Vancouver* (NANEWS, March 1967, pp. 19-22), other Leathernecks participated in a vertical assault in helicopters from *Iwo Jima*.

HANCOCK (CVA-19)

Despite bad weather, pilots from *Hancock* continued to strike North Vietnamese transportation routes, and two VA-115 pilots got in some licks against enemy shore batteries.

Operating near two Seventh Fleet destroyers, the A-1 *Skyraider* pilots, Commander Henry G. Bailey (the squadron's C.O.) and Ens. Thomas W. Dush, made a rocket attack on the batteries after the North Vietnamese gunners opened up on the ships. Fire from the *Skyraiders* and the destroyers silenced the batteries, and the pilots also hit nearby AA sites. Neither ship was struck by enemy fire.

HORNET (CVS-12)

Captain Gordon H. Robertson relieved Captain Van V. Eason, Jr., as *Hornet's* skipper during a ceremony held while the CVS was in Long Beach.

Members of the National Security Industrial Association's Weapons and Fire Control Subcommittee visited *Hornet* in Long Beach to discuss ASW and mine warfare with senior officers.

ATLANTIC FLEET

AMERICA (CVA-66)

A $100 check and a George Washington Honor Medal are the prizes earned by *America* crewman RD1 John S. Parker for his winning entry in the Freedoms Foundation essay contest.

Parker, who wrote on the subject, "Defending Freedom Safeguards my Name and Honor," was to receive his prizes during ceremonies in Valley Forge, Pa., and Washington, D. C. In 1960, he won third place in the same contest for an essay entitled, "My Vote: Freedom's Privilege."

Lieutenant General George An-

tonakos of the Greek Air Force and his party visited *America* while the CVA was anchored of Piraeus, Greece.

BOXER (LPH-4)

Boxer arrived at the Boston Naval Shipyard to begin a four-month overhaul.

ESSEX (CVS-9)

A VS-22 S-2 *Tracker* made *Essex'* 131,000th arrestment while the ship was participating in Operation *Springboard 67*. In the cockpit were LCdr. R. L. Chrans and Ltjg. H. B. Allen.

Commander William M. Callaghan, Jr., VS-22's C.O., made the 500th arrested landing of his naval career when he set another *Tracker* down on *Essex'* flight deck.

FORRESTAL (CVA-59)

Forrestal steamed to waters off Guantanamo Bay, Cuba, to conduct six weeks of refresher training.

The ship's 120,000th arrestment was made by VA-46's Lt. A. L. Malcolm in an A-4E *Skyhawk*.

While CVA-59 was operating in the Caribbean as part of her shakedown cruise, Rear Admiral Harvey P. Lanham, ComCarDiv Two, shifted his flag aboard.

Besides operating off Guantanamo Bay, *Forrestal's* crew completed extensive exercises at the Atlantic Fleet Weapons Range.

OKINAWA (LPH-3)

The Norfolk-based *Okinawa* transited the Panama Canal en route to San Diego, Calif., and participation in Pacific operations.

INDEPENDENCE (CVA-62)

A nine-month, $28 million overhaul was on tap for *Independence* when the ship entered the Norfolk Naval Shipyard.

Included in the overhaul will be installation of an estimated $5.5 million worth of shipboard computers and other electronic equipment for a Navy Tactical Data System and about $820,000 worth of gear for the ship's avionics shops.

Also on tap for the carrier: Complete check-outs of propellers and shafts, propulsion machinery, water distillation plants, catapults, arresting gear, radar and other navigation aids, communications equipment, guns and fire control gear.

Machinery renovation will include installation of an updated automatic combustion control system to insure immediate flow of the correct fuel-air mixture to the ship's boilers at any speed.

Another major engine room job will be installation of a new 100,000-gallon distilling plant. CVA-62 now has four of the plants.

WASP (CVS-18)

Her tour of duty as temporary training carrier completed, *Wasp* left NAS PENSACOLA, Fla., to return to normal operations.

RANDOLPH (CVS-15)

A chance meeting between a Navy helicopter and *Randolph* may have averted a possible disaster. When his UH-34D *Seahorse* had engine trouble while he was operating off Chesapeake Bay, the pilot spotted *Randolph* transiting out of the Thimble Shoal Channel toward the Virginia Capes. Within minutes, he had his crippled helo safely aboard.

