NAVAL AVIATION NEWS

47th Year of Publication

JUNE 1966
NavWeps No. 00-75R-3

SHARE THIS COPY

BLUE ANGELS BECOME AMBASSADORS

A year ago, the Blue Angels went abroad, opening their continental tour at the Paris Air Show. Writing of that event, Aviation Week and Space Technology reported, 'They were the only one of seven aerobatic teams to draw spontaneous applause from the multitudes jamming Le Bourget on the final day. Even the French newspapers gave them the accolade of superiority.' When the Blue Angels appeared in Finland, Denmark, the Netherlands, Iceland and England, they repeated the spectacular triumph. Foreign press accounts of their feats as well as reports from Americans abroad praised the Blue Angels' part in bringing honor to the U.S.A. These were placed in the Congressional Record of July 9, 1965.

NAVAL AVIATION NEWS

FORTY-SEVENTH YEAR OF PUBLICATION JUNE 1966

■ IN THIS ISSUE

■ THE STAFF

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

Published monthly by Chief of Naval Operations and the Air Systems Command to disseminate data on aircraft training and operations, space technology, missile, rocket and other aviation ordnance developments, aeronautical safety, aircraft design, power plants, aircraft recognition, technical maintenance and overhaul procedures. Send mail to Naval Aviation News, Op-05A5, Navy Department, Washington, D.C. 20360, located at 4703 Munitions Bldg.; telephone Oxford 62252 or 61755. Annual subscription rate is $2.50 check or money order ($1.00 additional for foreign mailing) made payable and sent to Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Single copy is $.25.

COVERS

On the cover, Ltjg. R. W. Sturgeon (see pp. 6-8) strides to his Skyhawk for a strike against North Vietnam (photo by Jose L. Rivera, PH2). . . . Above, the Blue Angels fly over London. . . . The back cover shot is one of HS-5's helicopters hovering over the open Atlantic. The photograph was taken by David H. Lyman, JOSN.

NAVAL AVIATION NEWS

'NAVCAD OF YEAR' NOW IN VIETNAM

Outstanding Cadet Named

DAC Award Accepted by Proxy

A Marine Corps Reserve Aviator, 1st Lt. Allen D. Nease, Jr., now with MAW-2 in Vietnam, was chosen as the Outstanding Naval Aviation Cadet of the Year 1965 by the Daughters of the American Colonists.

On behalf of Lt. Nease, Lieutenant General Richard C. Mangrum, Assistant Commandant of the Marine Corps, accepted the award, an engraved wristwatch. The ceremony was held during the DAC's 45th assembly in Washington, D. C.

The DAC's chose Nease after he placed first in academic, military and flying categories while in training at Pensacola.

Rear Admiral L. J. Kirn, Vice Director, Joint Chiefs of Staff, was guest speaker for the occasion.

Air Safety Record Made

Lowest Navy has yet Achieved

For the calendar year 1965, Navy established a new low in air accidents: 1.22 per 10,000 flight hours. This represents a decrease of 10.3% from the 1.36 rate recorded in CY 1964.

These rates do not include losses resulting from direct enemy action, but do include all other accidents in the combat area.

The most significant improvement in 1965 over 1964 was a 21% reduction in accidents resulting from human error. In CY 1965, there were 144 material failure/malfunction-caused accidents, a reduction of 2% from CY 1964. Several improvements in landing gear components reduced by 27% the number of accidents caused by landing gear component failures.

There was a reduction of 36% in the number of accidents caused by the failure of jet engines.

Statistics of flight hours and number of accidents are as follows:

	CY 1965	*CY 1964*
Total flying hours	3,693,341	3,705,712
Number of accidents	449	503
Accident rate per 10,000 flight hours	1.22	1.36

No Bombing Derby in '66

Commitments Force Cancellation

The annual Reconnaissance Bombing Derby at NAS SANFORD, sponsored by Reconnaissance Attack Wing One, will not be held in 1966, according to Captain R. E. Fowler, Jr., Wing Commander.

Increased deployments and operational commitments this year require too many squadrons to be operating at sea to permit a derby competition.

Several competitive reconnaissance exercises without previous notice to the units involved are planned this year as part of the wing's training program. These events will serve as the basis for the selection of winners of trophies normally presented at the derby.

New Command Announced

RAdm. Ward Heads Naval Force

General W. C. Westmoreland, USA, announced the establishment of a new major U.S. Pacific Fleet command in South Vietnam Apr. 1.

Called U.S. Naval Forces, Vietnam, and headed by Rear Admiral Norvell G. Ward, the new command will exercise operational control for ComUSMACV over virtually all naval forces in the Republic of South Vietnam.

Admiral Ward will also serve as Naval Component Commander for General Westmoreland, who is

'HARDIMAN,' *conceived by Cornell Aeronautical Laboratory under an ONR contract, will allow a human to lift 1,500 lbs. while exerting only 40 lbs. of force. The machine will be attached to operator's feet, forearms and waist. Navy foresees its use for bomb-loading, dock work and underwater salvage.*

Commander, Military Assistance Command, Vietnam. Previously, responsibilities of the MAC Naval Component Commander had been held by Lieutenant General Lewis W. Walt, USMC, Commanding General, III Marine Amphibious Force, in Da Nang.

Rear Admiral Ward established the new command in ceremonies held aboard the *Market Time* escort ship, USS *Lowe* (DER-325), moored at the Vietnamese Navy headquarters pier in Saigon harbor.

Forces which will be under the operational control of ComNavForV include: Coastal Surveillance Force; Patrol River Force, Harbor Defense Forces; Mine Countermeasures Forces; Naval Support Activity, Da Nang; Headquarters Support Activity, Saigon; and the 35th Naval Construction Regiment.

In assuming command of U.S. Naval Forces, Vietnam, Admiral Ward retained the position of Chief, Naval Advisory Group, a post he has held since May 1965.

Condor Contract Announced

North American to be Developer

North American Aviation's Columbus Division has been selected to develop the *Condor* air-to-surface, television-guided missile.

North American was one of two contractors selected last year to perform the Phase I contract definition of the *Condor* program.

The Navy announced completion of Phase I and selection of North American for negotiation of the Phase II contract. Negotiations involve the Air Systems Command and North American Aviation for development and fabrication of test and evaluation models.

The *Condor* (AGM-53A) system relies on television for guidance to provide carrier-based attack aircraft with an advance launch capability and greater bombing accuracy.

The rocket-powered, conventional warhead missile is adaptable to the armament system in current and future military aircraft.

NATC PATUXENT *River, Md., is testing a helicopter, manufactured by Sikorsky Aircraft, that has the capability of streaming, towing and recovering mechanical minesweeping gear (described in "Helicopter Undertakes a New Role," NANews, August 1960, pp. 20-24). The aircraft, redesignated the RH-3A, is a modification of the SH-3A. The Naval Air Mine Defense Development Unit, Panama City, Fla., will use the aircraft in its development program of various other mine defenses. In addition to minesweeping gear, the aircraft could tow heavy loads, including small ships, with a force up to 8,000 pounds.*

Navy MAC Units to End

Phase-Out to be Over in 1967

The Military Aircraft Command will operate without its Navy airlift squadrons after next year.

Approval of a joint recommendation of the Secretaries of the Air Force and Navy to discontinue Navy participation in MAC operations by July 1967 was announced by the Secretary of Defense.

Three Navy airlift squadrons, equipped with a total of 48 Air Force Lockheed C-130 *Hercules* aircraft and a maintenance squadron, will be deactivated. The turnover will involve only personnel and unit designations. The aircraft will remain in the Air Force inventory.

Navy's VR-3 at McGuire AFB, N. J., will phase out by July 1967. VR-7 and VR-22, both at NAS Moffett Field, Calif., will phase out in January and April 1967 respectively. Maintenance Squadron VR-8, also at Moffett, will phase out in June 1967.

Phase-out of the units will end an AF-Navy partnership begun in 1948 when the Air Transport Command and the Naval Air Transport Service were merged. Since then the crews of both services have flown together, side by side, in airlift missions around the world.

ONE OF NAVY'S *newest planes, the A-7A Corsair II, undergoes preflight procedures at the Naval Air Test Center, Patuxent River, Md. Designed for attack and close air support roles, it is being tested at the center for approximately six months. It carries twice the load of bombs of current light bombers, a multiplicity of weapons stores, cockpit armor, self-sealing fuel tanks in critical areas and defense capabilities which include 20mm. rapid-firing cannon and air-to-air missiles. It features not only great ease of maintenance, but also excellent fuel economy. The A-7A can be either land or carrier-based.*

GRAMPAW PETTIBONE

Snow Job

A Naval Air Reserve pilot departed a West Coast naval air station in an A-4 to fly an approved sandblower (low level) route. Shortly after takeoff, he was joined by his chase plane and the flight climbed to flight level 235 (below APC) heading out to intercept the planned route. After passing abeam the designated check point, the flight descended to 500 feet above the terrain and commenced the low level with 200# of fuel below plan.

The snow covering on the route was intermittent. Some places were solidly covered while the open broad valleys were either melted or swept clean by the wind.

Approaching the dry lake, the route crossed two ridges, the first over 5,000 feet and the second about 8,500. Just past the last ridge, the flight pushed over to continue their contour flying and leveled off over the lake bed which was completely covered with snow.

Arriving at this checkpoint (the snow-covered lake bed) on time and with planned fuel, the sandblowing pilot commenced his turn and summarily struck the snow-covered earth.

The starboard drop tank hit the surface first, was crushed and wrapped itself over the leading edge of the wing. The port drop tank then hit the surface and separated from the aircraft, tearing away the pylon and rupturing the wing fuel cell. The nose and lower

fuselage next contacted the surface, damaged the nose cap, forward fuselage and tore away the Tacan antenna and a rocket launcher from the centerline stores rack. After approximately 570 feet of surface travel, the determined machine became airborne. The bird was controllable, despite the asymmetrical result of the deformed starboard drop tank curled around the leading edge of the wing, and the absence of the port drop tank and pylon.

All remaining wing-cell fuel was quickly being lost from the ruptured left wing and upon seeing the fuel gauge rapidly declining, the pilot considered ejecting, but, after assessing the damage, gaining controllability and reorienting himself, he decided to stay with it. With the help of the chase plane, the warped hawk managed to steer a course to a nearby naval auxiliary air station. Arriving at the field, the distraught driver experienced difficulty extending his starboard main landing gear but, after exercising the emergency extension, succeeded in getting all three down and locked. He then proceeded to engage the Morest in a normal manner and ended an exciting half hour of sand/snow blowing.

Grampaw Pettibone says:

Jumpin' Jupiter! This lad must've been thinking pure thoughts all week.

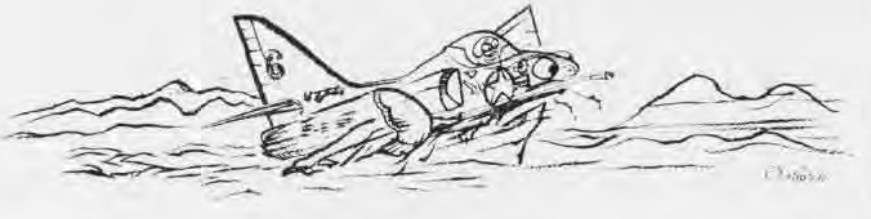
At best, depth perception over the snow is not good and, when you add a driver who doesn't practice this type of flying too often, the ingredients are perfect for this type of mishap. More vigilance on the part of the chase plane and keeping the eyes out of the cockpit will go a long way toward that added longevity.

Whoops!

At 1915 one evening during the fall season, an experienced aviator (ex-instrument instructor) departed a midwest naval air station in a T-33 headed for another air station located near a large lake. The weather en route was IFR and forecast to be adequately above minimums at destination upon arrival.

After a normal departure and climb to assigned flight level 250, the T-Bird driver settled down for a routine flight estimating his destination in one hour and eight minutes with a comfortable 2 + 30 hours fuel on board.

As he approached the vicinity of his destination, the complacent jockey contacted center and requested a radar let-down with a hand-off to GCA. At clearance limit, he was transferred to approach



ILLUSTRATED BY Oplom

control, cleared to FL 240 for a radar let-down on a heading of 090°. In his own narrative, he reports, "Prior to leaving FL 240, I turned on my windshield defroster and pitot heater. I was cleared to descend to 2,500 feet and shortly after leveling off my airspeed indicator unwound to zero. I continued to fly the aircraft by attitude, alti-

tude and predetermined power settings, notifying approach control that I had lost my airspeed indicator. They asked me if I wished to continue the approach and I replied, 'Affirmative.'

"I was turned over to GCA but was unable to see the runway on the first approach and took a wave-off, climbing to 2,500 feet on a heading of 360. I was then directed back to approach control. (At this time I was having difficulty flying the aircraft without airspeed indication. I had to illuminate the radio control box with a flashlight in order to reset the frequency.)

"I notified approach control that I had waved off and was subsequently vectored back around and turned over to GCA for the second approach. Again I did not sight the runway and was waved off.

"Returning to approach control, I requested an ASR approach to the municipal field. I did not see the runway on the first and second approaches and my fuel state was now critical with about 70 gallons remaining (approximately ten minutes flying time). After the wave-off from the second approach, the illumination from the field enabled me to notice quite a bit of ice on the wings. Thinking this strange, I asked approach control what the temperature was and they replied, 'fifty-one degrees.' It wasn't until this time that I realized I had leveled off from my initial descent at 12,500 instead of 2,500 by misreading the altimeter.

"I immediately notified approach control that I was at 10,000 feet. They then cleared me down with close vector headings to make another approach. I sighted the runway about four miles out and was cleared to land. I thanked the controller and made an uneventful landing, turning off the runway with 40 gallons of fuel remaining."

Grampaw Pettibone says:

Sonovagun! The fog count must a been pretty high.

Your old dad wasn't cut in on the full transcript, but I'm a suspicious cuss and can't help wondering why GCA didn't smell a rat on at least one of those passes. This lad had plenty to keep him busy and could'a used a little help. Don't think it can't happen to you!

Bypassed

An instructor and his charge mounted their T-2A *Buckeye* one day for a scheduled instrument hop. After an uneventful (under the bag) takeoff, the student climbed to 18,000 feet where he performed some turns and a transition to slow cruise. After several recoveries from unusual attitudes, the combo climbed to 20,000, executed a yoke pattern and cleaned it up at 165K. The instructor took over, added 100% power and descended to 2,000 feet at 300 knots.

At 2,000 feet, he reduced power to 95% and noted the console landing gear warning light was glowing. Without adjusting power, the instructor struck the gear handle a few times. While still at 300 kts. or more, the instructor pilot loosened his harness lock and, grasping the handle, moved it downward. The aircraft made a sudden yaw to the left and decelerated. The left main gear was noted to be down and hydraulic fluid was draining overboard.

After turning the hydraulic boost off and reducing power, the gear windows were noted to be unsafe for both main gear. The instructor informed the tower of his predicament and requested the arresting gear be set up. Another squadron aircraft joined up and visually checked the gear to be locked outward. With the hook extended, the bent *Buckeye* proceeded to an uneventful arrestment. The gear held and the two drivers exited without further ado.

Grampaw Pettibone says:

Oh, brother! Some people just can't stand prosperity. This lad should'a got the message but allowed the signal to bypass his brain and proceed directly to the left hand without interrogation. The warning light on the panel and the brain in this lad's head were installed for a purpose, but they've got to be used if we're gonna eliminate this type of idiot's delight.

Letter to Gramps

DEAR GRAMPS,

After reading your comment in the February *Naval Aviation News* that "I ain't missed one of my three square meals a day yet," I've decided you're not the tiger you purport to be. We'll all agree with the flight surgeon about needing "fuel for the tank," etc., but during the 10 years I've been flying I started missing occasional "square" meals in the training command and I still do.

The fix for the problem is not telling a pilot that he needs "X" amount of nourishment each day. Those of us who are fulfilling operational commitments, or just taking flights because we love to fly, can't always be around during meal hours. I recommend a poll of Fleet pilots for suggestions. You may get a solution. But until then, what is your secret method?

FLEET PILOT

Grampaw Pettibone says:

Now hold on a minute, bub. I said I ain't missed one. What I didn't say was how many times I had to postpone 'em.

Memo from Gramps

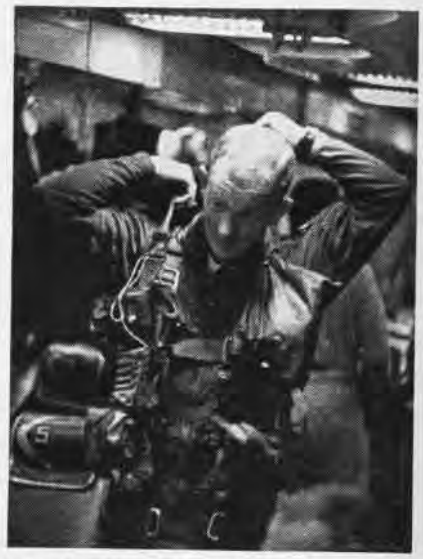
Thought about operatin' in the summer temperatures yet? When was the last time you traced through the takeoff chart? Hot, sticky days are here. The professional tiger never gets caught on a hot runway with any doubt about required takeoff roll or refusal speeds—he knows 'em cold.

AN A-4 SKYHAWK COMES INTO THE PATTERN FOR LANDING ABOARD SEVENTH FLEET AIRCRAFT CARRIER RANGER

LESSARD CLIMBS INTO HIS 'SPAD'

TODAY'S PILOTS FOR TODAY'S CONFLICT

By John Bates, JO3, and Rick Blair, JOSN



STURGEON DONS SURVIVAL VEST

SINCE THE FIRST days of Naval Aviation in 1911, great strides have been made in the development of combat airplanes: their construction, their capabilities, their missions. The men who fly them have had to advance with the machines. In a little over half a century, the intrepid aviator in his biplane of WW I has become the highly trained technician/pilot of today's jet bombers.

What these Naval Aviators are now doing and how they are doing it can best be illustrated in the personal reports of two pilots in the Vietnam conflict: one flying the A-4E *Skyhawk*; the other, the older but still serviceable A-1H *Skyraider*. Both aircraft are flown from aircraft carriers of the Seventh Fleet.

Ltjg. Robert W. Sturgeon, a 24-year-old pilot aboard the USS *Ticonderoga*, flies the *Skyhawk*, and Ltjg. Norman Lessard, a 23-year-old pilot aboard USS *Ranger*, flies the *Spad*. Their story is the story of hundreds of other Naval Aviators.

A REDHEAD from Atlanta with a deep southern drawl and a quick sense of humor, Bob Sturgeon jockeys *Skyhawk* jets twice daily in raids over hostile enemy installations in Vietnam. His daily routine seldom varies. It's mostly hard work—and risky. His job is to deliver his bomb payload on target and return to his carrier.

