# NAVAL AVIATION NEWS

42nd Year of Publication

NOVEMBER 1960

NavWeps No. 00-75R-3

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# MANNED, MOBILE AND MIGHTY

'The U.S. Navy's ability to carry out its task of controlling the seas is centered in manned aircraft operating from carriers. Carrier forces enjoy all the advantages that accrue from mobility, a necessity in the hazardous ballistic missile age when survival is at stake. When at sea, attack carrier striking forces are virtually invulnerable to surprise ballistic missile attack, and they are at sea and on the move most of the time.'—VAdm. R. B. Pirie, DCNO(Air).

## ■ COVER

Alert photographer D. G. Prey, PH2, caught this scene on his squadron's flight line. John E. Yaroch, Jr., ADJAN, works on an A3D-2P belonging to Composite Photographic Squadron Sixty-Three under the cirrus-flecked Southern California sky at Miramar.


# NAVAL AVIATION NEWS

FORTY-SECOND YEAR OF PUBLICATION, NOVEMBER 1960


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# NAVAL AVIATION NEWS

## USS Hornet Wins 10 Prizes

### 1960 is Banner Year for CVS-12

Crew members of the Pacific Fleet antisubmarine carrier *Hornet* aren't sure they've established a record, but they are certain they have completed a year of accomplishment that is hard to beat. *Hornet* and her squadrons won ten big awards.

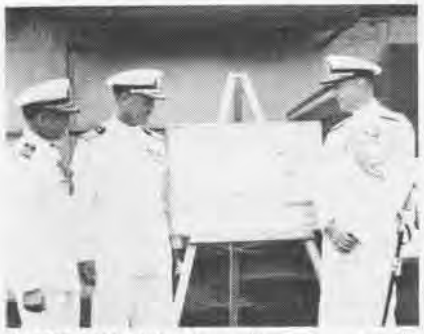
The awards began arriving early in August when the carrier was notified that she had won, for the third consecutive year, the Battle Efficiency "E." *Hornet* also received the Engineering "E" for the second consecutive year, the Air Department "E," the "A" for the top ASW team, and her Supply Department was adjudged outstanding and best in its class.

Her squadrons, VS-37 and HS-2, added to the nearly clean sweep with five other honors.

VS-37, commanded by Cdr. F. W. Silverthorne won the Battle Efficiency "E," the Arnold J. Isbell award, given to the best carrier based fixed wing ASW squadron; and for good measure copped the Chief of Naval Operations Safety award.

HS-2, commanded by Cdr. F. F. Johnson, won the Battle Efficiency "E" and the Isbell award for carrier-based helicopter ASW squadrons.

*Hornet* is commanded by Capt. E. E. Christensen. She carries the flag of RAdm. W. A. Stuart, ComCarDiv-19.



**SAFEST CVA,** *USS Roosevelt, is presented the Admiral Flatley Memorial Award by VAdm. Fitzhugh Lee (R), Deputy Commander, Atlantic Fleet, to Capt. E. W. Hessel, C.O. (C) as former C.O., Capt. H. Winters looks on.*

**HOLDING ALOFT** *the coveted Battle Efficiency Award is Capt. Turner F. Caldwell, C.O. of USS Ticonderoga. The veteran attack carrier was judged best of its class in the 1960 attack carrier competition in the Pacific Fleet.*

## VAH-1 Trains Night Pilots

### Expert in After-Dark Loft Bombing

Heavy Attack Squadron One (VAH-1), now with the Sixth Fleet on USS *Independence*, claims it is the first squadron ever to be completely trained and qualified to deliver an attack at low altitude by the loft bombing method at night. Pilots practiced precise acrobatic maneuvers in complete darkness to gain this proficiency.

This accomplishment is regarded as particularly spectacular in view of the fact that less than two years ago loft bombing in the A3D *Skywarrior* had not been attempted by operational squadrons under any conditions.

VAH-7 was the first squadron to loft bomb in the A3D. Cdr. Ken Rowell, VAH-7 skipper, demonstrated loft bombing at the 1959 Naval Air Weapons Meet at Yuma and served notice on the smaller aircraft that the big A3D's had invaded their loft bombing domain.

By the first of 1960, all Atlantic Fleet Heavy Attack Squadrons were proficient in loft bombing. Then Cdr. Dave King, VAH-1 skipper, decided to go one step farther, and do it at night. On April 6, he had the green light to try the maneuver on a black night over the Lake George target northwest of NAS SANFORD. Other pilots followed his lead.

Commander Heavy Attack Wing One says that now that VAH-1 has night-qualified in loft bombing, other squadrons are safely but surely gaining the same qualification. Neither darkness nor bad weather can stop them.

## Moffett RATCC Sets Record

### Approaches for August Highest

Radar Air Traffic Control Center No. 7, based at NAS MOFFETT FIELD, conducted 2627 precision radar approaches during the month of August.

A Moffett spokesman promptly claimed it as "an all-time Navy record."

In 1947 when the then-called Ground Control Approach Unit was first commissioned at Moffett, the maximum number of radar approaches and radar departures combined was only a few per hour.

RATCC came into being ten years later, combining radar approach, radar departure, precision approach and tower personnel.

A grand total of 140,163 pilots in all kinds of weather have followed the voice of an unseen radarman safely into a landing since radar was established at NAS MOFFETT FIELD in 1947.