Randolph returned to home port, Norfolk, after completing three weeks of ASW operations off the coast of Florida.

While the ship was off Key West, members of the National Security Industrial Association—a group of businessmen representing firms holding military contracts — were guests aboard the carrier.

PHOTOGRAPHER *A. J. Barboza caught this view of Wasp as she steamed into Pensacola for duty as temporary training carrier. Wasp has returned to regular operations.*

CREWMAN PREPARES TO FUEL PLANES BEFORE STRIKE

ORDNANCEMEN WHEEL BOMBS TO A WAITING AIRCRAFT

CATAPULT CONTROL OFFICER COORDINATES LAUNCHES

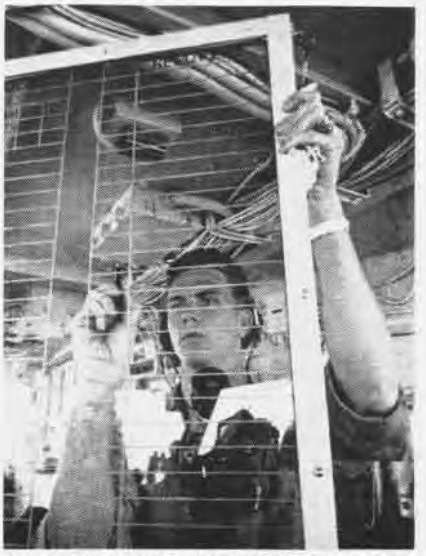
CREWMEN CARRY CHOCKS ACROSS SHIP'S FLIGHT DECK

A LOOK AT 'BONNIE DICK' OFF VIETNAM

Photographed by
JOC Robert D. Moeser

CDR. HOMER L. SMITH BOARDS A-4

CAT OFFICER GIVES STANDBY SIGNAL



H. L. ROPER KEEPS UP STATUS BOARD

NEW GEAR FOR DRAG MEASUREMENT

PILOT POINTS TO TRAVERSING RAKE SYSTEM MOUNTED ON AFT FUSELAGE

By Lt. James T. Eilertsen and Tim Miskell

At the request of the Naval Air Systems Command, a project is being carried out by the Flight Test Division, NATC Patuxent River, Md., to determine accurately airplane drag with the Traversing Rake System (TRS). The project is designed to complete previous development of the TRS and to determine flight test techniques for accurate measurement of drag of turbojet airplanes. In tests of an A-5A airplane by NATC, the TRS has been an effective means of determining net thrust in flight and thus airplane drag.

Continued development of the TRS depends upon the accomplishment of these tasks:

1. Improved data processing which is completely automatic.

2. Determination of flight test techniques which assure accurate determination of airplane drag from thrust measurements with the TRS.

3. Flight tests which compare measurement of drag by the accelerometer method and the TRS method.

4. Flight tests with various airplanes, carrying different loads with and without external stores, to determine lift-drag characteristics for purposes of correlation with results of wind tunnel tests.

An A-4B is being used for the initial portion of the project. Various test loadings, representative of Fleet configurations, are being flown.

The test airplane is a production A-4B except for special gear: an instrumented nose boom mounted on the air-refueling probe, a magnetic tape recorder, flight path and body axis accelerometers, special cockpit instruments and the TRS installation and fairing mounted on the aft fuselage.

The traversing rake system consists of a hydraulic rotary actuator, a torque shaft assembly and a rake arm. Mounted on the arm is a set of static pressure probes, a set of total pressure probes and a total temperature probe.

Lift-drag relationships will be determined and correlated with results of wind tunnel tests conducted at the U.S. Navy's David Taylor Model Basin, Washington, D.C. If acceptable results are obtained, significant flight testing time can be saved by the use of the Traversing Rake System.

The job of acquiring accurate performance data for today's airplanes is complex and difficult because of the wide variety of external stores that can be carried. It is anticipated that the TRS will provide the Fleet pilot with enough performance data to enable him to plan fully any intended mission by using accurate drag-count data that has been proved by flight test.