To prepare for his job, the young pilot has received intensive training in such technical fields as aerodynamics, higher mathematics and structural mechanics. His ability is exceptionally high; his dedication, absolute.

He was commissioned ensign in 1963 after graduating from Georgia Institute of Technology with a degree in aerospace engineering. This was followed by nearly two years of flight training.

"While in college I learned how to build aircraft," Sturgeon says. "I learned to fly them in the Naval Air Training Command."

After flight training, he was first assigned to VA-125 where he was introduced to the A-4 *Skyhawk*. On his second assignment, he came to

VA-56 on the *Ticonderoga*. At the time of this interview, he had been flying strike missions over Vietnam for three months.

The plane Sturgeon pilots is the smallest, jet-powered combat aircraft ever built for the United States. The stubby A-4E, 39 feet long, has a wing span of 27 feet. It carries a two-ton payload at speeds over 600 miles per hour.

An average day finds the junior grade lieutenant hustling through the early morning schedule: reveille at 0600, shower, breakfast, etc. His first briefing for the day is held at 0700. He is preparing for a major strike at 1030.

"The morning briefs give us the big picture of what to expect in the target zone," Sturgeon says. "The pilots are given the weather forecast around the target area, enemy and friendly forces distribution, and 'rules of engagement.'" Rules of engagement specify how the pilots are to attack.

At 0800 the pilots gather in the ready room for a secondary briefing. "This," explains Sturgeon, "is where we find out how our hop will be conducted, what radio frequencies will be used, emergency procedures and plans of attack." Sixteen A-4's, forming four flights of four *Skyhawks* each, will bomb a railway bridge in North Vietnam.

A half hour before the flight, Sturgeon dons his flight gear. This bulky outfit, weighing some 50 pounds, includes an oxygen-breathing unit, a life vest, a survival vest, a torso harness for the parachute, an anti-G suit, a portable emergency radio transmitter-receiver, pistol, ammunition and a crash helmet. Dressed, Sturgeon works his way to the flight deck via ladders, goes through an inspection of his A-4 with the plane captain and climbs into the cockpit.

EXTERIOR SYSTEMS ARE INSPECTED

The signal to start the jets is given 15 minutes before launch. The crescendo of 16 jets turning up is deafening.

The 42,000-ton *Ticonderoga* pivots slowly into the wind. The jets, one after the other, are positioned on the two steam catapults and launched in rapid succession. The carrier shudders as 125,000 pounds of thrust slam the aircraft off the ship.

Bob Sturgeon is one of the last to go. He taxies into position and

A-4 IS READIED FOR A LAUNCH

his plane is hooked up to the catapult harness. He jams the throttle forward to full thrust and checks out his cockpit instruments. "Here's where I get a bit excited," he says. "The cat shot produces a special sensation."

Sturgeon salutes the catapult officer to signify he is ready. The cat officer returns his salute and signals the cat crew to fire the catapult. In a little over 200 feet, the 23,000-pound A-4 is accelerated to 175 mph and launched. The cat shot takes about two seconds. Sturgeon is busy raising his landing gear and flaps as he scans the horizon searching for the other planes in his flight.

Sighting his flight ahead, Sturgeon joins up and the flight heads for the coast of North Vietnam. "The carrier is usually 100 or 150 miles from the coast," Sturgeon reports. "Today it was closer because of the distance to our target."

The planes fly about 400 mph until they reach the target zone. The pilots approach the railway bridge at about 10,000 feet.

"We began to pick up some flak as we neared the target," Lt. Sturgeon recollects. "The muzzle flashes were clearly visible on the ground and the shells left small gray-black puffs of smoke as they exploded around our aircraft. Since we were constantly changing our altitude, heading and airspeed, the gunners on the ground couldn't track us. Only a lucky hit could have downed us.

"As we rolled in on the target, I didn't have time to worry about enemy defense. I was concentrating on delivering my weapons on target."

Accelerating to over 500 mph, the A-4's swoop down on the railway bridge, release their loads, level off by 3,500 feet, pulling five G's, and streak outbound for the coast.

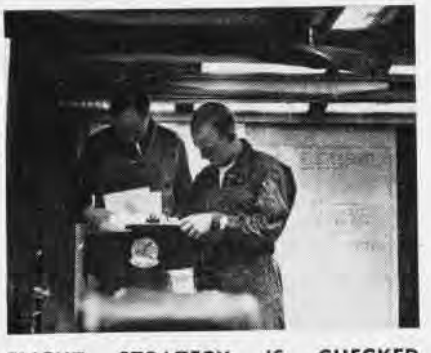
"We were 'jinxing' or flying irregular flight patterns," Sturgeon says, "all the way back to the coast to elude enemy retaliation."

One A-4C pilot from VA-144, another squadron aboard *Ticonderoga*, did not make it back that day. He was shot down by enemy antiaircraft fire over the target.

Once back, Sturgeon approaches *Ticonderoga* in a landing pattern, making an orbit of the carrier to begin his approach to the Big *Ti's* flight deck. "We're on a frequency with the LSO who guides us down, but a flight deck landing is strictly solo. It's the pilot who handles the controls."

Sturgeon snags the #2 arresting cable on the first try and is thrown forward violently in his seat as the plane is slowed to a stop in two seconds from 140 mph. He taxies forward, climbs out and goes below for his debriefing.

At 1330 the flight routine begins again for the afternoon hop scheduled to begin at 1530.



FLIGHT STRATEGY IS CHECKED

ABOARD the USS *Ranger*, another pilot, Ltjg. Norman Lessard, is following much the same routine. In contrast to Ltjg. Sturgeon, Lessard is flying the only propeller-driven type attack bomber left in the Navy, the *Skyraider*.

Flying the *Skyraider* is as much like flying scrambles in WW II as anything in Vietnam today. "It's like flying by the seat of your pants. We've got to feel the aircraft, especially on strike missions. There is nothing like it in the world." This is how Ltjg. Dennis Enstam feels. Lt. Enstam is a fellow member of Lessard's outfit, Attack Squadron 145.

The aircraft, with a long line of Korean conflict records, has been held over because of its versatility. It can carry one of the largest bomb loads of all Navy attack aircraft. It can be used as a fighter as has been proved with recent air combat victories over North Vietnamese *Migs*. The plane can fly low or high-level missions or close support strikes with equal success.

The *Spad* was credited with consistently carrying the major weight of bombs in the Korean strikes and it's doing it again in Vietnam. Pilots have said the plane can carry and deliver anything but the "kitchen sink." And even this exception was removed by a plane crew who actually rigged an old kitchen sink to a 2,000-pound bomb and dropped it on the enemy.

A critical factor in the plane's success is that almost to a man the pilots of these venerable aircraft "love 'em."

"I like flying the *Spad*," commented Lessard. "I like flying it alone. . . . It's the only aircraft in the Navy I would fly."

Watch for a moment as Lessard's A-1H is catapulted from the USS *Ranger*. It's carrying 8,000 pounds of bombs and its four 20mm cannon are trained on the beach. The *Skyraider* is ready.

As he flies out over the choppy waters, his 18-cylinder engine is spinning its prop at 1,700 rpm. Lessard is checking his charts, location, approach to the target and the array of dials and instruments in front of him. He doesn't worry about coming back. He hasn't time.

His division leader's voice cracks over his earphones, like a stereophonic whip, somewhere above his head. To the lieutenant, it is a signal for instant and complete attention, for only in case of urgency does a *Spad* pilot break radio silence during a strike. The whip announces his final orders for a strike.

Most communications between *Spad* pilots are in sign language: hand signals in daytime, flashing lights in darkness. "If I want to say something to my section or division leader, I just come up under his wing and talk away. I'm not more than 30 feet from him," Lessard explains.

While going in on a target, the pilot must figure distances and firing angles for his bombsights while he keeps a check on fuel, G forces, altitude, speed and attitude.

"I never have time to wonder if I'll take a hit. I couldn't. Only at the top of a bombing or strafing dive would I have even a second to think, but I know that it just won't happen."

At the end of a run, her bomb load falling to earth, the speeding *Spad* pulls up under a force of 4.5 G's. The A-1 falls into formation again, or, if there is only minor ground fire and it is an important objective, makes another run.

There are few sights of exploding ordnance or scattering figures on the ground as the pilot pulls out of a dive. In most cases, the pilot never sees his real target. He can feel the bomb drop off his wing. Sometimes he sees the smoke cloud of a secondary explosion below him in the jungle, but so far neither Lessard nor the pilots who fly with him have seen much more than the return fire the enemy sends up.

And that in itself is not too encouraging a sight. Lessard's enemy is firing everything from 50-cal. machine guns to deadly ground-to-air missiles. Some of the larger shells include 37 to 57mm projectiles that can tear a wing in two or put a hole the size of a man's hand into a fuselage.

The bomber pilots put their bombs and air-to-ground rockets under overhangs, into ravines or ditches. They hit lone shacks, seemingly empty fields and dense forests. The enemy is not easy to fight. He hides and hits when least expected.

IN ITS REGULAR reports, the Seventh Fleet gives a running account of strikes made by its aircraft. One day it leads off with this announcement: "A-1, A-4, F-4 and A-3 aircraft from aircraft carriers USS *Ticonderoga* and USS *Ranger* struck North Vietnamese highways, bridges, ferry landings, junks and a radar site located nine miles southeast of Than Hoa. . . .

"In the Republic Friday, aircraft from the nuclear-powered USS *Enterprise* flew 130 strike sorties against Viet Cong targets in all four Corps areas.

"Pilots struck VC troop concentrations, supply and storage areas, and supported friendly ground operations."

The tremendous force of the Seventh Fleet is on the move. Its strength resides in its ships, officers and men.

The "on-target blows" are delivered by Naval Aviators who, like Ltjg. Sturgeon and Ltjg. Lessard, fly the Navy's attack and fighter planes with courage and skill.

CATAPULT OFFICER GIVES 'GO' SIGNAL AND SKYRAIDER IS OFF ON MISSION

VERTICAL REPLENISHMENT SPEEDS SUPPORT

THE HELICOPTER is coming into its own for underway logistic support of the Fleet. The conversion of ships' fantails into landing platforms and the addition of flight decks on the Navy's newer ships proclaim the growing importance of vertical replenishment.

Once the use of helicopters for resupply of ships at sea was limited to those normally aboard aircraft carriers and other large ships. Today, vertical replenishment (Vertrep) is being incorporated in the entire at-sea supply system, combined with the conventional methods of alongside cargo transfer from supply ships. Vertrep speeds up the underway operation.

In December 1964, when two UH-46A *Sea Knights* were placed aboard the new combat stores ships, USS *Mars* (AFS-1), full-scale Vertrep operations were inaugurated in the Seventh Fleet. Ten months later, two UH-46A's of Helicopter Combat Support Squadron One, Detachment 49, began operations aboard the Navy's first Fast Combat Support ship, USS *Sacramento* (AOE-1). Both ships, units of the Pacific Fleet Service Force, are deployed in WestPac with the Seventh Fleet.

The medium utility, twin-turbine helicopters are identical to the CH-46A medium assault helicopters used by the Marine Corps for vertical envelopment assault landings. One of the first tests of the UH-46's capabilities in ship-to-ship transfer was made when surface-to-air missiles were delivered during exercises at sea off Norfolk in November 1964.

The primary aim of the Vertrep program is to reduce alongside underway replenishment time, thus allowing combat ships to remain for longer periods of time in their regular position in the task force formation. The success of Vertrep has been substantially demonstrated by the multi-product delivery capability of USS *Sacramento*, a combination Fleet oiler, ammunition and provisions ship, during current operations in the South China Sea.

The USS *Sacramento* is unique in that it not only supplies by vertical replenishment provisions and general ammunition items but by the same method also transfers surface-to-air missiles (*Talos*, *Terrier* and *Tartar*) and the antisubmarine warfare weapon, ASROC, and at the same time continues to transfer all her varied cargo to ships alongside at high speeds. Modern equipment for ammunition and provisions handling, such as elevators, conveyors, mechanical pallet transporters and fork lift trucks, have enhanced *Sacramento's* capability to fulfill the requirements of a combat task force.

ONE OF SACRAMENTO'S UH-46A'S PREPARES TO TRANSFER CARGO LOAD

With a cruising speed of 150 mph and a range of 300 miles, the UH-46A helicopter can carry out the major resupply of all type ships by Vertrep. The ships are required to come alongside only if the transfer of fuel oil is necessary. While ships are alongside, the *Sacramento's* two helicopters can continue to relay provisions and ammunition to them.

In most instances, a Vertrep trip to a carrier alongside the *Sacramento* can be completed in one to two minutes from the time the helicopter leaves the ship's flight deck until it returns for another load. The operation takes an additional two or three minutes for a destroyer alongside.

The UH-46A can transfer single loads of cargo up to 6,000 pounds, depending on the climate. Hot temperatures in the air create problems and force a reduction in the weight that can be carried to 3,000 or 4,000 pounds.

To utilize the maximum capacity of the helicopter's lift, the loads are doubled, tripled or quadrupled, depending on the weight of each load. Light loads require the helicopter to cruise at slower speeds to compensate for oscillation of the load at the aircraft's vertical center of gravity, while heavier loads allow the helicopter to move at faster speeds.

During a normal Vertrep, the helicopter is manned by a crew of four. One man in the rear of the helo operates the cargo hook installed in a hatch in the floor. Another with radio headphones acts as the cargo hook-up position director for the pilot and copilot. The only requirement for ships without flight decks or landing platforms is an area clear of obstructions to allow the helicopter to get close enough to land the load.

NINETEEN PILOTS BECOME ASTRONAUTS

NINETEEN pilots joined the U.S. astronaut team early in May, according to the National Aeronautics and Space Administration. This brings the total number of NASA astronauts to 50.

Four civilians are among those selected. Of the remainder seven are Air Force officers, six are naval officers and two are Marine Corps officers.

Of the 19 selected, 12 have had Navy or Marine Corps training. One of the civilians is a Reserve Naval Aviator, and another was formerly a Marine Aviator. Two of the seven Air Force officers received their B.S. degrees from the U.S. Naval Academy at Annapolis. Five of the 19 are graduates of the U.S. Naval Postgraduate School at Monterey, California.

The 19 pilots were chosen from a total of 351 who applied. Average age of the group is 32.8 years. Other averages are as follows: college years, 5.8; average flight time, 2,714, of which 1,925 is jet time. Two of the new astronauts have doctorates.

Vance D. Brand, civilian, 34 years old; B.S. in Business Administration, 1953, and B.S. in Aeronautical Engineering, 1960, both degrees from the University of Colorado, as well as Master of Business Administration, 1964, from the University of California; recently an engineering (experimental) test pilot for Lockheed, assigned to Flight Test Center, Istres, France; 2,174 hours of flight time, of which 1,721 is jet time; served with Marine Corps from 1953-57; graduated from U.S. Navy Test Pilot School in 1963.

John S. Bull, Lt., USN, 31; B.S. in Mechanical Engineering from Rice University, 1956; since 1964 has been a carrier suitability project test pilot at Naval Air Test Center, Patuxent River, Md.; 1,634 hours of flight time, of which 1,424 is jet time; graduated from the U.S. Naval Test Pilot School in 1964 as outstanding student; a naval officer since 1957.

Gerald P. Carr, Maj., USMC, 33; Bachelor of Mechanical Engineering from the University of Southern California, 1954; B.S. in Aeronautical Engineering from U.S. Naval Postgraduate School, Monterey, Calif., 1961; M.S. in Aeronautical Engineering from Princeton University, 1962; since 1965 has been responsible for directing and supervising all testing of Marine tactical data systems at MCAS SANTA ANA; 1,903 hours of flight time of which 1,368 is jet time; a Marine officer since 1954.

Charles M. Duke, Jr., Capt., USAF, 30; B.S. in Naval Sciences, U.S. Naval Academy, 1957; M.S. in Aeronautics and Astronautics, MIT, 1964; since 1964, has been an instructor at Aerospace Research Pilot School at Edwards AFB; 1,736 hours of flight time, of which 1,472 is jet time; an Air Force officer since 1957.

Joe H. Engle, Capt., USAF, 33; B.S. in Aeronautical Engineering, University of Kansas, 1955; since 1963, he has been an aerospace flight test officer at Edwards AFB as an X-15 project pilot; 3,867 hours of flight time, of which 2,573 is jet time; graduated from the Experimental Flight Test Pilot School in 1962 and the Aerospace Research Pilot School in 1963; an Air Force officer since 1957.

Ronald E. Evans, LCdr., USN, 32; B.S. in Electrical Engineering, University of Kansas, 1956; M.S. in Aeronautical Engineering, U.S. Naval Postgraduate School, 1964; 2,372 hours of flight time, of which 2,084 is jet time; a naval officer since 1956.

Edward G. Givens, Jr., Maj., USAF, 36; B.S. in Naval Sciences, U.S. Naval Academy, 1952; most recently, a project officer for Astronaut Maneuvering Unit (*Gemini* experiment D-12) at NASA Manned Spacecraft Center, Houston; 3,353 hours of flight time, of which 2,628 is jet time; a graduate of the Air Force Experimental Test Pilot School in 1958, he was awarded the Outstanding Graduate Certificate; graduated from the Aerospace Research Pilot School in 1963; an Air Force officer since 1952.

Fred W. Haise, Jr., civilian, 32; B.S. in Aeronautical Engineering, University of Oklahoma, 1959; since 1963, project pilot of the NASA Flight Research Center, Edwards AFB; has 4,760 hours of flight time, of which 2,096 is jet time; was a Naval Aviation Cadet, 1952-54; a U.S. Marine Corps officer, 1954-56; an Air National Guard officer, 1957-63; graduated from the Aerospace Research Pilot School in 1965 and received A.B. Honts Trophy as the outstanding graduate.

James B. Irwin, Maj., USAF, 35; B.S. in Naval Sciences, U.S. Naval Academy, 1951; M.S. in Aeronautical Engineering and M.S. in Instrumentation, University of Michigan, 1957; most recently assigned as Chief, Advanced Requirements Branch, Headquarters Air Defense Command; 5,468 hours of flight time, of which 3,780 is jet time; was graduated from the Air Force Experimental Test Pilot School in 1961 and the Air Force Aerospace Research Pilot School in 1963. He has been a U. S. Air Force officer since 1951.

Don L. Lind, civilian, 35; B.S. in Physics, University of Utah, 1953; Ph.D. in Physics, University of California, Berkeley, 1964; since 1964, has been at the NASA Goddard Space Flight Center as a physicist working on experiments to determine the nature and properties of low energy charged particles within planetary magnetospheres and in interplanetary space; 1,361 hours of flight time, of which 1,044 is jet time; a naval officer on active duty from 1954 to 1957, a lieutenant commander with Naval Reserve Fighter Squadron 662 at NARTU ANDREWS AFB.