**CLOTHING** *for Puerto Rican survivors of Hurricane Donna is loaded aboard one of six P2V Neptunes of VP-872. Clothing was collected by Society of St. Vincents de Paul in Oakland and delivered to point of need by air.*

## ASW Excellence Headlined

### Isbell Trophy Winners Announced

The 1960 winners of the Capt. Arnold Jay Isbell trophy for excellence in air antisubmarine warfare have been announced.

East Coast squadrons receiving honors are: VP-18, located at Jacksonville, commanded by Cdr. Richard A. Sampson; VP-49 at Bermuda, skippered by Cdr. Thomas R. McClellan; VS-22, VS-32 and HS-9, at Quonset, commanded respectively by Cdr. Donald P. Walker, Cdr. Norman W. Wilde, and Cdr. Robert B. Cavanaugh. (During the period when squadron performance was evaluated for the awards, VS-22 and VS-32 were combined as VS-32.)

West Coast squadrons include: VP-28, located at Barber's Point, Hawaii, commanded by Cdr. William C. Campbell; VP-48 at North Island, San Diego, commanded by Cdr. Kermit M. Miller; VS-37 at Long Beach, Calif., commanded by Cdr. Frederick Silverthorne; and HS-2 at San Diego, commanded by Cdr. Francis F. Johnson.

The award, presented annually to Naval Aviation squadrons for ASW excellence, is named for the late Capt. Isbell, USN, who distinguished himself in WW II in antisubmarine operations against hostile submarines thwarting shipping along convoy routes from the U. S. to North Africa.

## Brazilians Train at Jax

### Refresher in Antisubmarine Tactics

In late September, 16 officers and 21 enlisted men of the Brazilian Air Force arrived at NAS JACKSONVILLE for two weeks of refresher training in antisubmarine warfare with squadrons of Fleet Air Wing Eleven.

Since the Brazilians fly P2V *Neptunes*, the same type of aircraft as units of the Wing, they welcomed the opportunity to check out with regular Navy P2V squadrons. VP-16 was the host squadron to the visitors.

During their refresher course, the Brazilians used the P2V aircraft operational flight trainers and a complete mock-up of the various systems of the *Neptune*. They also received practical on-the-job training under the supervision of U.S. Navy technicians and civilian factory representatives.

CPO Frank T. Vieira, formerly attached to Commander Fleet Air Wing 11 staff, accompanied the Brazilians. Vieira is now stationed in Brazil where he has been assigned liaison duties.

**NAVAL AIR STATION ALAMEDA** *celebrates 20 years service to the Fleet on her birthday, 1 November. Coral Sea (CVA-43), Midway (CVA-41) and Hancock (CVA-19) are shown berthed at her piers which accommodate the Navy's largest carriers. Alameda is home for four CVA's, two attack CVG's, two ASW squadrons and other air units. Her O&R, which completed its first overhaul in May 1941, is now an industrial complex overhauling over 2000 engines a year.*

**RESERVE CHIEF** *S. E. Havasy, Sr., has steered three of his six sons into Naval Reserve in past two years. Getting squared away are S. E. Jr., twins Richard and Gerard. James, 16, has passed tests but is awaiting birthday.*

## Tactical System Designed

### Lets Task Force Act as One Ship

A system which evaluates enemy threats and recommends counter-moves to shipboard comanders in millionths of a second has been developed.

Called the Naval Tactical Data System, it centers around a computer-fed series of consoles that displays a schematic picture showing the enemy targets, their type and movements, and the defensive and offensive posture of friendly ships and aircraft.

NTDS collects this information continuously from the ship's radar, sonar and communications systems and simultaneously matches this up with similar data being received directly from computers on other ships.

By going into its "memory cells" which have previously stored information on the capabilities of friendly and enemy ships, aircraft, and missiles, the system gives the commander a series of alternate recommendations on weapons to use against the enemy.

When the commander makes his choice—either the one recommended by NTDS or an alternate which is based on his judgment—the system transmits the necessary orders to the ship's own fire control equipment or to aircraft which will make the attack.

An entire Navy task force can be coordinated to the point of operating almost as one ship, expanding the effective scope of instant command functions to ocean-wide dimensions.

The data system is scheduled for initial shipboard installation early next year. Priority is being given to ships which direct the task force battle against enemy air, such as guided missile ships and attack aircraft carriers.

# GRAMPAW PETTIBONE

## Fatal Error

An air group was conducting an aerial demonstration. All scheduled exercises had been running like clockwork. The finale was to be a coordinated attack on a target 2000 yards off the port beam of the big attack carrier, the attack force to consist of four plane divisions from four squadrons of the air group.

F4D's would lead off firing rockets from Aero 6A pods, A4D's would follow with 250-pound bombs, then A4D's and AD's with rockets would finish the job. After the firing runs, the aircraft were to proceed to a point 10 miles astern of the ship to rendezvous for a formation fly-over.

The F4D's fired their rockets in a 30° run, followed closely by the first A4D division. At the completion of the attack, the F4D's and A4D's each made a climbing left turn to reverse course. The A4D's proceeded to close the interval, so that at the completion of the turn, they were in a parade formation 300 yards astern and 150 feet below the F4D's. The two divisions were at about 2800 feet at 325 knots.

Suddenly the following radio transmissions broke the silence:

"Stand by to drop hung ordnance."

"A4D's are behind us."