Commendation Given AOC

New Ordnance Loading Method

AOC Bennie A. Juel has received the Secretary of the Navy Commendation Award in recognition of an invention that promises to see Fleet-wide service. He was cited for technical ability, forethought and devotion to duty.

While serving with Fighter Squadron 33 aboard USS *America* (CVA-66), Juel designed and constructed the "Juel Loader." The loader is a mechanical-hydraulic device that is used to load the *Sparrow III* missile aboard the F-4B and the *Shrike* missile aboard the A-6A. It is also readily adaptable to many other weapon loading situations.

The new device is constructed from a bomb truck, a bomb skid and three hoisting cradles, all obsolete equipment that might otherwise have been scrapped.

When the *Sparrow III* was introduced to the Fleet, no satisfactory handling equipment was provided for it. Previously it required five men and brute strength to load the 400-pound missile aboard an aircraft. The loader requires only three men and a minimum amount of labor. It is also a safer, more reliable method of transporting, loading and unloading the missiles. It has been recommended for adoption as standard ordnance equipment.

Chief Juel is presently assigned to ComFAir Norfolk as assistant to the weapons officer.

NAEC's Fiftieth Year

Still Active in R&D Assignments

The Naval Air Engineering Center is celebrating its 50th Anniversary this year. A gold-painted F-4B has been placed just inside the main gates of the U. S. Naval Base, Philadelphia, where the center is located.

To open this year's celebrations officially, Rear Admiral R. H. Speck, Commandant, Fourth Naval District, and Captain A. N. Clancy, Jr., commanding officer of the center, cut a ribbon in front of the golden *Phantom II*.

The Naval Air Engineering Center was first established as the Naval Aircraft Factory in 1917 to supplement the production of aircraft by private industry during World War I. The years of growth of the center were marked by many first's: the Navy's first carrier-based dive bomber, the design and fabrication of the rigid airship *Shenandoah* and the design and testing of catapults for installation on ships of the U.S. Navy. Many airplanes were built during WW I and II, including H-16 flying boats, F5L patrol planes, PBN's and the famed and long-lived N3N *Yellow Peril*.

NAEC employs about 3,000 employees today, including 600 professional engineers and scientists working in five laboratories. The center is responsible for the development of the full pressure suit used in high altitude flight, research in structural fatigue and plastic airframe structures, and development in the materials and aircraft engine fields. All catapults and arresting gear for use aboard aircraft carriers, as well as the Short Airfield for Tactical Support (SATS), were designed and developed at the center.

Closed Circuit TV is Used

Records Flight Testing Data

Video tape records are proving to be a valuable new tool in the testing of aircraft at the Naval Air Test Center, Patuxent River, Md. They provide a type of photographic coverage with quick-look capabilities. Such coverage is particularly advantageous for aircraft surveillance during field and shipboard tests. It is also valuable from the standpoint of flight safety.

Instantaneous playback allows engineers and pilots to make accurate on-the-spot judgments which reduce or eliminate repeat tests. Normally when film is employed, it must be processed and studied hours later. Consequently, changes are delayed until the next scheduled series of tests and the whole process is impeded.

Stop-motion and slow-motion features permit detailed study during operations. Actions which are rapid are more readily evaluated and unnecessary testing is eliminated. In slow motion, the machine lends itself to the study of events, such as the break-away of aircraft parts or the deployment of a parachute. The tapes can be stored for future study. They also may be reproduced on film.

The video tape recorder used at Patuxent River accomplishes stop-motion through the use of a rotating head, the energy of which is transferred inductively rather than through slip rings. This method eliminates noise, which often occurs when slip rings are used, and therefore does not adversely affect the data that is being collected.

PERSONAL GLIMPSES

Editor's Corner

For P-Boat Enthusiasts. As the U.S. Navy announced plans for decommissioning its last three seaplane squadrons, the Japan Aviation Digest, *Wing International*, announced that the first Japanese PX-S flying boat is scheduled to make its first flight in July. Built by Shin Meiwa Industry Company, Ltd., at its Konan plant, PX-S model #1 is soon due for tests.

SPEBSQSA AT SEA. One of the lighter moments of the war for USS *Enterprise* sailors certainly came February 18. That was the day an American Barber Shop quartet, known as the *Midnight Oilers*, came aboard. As the carrier continued its full schedule of combat operations, the singing group made its way around the carrier entertaining and teaching.