Jack R. Lousma, Capt., USMC, 30; B.S. in Aeronautical Engineering, University of Michigan, 1959; M.S. in Aeronautical Engineering, U.S. Naval Postgraduate School, 1965; most recent assignment was as operational pilot at MCAS CHERRY POINT, N.C.; 1,258 hours of flight time, of which 1,077 is jet time; a Marine Corps officer since 1959.

Thomas K. Mattingly, Lt., USN, 30; B.S. in Aeronautical Engineering, Auburn University, 1958; graduated in April of this year from Air Force Aerospace Research Pilot School; 2,582 hours of flight time, of which 1,036 is jet; naval officer since 1958.

Bruce McCandless, II, Lt., USN, 28; B.S. in Naval Sciences, U.S. Naval Academy, 1958; M.S. in Electrical Engineering, Stanford University, 1965; is working toward a doctorate in the same field at Stanford; 1,435 hours of flight time, of which 1,339 is jet time; a naval officer since 1958, he flew from the USS *Enterprise* during the Cuban Quarantine.

Edgar D. Mitchell, LCdr., USN, 35; B.S. in Industrial Management, MIT, 1952; B.S. in Aeronautical Engineering, U.S. Naval Postgraduate School, 1961; Doctor of Science, MIT, 1964; graduated first in his class in April 1966 at the Air Force Aerospace Research Pilot School; 2,795 hours of flight time, of which 704 is jet time; received commendation as project pilot in an air development squadron and DAR award in 1954 for achieving highest over-all marks during flight training; a naval officer since 1953.

William R. Pogue, Maj., USAF, 36; B.S. in Mathematics, Oklahoma Baptist University, 1951; M.S. in Mathematics, Oklahoma State University, 1960; recently an instructor at the Aerospace Research Pilot School; 3,344 hours of flight time, of which 2,509 is jet time; graduated from Empire Test Pilot School in 1963; member of the USAF Thunderbirds from 1955 to 1957; flew 43 combat missions during the

Korean Conflict; USAF officer since 1952.

Stuart A. Roosa, Capt., USAF, 32; B.S. in Aeronautical Engineering, University of Colorado, 1960; at time of astronaut selection, an experimental test pilot at Edwards AFB; 2,758 hours of flight time, of which 2,406 is jet time; a graduate of the Aerospace Research Pilot School in 1965; an Air Force officer since 1953.

John L. Swigert, Jr., civilian, 34; B.S. in Mechanical Engineering, University of Colorado, 1953; M.S. in Aerospace Science, Rensselaer Polytechnic Institute, 1965; at time of selection was engineering test pilot for North American Aviation, Inc.; 4,469 hours of flight time, of which 3,703 is jet time; served with the Air Force from 1953 to 1956; a research engineering test pilot for Pratt and Whitney, 1957-1964.

Paul J. Weitz, LCdr., USN, 33; B.S., Pennsylvania State University, 1954; M.S. in Aeronautical Engineering, U.S. Naval Postgraduate School, 1964; at time of being chosen an astronaut, operations officer of an A-3B squadron; 2,510 hours of flight time, of which 2,207 is jet time; recently completed service aboard USS *Independence* in the Vietnamese area where he participated in 132 combat sorties; a naval officer since 1954.

Alfred M. Worden, Capt., USAF, 34; Bachelor of Military Science, U.S. Military Academy, 1955; M.S. in Aeronautics/Astronautics and Instrumentation, University of Michigan, 1963; an instructor at Aerospace Research Pilot School at Edwards AFB; 1,900 hours of flight time, of which 1,308 is jet time; graduated from the Empire Test Pilot School in 1965 and the Aerospace Research Pilot School in September 1965; a USAF officer since 1955.

Pensacola Expert Honored

Gemini Radiation Work is Cited

Herman J. Schaefer, Ph.D., Chief of the Physical Sciences Division at the Naval Aerospace Medical Institute, Pensacola, received the Hubertus Strughold Award at the 37th annual scientific meeting of the Aerospace Medical Association held in Las Vegas in April. Dr. Charles A. Berry, NASA's Chief of Aerospace Medical Operations, made the presentation.

The award is named for Dr. Strughold, founder of the Space Medicine Branch of the association.

Dr. Schaefer, a biophysicist, was selected for his radiation studies related to Project *Gemini*. The most important aspect of his work was to define the specifications which an operational radiation dosimeter must meet for manned space flights.

THE TRI-SERVICE *X-22A vertical/short takeoff and landing airplane has been flown by Bell test pilots Stanley J. Kakol and Paul Miller, Jr., at Niagara Falls, N.Y. A report stated that the dual-tandem, ducted-propeller craft "handled beautifully, responding to all commands." Textron's Bell Aerosystems Company, which designed and built the VTOL, put the four-engine X-22A through its paces in four takeoffs and landings with its ducted propellers in the vertical thrust position. The X-22A will be tested at NAS Patuxent River.*

NEW FLEET BERTHING PIER

AT NS ROOSEVELT ROADS, a new Fleet berthing pier is in its second and most important stage of construction—that of driving the concrete piles. With the test pile program completed, construction of pile supports has been started.

When finished in November of this year, the pier will be 1,200 feet long, 120 feet wide and will be able to service all Navy ships—including attack aircraft carriers.

Twenty piles are driven at six-foot intervals in a line parallel to the shore-line. Each row of 20 piles is called a "bent." When the first bent is completed, the pile-driving barge begins work on a second bent 20 feet seaward from the first. The pier will have 62 bents.

In each bent, the piles are cut to specific heights above the waterline. Construction crews place forms from one end of the bent to the other and fill them with concrete and steel reinforcing rods, forming "pile caps" which make the entire bent into one unit.

The first 17 bents are steel H-beams driven into the harbor bottom and topped with the concrete pile caps. Starting with the 18th bent, H-beam piles are replaced by prestressed concrete piles which are driven in in much the same way.

When the pile-driving reaches the 18th bent, workmen begin placing prestressed concrete slabs across the 20-foot gaps between the bents. This provides a flat workable deck, which begins to resemble a pier and, when covered later with poured in place concrete, becomes a structural component of the pier deck system.

Once the slab laying is a considerable distance out onto the bents, a final pour of concrete is made on top of the prestressed slabs. This ties the deck system into the pile caps. Service trenches—void areas which carry fuel and water lines and utility cables—are completed and the finishing touches are added.

Approximately 14,000 cubic yards of concrete, 1,700 pre-cast deck units and trench covers (weighing almost seven tons) and 108,000 linear feet of bearing piles will be used in the construction of the pier.

Pier facilities will include: a large area for cargo handling, 12 special fuel oil stations, ten aviation gas stations, ten jet fuel stations, 12 saltwater fire protection stations, four saltwater service stations and 12 AC electrical stations—each of which will supply various loads up to 3,200 amps at 450 volts.

BLUE ANGELS *in right echelon formation maintain three-foot separation and a 14-foot overlap on their wings while performing low altitude changeover and echelon rolls.*

TWENTY YEARS WITH THE BLUE ANGELS

By Lt. Fred Wilson, USNR

1966 TEAM: *LCdr. Jack Gougar, Maintenance Officer; Lt. Norm Gandia, solo pilot; Capt. Fred Craig, USMC, #2; Commander Bob Aumack, OinC; Lt. Red Hubbard, #3; Lt. Frank Mezzadri, #4; LCdr. Dick Oliver, solo pilot; Lt. Dave Rottgering, Public Affairs Officer.*

TWENTY YEARS of service in the Navy usually means retirement. But not for the *Blue Angels* who celebrate their 20th anniversary this month. The Navy's Flight Demonstration Team is not about to retire. Its members still fly high, fast and handsome.

In their first 20 years, they have given over 1,200 performances and flown some 10,000 practice sessions. For the past five years, they have averaged 80 shows a year. More than 80 million people have seen the *Blue Angels* since they made their first public appearance in Grumman F6F *Hellcats* at the Southeastern Air Show at Jacksonville, Fla., in June 1946. Their largest single audience was 1,500,000 people at the dedication of the Mexico City Airport in 1964.

The present team was recognized and commended by the Congress of the United States when Representative Bob Wilson, California, read into the Congressional Record accolades given them by American and European publications for their performance at the 1965 International Air Show in Paris. Along with this praise, the Secretary of the Navy cited each of the pilots and awarded them Air Medals. Commander Bob Aumack, Officer in Charge, received the Distinguished Flying Cross.

It can all be traced back to early 1946 when the Chief of Naval Operations directed the organization of a Flight Exhibition Team within the Naval Air Advanced Training Command. LCdr. Roy M. "Butch" Voris was selected to lead the team. The first show was destined to make its impact and form the basis of a routine later seen by millions of people all over the world.

In the early shows, the four *Hellcats* flew in tight formation and simulated shooting down a training plane with enemy markings. As the "enemy" descended trailing smoke, a dummy pilot was parachuted and promptly captured by a detachment of Marines. The present "diamond" formation began with the *Hellcats*.

After the first show, the need was recognized for an appropriate name. According to Voris, the present name had a noteworthy origin. "One evening while reflecting on a coming trip to New York, we glanced through an issue of the *New Yorker* magazine. As we came upon the list of night spots, we saw the name of the well-known bistro, 'The Blue Angel.' Of course, it hit us all at the same time. It was an absolute natural."

A short time later, the team changed to the faster F8F *Bearcat*, which they flew until their transition into jets. Their first jet was the Grumman F9F-2 *Panther*. These were used until the outbreak of the Korean Conflict. In June 1950 the *Blue Angels* were ordered to duty in a combat status aboard the carrier *Princeton* as the nucleus of VF-191. LCdr. Johnny Magda, then *Blue Angel* leader and Commanding Officer of the squadron, was the only active *Blue Angel* to lose his life in combat when he was shot down off the north coast of Korea in March 1951.

STRAIGHT UP *in tight diamond formation, the team nears the top of the loop.*

In late 1951, the Chief of Naval Operations ordered the team reactivated and LCdr. Voris was again tapped as the leader. With another new plane, the F9F-5, the team worked out at Corpus Christi and held its first show since reactivation at the Memphis Mid-South Navy Festival in May 1952.

During the winter of 1954-55, the team moved into the sweptwing F9F-8 *Cougars*. With the transonic *Cougars*, the team developed new maneuvers. Probably the most famous among these is the "Fluer-delis," performed near the end of the demonstration. In June 1955, the team moved its permanent base of operations from Corpus Christi to Pensacola.

During the 1957-58 season, the *Blue Angels* made the transition to their present aircraft, the F-11 *Tiger*.

During the 1962 season, the team introduced four new maneuvers. In that year they perfected the Diamond Landing (four planes); the Delta Landing (six planes); the Farvel, which is a low pass in the diamond formation with the leader inverted; and the Half Cuban Eight, performed by one of the solo pilots.

The aircraft flown by the team have come a long way from the first F6F *Hellcat* flown in 1946. The F6F had a top speed of 400 mph and a service ceiling of 37,000 feet.

The current F-11A can fly in excess of 800 miles an hour and normally operates above the F6F service ceiling. At 21,000 pounds, the F-11A is some five tons heavier than their second plane, the F8F *Bearcat*, which still holds the record for a recip from a standing start to 10,000 feet in 92 seconds.

Led by Commander Bob Aumack during the 1965 season, the team set more records than any other group in their history. The team performed a record total of 87 times before more than 4,000,000 spectators while appearing throughout the United States, Europe, Iceland, Bermuda, the Bahama Islands, and the Caribbean.

During their first European tour, the *Blue Angels* took part in the Paris International Aviation and Space Salon and received the only spontaneous applause and standing ovation of the four-day show.

The line-up for the 1966 season follows: Commander Bob Aumack, Leader; Capt. Fred Craig, USMC, flying #2 on the right wing; Lt. Red Hubbard, flying #3 on the left wing; Lt. Frank Mezzadri, flying #4 in the slot completes the diamond formation and LCdr. Dick Oliver, #5, and Lt. Norm Gandia, #6, flying the solo aircraft.

Lt. Dave Rottgering, Public Affairs Officer, narrates the show and flies #7, the two-seat TF-9F *Cougar*,

on orientation flights for the press. LCdr. Jack Gougar, Team Engineering Officer, is in charge of the Maintenance Crew and is responsible for 100% availability at all times. Lt. Fred Wilson is the Naval Flight Officer representative assigned to the team. He is the Special Projects Officer.

One member of the team is often asked the same question, "What's it like to fly number four?" Lt. Frank Mezzadri, in his third year in the "slot" position, says, "The most difficult thing about flying number four is having to maintain station on three aircraft at the same time plus the leader's jet exhaust." The other wingmen only have to worry about one aircraft and can break away at any time.

Being a member of the team is not all glamor and glory. A check of the pilots' flight logbooks shows that they actually flew more hours in a single year on the team than they had flown as a member of a fighter squadron in the Fleet.

Their official mission is to "demonstrate precision techniques of Naval Aviation to naval personnel and, as directed, to the public." The precision techniques are mostly standard fighter maneuvers developed in practice and in combat.

In performing, the team demonstrates the high level of training and skill of Naval Aviators. The maneuvers demonstrated are the same basic ones taught to Navy fighter pilots now serving in Vietnam. For student pilots, the *Blue Angels* provide a practical demonstration of perfect airmanship. By performing at major U. S. and international shows, the team hopes to interest young men in careers in Naval Aviation and stimulate public interest in the general field of Naval Aviation.

Ordinarily their tactics are executed over 30,000 feet but for demonstration purposes they are performed at low altitude.

The team stresses that the performance is a demonstration—not a stunt series. Stunts require a certain amount of luck. With this almost a daily routine, they cannot afford luck.

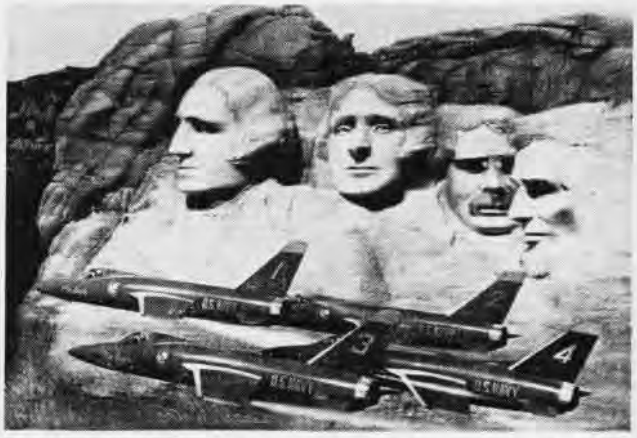
They use two basic formations during their performance. The echelon formation stacks the planes down and back from the leader at a 45-degree angle. The diamond formation places a wingman on either side of the leader with a slot plane flying directly behind and below the lead aircraft. In the diamond formation, there is a 14-foot overlap on the wings and a 36-inch separation from wing-tip to canopy.

In echelon, the team executes echelon rolls, changeover rolls, and the "tuck-under-break." In the diamond, they do barrel rolls, loops, reverse Cuban Eights, a tight 360-degree turn, a slow pass at carrier landing speeds with landing gear and flaps down, and the dramatic "Fleur-de-lis" which leads into their finale.

Between maneuvers and while the formation is reversing course,

WITH A HISTORY *of flying by famous landmarks, the Blue Angels use San Francisco's fog-shrouded Golden Gate bridge as a backdrop.*

DURING THEIR *20 year history, the Blue Angels have performed in every major city in the U. S. In background is Washington Monument.*



FAMOUS HEADS *of state, royalty, and the average citizen have been among millions who have seen the Angels in the past 20 years.*

FIRST FLIGHT *leader, LCdr. Butch Voris in F6F-5 Hellcat over Jacksonville in 1946.*

F8F STILL *holds record for recips in standing start to 10,000 feet in 92 seconds.*

FIRST JET *flown by the Blue Angels was the Panther which they flew in Korean Conflict.*

the two solo pilots demonstrate the maximum performance characteristics of the F-11 with inverted passes, snap rolls, and high speed runs at low altitudes.

The team claims to be the first in the world to fly supersonic aircraft in echelon rolls and land in a six-plane delta formation. The two solo performers were the first to fly supersonic jets in a "back-to-back" formation with the top man inverted and the second plane flying right side up underneath.

A *Blue Angel* is a Regular Navy or Marine Corps officer between the ages of 26 and 36 with many hours of flight time. He is one of the healthiest and most able young men in the world. His selection to the team depends on many things. His flying abilities must be unquestionable. He must be able to live and work closely with his teammates for extended periods. Along with a high degree of motivation, he must be capable of withstanding long, grueling practices and road shows without downgrading performance.

SWEPTWING *F9F-8 Cougar was adopted by team in 1954 and flown until late in 1957.*

A *Blue Angel* is also an "ambassador of good will." He must be able to express himself well on radio, television, and personal appearances and give an over-all favorable impression of himself and the career he has chosen.

The normal tour of duty with the team is from two to three years and the pilots usually return to a jet squadron on completion of the tour. Out of ten former team leaders, four are still on active duty. They are Captain A. R. Hawkins, Commanding Officer, USS *Caloosahatchee* (AO-98); Captain E. B. Holley, Commander Replacement Carrier Air Wing Twelve; Captain Z. V. Knott, Office of the Chief of Information; and Cdr. K. B. Wallace, Commanding Officer, VF-154.

Qualified aviators who desire a position on the team must submit an application to the *Blue Angels* along with recommendations from past commanding officers. Applications are filed with the team and reviewed by appropriate authority.

Those who apply are encouraged to visit with the team whenever possible to become informally acquainted with the members. At the end of this season, there will be two openings for demonstration pilots and one opening for an Officer in Charge. Selection of new members requires a unanimous decision by the team.

A frequent comment after any show is, "Can you imagine being a *Blue Angel*? What a life!" And you know, they're right!

FLYING *a perfect six-plane delta formation, the Blue Angels performed a record total of 87 shows for 4,000,000 people in 1965.*

DRAWING HEAVY *accolades from the international press after appearance in the 1965 Paris Air Show, the Blue Angels head home.*

USE OF 3-M'S IMPROVED MAINTENANCE AND MATERIAL CONTROL PROCEDURES MEANS FASTER REPAIR OF PLANES

3-M and 3-Level Maintenance

THE EASIEST WAY TO KEEP 'EM FLYIN'

Third in a Series

By John D. Burlage, JO1

You say you're a typical enlisted aviation mechanic assigned to a squadron at a typical Naval Aviation facility ashore? You've found there's something broken in one of your jet aircraft? You think, because it costs the Navy a couple thousand a day to keep the plane around (whether it flies or not) that it would be nice to have it repaired as soon as possible? You find you're tired of delays, red tape, time-consuming paper work procedures? You don't think you should have to wait an inordinate length of time for parts to arrive, or spend time you could use repairing aircraft to go after those parts yourself? You've discovered that, when you do get a new part installed, it's often as inferior as its predecessor?

Is *that* what's botherin' you, buddy?

Well, don't feel like the Lone Ranger, sport, because you're not alone. A few thousand of your compatriots, as well as military leaders many rungs higher up the ladder than you, have been bothered by the same problems for years.