"Stand by to drop pods."

"Stand by—DROP".

Before a warning could be shouted, the F4D's dropped their empty rocket

pods! The pods came tumbling back through the A4D flight. One struck the A4D division leader's plane squarely on the windshield, shattered the canopy and then glanced off the vertical fin. His plane slowly rolled to the right, made two complete rolls, turned inverted and plunged into the ocean. Apparenty incapacitated, the pilot did not eject.

***Grampaw Pettibone says:***

**Holy smokes! This is the first such miserable error to come to Ol' Gramps attention in many a year and I read 'em all. We lost a 3500-hour jet pilot and *it could happen again!***

**With expendable rocket launchers in common usage, it behooves EVERY squadron to take a real close look at their doctrine to make sure this NEVER happens again!**

**A high price was paid for this blunder. Don't waste a lesson so dearly bought. Pass the word!**

## *Memo From Gramps*

Ol' Gramps really pulled a classic boo-boo in the June issue of this magazine. I chewed an LSO but good for telling an S2F pilot "this pass would be a cut", the inference being no matter what his position or attitude was, he'd get a mandatory cut. This Gramps got from the AAR, and believe you me, it left that impression.

After reading that horrible chewin' out and knowing it was HIM (ol' Gramps didn't mention names), the LSO wrote me a real fine letter full of the "True Word."

Having a warm heart for LSO's I'll pull his chestnuts back off the fire, at least a little bit.

The S2F outfit was using the usual "no cut" drive 'em on, power on, mirror pass landing technique. This saves the electronic gear but often results in more frequent bolters for the S2F. The LSO had briefed and worked them on "full cut" technique for use on pitching decks, in emergencies, and at times when it seemed necessary to insure an engagement.

This was such a time. He told the pilot this pass would be a "cut" and a cut he gave him. The pilot smashed the S2F all to heck when he took the cut, dove for the deck, and pranged the main landing gear. Second guessing is real easy and Gramps does plenty of this, but the man on the platform must make the decisions. Most times it's a good one. Course I remember one time long ago, after being towed off with two flat tires, when the LSO's consoling remark to my Commanding Officer was: "He looked good when he went by me."

ILLUSTRATED BY Oblom

## Cane Choppers

A young Marine pilot was scheduled for a mapping exercise in an OE-1. An Air Force pilot was invited to go along as special crew and lookout, primarily to log a little flight time.

The pilot's briefings of his passenger was thorough on the aircraft cockpit and controls, bailout, and use of the Mae West. The rear seat controls were set up and after a normal preflight and turn up, they took off.

After reaching 500 feet altitude, the pilot passed control to his passenger. Using the approved procedures, he shook the stick, patted his head, announced, "You've got it." Proper responses were returned by the rear seat man.

A little later the pilot again took control of the OE and made a low pass over some targets at about 100 feet, pulled up to 500 feet again and headed toward the coast, pointing out some areas of historical interest enroute. Here he "thought" he passed control back to the rear seat pilot and turned his attention to some map reading.

The little plane went into a descending turn, reversed course and headed inland again, getting lower and lower as it progressed. Suddenly the pilot glanced up, saw telephone wires dead ahead, grabbed the stick, made an abrupt pull-up and let go of it again, shouting to the rear seat pilot, "Didn't you see those wires?" The rear seat man said, "Sure, I saw those wires!"

Back to his map reading went the pilot, and the little plane again took an easy dip toward the ground, this time toward some sugar cane fields. Caneworkers ducked as the plane careened along some 10 feet off the ground. The rear man began to get a little jumpy but said nothing.

The nose dipped a little more and just as the OE-1 entered the sugar cane, the pilot looked up, snatched back on the stick, and with sugar cane flying in all directions, the sturdy little aircraft came flying right back out of the field.

As they were climbing, the pilot again shouted, "Did you see that sugar cane field?" The rear seat man answered promptly, "I sure did, didn't you?"

Stricken, both men realized no one had held the controls for some time!

Taking the OE up to 500 feet, the pilot made a slow flight check, found both the elevators and rudder pretty well binding—cane was hanging everywhere—but was controllable.

They headed for home, but couldn't raise the tower on the radio, so they changed course to reach another field whose tower was coming in faintly.

After a normal pattern entry the pilot told the tower to have crash equipment stand by since he had a fouled rudder. This was fortunate since on touchdown the OE-1 ground looped in a light crosswind from the left. The right brake hydraulic line had been torn loose during the cane chopping incident back in the field.

***Grampaw Pettibone says:***

**Great leapin' balls o' fire! This pilot was so interested in his map readin', he clean forgot he was in a flying machine! A few seconds more and they coulda used that map for a shroud!**

**Unauthorized low passes, sightseeing or otherwise, are one sure way to get the whole civilian population and your C. O. on your back. OPNAV Instr 3710.7A clearly states that 500 feet above the terrain is the minimum flight level authorized. This can only be waived when a military mission or an authorized training mission requires a deviation. This applies to EVERYBODY.**

**Maybe there were a few more mistakes this pilot could have made, but I doubt it! A slow flight check at 500 feet! The OE handbook says 750 feet is the absolute minimum for safe bailout! Course, I guess 500 feet seemed pretty high after the grass cuttin' they'd been doin' in the OE-1.**

## Reference Work Updated

### 'Ships, Aircraft' Addenda Ready

James C. Fahey's *The Ships and Aircraft of the U.S. Fleet* has been updated to September 1960 by publication of an eight-page addenda which fits into the back of the regular volume.