Under sponsorship of the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America, Inc., the *Oilers* used the carrier's closed circuit television and personal appearances to "encourage" amateur singers in the crew. The *Oilers*, all from the Chicago area, made the trip to Southeast Asia as unpaid volunteers, taking leave of their full-time jobs. (The SPEBSQSA has 650 chapters and 28,000 members around the world, and perhaps a new chapter is forming at sea.)

Nice Try, But. . . . Using what appeared to be "Yankee ingenuity," a member of the Royal Australian Air Force wrote the following to the editor of the *RAAF News:* If I remain in the RAAF until I retire, I will have completed 38 years, six months and 13 days of service—or 13,091 days. Of this period, I would be granted 570 days of recreation leave (15 days a year), 342 days public holidays (nine a year), and 3,648 weekend leave (eight days per month). This totals 4,560 days leave, or 15 years and two months leave on full pay. Can I have that now?"

To which the editor replied: "I agree that this would be a wonderful leave period, but I wonder if the writer has considered that he may be required to work 23 years, four months and 13 days without a break before he becomes entitled to the long leave."

IMPRESSIVE BIG SHOE. On what may have been the first CH-53 mission to airlift another helicopter in Vietnam, a combat boot played an important role. The CH-53, largest helicopter in the Marine Corps, hovered over a disabled H-34 nesting on the deck of the hospital ship *Repose*. When the hovering helo dropped a retrieval guideline, the crew on the H-34 was unable to grasp it. Too much rotor wind. A combat boot was then tied to the guideline and dropped from the CH-53. The weight of the shoe permitted the crewmen to make the "catch" and the job of hookup was accomplished without further trouble.

Origin of a Name. How did MCAS EL TORO get its name? According to the Third MAW information office, the air station takes its name from the city of El Toro, which developed from a small cluster of adobe houses belonging to Mexican settlers. "A friendly bull frequented the neighborhood and became so famous that the houses became known as Rancho El Toro, ranch of the bull," the Marine ISO reported.

RARE MEETING ON ICE. On March 3, a group of 17 Russian scientists "dropped in" for a 15-hour stopover at the U.S. Navy's Plateau Station deep in Antarctica. Plateau Station is manned by four Navy men and four civilian scientists. The Russians made an overland trek in two heavy-tracked vehicles as part of that country's exploration program. A report from Antarctica said that the Russians were introduced to American beer, New Orleans jazz, Hollywood films and American humor. "The fact that none of the Russians could speak English and none of the Americans could speak Russian did not prevent one and all from having a ball." The next visitors to Plateau Station are due in November.

Did You Know? FAA reports there are 9,673 airports in the U.S., 6,043 of them privately owned.

ENTERPRISE SAILORS JOIN 'OILERS' IN BARBER SHOP HARMONY OFF VIETNAM

LETTERS

Another Challenge

SIRS: Answering the challenge set forth by the *FDR* in your January 1967 issue, the *Saints* of VA-163 would like to submit two names of first tour pilots as quadruple centurions aboard one ship. Lt. Robert Hofford and Lt. Larry Spear have achieved 400 landings on the USS *Oriskany* (CVA-34) and in addition are both night centurions plus.

Lt. Hofford made his 400th trap on board the *Big O* on September 7, 1966, returning from a combat mission over North Vietnam, and went on to make 36 more landings before the end of the cruise. Lt. Spear made his 400th on November 4 after a combat mission and trapped 26 more times before launching from the *Big O* to return to NAS LEMOORE.

The *Saints* of VA-163 would now like to issue a challenge to any squadron who can come up with two quadruple centurion first tour pilots in a squadron simultaneously.

J. E. DOOLEY, LTJG., USNR
Public Affairs Officer

CV-17 Reunion Announced

SIRS: Officers and men who served aboard the aircraft carrier USS *Bunker Hill* (CV-17) during WW II will convene for their second annual convention in Boston on June 17-18.

A dinner is to be held in Boston on June 17. Invited guests include Speaker of the House John W. McCormack, Congressman Thomas P. O'Neill, Jr., of the Eighth Congressional District, the Commandant of the First Naval District and the C.O. of NS BOSTON. Guest of honor will be Vice Admiral John J. Ballantine, USN, first skipper of the carrier.