Finally, however, the solution of those problems is near. It's coming in the form of the Standard Navy Maintenance and Material Management (3-M) System, an integral part of the Naval Aircraft Maintenance Program designed to operate under the new three levels of maintenance concept—including *Organizational, Intermediate,* and *Depot*—recently incorporated into Naval Aviation.

The system covers three broad areas. Two of them, *Planned Maintenance* and *Maintenance Data Collection,* have already been discussed in this NANEWS series. The third, *Improved Maintenance and Material Control Procedures,* is synonymous with radical changes to what were once accepted procedures for

repairing the U.S. Navy's multimillion-dollar aircraft.

What's that you say, friend? What kind of accepted procedures?

Let us construct for you a description of what happened in the old days (before 3-Level and 3-M) when a jet aircraft assigned to a squadron at a naval air station came up with a discrepancy.

The pilot lands his plane; he knows there's something wrong with it and he so indicates that opinion when he fills out his "yellow sheet" (Naval Aircraft Flight Record *used in part for maintenance purposes). The yellow sheet is dropped off at the line shack, and from there it's sent to the squadron's maintenance control office. Maintenance control issues a WOWAR* (Work Order and Work Accomplishment Record) *to the shop most concerned with the repair.*

The shop's LPO looks around and finds a likely-looking candidate to correct the plane's troubles. His selectee gets to the aircraft, often by hiking (depending on the station, its location may or may not be within comfortable walking distance), WOWAR clutched in his hand. He looks the plane over and discovers the whatever-it-is that's busted. He removes same and returns with it to his shop—probably by the same mode of transportation he used to get to the aircraft. (It should be pointed out that many kinds of whatever-it-is come in a form too small to rate mechanical transportation, but large enough to crack a man's toes if dropped.)

Once back in his shop, our mechanic initiates a FUR (Failure, Unsatisfactory, Removal) *Report—if he has the time and the inclination—and makes out a DD-1150* (Request for Issue or Turn-In) *for a replacement. He must then see that his part is screened by the station's aircraft maintenance department—often by walking it there himself—and that, if it's determined to be unrepairable, his request for a replacement is approved.*

Obtaining the replacement may require only that he walk his 1150 to the Ready Issue Store, but like as not it won't be in stock so the station's supply department will have to be approached. If so, our mechanic (whose expensive Navy training did not *include a short course in foot racing procedures) must return to material control, which receives his 1150 and initiates a DD-1348* (DOD Single-Line Requisition System Document).

DD-1348 in hand, the mechanic gets to station supply by the best means available.

Once at supply, he walks his 1348 through such interesting places as the receipt control section before he's allowed to hike to the appropriate warehouse to draw the replacement. He carries the part back to the aircraft and makes the repair.

The plane is now ready to fly. Or is it?

Our mechanic and his squadron are confronted by a bugaboo that's been around so long it even has a title: "Administrative Down Time." It can best be described by explaining what else must happen before our repaired jet plane can be returned to the flight line as operational.

In addition to the rigamarole he's already suffered through just to get the part for the plane, the mechanic must return to his shop, complete his work order, turn it over to his LPO, see its contents entered in a work order log, and, in some instances, have it returned to maintenance control. It may take the signatures of the mechanic, his LPO, a quality control inspector, the squadron's maintenance control chief and the maintenance officer to get the plane back in an "up" status.

So much misplaced effort simply results in Administrative Down Time.

How long is the time between discovery of the discrepancy and the aircraft's return to operation?

NAS MOFFETT'S B. J. McMILLIN CHECKS WORK BOARD

Those in the know have seen as many as three days pass before an aircraft, which required a repair that takes perhaps an hour, is turned over to its pilot.

THERE ARE as many variations to this basic theme as there are squadrons and naval air stations, but we have presented an example of the way the average squadron jet aircraft was returned to an "up" status under the Navy's old methods.

Of course, there are alternatives. The mechanic, for example, could have "cumshawed" the replacement from another squadron and obligated himself for a return in kind; or, he could merely have cannibalized the part from another of his squadron's aircraft that was also "down."

Neither alternative is too popular, however. The squadron's maintenance officer is usually reluctant to

become obligated to a rival squadron. He also frowns on discovering that one of his "down" planes is being picked over for spare parts like fresh-killed meat—necessary as this operation may sometimes be.

How long has this been going on, you ask, and what has been the result? For an answer, let's talk with LCdr. Fred Hoole, a former aviation machinist's mate now assigned to the Navy's Air Systems Command (formerly the Bureau of Naval Weapons) in Washington. Specifically responsible for developing and implementing aviation maintenance management programs and procedures, he serves as 3-M project officer in the command's Fleet Maintenance and Readiness Division.

His opinion, as recorded earlier, is pointed:

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

LCdr. Hoole also points out that a squadron's efforts to get the parts needed for repair often reach phenomenal proportions:

"On some of our stations, regular AOCP [*Aircraft Out of Commission Because of Parts*, a term no longer used] runs have been established—maybe two a day. If a plane's hydraulic pump goes out at, say, 0915 and the first AOCP run was made at 0900, the chit requesting a replacement may not get sent out until the afternoon run, which means the pump may not get to the squadron until that night, so it won't be put on the aircraft until the next morning.

"I know of one station, however, that has a man assigned to the job of doing nothing but carrying chits, by foot, from the squadron hangar to supply—back and forth, all day."

This solution may free technicians from the chore of running through their own chits, of course, but since they still have to wait for parts before they can go back to work it does little to improve the speed and efficiency by which repairs are made. It also is of little benefit to the man assigned the carrying job; he doesn't receive too much on-the-job training, and, besides, he may be prone to blisters.

Okay, okay, you say. The old way of Naval Aviation maintenance was pretty grim. What's 3-M offering to replace it?

That question rates a one-word reply: Plenty.

LCdr. Hoole gives a rundown of what can happen aboard a typical naval air station operating under 3-M's Improved Maintenance and Material Control:

"Let's say we've got a VF-121 *Phantom II*, side number 107, down. Something in that F-4 is broken.

"The mechanic arrives on the scene, hops on the wing, talks to the pilot, and starts looking the aircraft over. He's not there long before a radio-controlled vehicle belonging to the squadron pulls up alongside No. 107. The mech jumps off the wing of the airplane, slips into the cab of the van, and starts looking through the technical publications the vehicle carries—and it carries all the pubs the mechanic or technician needs.

"Let's say No. 107 needs a hydraulic pump. The mechanic finds the part number and, using a radio set inside the van, calls VF-121's maintenance control office. He tells maintenance control, 'Bird No. 107 is down; I need a hydraulic pump.' He gives the part number he's obtained from the pubs.

"His reason for going to maintenance control immediately is to facilitate juggling the flight schedule, if necessary; if No. 107 was scheduled to fly in a few minutes, perhaps another bird can be put up in its place. Or, maybe, if it's certain there's no spare pump available, the squadron may have to resort to cannibalization [evidently, even 3-M can't altogether eliminate debatable alternatives]. In any case, maintenance

C. C. SINGLETON TAKES TROUBLE CALL AT MOFFETT

control must know what's going on; that's where the program's managers live.

"Material control, immediately adjacent to maintenance control, has a gadget commonly called an Autowriter. It's a little black box that's connected to a receiver in the station supply department. The mechanic's call or the information he provides will be passed to material control, where it's written onto the Autowriter and passed electronically to supply.

"Supply personnel take the information—all they've got, remember, is a part number and certain other data the squadron supplies—and check to see if a replacement is held on board; if it's not, they may be able to go through a supersedure or substitution process for an alternative.

"Once they've found where the part, or its alternative, is located within the supply complex, they'll request—again by electronic means—that the part be made available to VF-121, either from a rotatable pool or warehouse. Supply has a set of radio-controlled vehicles, and one is dispatched to pick up the part and

deliver it to the squadron—possibly right to the aircraft."

Such quick service means that, as often as not, the mechanic who put in the call for the pump may be able to replace it in a matter of minutes. This new concept does not stop there, however, as LCdr. Hoole explains:

"Let's take another situation: Let's put our mechanic on location with the aircraft and say the only thing he needs is a bit of information. He wants to contact Chief Smith in the avionics shop.

"Rather than run all the way back to the hangar, he steps into the van again, contacts maintenance control and asks for Chief Smith. Maintenance control uses its new tele-page system—a closed-loop telephone system that ties together all of VF-121's shops—to contact the chief. He may not be in his own shop at that moment, but he can still be contacted directly by maintenance control. The man on the phone simply punches a button and Chief Smith, who is working on an airplane in the hangar, hears, 'Chief Smith, call maintenance control,' over the paging system. He walks to the nearest of the system's many phones, dials a number, and is immediately in contact with maintenance control.

"The man in maintenance control tells the chief his mechanic wants to talk to him, puts the mech on the phone via patch-cord, and there's Chief Smith talking from the hangar, through maintenance control, to his mech in the van beside No. 107.

"All this was accomplished without a single man losing a single minute from his assigned job to track down Chief Smith."

There is virtually no limit to the uses of such a system, LCdr. Hoole points out:

"If a man wants to be in contact with his unit, he can be in contact. For instance, in every squadron there are five to eight 'key' persons—individuals who are in on virtually every important decision. They include the commanding officer, executive officer, maintenance officer, and a few others.

"In the past, if one of these key persons was needed and he wasn't in his usual haunts, someone would have to run his fool head off trying to find him. The use of such devices as a paging system and closed-loop telephone circuits eliminates the need for this, and it also enables key personnel to stay on top of squadron activities with much greater ease and efficiency."

The wonder of such instruments as radio-telephones and walkie-talkies can extend the service of instant communications far from the squadron's immediate operating area. If necessary, contact may even be maintained in the homes of critical personnel after working hours or on weekends.

"Let's take another example of this kind of operation," LCdr. Hoole says. "An aircraft is turning up and the auxiliary starting unit for the plane goes down. What happens in a case like this?

"Again, the mechanic gets the truck and calls maintenance control. Maintenance control also has a direct tie-line to the station's aircraft maintenance department [AMD]: in turn, the AMD has a closed-loop system connected with, among others, an outside ground support equipment shop. The call is made, and the word is passed that such-and-such aircraft needs an auxiliary starting unit right now. There's no paper work; just the call.

"The ground support shop gets the starting unit ready and it's transported to the aircraft either by AMD or the squadron, depending on what's quickest.

"It's entirely possible that the reaction to the demand for the starting unit will be so fast that the aircraft can be turned up in time to meet its schedule."

This last statement incorporates the best reason of all for the installation of electronic communications equipment within the structure of naval air stations and the squadrons based there. Their use by personnel means, simply, that repair procedures are facilitated to such an extent that a "down" aircraft need no longer hamper a unit's ability to meet its operational requirements. It also has another, more personal, effect as LCdr. Hoole explains:

"What we're doing, by installing such modern conveniences as repair vans, closed-loop telephone and paging systems, and other specialized equipment, is to make the technicians assigned to a squadron into honest-to-goodness technicians who can spend their valuable time repairing airplanes instead of chasing after parts or people all day. We've recognized the fact that these men are qualified individuals whose time is too important to be wasted, and who must be supported. We're giving them modern equipment, and we're providing their supporting echelons with the kind of gear they, in turn, require to put aircraft that need repair back in the air in the shortest possible time."

What LCdr. Hoole describes is, as might be expected, a system that has been established at a "typical" naval air station. In practice, what is actually installed will vary to meet the basic needs of the station involved. One specific example of the operation is provided by LCdr. R. M. Young of NAS MOFFETT FIELD, Calif. In an article for the station newspaper, he describes the background, organization, and operation of Moffett's new maintenance control center:

"The Bureau of Naval Weapons authorized Moffett Field to develop a prototype control center when it became apparent the old method of maintenance control would not meet [the requirements of three-level maintenance and the 3-M System].

"After visiting Air Force installations, commercial air lines, and data processing companies, [LCdr. J. G. Lapham and Lt. W. L. Elliott, the center's designers] adapted what they'd learned to fit the needs of the AMD at Moffett Field."

The control center itself, LCdr. Young writes, is a bright, remodeled room in hangar two that is air-conditioned and soundproof. Thousands of pieces of information are displayed on boards and graphs. An elaborate communications system makes it possible to keep the information current.

"The controller sits at a large desk facing all the display boards. He has telephones, intercom boxes and radios . . . to communicate with shops, personnel on the job and even aircraft in the air."

(Continued on page 22)

1203: *Arriving on flight line in radio-controlled van, dubbed a "Zip Truck," Oliver, AK1, is told T-2A's Tacan is inoperative.*

1206: *Oliver radios maintenance control from his van to pass the word of the discrepancy. A walkie-talkie is at his side.*

1209: *Rickles, AZ1, receives "zip" message and relays word of trouble to avionics shop for action. Down T-2A belongs to VT-9.*

T-2A BUCKEYE *is the Navy's basic jet trainer; 120 of them are flow VT-7 and 9, basic jet training squadrons stationed aboard NAAS Meri*

THE 3-M METHOD

The Navy's newest aviation training facility, for repair of its T-2A Buckeyes. Procedures Material Management (3-M) System give n

Maintenance Procedure

1212: *Trouble-shooter Phillips, AE1 (R), determines why Tacan failed, replaces "black box" with one taken from stock in van.*

Miss. Flight students arrive at Meridian from preflight training at NAS Pensacola for first exposure to jets and leave as designated Naval Aviators.

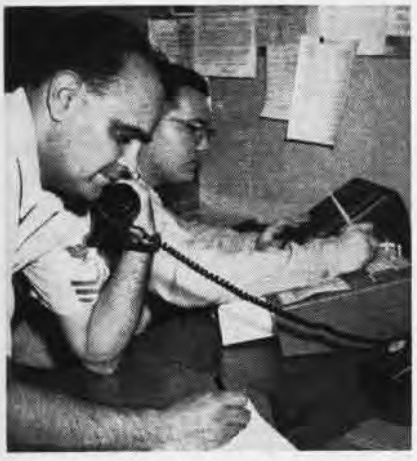
AT NAAS MERIDIAN

AS Meridian, Miss., also uses the newest method blished by the Standard Navy Maintenance and tenance activities and personnel plenty of 'zip.'

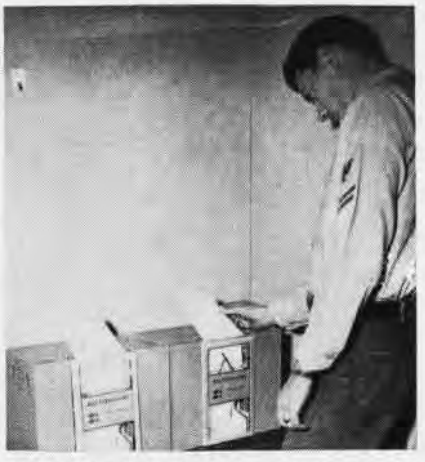
ographs by T. R. Snead, JO2

VT-9 MAINTENANCE *officer, LCdr. H. C. Mitchell, discusses 3-M system with former C.O., Cdr. T. J. Guilday, who approved it.*

ITS TACAN *working, the Buckeye is returned to the VT-9 flight line. New methods of repair have minimized aircraft down time.*



1215: *Coard, AK1 (L), calls avionics and Klick, AKAA, sends order on Autowriter.*



1218: *Shackleford, AK2, gets request for new black box on Autowriter in Supply.*

1220: *Scarborough, AK1, issues replacement for Zip Truck to its driver, Oliver.*

Using the wide range of information available to him, the controller is able to make rapid decisions about work load scheduling for all the shops. LCdr. Young gives an example: "The crew of a P-3A *Orion* radios in to the control center that it is returning to the base to replace a piece of essential radio equipment and that it must return to its mission in the shortest time possible. The controller, by glancing at the information boards, may find the needed piece of equipment is ready for issue and orders it delivered to the runway for issue to the P-3A crew when it lands. He may discover that the needed equipment is not available, in which case he alerts the appropriate shop to stand by to make emergency repairs."

Not only can the controller keep track of component parts and maintenance equipment, LCdr. Young explains, but he is also fully informed of each shop's capability at any time. Schedules that indicate how many men are available in all shops are maintained so overloading or underloading of the work load on any shop shows immediately. The controller can adjust the work after a check of his boards.

In addition to a closed-loop telephone system similar to that described by LCdr. Hoole, Moffett Field's control center has both UHF and VHF radio facilities that link the center to aircraft in flight as well as to shops, supply, squadron maintenance spaces, personnel on the job and radio-equipped trucks. Moffett's communications network is so flexible that any of its systems may be patched together, a capability, LCdr. Young says, that "produces the rather startling possibility of direct communication between a squadron maintenance officer at home . . . [and] a P-3A flying at 30,000 feet, miles away from the field."

At NAAS MERIDIAN, Miss., T. R. Snead, JO2, reports, 3-M's Improved Maintenance and Material Control procedures are implemented by Training Squadrons Seven and Nine with the use of two specially-equipped vehicles (see pages 20-21).

Each of the vans is a mobile warehouse. At the suggestion of R. A. Coard, AK1, assigned to VT-9's Quality Control Division, his squadron's vehicle was designed to carry some 300 "high-usage" parts, including spare "black boxes"—assembled radio and navigation systems. It's been fondly labeled the "Zip Truck."

If a pilot discovers that his T-2A *Buckeye* has a discrepancy, he indicates there's trouble by taxiing into the parking area with the plane's flaps down. The Zip Truck operator arrives, talks with the pilot and radios word to maintenance control from the van.

From maintenance control goes word of the problem to the appropriate shop and to the squadron work center supervisor, who in turn notifies a trouble-shooting technician that repairs are needed. At the plane, the technician diagnoses the problem. Parts he needs may come direct from the van.

3-M PROCEDURES CALL FOR QUICK COMPONENT REPAIR

3-M'S METHODS INCLUDE RADIOS AND REGISTERS

Even though the equipment, vans, and other specialized gear utilized by 3-M's Improved Maintenance and Material Control procedures may have a variety of names and purposes, they are all designed to facilitate speedy, economical repair of aircraft. The procedures cover a far wider range than has been discussed here; further explanation of their operation—with emphasis on the supply side—is forthcoming.

How's that, sport? You say you're assigned to a squadron now, and you've not seen any of the methods we've described in actual practice? Well, there is a good reason for the delays in installing the system at many stations: Priorities in procurement of vehicles and communications equipment have necessarily slipped because of Southeast Asia commitments.

Even so, pal, if you're itching to try out the new way of aviation maintenance, stick around awhile. You'll have it soon enough.

Next: The onus is on Supply.

Royal Navy's New Craft
Tested in Trials in the Solent

In the Solent Channel, the Royal Navy tested its newly commissioned 12,000-ton assault landing craft, HMS *Fearless*. It is one of two that will be included in Britain's Amphibious Force; the other, HMS *Intrepid*, will be commissioned later this year.