The addenda brings in new ship designations, describes the reclassification of all light aircraft carriers and the disposition of all former escort carriers, except USS *Thetis Bay*, and lists all strikes, recommissionings and decommissionings of ships since the Seventh Edition was published.

Items in the "nugget" category include: The *Missileer's* designation as the F6D, Navy thinking on deck-edge elevators to overcome the traffic problems encountered in *Forrestal*-class ships by moving the port elevator aft of the angled deck, and how BuWeps is resolving questions of former BuAer and BuOrd mark/mod designations of missiles.

New copies of the Seventh Volume will carry the new data. The addenda will automatically be distributed to all holders of official copies of the present publication by the Aviation Training Division, Naval Operations.

## Airport Radars Improved

### AF, FAA Get High Resolution Gear

Taxi radar systems so high in resolution that two men standing several arms length apart and 1500 feet from

ANTENNAS UNDERGO A FINAL INSPECTION

the tower will appear as two clearly defined objects on the scope soon will be delivered to the Air Force and FAA at major airports throughout the country.

Antennas for the system enable airport traffic controllers to "see and sort" aircraft and ground vehicles even when conditions are ceiling zero.

Goodyear Aircraft Corporation produced the reflectors, support trusses and pedestals under contract to Airborne Instruments Laboratory, which developed the taxi radar.

The reflector, made of Bondolite sandwich material consisting of stretched aluminum faces with an aluminum honeycomb core, can rotate 360° at 60 revolutions per minute.

Called Airport Surface Detection Equipment, the system enables controllers to watch everything within a four-mile range of the control tower.

## Petrel Changes are Studied

### Old Missile is Tested as Target

Modification of the *Petrel* air-to-surface missile to serve as an airborne target is being evaluated at the Pacific Missile Range Headquarters.

*Petrel* became operational in 1956 but subsequently was phased out.

Originally designed for use against submarines and ships, *Petrel* is planned for use by PMR as a low altitude target for various missile weapon systems.

## Hercules Record is Broken

### C-130B Flies 5225 Miles Nonstop

Coast Guard LCdr. Lloyd L. Kent flew a Lockheed SC-130B *Hercules* nonstop from Shemya Island in the Aleutians to Elizabeth City, N.C., to set a non-refueling distance record of 5225 miles. He bested the Hercules distance record of 4612 miles set by an Air Force pilot flying from Honolulu to Marietta, Ga.

The route covered Shemya, King Salmon on the southwest coast of Alaska, Northway on the border of the Yukon, Yellowknife in Canada, Duluth, Minn., Milwaukee, and Elizabeth City.

Box lunches froze in the plane's after section as the temperature dropped from 45° at takeoff to minus 96°.

HERCULES AT BASE AFTER 14-HOUR FLIGHT

## Missile Tests Are Scheduled

### Pacific Range to Help Army, ARPA

The Pacific Missile Range will conduct an experiment to detect incoming ballistic missile warheads.

Missile discrimination and identification will be investigated.

Called Project PRESS (Pacific Range Electro-magnetic Signature Study), the program is concerned with a radar system of advanced design and other sensing devices that will be installed on Roi-Namur.

The Pacific Missile Range will provide range support, base support, range scheduling and coordination, communication, telemetry, range safety, range surveillance and area clearance, frequency monitoring and interference control, and meteorological services.

The U.S. Army Ordnance Missile Command is acting as executive agent for the Advanced Research Project Agency in carrying out the PRESS experiment, using PMR facilities.

## ONR Studies Ozone in Air

### Arcas Rockets Launched in Pacific

The Office of Naval Research is launching *Arcas* rockets over the Pacific with instruments designed to measure the concentration of ozone in the earth's atmosphere.

Launching sites are at Eniwetok Atoll, the Pacific Missile Range headquarters at Point Mugu, and Kauai island in Hawaii.

The presence of ozone in the atmosphere and the ease with which it can be detected make it an ideal "tracer" for the study of large-scale circulation patterns which may extend over half the earth's surface.

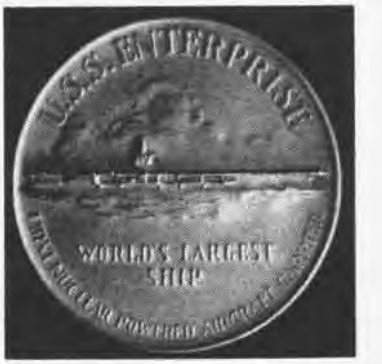
Placing of launch sites on three widely-spaced facilities will enable scientists to determine the nature of these circulations. In addition, the ozone concentrations are expected to provide information concerning the composition of the atmosphere.