Built in Quincy, Massachusetts, the *Bunker Hill* was the first United States naval vessel to bear the name. Launched on December 7, 1942, the ship was commissioned on May 25, 1943, at the Boston Naval Shipyard. During her eventful WW II career, her airmen shot down 430 enemy planes in the air, destroyed 230 on the ground, and sank 140,803 tons of shipping. The ship's anti-aircraft gunners shot down 20 enemy planes.

On May 11, 1945, *kamikaze* planes struck the *Bunker Hill* and the attacks cost 346 dead, 43 missing and 264 wounded. Following 13 major engagements, the carrier was awarded the Presidential Unit Citation.

Former members of the ship's company who desire information will receive it promptly from the undersigned.

LLOYD HUBLER
Reunion Chairman
50 Calvary Street
Waltham, Mass., 02154

No Hyphen

SIRS: For a good many years, the name of the airport at Knoxville, Tenn., has appeared erroneously in many listings as McGhee-Tyson.

The Federal Aviation Agency has been asked to correct the name to McGhee Tyson. The spelling has been verified and we find that the correct spelling is without the hyphen.

For the record, McGhee Tyson, son of General Lawrence Davis Tyson and Bettie Humes McGhee, was a Naval Aviator during WW I. He distinguished himself in combat and died a hero's death when his plane was shot down over the North Sea.

His father, General Tyson, was a senator from Tennessee, from March 4, 1925, until his death in 1929. During WW I, General Tyson served with distinction in Europe as Commander of the 30th Division.

ARCHIE W. LEAGUE, DIRECTOR
Air Traffic Service, FAA

19th Test Pilot Symposium

VAdm. Hayward to Address It

On May 20, the U.S. Naval Test Pilot School will hold its 19th annual symposium and reunion at the Cedar Point Officers' Club, NATC PATUXENT RIVER, Maryland.

The annual get-together of TPS graduates has been a popular occasion in which technology and sociability are successfully combined.

The symposium will include these speakers: Commander R. P. Smith, director of the Test Pilot School, will discuss its future; Mr. Donald R. Segner, Lockheed-California Company, will speak on the rigid rotor program; and Mr. Robert P. Harper, Jr., Cornell Aeronautical Laboratory, Inc., will review the revised pilot rating scale.

Guest speaker for the luncheon will be Vice Admiral John T. Hayward, President of the Naval War College.

Afternoon speakers are Mr. Drury Wood, Dornier-Werke Co., West Germany, who will discuss the DO-31 V/STOL flight program, and Lt. W. R. McGowen, Weapons Systems Test Division, whose subject will be "High Performance Aircraft Ordnance Separation Tests."

The reunion for TPS graduates will commence at 1830 with a buffet dinner at 2030. Reservations are being handled by the Test Pilot School at the test center.

SERVICE TEST DIVISION *of the Naval Air Test Center at Patuxent River, Md., has been testing the use of an ice deflector to protect helicopter engines. The tests took place at the Canadian National Research Council spray rig facility at Ottawa this past winter. Above is shown the operation of the rig during tests that were conducted on the CH-46A and the CH-53A. Next on the test schedule will be an SH-3A Sea Stallion helicopter.*

SQUADRON INSIGNIA

VR-21, home-based at NAS Barber's Point, provides vitally needed logistic support to the Pacific Fleet, including Vietnam. During 1966, squadron crews made 162 flights into Vietnam in their C-118 *Liftmasters* and C-130 *Hercules*. Captain H. E. Sorenson is the squadron's commanding officer.

NAVAL AVIATION
NEWS

★ ARMED FORCES DAY ★
1967

★ ★ ★ ★ ★ ★ ★ ★ ★

POWER FOR PEACE

'The key to our performance in Vietnam today is the hard core of dedicated, well-trained and highly motivated people who make up today's Navy and Marine Corps. Never in our past history were we able to deploy such a large force of true professionals at such a remote and primitive area so quickly and so effectively.'

—Paul H. Nitze, Secretary of the Navy

MAY 20

★ ★ ★ ★ ★ ★ ★ ★ ★