The new craft demonstrated her versatility as a troop carrier, tank transport, and Combined Operations Headquarters. Some 2,000 visitors have already been aboard.

An outstanding feature of the 500-foot-long warship is its enclosed harbor. The stern of the vessel lifts hydraulically to discharge four 85-ton landing craft.

HMS *Fearless* also carries four small landing vehicles and personnel carriers slung from davits. She can carry about 400 combat troops (700 for short periods) in addition to her own complement, together with tanks, vehicles and heavy equipment. A helicopter force operates from the flight deck.

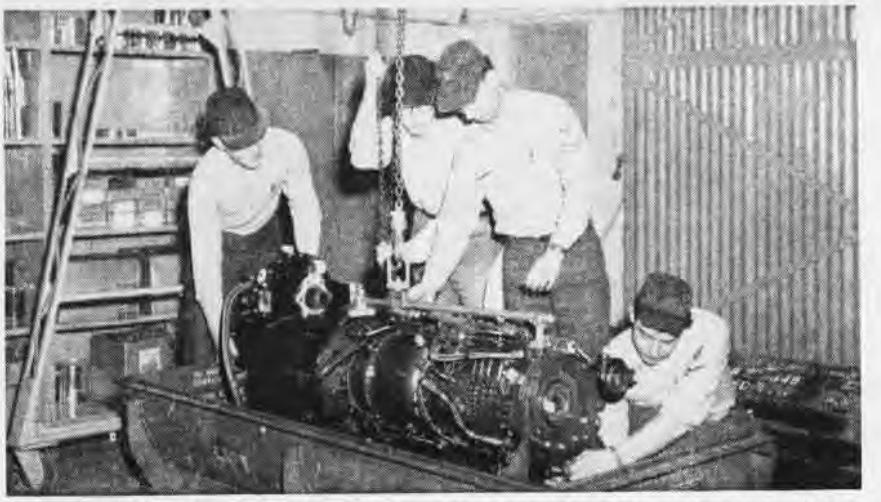
Fearless can steam 5,000 miles at 20 knots. She is armed with four *Seacat* surface-to-air guided missiles.

One of the ship's duties would be to act as Headquarters Ship during any amphibious operation in which she might be involved. She is designed to accommodate the Naval Amphibious Group Commander and the Military Force Commander with their staffs.

Mugu Saves $12 Million
Excess Materials are Distributed

Close cooperation between resident Navy auditors and the personnel at the Pacific Missile Range at Point Mugu saved the government over $12 million last year.

Operation *Cleansweep*, a program for identifying and redistributing unneeded materials, was launched after auditors reported such quantities on hand. To date, more than $7.5 million in aircraft engines and spare parts have been released to the Air Force; $250,000 in landing strip matting has been shipped to Vietnam; and usable floor space, exceeding the size of a football field, has been released.



FOUR OF 'JET SET' CAREFULLY UNPACK T-58 RECEIVED FROM THE FLEET

ANOTHER KIND OF 'JET SET'

IN THIS FAST moving world the phrase, "the Jet Set," has come to describe "the Swingers," the younger, faster moving representatives of our age. But to the pilots and crewmen whose very lives depend on the engine that powers their aircraft, the Jet Set signifies the men who overhaul and repair complex jet engines.

Capo's Jet Set, the men of the T-58 O&R shop at the U.S. Naval Air Facility, Capodichino Airport, Naples, led by T. J. Wolfkill, ADC, operate the only major T-58 engine facility in the Mediterranean. This facility inspects and repairs all the T-58's for units of the Sixth Fleet.

The T-58, designed and built by the General Electric Corporation, is a complex, efficient, precision engine which requires expert, deft hands and the technical know-how of men in the T-58 shop to overhaul and rebuild it. The T-58 is about one-twelfth the weight of one of its bigger brothers, the J-79, and approximately one-quarter the size of the J-79, yet it develops almost 1,250 horsepower.

THE ENGINE DISASSEMBLY BEGINS

When the T-58's come from the Fleet to NAF NAPLES, they are completely disassembled. Each part is cleaned, inspected and measured for wear. This operation is performed by T-58 shop technicians under the watchful eyes of Chief Wolfkill and D. L. Gossett, GE Technical Services Representative. LCdr. G. W. Rowell, NAF power plants officer, is in charge of the T-58 shop.

Engine parts that are worn or damaged are exchanged for new ones by J. R. Ambersley, ADJ3. The engine is carefully assembled to factory specification. The complete unit is then static-tested.

The overhauled and tested engine is now ready for the Fleet.

New developments and changes in the T-58 are constant, so to keep Capo's Jet Set checked out, a comprehensive training program is constantly in progress. D. C. Tomasetti is T-58 shop training P.O.

The Naples T-58 shop, now only a little over a year old, has already handled 33 T-58 engines.

High-Flying TV in Vietnam

Super Constellations Air Programs

The first scheduled television shows in the Republic of Vietnam have been broadcast by the Armed Forces Radio and Television Service (AFRTS) from three specially-equipped C-121 *Super Connies*.

The aircraft are assigned to the Oceanographic Air Survey Unit, NAS PATUXENT RIVER, Md. One, called the "Blue Eagle," has been in South Vietnam since October 1965 broadcasting special radio programs to ground combat forces and to ships of the Seventh Fleet.

Equipped for their mission at Andrews AFB, Md., the *Constellations* are capable of transmitting programs on two TV channels separately or simultaneously as they fly at 12,000-15,000 feet. "Blue Eagle" is equipped with high-power transmitters for both AM and FM.

Scheduled programming runs about three or four hours a day. The planes transmit shows donated by the major U.S. networks to seven cities in Vietnam. In their first attempt, the *Constellations* beamed a three-hour feature program recorded in advance by volunteer TV, movie and radio personalities as well as a Vietnamese program on the second channel.

The airborne TV stations are expected to be replaced with ground facilities when the latter are completed. As the eight ground stations are established and Vietnamese are trained to operate them, the airplanes will act as flying relay facilities to increase the broadcast radius of the network.

VW-1's Record Increases

Reaches 100,000 Safe Hours

Airborne Early Warning Squadron One (VW-1) reached another milestone March 18 when Commander Dave Rowlands and Crew Three returned to NAS AGANA, Guam, from a weather flight which marked 100,000 hours of accident-free flight.

VW-1 flies seven Lockheed EC-121K *Warning Stars* and one Lockheed C-121J *Super Constellation*. Last year the 60 officers and 385 enlisted men flew 2,734 hours of weather coverage and logged over 5,000 hours of radar coverage for the Seventh Fleet.

VW-1 is the only VW unit in the Pacific. The Guam-based squadron is led by Commander C. A. Barton.

NAVY TEST PILOT *Lt. Gary Mowery of the Naval Air Test Center, Patuxent River, Md., was among the first class of 250-mph pilots in the Lockheed XH-51A. Four test pilots from different government services were checked out in the XH-51A at Oxnard, Calif. In the photograph from left are Don Segner (Lockheed), Capt. Duane Simon (USA), Lt. Gary Mowery (USN) and Captain David Thomas (USAF). Not shown was Perry Deal (NASA).*

New Range is on Schedule

Will be Operational in 1967

The newest facility of the Pacific Missile Range (PMR), the Barking Sands Tactical Underwater Range (BARSTUR), is scheduled to be operational in 1967.

Located on the western coast of Kauai, Hawaii, the facility consists of a 50-square-mile area, 15 miles offshore, instrumented by IT&T with hydrophones connected with sophisticated data processing and communications equipment ashore.

The hydrophones are being placed on the ocean bottom at depths ranging from 400 to 1,000 fathoms. Three special underwater communications devices, also on the ocean bottom, will permit the operations center at Barking Sands to talk directly to submarines and surface craft in the range.

Entire ASW exercises with precision tracking of multiple targets will be conducted in the finished range. The range will be under the immediate control of the Pacific Missile Range Facility, Hawaii. Ships and aircraft from the ASW Force, Pacific, will use the range for training.

"The Barking Sands complex," an ASW Force spokesman said, "promises to be one of the busiest and finest range complexes."

Fast Bomb Loading Device

Unit Incorporated in the A-7A

Loading bombs and rockets on the six wing pylons of the new Navy A-7A *Corsair II* light attack aircraft is done swiftly and easily by a self-contained hoisting unit inside the pylon, according to LTV Aerospace Corp. who developed it.

All types of bombs, rockets, napalm tanks, mines and other weapons can be carried by the A-7A which can pack 15,000 pounds—its own weight empty. Each pylon hoist system is capable of lifting up to 4,000 pounds of weapons by means of a small winch with a cable

arrangement inside the pylon. Power to operate the winch can be supplied by hand or power tools, with the loading rate depending on the method used. Bombs can be lifted by the hoist to the pylons in as little as a minute.

Clusters of three or six weapons can be mounted on the racks as well as single stores. Four of the six wing pylons are "wet stations," capable of carrying extra fuel tanks.

Change in Variable Bonus

Eight Aviation Ratings Included

A major revision of the Variable Reenlistment Bonus (VRB) Program has been announced by the Secretary of the Navy in AlNav 21, and the change means good news for men in the eight aviation ratings included in the new listing.

In the move, 17 more ratings were made eligible to receive the VRB, for a total of 42.

Aviation ratings now in the "multiple of four" category—which means they receive their regular bonus plus four times that amount—are the Aviation Fire Control Technician (AQ), Aviation Antisubmarine Warfare Technician (AX), and Photographic Intelligenceman (PT).

The single rating in the aviation field with a VRB multiple of three is the Aviation Electronics Technician (AT).

The VRB multiple of two will be paid to men who are Aviation Ordnancemen (AO) and Aviation Electricians (AE).

Those eligible for a VRB multiple of one are the Aviation Structural Mechanics (AM) and the Aerographer's Mates (AG).

Safety Record is Honored

VR-3 Given MAC 1965 Award

Naval Air Transport Squadron Three at McGuire AFB, the only Navy squadron currently assigned to the Air Force and one of Navy's oldest operating outfits, has been awarded the coveted Military Airlift Command Flying Safety Award.

Brigadier General Roland J. Barnick, USAF, Commander, 438th Military Airlift Wing, presented the plaque to Captain Stanley Montunnas, VR-3 Commanding Officer, April 28, and noted that the Navy squadron had logged 31,158 accident-free transport hours during 1965, won in competition with all other units of MAC.

VADM. HEYWARD ACCEPTS MODEL

P-3A Model Given Museum

Lockheed Makes the Presentation

Late in April the Lockheed Aircraft Corporation gave a scale model of the P-3A *Orion* to the Naval Aviation Museum at NAS PENSACOLA.

Mr. D. M. Wilder, Vice President of Lockheed-California (center in the photograph), made the presentation in Pensacola to Vice Admiral A. S. Heyward, Jr., Chief of Naval Air Training, during brief ceremonies at the museum. Also in the photograph is Rear Admiral Walter H. Newton, USN (Ret.), Director of Requirements, Navy, for Lockheed, who accompanied Mr. Wilder.

The *Orion*, which has been operational since 1962, is a four-engine turboprop aircraft with a wingspan of over 99 feet. It is about 116 feet long and has a range of 5,700 miles with speeds in excess of 400 miles per hour. The model of the *Orion* is the first of twelve models to be given to the Naval Aviation Museum by Lockheed.

VT-24 Pilot is Honored

Flight Instructor of the Year

LCdr. Ronald L. F. Connor has been named Flight Instructor of the Year in the Naval Air Training Command. LCdr. Connor, attached to VT-24 at NAAS CHASE FIELD, Beeville, Texas, received the David S. Ingalls Award during ceremonies at Pensacola in April.

Presented annually by the Pensacola chapter of the Navy League, the award is named for a WW I Navy Ace.

ASO and U.K. Purchase

Spare Parts for an F-4 Contract

The Navy's Aviation Supply Office (ASO), Philadelphia, has begun planning the spare parts support of 44 F-4 *Phantom II* jet fighters to be purchased by the United Kingdom for delivery late in 1967.

The British *Phantoms*, modifications of Navy's F-4J, manufactured by the McDonnell Aircraft Corporation, will be designed for land or carrier-based operations. They will be powered by two Rolls-Royce jets.

A NAVY F-4B, *piloted by LCdr. Roy Ways of Service Test Division, Naval Air Test Center, Patuxent River, Md., is being washed down by a system originally designed for the P-3. The wash is now being used by all planes at the center to prevent salt water corrosion.*

AVIATION SCHOOLS COMMAND CREATED

After many years at the same old stand, the U.S. Naval School, Pre-Flight, Pensacola, as such, is no more. From the old Pre-Flight has emerged the U.S. Naval Aviation Schools Command. Six schools opened under its direction April 18.

Each of the schools is headed by a director and is, in turn, under the command of Captain John C. Haynie, Jr., C.O., U.S. Naval Aviation Schools Command.

The new schools and their directors are as follows: Aviation Officer Candidate School, Lieutenant Colonel R. E. Bowen, USMC; Flight Preparation School, Commander G. T. Lennon; Survival Training School, LCdr. D. A. Barnes; Instructor Training School, LCdr. F. Messenger; Indoctrination for Naval Academy and Reserve Officer Training Corps Midshipmen, Lt. D. M. Schwartz; Officer Indoctrination School, LCdr. L. Russo, Jr.

Under the new system, training facilities will be provided for the following categories: Commissioned officers of the Navy, Marine Corps, Coast Guard and Allied nations; aviation officer candidates; aviation reserve officer candidates; aviation warrant officers; commissioned Medical Corps and Medical Service personnel; Marine Aviation cadets; Reserve Officer Training Corps midshipmen and summer training for Naval Academy Midshipmen. Instructor training for prospective Naval Air Basic Training Command instructors will also be provided by the new command.

For the first time, a Schools Command designed specifically to train Aviation Officers for the U.S. Navy is a reality. Also, for the first time, there is a program which will permit a college graduate to earn a commission as an officer in less than 90 days.

Under the new program, an officer candidate will first enter the Aviation Officer Candidate School to be instructed in non-technical subjects, physical training and military indoctrination. Upon the completion of this 11-week course, those candidates with a degree will receive commissions as Ensigns in the United States Naval Reserve units.

For the next phase of the program, the newly commissioned ensigns will join Marine Corps Aviation cadet graduates from the Aviation Candidate School, newly commissioned naval officers from the Naval Academy, ROTC universities, Officer Candidate School at Newport, and Marine Corps, Coast Guard and Allied officers for instruction in the U.S. Naval School, Flight Preparation.

The curriculum at the Flight Preparation School is a prerequisite for all those undergoing either pilot or Naval Aviation/Flight Officer training in CNABaTra. During the four-week course, the training will include instruction in basic aerodynamic theory, engineering, navigation, and physical conditioning.

This course will be normally followed by a two-week course at the U.S. Naval School of Survival Training. The present land survival classroom and field instruction is to be combined with a deep sea survival course. This school's facilities are to be so scheduled as to permit a new degree of flexibility. Depending upon student loads elsewhere in the program, this training may be bypassed until later in the student's schedule. (Survival training will also be available on a controlled quota basis for Fleet pilots and naval flight officers who may be directed there by higher authority.) Completion of the two-week course will normally be followed by transfer to either Saufley Field for flight training or to the Naval Aviation Officer School, depending upon whether the student is to be a pilot or a naval flight officer.

The Aviation Officer Indoctrination School provides an eight-week course for aviation warrant officers. A three-week course is also taught for student naval flight surgeons, aviation physiologists and psychologists going to the Fleet for duty, and commissioned Medical Corps and Medical Service Corps personnel scheduled for professional syllabus training at the Naval Aerospace Medical Institute.

The new Instructor Training School combines the old Aviation Instructor Training Course at Pre-Flight and the Flight Instructors Indoctrination Group, formerly attached to NAS Pensacola. This school will now provide the training necessary to equip both prospective academic and flight instructors for their new assignments. The academic instructors will receive a four-week course of training while the Flight Instructors' Course will last three weeks.

The primary mission of the school directed by Lt. Schwartz is the indoctrination of NROTC midshipmen, as scheduled, and summer indoctrination for U.S. Naval Academy midshipmen. Previously attached to CNABaTra, this is another of the functions now assigned the Naval Aviation Schools Command under the new setup.

Improved Skyhawk Sought

Navy, Manufacturer Negotiate

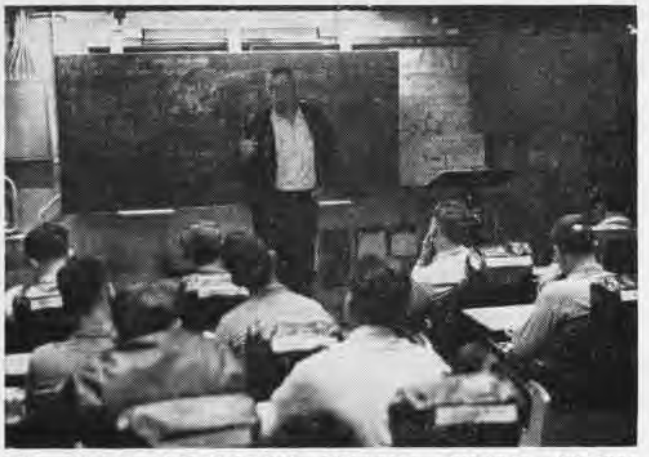
The Navy and Douglas Aircraft Co. are negotiating for procurement of an improved version of the Douglas-built A-4 *Skyhawk*. This version of the venerable little fighter-bomber, the A-4F, will feature greater capabilities resulting from refinements of four earlier *Skyhawks* flown by Navy and Marine Corps pilots since October 1956.

The current combat configuration of the *Skyhawk* in production is the A-4E. First flown July 12, 1961, it has seen extensive service in the skies over Vietnam.

More than a year ago, the Navy contracted with Douglas to build a two-seater version of the A-4E for use as an advanced combat trainer. Designated the TA-4F, the trainer combines the capabilities of the A-4E with a number of improvements. The A-4F, a growth version of the A-4E, would in turn incorporate the TA-4F's improvements into a single-seat attack bomber.

Improvements include a more powerful Pratt and Whitney J52-P8A engine with 9,300 pounds of thrust, zero-zero ejection seat, nose wheel steering, updated avionics, and a wing lift spoiler for better crosswind landing characteristics.

DR. STANLEY CROCKETT LECTURES CLASS IN ENGLISH



DR. BOLTE INTRODUCES COLLEGE PHYSICS COURSE

COLLEGE COURSES ON A CARRIER

By Tony Boom, JO2

THE FIRST CLASS began at 0700, not on a campus, but in a carrier, USS *Constellation*, under way off the coast of Southern California. Thus opened the first unit of Pacific Fleet University.

The school is patterned after those on *Polaris* submarines in the Atlantic Fleet. If it proves successful in *Constellation*, as it has in the submarines, all surface ships may adopt it.

The first week of instruction was given by eight professors from San Diego State College. The professors were aboard while the ship was at sea. They introduced the courses —mathematics, computer programming, physics, history and English —and provided counselling in the ship's library.