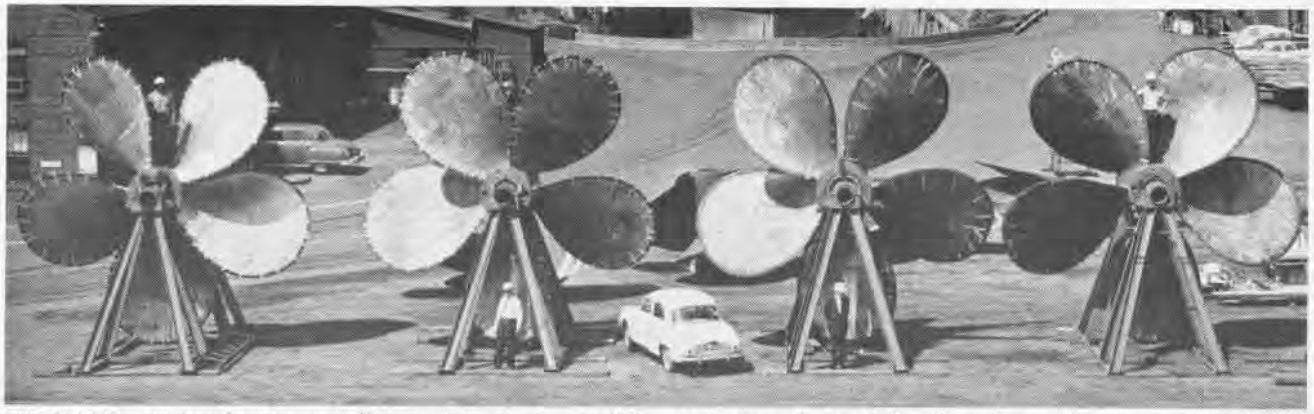
The nose cones will be carried to an altitude of about 45 miles. At trajectory peak, the rocket motor and nose shell will be discarded and the instruments will be lowered through the atmosphere by parachutes.

Measurements will be made during descent, and the data will be radioed to ground receiving and recording stations. Parachutes will be made of silk, coated with a thin layer of silver so they can be tracked by radar.

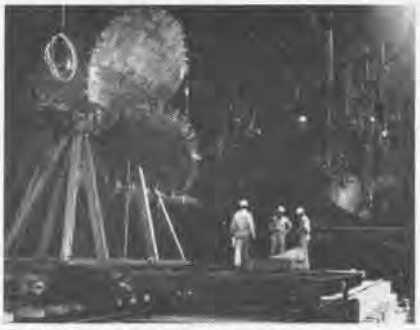
## *ONE STEP CLOSER*

# ENTERPRISE



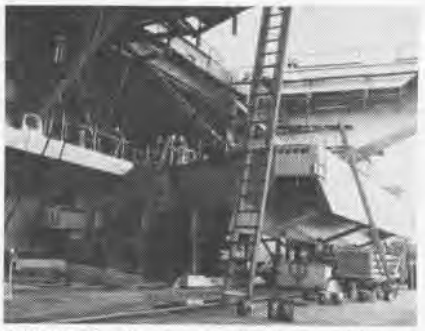


**FIVE-BLADED,** *22-foot-diameter propellers waiting to be installed on Big E dwarf shipyard employee and small automobile in Newport News shipyard. Coupled with modern rudder arrangement and ship's mighty power plant, they will provide excellent maneuverability.*



**PROPELLERS INSTALLED,** *Enterprise is one step closer to launch date in shipyard drydock.*

**GRATED ALUMINUM** *for elevators is assembled; they decrease ship's weight by 50,000 pounds.*



**INSTALLED,** *elevators of Big E can deliver a plane to flight deck every fifteen seconds.*

WHEN MRS. WILLIAM B. FRANKE broke a bottle of champagne over the bow of the nuclear-powered aircraft carrier *Enterprise* September 24, she brought one step closer to reality the greatest weapon system that has ever carried the banner of Naval Aviation.

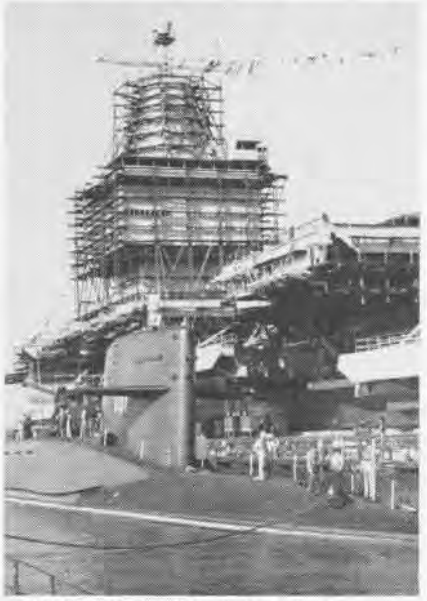
The new Big E will gross out at 85,000 tons—9000 tons heavier than *Forrestal*-class ships. She will have 35,000 square feet more flight deck area and 2000 square feet more hangar deck space, permitting her to carry an additional squadron of light attack aircraft.

It was not a conventional launching. The wife of the Secretary of the Navy did not have to stand back as the big ship slid down the ways, for there was no ways to slide down. The *Enterprise* was launched standing still in the same graving dock that spawned the *Forrestal* and *Ranger*.

A shipyard spokesman explained why it was necessary to float the *Enterprise* rather than slide her down building ways into the water.

"Before we built the *Forrestal*, *Ranger* and *United States*, our engineers realized that once a ship reaches 50,000 tons, it is not feasible to launch it conventionally.

"During construction, the topside weight becomes so great and so high above the ground that it becomes perilous. Then, when it comes time to launch, there is just too much bulk and weight to slide down the skids without chancing an accident.



**POLARIS SUBMARINE** *Robert E. Lee moors nearby to fire 2 Sabots in salute to Enterprise.*

"Try to imagine the problems of building an object the size of the Empire State Building—on its side—and sliding it down an incline," he concluded, "and you can understand why we build the big ones in a drydock."

As the water inched higher and higher in the dock it tripped electric switches which caused huge neon letters to light up and spell out the word E-N-T-E-R-P-R-I-S-E.

When the giant flattop is commissioned late next year, she will enter the fleet as an operational ship, not an experiment.

Her eight atomic reactors will operate through pressurized water systems similar to the one used in the pioneer nuclear warship *Nautilus*. While *Nautilus* steamed more than 62,000 miles on her initial supply of fuel, the *Enterprise* is expected to operate a number of years without refueling. Her nuclear power plant will give *Enterprise* more than 30 times

the endurance of *Forrestal*-class ships.

Space saved by not carrying her own supply of fuel oil will let the *Enterprise* carry nearly twice as much aviation fuel as *Forrestal*-class ships. In addition to this extra amount of aircraft fuel, she will carry enough bunker fuel to satisfy the needs of her escorts on extended cruises. Then, in the era when her escorts also will be nuclear-powered, she will have even more space for carrying aircraft fuel.

It is a point of speculation as to whether recognition experts or pilots will find the greatest difference between the *Enterprise* and conventionally powered carriers.

Recognition people will note her relatively tiny island structure and the absence of smokestacks and boiler room intakes. Pilots coming in for landings will find no smoke, stack gases, or air turbulence caused by conventional stacks.

While the Big E's island appears small, it will house a new antenna system that will provide better radar performance than any previous fighting ship. Since the antenna is integrated into the superstructure, it can do the work of much larger conventional antennas.

The antenna does not revolve, but it can scan a circular field through the use of a rotating pickup.

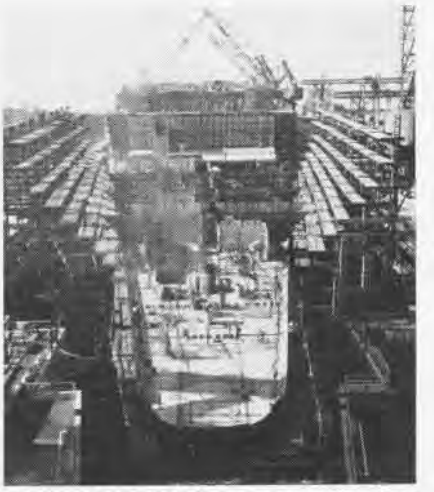
*Enterprise's* improved radar will be linked with her Tactical Data System which permits a unit commander, through the magic of computers, to take advantage of facts gained from several ships to maneuver the many units of a task force as a single ship.

The *Enterprise's* most spectacular advantage will be her increased steaming endurance, particularly at high speeds. This combination of endurance and high speed will give her unparalleled striking power against distant targets and it will provide her best defense against attack by submarines. Also, the absence of air intakes and the overall design changes in her superstructure will give Big E's crewmen greater protection against ABC warfare attacks.

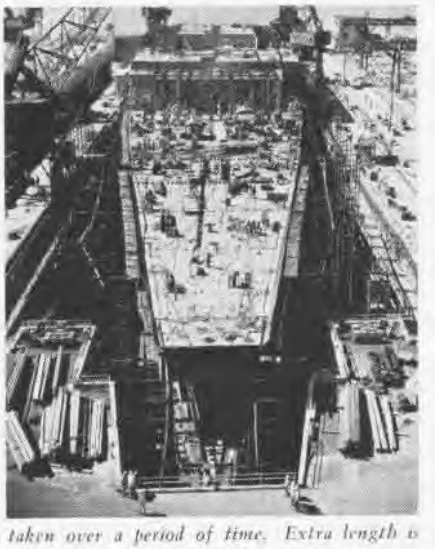
Improved radar and communications facilities will permit the Big E to watch her aircraft at greater distances from the ship and to dispatch her fighters over wider areas to intercept attacking planes, even before they come within missile range.

When *Enterprise's* captain calls for Flank Ahead or Emergency Astern, an awesome powerplant will answer his commands instantly. The eight nuclear reactors will generate enough horsepower to furnish electricity to a city of two million souls, and this power will be channeled to four giant five-bladed propellers which measure 22 feet in diameter. The ship's maximum speed has not been released.

Aircraft will be hoisted up to the Big E's flight deck by four hydraulically powered elevators whose surface area totals almost 4000 feet. Working at top speed, the elevators can deliver four aircraft from hangar deck to flight deck every minute. The elevators were made of open grill aluminum both to save 30,000 lbs. weight