The real test of the program came after the professors left, for then the students were on their own. Only one out of three had ever been to college before.

Designated officers are acting as counselors for each course, but the primary method of learning is individual study done on the student's own responsibility. To supplement his study, movie lectures, prepared by the Navy, and tape-recorded lectures from San Diego State, are available.

Assignments upon completion are mailed to the college. The professors correct the papers and mail them back to the students.

Dr. John Bolte, one of the visiting professors and an associate professor of physics at San Diego State, says, "The education should be as good as or better than the men could receive at school because they have to dig for knowledge."

Dr. Bolte also said that a lack of motivation could be a major problem faced by the students. "If they don't do the work on their own, it won't be done," he said.

When the term ends in late August or early September, the professors will fly to the carrier which will then be in the Far East. There they will give final reviews, administer examinations and possibly start another semester.

STUDENT IS ABSORBED IN HIS NOTES

Among the visiting professors in the program is Robert McCoy who teaches English. He is a particularly active supporter of the *Constellation* program. He is a former Navy enlisted man and officer. He was Education and Training Officer aboard the USS *Essex* during the Korean Conflict. He therefore has a special interest in *Constellation's* college course program.

"I partially shanghaied the others out here," McCoy said during one of his counselling sessions.

About a year ago, representatives of the Bureau of Naval Personnel talked with Dr. Clayton M. Gjerde, Dean of Extension Services at San Diego State, and asked him to set up the program.

"The Navy feels that by providing their men with this extra opportunity for education, it is providing an important fringe benefit for them," Dr. Gjerde says.

Each student pays a five-dollar course fee and is required to purchase his own textbooks.

Gary L. Blakenship, DS2, expresses the feelings of many of the sailors enrolled: "The course should help us a lot. We know what the score is and are that much more anxious to get an education than are many civilians."

NATC PATUXENT DESCRIBES OV-10A AS 'VERSATILE AND RUGGED' AIRCRAFT

OV-10A AT TEST CENTER

A TEAM OF PILOTS and engineers from NATC PATUXENT RIVER has conducted the second Navy Preliminary Evaluation of the OV-10A. The first three OV-10A's built at North American Aviation, Inc., Columbus, Ohio, were used in the first part of the test program. A total of 40 flights were flown to determine the airplane's suitability for its varied missions.

The tri-service OV-10A was designed for use by the Marines, Air Force and Army. Some of the uses the Marines have planned for it include visual and light armed reconnaissance, limited close air support, helicopter escort and protection, target spotting and utility.

A lightweight, two-seat, STOL airplane, the OV-10A is designed to operate out of an unimproved field 50 by 800 feet. The airplane can be configured with multiple weapons, including bombs, rockets, *Zunis*, 7.62mm machine guns and other armaments. On extended ferry missions, the airplane can carry a 150-gallon drop tank. The OV-10A is powered by two Garrett Airesearch YT-76 fixed shaft turboprop engines rated at 660 SHP, each with reverse thrust capability.

Both cockpits have excellent visibility. The OV-10A is easy to maintain and has excellent short field operating characteristics. Ejection seats in both cockpits provide emergency escape throughout the operating envelope of the airplane, including zero altitude zero airspeed.

The cargo space will accommodate six combat-loaded troops, five paratroops with jump provisions, two litter cases or up to 3,200 pounds of cargo and supplies. A utility dolly, which can be carried in the cargo space, is to be used for loading cargo or weapons and for maintenance functions, including an engine change in the field.

In addition to direct support of military operations, the airplane can be used in various roles in foreign assistance programs.

The second preliminary evaluation took place in May, and Board of Inspection and Survey trials are programmed for late this summer.

According to the report from NATC PATUXENT RIVER, "The OV-10A should prove to be a very versatile and rugged airplane for Marine Corps use in the field. With the varied capabilities and simplicity in design, the airplane will undoubtedly play a vital role in aiding the Marine ground forces in counterinsurgency operations."

Crusader to be Modernized

BLC or DLC System Included

LTV Aerospace Corporation, a subsidiary of Ling-Tempo-Vought, Inc., has received a $10,600,000 order from the Air Systems Command to modernize and extend the service life of two series of the F-8 *Crusader* originally built by the company. The order is the first step in a plan leading to the remanufacture of more than 200 F-8D and F-8E *Crusaders* under a prospective four-year modernization program, according to LTV officials.

Remanufacturing of the *Crusaders* will involve complete modernization of the aircraft. Both direct lift control and boundary layer control are being considered for incorporation. Direct lift control (see page 35) provides rapid and precise changes in aircraft altitude during carrier landing approaches. The system, tested by company and Navy pilots, permits the pilot to raise or lower the flap/aileron flaps without altering the airplane's longitudinal trim. Boundary layer control for the *Crusader* would be the same as the system installed in the F-8E(FN)'s in the French Navy.

The modernization program also calls for installation of the main landing gear similar to the one used on the new A-7A light attack bomber now in production.

Nominations are Solicited

Coates Award for Reliability

The annual Rear Admiral L. D. Coates Award is open to the person who has made the greatest contribution toward the achievement of reliability, maintainability and serviceability of weapons systems. Nominations are solicited from naval activities and contractors and should be sent by July 1 to the Secretary, BUWEPS-Industry Material Advisory Board (BIMRAB), Air Systems Command, Washington, D. C. 20360.

The nominee may have increased the reliability and safety of systems through design and initial means of production, methods of test, maintenance procedures, the feedback and dissemination of technical information from field activities, operating forces, or in other ways.

The nominations should include a full description of the contribution, together with photographs, sketches, etc., and supported by accurate data.

The award will be made at the BIMRAB Conference October 25-26. The award is named in honor of Rear Admiral Coates, who was the first chairman of BIMRAB.

THE QUIETEST BOMBING AROUND

BOMB SCORING *unit at NAS Jacksonville is located in a remote section of the station, scores high-level "runs" over Florida city.*

CAMP BLANDING *computer system is manned by Howard L. Kerr, TD2, while P. R. Norton, TD1, relays data to aircraft's bombardier.*

By Frank Myers, JO2

How do you improve the proficiency of bomber crews without letting them drop bombs? Simple. You turn them over to NAS Jacksonville's Radar Bomb Scoring Unit (RBSU). Result: No noise, no fuss—just improvement.

Located on the St. Johns River in a remote section of the station, the RBSU is the only one the Navy has in operation on the East Coast.

Mission of the unit is to measure the bombing proficiency of flight crews. Basically RBSU personnel are referees and scorers in war games that pit Navy and Air Force pilots and crews against a variety of targets. They observe precision bombing runs against key industrial sites, bridges and other structures in the city of Jacksonville.

This kind of bombing is so quiet, Jacksonville's residents don't even know they've been "hit." In fact, although the city has been "attacked" thousands of times in the five years the RBSU has been operational, the bombers themselves aren't noticeable distractions. They fly too high to upset anybody. One-third of the unit's "customers," for instance, are Air Force B-52's and B-58's that fly at 35,000 feet.

Navy planes using the RBSU include RA-5C's from heavy attack squadrons based at Sanford, Fla., A-3B's, A-4's and A-1's. A-6's and A-7's will also use the site soon.

About the only noise involved in a practice mission is provided by a bombardier, who calls his simulated bomb drops vocally, then transmits a barrage of flight data to the ground bomb scoring crewmen. They use this data with other data plotted by radar to establish the theoretical proximity of the bomb impact point to the target. Coupled with data obtained from their made-over early-WW II Army radar system, RBSU personnel can tell the bombardier his weapon would have struck within 50 feet of the target, or—and they say it has happened—that it would have landed in southern Georgia.

Although the Jacksonville RBSU is limited to monitoring high-level passes, the Navy will soon put into operation a scoring unit which will be able to judge bombing scores of aircraft making runs too low for the comfort of the city's residents. The new unit, with a better radar system designed to score both high and low-level runs, is being completed at the nearby Camp Blanding.

Since the reservation sprawls over some 75,000 acres of "boondocks," bombers can make all the close-in runs they want without sonic booms shattering either nerves or windows.

Still being tested and evaluated, the new site will offer some innovations for testing low-level bombers. Utilizing an Army fire control radar with more than a half-million dollars in modifications, the system is automatic from the time the approaching aircraft is "locked on" until the theoretical bomb impacts. A computer evaluates and records all information, solves the mathematical problems and types its answers on paper. More important, it explains exactly what errors the flight crew made. The five Jacksonville tradesmen assigned to the Camp Blanding site are enthusiastic about the new arrangement.

Even with the new site in full operation, NAS Jacksonville's RBSU will continue to monitor high passes over the Florida city, and its OinC, Lt. Carl C. Wells, will continue to commend his men for their work.

"These men are operating and repairing equipment completely alien to them," Lt. Wells says. "They do the work of radarmen, electronics technicians, electrician's mates, draftsmen, air controlmen and yeomen."

All this effort sounds like a lot of work. It is. As with almost anything else, though, it has its moments. For instance, until recently RBSU personnel figured the reason visiting bombardier/navigators kept ending their radio transmissions with a crisp "Yes, sir" was because they thought the Navymen were officers.

A visitor squelched that theory. He said the men figured, erroneously, that their "Yes, sir" would get them a better score.

SELECTED AIR RESERVE

REAR ADMIRAL *R. L. Fowler, Chief of Naval Air Reserve Training, inspects the Selected Air Reserves at NARTU Norfolk, Va.*

AT NARTU *Norfolk, LCdr. Williams administers oath of allegiance to W. L. Walton as Captain G. R. Crittenden looks on.*

Awards for NARTU Norfolk

When Rear Admiral Richard L. Fowler, Chief of Naval Air Reserve Training, conducted the 19th Annual Military Personnel Inspection of NARTU NORFOLK this year (above), 1,100 Reservists took part.

During the inspection, Rear Admiral Fowler presented the Chance Vought and Bear Trap Trophies to the unit. These trophies were won in competition with the other 17 activities in CNAResTra's Command. The trophies are awarded for outstanding recruiting efforts and aviation officer procurement.

Mr. Norman C. Willcox, Vice President of the Hampton Roads Council of the Navy League, presented the League's annual "Naval Reservist of the Year" award to R. H. Ashley, AFCM, of VS-862.

NARTU Norfolk, with its 12 active squadrons/units, is commanded by Captain G. R. Crittenden.

Recruiter

LCdr. Richard W. Williams, USN, a member of the staff of Commander Antisubmarine Force, Atlantic, enthusiastically supports the recruiting of qualified young men into the Naval Air Reserve.

Not only does he do the recruiting, but he also participates in the swearing in. Above, he administers the oath of office to Aviation Officer Candidate William A. Walton, a graduate this year of Norfolk State College.

The ceremony took place at NARTU NORFOLK as the unit's Commanding Officer looked on.

Still in a Stearman

LCdr. Ray S. Hood, a member of VS-741, NARTU JACKSONVILLE, still flies an aircraft of the type he trained in back in 1942—a *Stearman* biplane. This is the type he learned to fly at NAS MEMPHIS when he received flight training.

Today, with over 3,000 flight hours in the *Stearman*, he flies one for a crop-dusting service.

Radio Spots by Dinah Shore

In New York recently, Dinah Shore, TV and recording star, taped a series of radio spots to be used in connection with the 1966 celebration of the 50th Anniversary of the Naval Air Reserve.

The spots are to be released to news media by the Naval Air Reserve Training Command.

Other celebrities recording for the anniversary include Johnny Carson, John Daly, Henry Fonda, Debbie Bryant (Miss America), Phil Rizzuto and Julie London.

The series is being produced by NAS NEW YORK and the Naval Air Reserve East Coast Media Liaison Officer, Cdr. Tom Williamson, Jr.

Chiefs Commended

Five chief petty officers of NARD-931, Buffalo, N. Y., have received letters of commendation for their performance while training for two weeks with HS-933 at NAS WILLOW GROVE. The letters were signed by Commander Harry C. Palmatier, C.O. of HS-933.

Cited were Chief Aviation Mechanics C. W. Abendschein, Carl L. Hagan and Charles T. O'Malley; Chief Aviation Ordnanceman Harry S. Lesinski and Chief Aviation Metalsmith Charles P. Yund.

Happy Ending

In April, a Naval Air Reservist, doctors at the NAS MEMPHIS Naval Hospital and specialists at Vanderbilt University Medical Center combined their knowledge and skill to save the life of a 21-month-old girl.

Heidi Lane, the daughter of Aviation Metalsmith Second Class Walter Lane, started it when she swallowed an undetermined number of iron tablets. Her parents rushed her to the station hospital.

The doctors put in a hurried

call to Vanderbilt University Medical Center, Nashville, for a new drug not yet readily available on the market. Specialists at the center immediately sent ten vials of the antitoxin to the Nashville Municipal Airport.

There it was picked up by Lt. Tom L. Alford, a member of VF-791 of NARTU MEMPHIS, who had flown to Nashville in an A-4B *Skyhawk*. He flew back to Memphis and delivered the anti-toxin to the hospital.

Happy ending: Heidi recovered.

Exercise 'Button Hook'

Recently selected Naval Air Reservists from seven Naval Air Reserve stations joined elements of the U.S. and Canadian navies during Exercise *Button Hook*. The exercise tested the state of readiness of Naval units having coastal defense and ASW responsibilities on our Western Sea Frontier — that portion of the Pacific Coast stretching from Central America to Alaska, and some 1,000 miles out to sea.

In the Pacific Northwest, the combined forces included the staffs of Commander Fleet Air Wing Four and Commander Canadian Maritime Pacific. CNAResTra's Detachment Bravo joined forces with Number 407 Canadian Maritime Pacific Squadron, home-based at Comox, British Columbia, and Patrol Squadron Two from NAS WHIDBEY ISLAND.

Detachment Bravo was composed

J. W. McDIVITT, *AMH2, hands Lt. Alford antitoxin for delivery to NAS Memphis.*

of aircraft, crews and support personnel from Alameda, Seattle, Olathe, Willow Grove, Jacksonville, Los Alamitos and Washington, D. C.

The aircraft and crews of the combined forces participated side by side in the operation, flying round-the-clock patrol flight schedules and performing routine maintenance.

In the photo below (from left) are Commander L. P. Caulkett, OinC of Detachment Bravo; Wing Commander Herb Smale, Commanding Officer of the Canadian squadron, and Commander Homer C. Ragsdale, Jr., C.O. of VP-2, the host squadron for the exercises.

In summing up the exercises, Cdr. Caulkett said of his detachment, "The only positive contacts scored during the exercise were credited to Detachment Bravo, the Selected Reserves. . . . I feel these men more than lived up to their reputation as a ready striking force."

Vietnam Veteran

NAS SEATTLE's assistant recruiting officer, Lt. Andrew Hingsberger, is a Vietnam veteran. He is credited with 98 combat missions over Vietnam and his service awards include ten Air Medals and a Navy Commendation Medal with Combat V.

An admirer of the pilot, Bill Truckenmiller, 13, built a plastic model (in photo) with moveable parts and painted on it the identical markings of the *Skyraider* flown by Lt. Hingsberger when he was with VA-25 in Vietnam.

A Look at the Record

When Rear Admiral Louis J. Kirn, Vice Director, Joint Chiefs of Staff, was guest speaker at the 45th General Assembly of the Daughters of American Colonists, held in Washington, D. C., he drew attention to the record of Naval and Marine Reserve Aviators.

"This year marks the 50th Anniversary of the Naval and Marine Corps Reserve," Admiral Kirn said. "Reserve air units have flown over 20,000,000 passenger/miles in support of the Vietnam operations and have flown almost 5,000,000 ton/miles of high priority cargo."

EXERCISE BUTTON HOOK *officers beside an SP-2 Neptune flown by the men of their squadrons during combined ASW exercise.*

AT NAS SEATTLE, *Lt. Hingsberger receives, from Bill Truckenmiller, a plastic model of the A-1 Skyraider he flew in Vietnam.*

AT SEA WITH THE CARRIERS

THAI ARMY *officers receive explanation of aircraft launching procedures from Commander J. J. Diffendorfer aboard Hancock.*

MARINES *race to waiting helicopters on Princeton's flight deck as LPH participates in Operation Hilltop IV off Mindoro Island.*

PACIFIC FLEET

HANCOCK (CVA-19)

Hancock aircraft continued to strike at enemy targets in both North and South Vietnam as the carrier operated in the South China Sea with Seventh Fleet units.

Vice Admiral Alexander S. Heyward, Jr., CNATra, flew aboard CVA-19 during a 17-day Southeast Asia tour to obtain background on the effectiveness of his command's aviation training.

Two pilots aboard *Hancock* have made more than 500 arrested landings. A release from the carrier identified one of them, Commander Harry J. Post, and said he made his 600th in an F-8C *Crusader;* it also credited Commander H. L. Marr with his 500th in the same type aircraft.

Hancock men made their mark on the "people-to-people" campaign by contributing $1,000 to the Hong Kong Christian Welfare and Relief Council while their carrier was visiting the British Crown Colony. More than 100 of them went a step further; they "adopted" children through the Foster Parents' Plan, Inc., and will contribute to the youngsters' well-being by monthly contributions of $15. More than half the new "fathers" are members of the ship's Marine Detachment; 17 others are assigned to the Emergency Crash Crew.

PRINCETON (LPH-5)

In company with other units of the Seventh Fleet's Amphibious Ready Group, *Princeton* participated in a two-day exercise, *Hilltop IV*, in the San Jose area of the Philippines' Mindoro Island.

Twenty-two Filipino military officers were aboard *Swee' Pea* to observe the exercise, which also involved crews of the USS *Pickaway* (APA-222), *Alamo* (LSD-33), *Richard B. Anderson* (DD-786), Battalion Landing Team 1/5, as well as HMM-362.

Commanded by Captain T. J. Gallagher, Jr., *Princeton* is flagship for Captain J. D. Westervelt, Amphibious Ready Group skipper.

BENNINGTON (CVS-20)

"It just seemed to be the right thing to do." That was the answer given by two young *Bennington* sailors when they were asked why they bothered to return a cash box and the $800 it contained to its owner after they found it on a pier at the Long Beach Naval Shipyard. The cash box was left behind by a Long Beach laundry; the finders were Donald E. Harrison and Philip D. Hauptman, FA's.

BON HOMME RICHARD (CVA-31)

"Good guys" aboard *Bonnie Dick* are coming into their own. Captain G. F. Colleran, C.O., recently began a program of recognition for the average sailor who, the skipper says, "does his job well, stays out of trouble and pays his debts." Reward for membership in the new "club" is a mid-week 48-hour special liberty.

Captain Colleran's program is similar to one begun aboard *Bennington* by that carrier's skipper (NANEWS, March 1966, p. 39).

CONSTELLATION (CVA-64)

CVA-64 crew members got their first good look at the A-5 *Vigilante*

when RVAH-6 brought its aircraft aboard the ship. The squadron is based at NAS SANFORD, Fla.