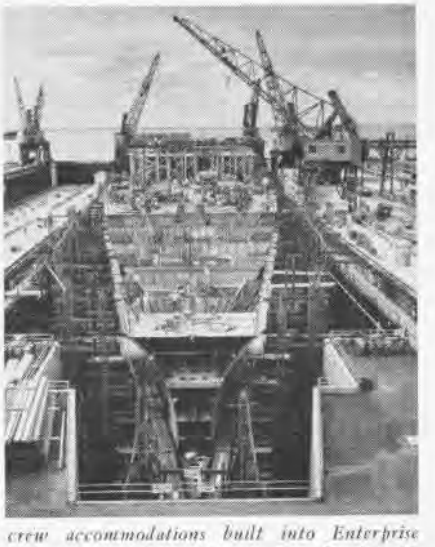


**FROM KEEL UPWARD,** *Enterprise takes shape in drydock. Progress is shown in photos . . .*

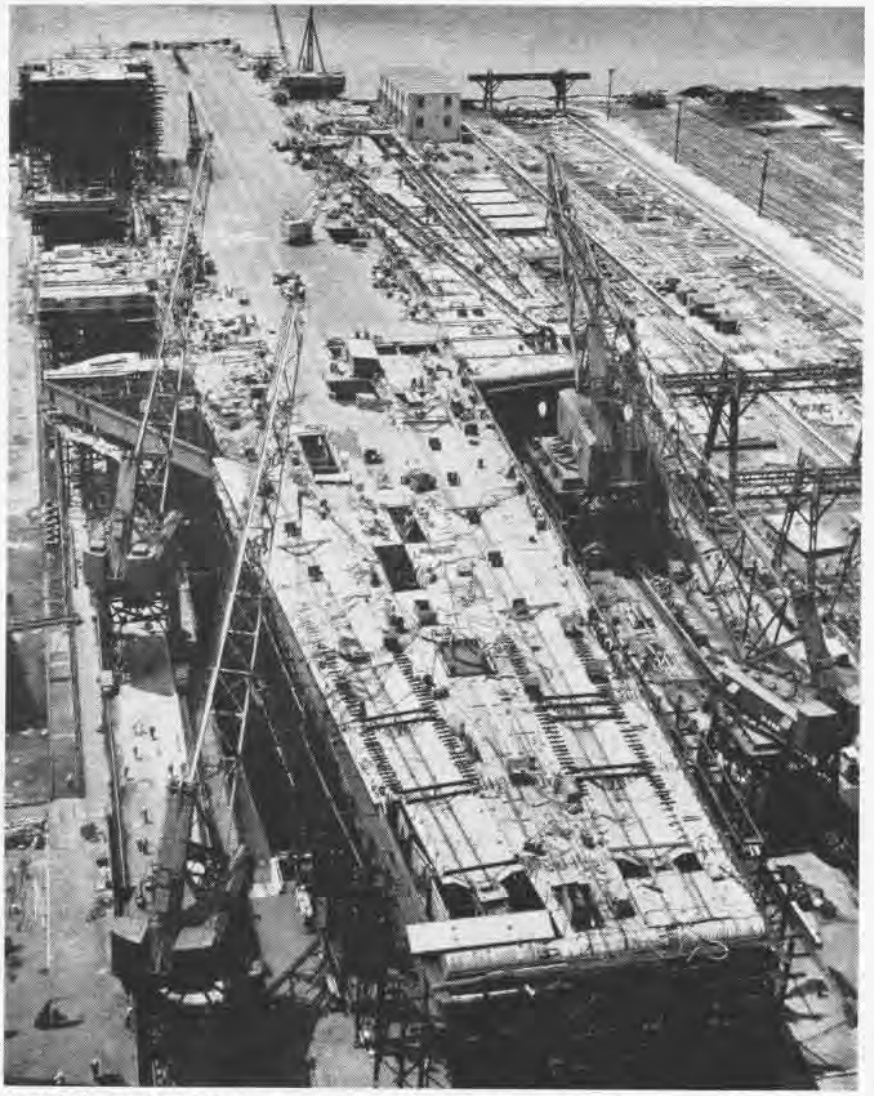


*taken over a period of time. Extra length is expected to improve flight operations . . .*

**PHOTOGRAPHED** *at dusk while 6000 workmen speed her toward completion, Enterprise resembles a city. Largest ship in world, she measures 1101 feet from end to end and 252 feet across.*



*crew accommodations built into Enterprise will place nuclear ship in class by herself.*



**NEARING COMPLETION,** *Enterprise's flight deck begins to take shape. Completion of work on catapult tracks and superstructure was last work before the ship's christening ceremony.*

and shed water faster in high seas.

Her longer flight deck (extreme dimensions 1101 x 252 feet), her smaller island structure, angled deck, and optical landing system are expected to improve flight safety while increasing operating efficiency. The 55-foot increase in her flight deck allows 36 feet of added runway.

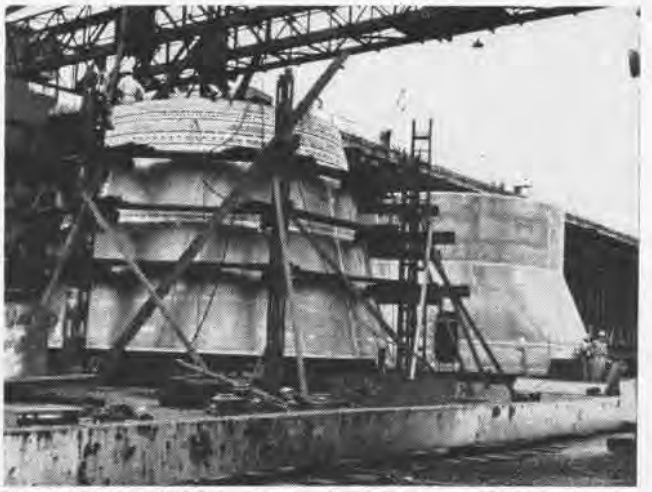
Except for noises from aircraft, *Enterprise's* crewmen will find themselves members of the "silent service." There will be no roar from the nuclear powerplant. Her crew without an air group embarked will number 130 officers and 2571 men. Despite her long endurance, the *Enterprise* will not have alternate Blue/Gold crews as is the case with Polaris subs.