Constellation, along with *Kearsarge* and *Oriskany*, joined other First Fleet units for Operation *Gray Ghost*, the first major First Fleet exercise in 1966. Vice Admiral L. P. Ramage, ComFirstFlt, commanded the force from his flagship, the guided missile cruiser USS *Providence* (CLG-6).

Operations during the 11-day exercise included air strike and reconnaissance missions, anti-air warfare, ASW, surface warfare, a simulated amphibious raid, anti-PT boat maneuvers, underway replenishments and SAR.

Rear Admiral R. W. Cousins, ComCarDiv Nine in *Constellation*, commanded the "friendly" forces, and Rear Admiral R. B. Moore, ComFAir San Diego, headed the "opposition."

CORAL SEA (CVA-43)

A day of drills, dubbed Operation *Fast Cruise*, gave *Coral Sea* crew members a workout under simulated battle and disaster conditions before the carrier got underway from the San Francisco Bay Naval Shipyard for sea trials.

ENTERPRISE (CVAN-65)

Generalissimo Chiang Kai-shek, President of the Republic of China, boarded *Enterprise* for a visit while the carrier operated off Taiwan. He and his party were greeted by Vice Admiral John J. Hyland, ComSeventhFlt, Rear Admiral Thomas J. Walker, CTG 77.7, and Captain J. L. Holloway III, CVAN-65 C.O.

Commander James B. Linder, VA-76 C.O., and squadron pilot LCdr. Nicholas D. Langston have logged their 600th and 500th arrested landing, respectively, aboard *The Big E*.

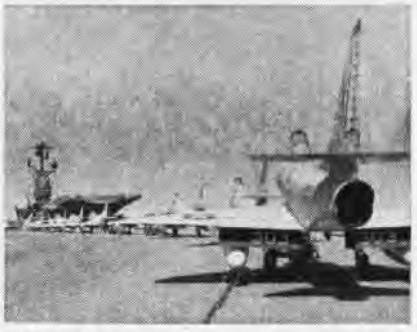
INTREPID (CVS-11)

The *Fighting I* is back at war.

A WW II veteran, *Intrepid* left home port, Norfolk, for a trip halfway around the world that would take her to the South China Sea and the war in Vietnam. Although her ASW designation will remain unchanged, *Intrepid* will operate as an attack carrier during the deployment. A-1 *Skyraiders* and A-4 *Skyhawks* will be launched from the ship on strike missions.

CVW-10 squadrons based aboard *Intrepid* include VA-15, VA-95, VA-165 and VA-176. HC-2 helicopters are also assigned to the ship.

Intrepid crewmen wasted no time in claiming records for their West-Pac-bound carrier. They say the 39 seconds flight deck personnel took to rig the aircraft barricade beats anything other carriers can offer.



SKYHAWKS *are lined up on the pier by Intrepid. Carrier is now in the Far East.*

KITTY HAWK (CVA-63)

Jet and propeller-driven aircraft continued intensive operations off *Kitty Hawk* as the CVA operated in waters off Vietnam.

The venerable A-1H *Skyraider* continued to prove its reputation as one of the best tactical fighter-bombers ever built with successful strikes against a variety of targets. V-1 Division personnel pumped their 10 millionth gallon of JP-5 since *Kitty Hawk* deployed, proof of the intensity of jet operations. A-6A *Intruders* struck at North Vietnamese targets despite poor weather.

An X000th landing mark was left to the sturdy A-4C *Skyhawk*, however, when LCdr. Richard S. Willet, VA-113, made No. 46,000.

Retired Air Force Lieutenant General Pete Quesada, former director of the Federal Aviation Agency, and Major General Gilbert P. Mayers, Vice-Commander of the Second Air Division, boarded *Kitty Hawk* for a day's stay. They were met by Rear Admiral James R. Reedy, CTF 77, and Captain M. D. Carmody, CVA-63 skipper.

To celebrate the fifth anniversary of their ship's commissioning, *Kitty Hawk* crew members held open house while the carrier was in port at Subic Bay, R.P.

Filipino dignitaries, DoD employees, military personnel, and dependents—some 4,000 persons in all—came aboard for tours.

ORISKANY (CVA-34)

Arrested landings No. 104,000 and 105,000 were made aboard *Oriskany* by VA-164's Ltjg. Thomas V. Lamay in an A-4 *Skyhawk* and VA-152's Lt. D. W. Edson.

TICONDEROGA (CVA-14)

Ltjg. W. S. Brougher, VF-53, made *Tico's* 80,000th arrested landing in an F-8 *Crusader*.

ATLANTIC FLEET

AMERICA (CVA-66)

The Italian Navy's senior officer was a guest aboard *America* when Admiral Alessandro Michelagnoli, Italian Chief of Naval Operations, was flown aboard the Sixth Fleet carrier. He was greeted by Vice Admiral W. E. Ellis, ComSixthFlt.

FORRESTAL (CVA-59)

An eight-month Mediterranean deployment ended for *Forrestal* crew members when their carrier returned to home port, Norfolk.

During the cruise, *Forrestal* steamed more than 50,000 miles and used 17 million gallons of black oil. The crew visited Genoa, Naples, and Taranto, Italy; Golfe Juan and Toulon, France; Beirut, Lebanon; Athens, Greece; Valletta, Malta; and Palma and Barcelona, Spain. *Forrestal* pilots logged more than 19,000 flight hours and flew more than 11,000 sorties. More than 13 million gallons of jet fuel were consumed by the carrier's planes, while crewmen, with another kind of appetite, ate two million meals.

Forrestal was scheduled to enter the Norfolk Naval Shipyard for an intensive overhaul.

LAKE CHAMPLAIN (CVS-39)

The Navy's last straight-deck carrier has been decommissioned at the Philadelphia Naval Shipyard.

In a rapid chain of events, the Secretary of the Navy announced that the carrier would leave the Fleet, *Champ* steamed for Philadelphia, and a bit of operating history went into mothballs.

The decommissioning, coupled with the announced cutback of an unnamed ASW air group, was expected to save the Navy about $22 million a year.

Commissioned in 1945, *Champ* was assigned a home port at NAS QUONSET POINT, R.I., in June 1959. The *Essex*-class carrier was the second Navy ship named in honor of the engagement of a U.S. Navy flotilla on Lake Champlain in September 1814. She was tagged with the nickname *Champ* shortly after she was commissioned. Her predecessor was a WW I mine carrier.

Although *Champ* joined the Fleet too late to participate in WW II action, her planes flew daily strikes against North Korean troops and installations during the Korean conflict. The ship was redesignated a CVS August 1, 1957.

Champ crewmen got involved in the space program early when, on May 5, 1961, word flashed from the carrier that Navy Commander Alan B. Shepard was brought aboard by helicopter after his space flight. More recently, *Champ* was primary recovery ship for the *Gemini* 5 flight of Cooper and Conrad.

Champ's last major operation was the recovery of an unmanned *Gemini-Titan* spacecraft Jan. 19.

INDEPENDENCE (CVA-62)

Arrested landing No. 83,000 was made aboard *Independence* by Commander William B. Warwick, VA-75 C.O., in an A-6A *Intruder*.

CVA-62 returned to home port, Norfolk, after a five-week yard period at the Portsmouth Naval Shipyard for minor repairs. The ship was scheduled to steam to the Caribbean for 2½ weeks before she deploys to the Mediterranean.

LEXINGTON (CVS-16)

VT-27 student pilot Ens. R. G. Roethler made *Lexington's* 148,000th arrested landing in an S-2.

Lexington crewmen are laying claim to the Fleet carrier record for the most arrested landings in a single day. In 16 hours and 51 minutes of flight operations, *Lex* men "trapped" 604 aircraft—a number, according to a release from the carrier, that beats the former record of 603 set in 1945 by CVE-101.

SARATOGA (CVA-60)

Sara has become a unit of the Sixth Fleet in the Mediterranean. CVA-60 relieved *Forrestal* at Pollensa Bay, Mallorca, and began her seventh Med deployment. Captain Harold F. Lang is *Sara's* skipper.

SHANGRI LA (CVA-38)

Shipyard workers and *Shangri La* crew members took two major steps toward completion of the $13 million overhaul at Philadelphia.

With the ship in drydock, some 200,000 gallons of water were pumped in to test the watertight integrity of new valves and rudder packings installed in the ship. And boiler fires were lighted off for the first time in four months.

More than 2,000 shipyard workers were operating in three shifts to meet the scheduled May 16 deadline for completion of overhaul.

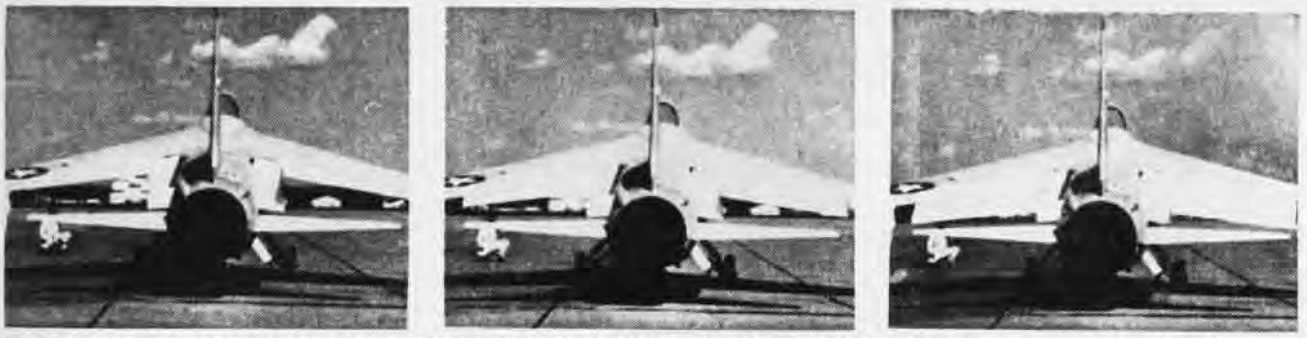
Outstanding public relations achievement in an emergency has won for *Shangri La* the coveted Silver Anvil Award from the Public Relations Society of America.

One of four Navy winners in the competition, *Shangri La* received the congratulations of Admiral Thomas H. Moorer, CinCLantFlt, in a message that read in part: "This honor, achieved in competition with worldwide civilian and government organizations, reflects great credit on the Navy and your command. You are commended for your alert and aggressive attention to the field of public affairs."

Shangri La men combined hard work and fast thinking to avert a community relations disaster after 3,000 gallons of black oil were accidentally pumped from their carrier while the ship was anchored off Cannes, France. Working through the night, they used carbonized sand, chemicals, shovels, boats, a helicopter, and a bulldozer to keep oil from ruining Cannes' beaches.

OPERATION *of America's surface-to-air Terrier missiles is explained to French Navy pilots while ship is in Toulon, France.*

LAST *of the Navy's straight-deck carriers, USS Lake Champlain, was ordered decommissioned at the Philadelphia Naval Shipyard.*



DIRECT LIFT CONTROL OPERATION OF F-8 FLAPS, FROM LEFT: 'AIRPLANE DOWN,' NORMAL AND 'AIRPLANE UP'

DIRECT LIFT CONTROL TESTED ON F-8

By LCdr. R. T. Gralow, USN

THE FIRST major change in airplane flight path control since the Wright Brothers may soon be incorporated in over 200 Fleet *Crusaders*.

Known as Direct Lift Control (DLC), the innovation was installed and flight-checked in an F-8C by LTV-Vought Aeronautics under a Naval Air Development Center contract. DLC then underwent a ten-month evaluation at the Flight Test Division of the Naval Air Test Center, Patuxent River, Md. During the evaluation, the DLC F-8C was flown aboard the USS *Shangri La* and USS *America* by six carrier suitability test pilots from the Center.

The concept of DLC allows almost instantaneous lift variations through the use of rapidly variable wing flaps. By deflecting wing lifting surfaces, such as flaps, airplane lift is directly varied in proportion to the direction and amount of flap deflection. When the flaps are lowered, lift is instantaneously increased and the airplane rises, and vice versa. This is an improvement over the conventional longitudinal control system which requires rotating the aircraft with a horizontal stabilizer deflection to change lift on the wing since response time is significantly reduced with the DLC.

DLC was originally proposed to BUWEPS by the Douglas Aircraft Company. The flight test installation was sponsored by BUWEPS' Airframe Design Division, based on DLC's promise of decreasing the time required to make altitude corrections on the glide slope in carrier landings, particularly close in.

In the *Crusader*, the ailerons are normally lowered (drooped) and act as flaps in the landing configuration. To install DLC in the *Crusader*, engineers use a variable aileron droop control. Control of the aileron droop, hence direct control of the wing lift, was given the pilot through use of a thumb wheel switch on the pilot's control stick. Rotating the wheel switch in an aircraft nose up or down direction caused an increase or decrease in lift respectively, resulting in vertical displacement of the aircraft.

With DLC, vertical adjustment of the meatball during carrier approaches was found to be almost instantaneous. Generally, two five-to-ten-foot altitude corrections would be made in the time required for one with conventional controls. This rapid response is particularly useful in preventing bolters. The *Crusader* is difficult to get into the wires safely when a climb-at-the-ramp situation is encountered. Without DLC, the pilot must either take a bolter or make some large unsafe attitude and power changes.

With DLC, the airplane can be rapidly readjusted to the proper glide slope well after corrections can no longer be made with the normal conventional longitudinal control system. This rapid vertical maneuvering control is also advantageous in the up direction when correcting for a low-at-the-ramp condition, taking rapid wave-offs and correcting for excessively high sink rates near touchdown.

Since no rotation of the aircraft attitude is required for altitude control, the airplane can be flown on the glide slope at a relatively constant attitude. This capability of flying a constant attitude to touchdown is a major advantage of DLC since it reduces the possibility of excessively nose-low or nose-high landings.

Nose-low carrier landings with F-8's continue to be a problem, since the use of APC (approach power compensation) requires pilots to use attitude changes for glide slope control. This has caused pilots to lower the aircraft's nose to correct for being high at the ramp. This has resulted in improper touchdown attitudes and consequent damage to nose gear or other components. It is anticipated that DLC will reduce the incidence of accidents caused by poor attitude.

The final Test Center report on the initial DLC installation in the F-8C concludes that DLC significantly increases the pilot's ability to control glide slope and reduce touchdown dispersion, and improves wave-off capability and touchdown attitude control.

On the basis of the encouraging results in the initial tests, the Naval Air Systems Command is now looking toward use of DLC in other present and future carrier type aircraft. These applications may involve other methods of varying lift, such as modulating boundary layer control (BLC) or using spoilers. In addition to interest for pilot-controlled landings, the reduced time for vertical adjustments in glide path with DLC would appear advantageous in the final portion of automatic landings.

FLEET AIR WINGS ON PATROL

PATROL SQUADRON 44 returned to NAS PATUXENT RIVER in March after a six-month deployment to Kindley AFB, Bermuda. Its stay was shortlived, however, as two days later the squadron departed for Roosevelt Roads and Operation *Springboard*.

During the deployment in Bermuda, VP-44 maintained six aircraft, crews and support personnel on the island. Rotation every six weeks gave personnel an average total time away from home of 13 weeks. The squadron conducted daily patrols out of Kindley; Lajes, Azores; and Rota, Spain.

* * *

In Vietnam a seven-plane detachment from Patrol Squadron One relieved a detachment from Patrol Squadron 42 in February as the Coastal Surveillance Force "in-country patrol detachment."

Like the other units of the Coastal Surveillance Force, its mission is to prevent the infiltration of men, arms and supplies to the Viet Cong. During their flights in support of *Market Time*, patrol planes work together with the surface ships of the Coastal Surveillance Force, which consists of radar picket destroyer escorts, minesweepers, Coast Guard cutters and the new 50-foot high-speed *Swift* boats.

In addition, a detachment of SP-5 *Marlin* seaplanes, based with their tender at various seadromes set up along the coast, frequently augments the coastal patrol force.

Patrol planes maintain a round-the-clock surveillance of the coast from the 17th parallel in the north to the Gulf of Thailand in the south. They report on movements of junks and other ships. This data is forwarded through one of five Coastal Surveillance Centers spaced along the coast to the Coastal Surveillance Force Operations Center in Saigon.

VP-1, home-based at Whidbey Island, is headed by Commander F. D. Armstrong, Jr.

* * *

Commander Jack D. Fuller relieved Commander George Prassinos as Commanding Officer of Patrol Squadron 22 during traditional change-of-command ceremonies at Barber's Point.

Top Pacific area Navy commanders attending the ceremonies included: Rear Admiral W. A. Sutherland, Jr., Commander Fleet Air Hawaii; Captain A. F. Farwell, Commanding Officer, NAS BARBER'S POINT; and Captain W. G. Matton, Commander Fleet Air Wing Two.

CDR. J. M. BROZENA, *VP-56 Exec. Officer, welcomes RAF Flight Lt. Hugh Cunningham.*

Patrol Squadron 56 was host to Crew Two of the Canadian Maritime Patrol Squadron 415 during a three-day exchange visit in March. Crew Eight of VP-56 had previously been the guests of Crew Two on a visit to Summerside, Prince Edward Island, Canada.

* * *

Patrol Squadron Four sent its first group of pilots to Moffett Field in February for transition to the P-3A *Orion*. Six pilots were in the first class, headed by VP-4's Executive Officer, Commander C. M. Walker. Three additional groups of pilots and three groups of Tactical Coordinators are scheduled to undergo transition at Moffett before the end of August.

* * *

Commander Robert M. Thompson, Executive Officer of VP-42, relieved Commander Austin V. Young as Commanding Officer during ceremonies at Iwakuni.

* * *

Seven Nationalist Chinese fishermen were rescued from Scarborough Reef near Sangley Point after being spotted by a VP-28 P-3.

The *Orion* was diverted from a training flight to join in the search for a missing 80-foot fishing vessel. After an hour of search, Ltjg. Ken Walden, navigator, spotted the crew and a makeshift wooden raft that had also washed up on the reef.

After positive identification, the *Orion* called the 13th Joint Air Rescue Service at Clark AFB. Within two hours, the rescued fishermen were aboard an Air Force HU-16 *Albatross* heading for Manila.

* * *

The combined efforts of VP-18 and Public Works personnel at Roosevelt Roads have culminated in the establishment of a special Career Counseling Center which is housed in a rebuilt trailer. The air-conditioned center has lounge chairs and educational materials available.

The center was officially dedicated in recent ceremonies by Captain H. B. Stott, Commander Fleet Air Wing 11.

In April, the squadron was engrossed in its annual Operational Readiness Inspection. Captain Stott and his inspecting party kept the squadron at wartime efficiency for six days.

* * *

NAS BARBER'S POINT and tenant commands were hosts for 53 members of the Honolulu Council of the Navy League during a visit in March. Accompanying the visitors was Eric Fleming, who played Gil Favor in the TV series *Rawhide*.

Rear Admiral W. A. Sutherland, Jr., Commander Fleet Air Hawaii, welcomed the group. The tour included lectures on equipment and missions of the various commands at Barber's Point.

Patrol Squadron 22 launched two P-3's with the visiting group aboard to demonstrate the *Orions'* role in antisubmarine warfare.

LCDR. K. E. SCHOEFF, *organizer of VP-22's school for Tactical Coordinators, administers the blindfold test of Tacco's position in the P-3A Orion for Lieutenant R. T. Porter.*

VP-22'S OWN TACCO 'U'

IN DECEMBER 1965, LCdr. Kendall E. Schoeff of VP-22 designed a squadron training program for prospective Tactical Coordinators. Having once been an ASW instructor at CIC School, he knew what such a school should explain to a new officer. He spent over 100 hours typing lesson outlines and his efforts have met with great success. Given firm and enthusiastic support, the school is rapidly becoming the keystone of all officer ground training in the squadron.

All incoming navigators attend the school immediately after reporting aboard. It covers a ten-day period with eight hours of classes a day. Several quizzes, oral and written, are given.

On the first class day, squadron spaces, duty office procedures and flight scheduling are explained to the new arrivals. The course begins with an explanation of the navigation procedures used. It covers NATOPS navigation requirements, HOWGOZIT preparation and flight publications used in navigation preflighting.

On the second day, instruction continues with lectures on the P-3 navigation systems and includes a two-hour demonstration in the aircraft of preflight procedures of navigation equipment. This is followed by an examination and review on all phases of navigation.

The third day of training begins with a lecture from the Air Intelligence Officer to acquaint the men with the scope of patrol operations as well as the military, political, economic, geographic and sociological environments which influence mid-Pacific squadrons. Lectures follow on safety, the VP flight crew, current operation orders, and tactical publications.

Examinations the next morning cover the previous day's topics. The afternoon of the fourth day the students become acquainted with Fleet Exercise Publications (FXP's). The last two hours of the day are devoted to an open-book quiz.

On the fifth morning, the students are given an FXP examination and a Tactical Coordinator NATOPS quiz. After lunch they are introduced to recognition and rigging drills.

The morning of the sixth day begins with a two-hour recognition review and examination followed by instruction on communications encryption, authentication and message drafting. In the afternoon, prospective Tacco's are lectured on qualifying exercises and squadron readiness reporting. The next lecture deals with aerial mining, the U.S. mining policy and includes a resumé of the four mining qualification exercises required of patrol squadrons. The last two hours of the sixth day are spent learning about ECM, *Sniffer*, MAD, and MAD-active sonobuoy exercises.

On the seventh day, the new officers hear about passive sonobuoy procedures and employment and are given a detailed *Jezebel* briefing. Later there are lectures on the Mk. 101 and Mk. 57 weapons covering loading, employment and tactics used by the squadron.

On the morning of the eighth day the students are lectured on recognition, radar exercises, rockets, radar bombing and night photo exercises. A review of the Mk. 43, 44, and 46 torpedoes follows.

On the ninth day, the students are given a thorough check-out on current NATOPS preflight procedures for the APS-80, AQS-10, ALD-2, ULA-2, ASR-3, ordnance station, *Julie* and *Jezebel* gear. In the afternoon, the students preflight all of the equipment covered in the lab session.

The tenth day covers the Tacco station in detail and the morning begins with a blindfold examination of this position. At 1300 the students begin an over-all final examination and review.

After completion of the course, they are assigned to flight crews to utilize knowledge gained in the course at VP-22's Tacco School, at NAS BARBER'S POINT, Hawaii.

CVA's Electrical Shops

Ready and Able to Make Repairs

The Electrical Power Shop on an aircraft carrier is a busy place. Not only does it function in the support of its own ship, but its services also are available to escort ships to assist them in maintenance not possible in smaller quarters.

For example, because there is little time in port for maintenance and upkeep, the Rewind Section of the Electrical Power Shop is sorely taxed to keep pace with motor rewind for its own ship and meet the requirements of accompanying ships.

Rarely a day passes, when a CVA is deployed or at sea on local operations, that the motor rewind section is not asked to perform such service for one of the escorts or for one of the replenishment ships.

In the Sixth Fleet, most CVA's perform more rewind for other ships than they do for themselves. With the exception of an occasional tender, the small ships simply do not have this capability.

A minimum of paper work is involved. All that is needed is a briefly worded dispatch, giving the essential motor data. Then the even more briefly worded reply is sent: "Send motor complete with instruction book and replacement bearings." Because of the taken-for-granted cooperation between a CVA and her Small Boys, the escorts frequently save their rewind problems for solution until they are in the company of a CVA. They know that they get a far more prompt response to their request on rewind problems than is offered by any other repair facility.

During every in-port period, the motor rewind section of USS *America's* power shop is busy insuring satisfactory motor rewinds for vessels in her company. In one instance, an AO could not secure its main propulsion plant until *America* completed rewinding a jacking gear motor for the tanker.

Or again, the New Year's weekend was spent in round-the-clock rewind of several motors for two MSO's. Only such repair permitted their engineering plants to operate, their evaporators to function and their minesweeping gear to maintain its capability. It is seldom that *America* receives any motor rewind request that is described as less than "an immediate necessity."

The working capability of the electric shop rewind section on a CVA is limited only by the access openings into the shop, the size of the dip tank, the fit inside the dip tank and/or bake oven. When motors are too large and it is impractical to move them, they are repaired in place. For example, on the USS *Forrestal* during a Med deployment, it was deemed beyond the capability of the repair facility at Toulon to renovate the 450-hp deck-edge elevator pump motors. *Forrestal* took care of its own.

On one occasion, the electrical power shop on the *America* rewound a 30-hp main condensate pump motor for one of her escorts.

Done ashore this could have cost a great deal. With *America* supporting its "Go-Go-Get-the-Job Done" helpers, all it took was 4,260 feet of wire, 72 feet of slot wedges and 72 feet of slot paper, at a cost of $40—and the motor was ready for delivery to the escort.

PERSONAL GLIMPSES

Editor's Corner

ONE OF 1,868. When the Grumman Aircraft Engineering Corporation solicited a name for its C-2A carrier on board delivery (COD) aircraft, 3,864 company employees submitted more than 1,868 names for the contest. As many as 218 submitted one name (*Pelican*) but only one entered the winner—*Greyhound*. Included in the list were such names as "Batplane" and "Goodies from Home." (The C-2A, officially dubbed the Grumman *Greyhound*, is now being delivered to the Fleet.)

Tossed about Like a Tin Can. The USS *Wasp* sustained topside damage during a late January storm in the Atlantic. Writing belatedly of the storm that caused the damage, the *Wasp's Stinger* reported:

"*Wasp* was hardly out of the channel (Boston) when she began to obey the motion of the seas not far in advance of the storm. She flirted with the storm, then found herself caught in its wild embrace. For five days, *Wasp* smashed through heavy seas. Some days the seas averaged 35 feet or more.

"One especially heavy sea treated *Wasp* to what could possibly be described as a twirl—as if *Wasp* were a fencing foil in the hand of a master attempting a *tour de force*. This spiraling plunge was felt at the moment *Wasp* was receding on the crest of a 30-foot wave when overwhelmed by a 45-foot wave which came smashing down on her bow and reared up the face of the flight deck. Whatever really caused the ship to act as it did, it will be a long time before this crew will stop talking about it."

The most notable damage, it was reported, was the "blasting off of many coats of paint from her bow, the snapping off of a few radio antennas and the crimping off of a goodly portion of the flight deck catwalk on both sides of the ship."

GEMINI 8'S RETURN. After the *Gemini 8* spacecraft was recovered in the Pacific on March 16, three Navy transport crews were employed as "pony express" drivers to return the capsule to the United States. Aboard a C-130 *Hercules* at Naha, Okinawa, Ltjg. Milford Cockrell and a VR-7 crew flew the spacecraft to Midway. Then a VR-22 crew, headed by Lt. Eugene Dietz, took over for the trip to Travis AFB, Calif. From there, Lt. Tom Burch and a VR-7 crew flew the final leg to Patrick AFB, Fla. Accompanying the spacecraft on its 11,000-mile flight were seven NASA representatives, who all logged 26.4 hours of time on the return trip.

Hole in a Doughnut. Commenting on the image of the Safety Officer in the Second Marine Air Wing's *Hot Dope Sheet*, LCdr. Frank Liberato wrote:

"Since safety is a negative concept, it is like the hole in the doughnut. It touches all parts of the squadron but the only way it can exist is to have all parts of the squadron contributing to the O. Some doughnuts have no hole; they are called jelly doughnuts. Without willing help from everyone, your safety effort can be like that—soft in the middle. With the proper image, properly cultivated and properly maintained, the shape of the doughnut will exactly coincide with the shape of your accident rate—zero. It is up to the safety officer to build the doughnut."

LITTLE KNOWN FACTS. NAS Brunswick, Maine, recently celebrated its 23rd anniversary. The station, the northern hub of Naval Air Force, U.S. Atlantic Fleet's aviation patrol squadrons since 1951, started out as a training base for Royal Canadian Air Force pilots, later became a WW II ASW base. During a period of inactivity after 1946, the base served as a leased site for Bowdoin College.

In 1949, reduced to a caretaker status for two years, Hangar One at Brunswick became a skating rink. Hangar Two and the Tower were the base for a civilian flying school and Hangar Three housed automobiles. Ammunition magazines were converted into mushroom farms. The northern boundary of the station became a shrub nursery.

Controller to Pilot. Among the pet peeves of an ATC controller (published in the March *Journal of the ATC*) were these:

"Pilots who, when asked airspeed, reply, 'We're reducing.'

"Pilots who taxi out without calling ground control and end up nose to nose with other traffic, *then* call and say, 'We tried to get you.'

"Pilots who, when in a tie situation for a VFR approach, say, 'I can beat so-and-so in.'

"Pilots who say they will make an immediate takeoff—and then don't."

SIMILAR WORLDS. Commander Scott Carpenter, who has been in space as an astronaut and who also has lived 30 days on the ocean floor with the Navy's *Sealab* project, noted the following similarities between the space and ocean programs:

"The two assault groups face such problems as the design and fabrication of machines; selection and training of the crew; suit design, manufacture and fitting; and the psychological and physiological studies conducted before, during and after the experiments. Both must search for new materials and new techniques."

What's a Plane Captain? The *Canacao Clipper*, Sangley Point, R.P., gave the following descriptions of VP-48 plane captains:

"A plane captain is a leader, a foreman, a representative, an instructor, an inspector and a judge.

"His opinion is sought and his word is honored.

"If you were to inspect a plane captain, you would probably find grease on his shirt, mud on his shoes, a bolt and a washer in his pocket, sweat on his brow and a wrench in his hand.

"A plane captain has a split personality; he can be the nicest guy in the world, but when someone mistreats his aircraft, he becomes mean and vicious.

"A plane captain works hard and long and asks little in return. His most frequent phrase is, 'She's ready to fly, Sir.' The words he wants to hear most are, 'Let's go!' "

LETTERS

Information Requested

SIRS: I am commencing to compile a history of Naval Aviation insignia, hoping to find a publisher sometime in the future. Before I can even get airborne, however, I will need help from a great many people. In addition to replicas of the insignia (decals or colored sketches are best), I would especially value authoritive information along the following guidelines:

1. Date of adoption and name of designer.
2. Previous designations of squadron.
3. Capsule history of squadron.

All contributions will be welcome, and any information, fragmentary or otherwise, could prove to be invaluable.

J. L. LOW, LCDR.

612 Pinetree Drive
Virginia Beach, Va. 23452

WW II Photos Sought

SIRS: I would be most interested in hearing from anyone who can lend me photos of World War II Japanese aircraft captured by the U.S. Navy. All photographs lent will be returned to the sender.

TADAO SHIBUSAWA

No. 2 of 7, 3 Chome
Akabanenishi
Kita-ku, Tokyo, Japan

Navy Aids in NASA Study

Test Conducted at Pensacola

Two Navy enlisted men were the subjects of a four-day experiment conducted at the U.S. Naval Aerospace Medical Institute in Pensacola to help NASA biotechnologists learn how astronauts will react to space travel.

Airmen Ronald T. Tuggle and Curtis L. Browning lived for four days in a circular rotating chamber that measures 20 feet in diameter. They reclined in molds fitted to their body contours and supported by air. Their "room" was rotated at four revolutions per minute to simulate a spacecraft in flight that is spinning to provide artificial gravity.

Previous studies have determined that persons living in a rotating environment have considerable difficulty in orientation and movement because of the stimulation of the inner ear which initiates a sharp conflict with the sensory inputs.

Two medical specialists accompanied Tuggle and Browning on their "trip." They were Lt. F. R. M. Deane and Edward L. Ricks, Jr.

More Helos are on the Way

UH-1E is a Combat Veteran

Under a $4,500,000 contract, Bell Helicopter Company will deliver the first of 31 more UH-1E helicopters to the Marines by December.

The UH-1E is a nine-place, turbine-powered helo currently in service in Vietnam. It is used for observation, target acquisition, reconnaissance, command control and casualty evacuation.

Northrop F-5B Evaluated

Fighter/Trainer at Test Center

A team of Navy test pilots at NATC PATUXENT RIVER has evaluated the Northrop F-5B fighter/trainer. The team, headed by Commander J. F. Lasseter, Jr., Director of the Test Pilot School, was composed of pilots from three test divisions and three members of the Test Pilot School staff.

The seven pilots flew a total of 20 flights in five days.

The F-5B is a two-seat version of the F-5A currently being used in Vietnam. The purpose of the Navy evaluation was to determine the suitability of the F-5B for use at the Test Pilot School as a possible replacement for the F-6A.

RADM. MACPHERSON PRAISES SCORE

More Than 12,500,000 Miles

VT-29 Logs 85,000 Safe Hours

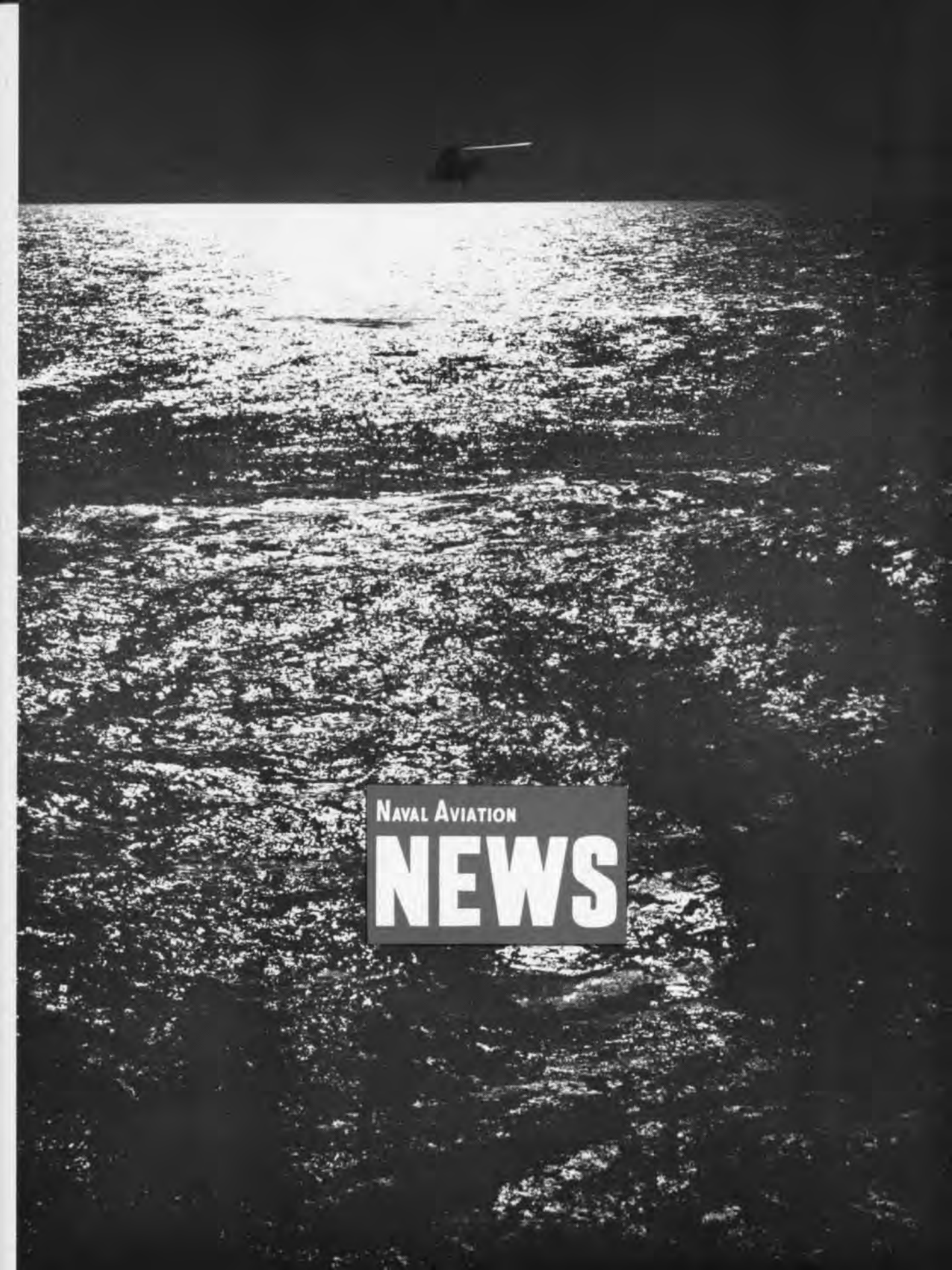
VT-29, while logging 85,000 accident-free hours, flew 12,500,000 nautical miles.

The record runs from March 12, 1959. In the photograph, Rear Admiral Robert Macpherson, Chief of Naval Air Advanced Training, along with Commander H. H. Elliot, Commanding Officer of VT-29, is congratulating Lt. Gilberto D. Rodriguez, Jr., and his crew on the squadron's record.

While making this record, VT-29 completed the navigational training of 2,265 Naval Aviators and 1,564 Naval Flight Officers.

THE SERVICE TEST *Division at the Naval Air Test Center, Patuxent River, Md., recently completed the Board of Inspection and Survey Service Suitability Trials of the T-28 Buckeye airplane. This is a twin-engine version of the trainer now used for flight training at NAS Pensacola. One airplane was flown 405 flight hours for twelve weeks on missions which simulated its specified use in the Naval Air Basic Training Command's jet program.*

Helicopter Antisubmarine Squadron Nine celebrates its tenth anniversary this month. Its pilots fly the Sikorsky SH-3A and normally deploy with CVSG-60 aboard the Essex (CVS-9). Commander R. E. Schock will relieve Commander A. L. Phillips, Jr., as C. O. during this month. HS-9 is based at Quonset Point.


NAVAL AVIATION
NEWS