The nuclear-powered carrier is the seventh Navy ship to bear the name *Enterprise*. Her keel was laid February 4, 1958 at the Newport News Shipbuilding and Drydock Company, and she is expected to be commissioned late next year.

Adm. Arleigh Burke, Chief of Naval Operations, who delivered the principal address at *Enterprise's* christening, said: "This ship's illustrious name links us with our Navy's rich past. Her capabilities link us with the Navy's exciting future; a future of ever-increasing importance . . .

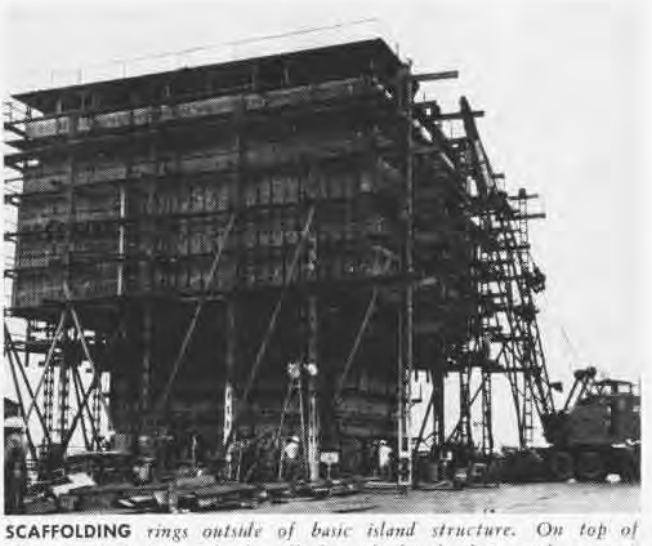
"Problems in nuclear engineering which were solved, know-how that was developed in order to build this ship, represent a tremendous contribution to our knowledge of the military and industrial uses of nuclear energy . . . Enterprise with her aircraft can carry the fight to the enemy and project our power across the seas."

**FOREST OF TIMBERS** *support overhang of flight deck until welding is completed. Ship was floated "clean" for September launching.*

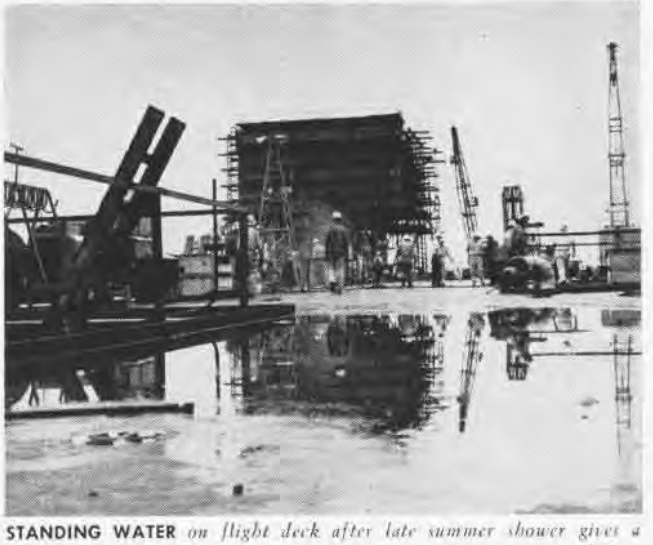


**CYLINDRICAL SECTIONS** *of superstructure are readied for hoisting into position. They will house revolutionary new radio antennas.*

**HANGAR DECK** *of unfinished ship is conglomeration of machine shop, pipefitter shop, electrical wiring. Foil keeps reactor dust-free.*



**SCAFFOLDING** *rings outside of basic island structure. On top of this Pagoda-looking island will be cylindrical shape and a mast.*



**STANDING WATER** *on flight deck after late summer shower gives a double image of the superstructure as Enterprise nears completion.*

**THIS IS HOW** *Big E will appear to approaching pilots, with a few changes, such as completion of superstructure, removal of debris.*

**LOOKING AFT** *along starboard catapult track, superstructure of the 1101-foot-long ship appears to be at least a country mile away.*

## Marines Toast 4 Civilians

### Citizens Saved Pilot After Crash

Marines of Attack Squadron 311 have expressed appreciation to four citizens of Elsinore, Calif., who rescued the pilot of a crashed plane.

Arville T. Grow, Don Downes, John Cacia and Guy Hokit saw the aircraft strike the ground and rushed immediately to the aid of the injured pilot.

Disregarding the intense heat of the burning plane and the possibility of an explosion, they pulled away the crushed portions of the plane with their bare hands in order to remove the pinned-in pilot. Then they used pocket knives to cut his safety belt, and lifted him from the burning plane and made him as comfortable as possible until an ambulance came.

With their families, the four were given a tour of MCAS El Toro. After a luncheon in their honor at the officer's club, each man was presented an official Letter of Appreciation.

GROW, DOWNES RECEIVE 'THANKS' LETTERS

## Marines Push Education

### Use Door-to-door Sales Technique

Alarmed because too few people were taking advantage of educational opportunities available to them, 1st. Lt. Samuel L. Linderman and GySgt. Eugene H. Beresford of VMCJ-3 adopted door-to-door sales techniques.

Prospective students are interviewed, counseled, told about courses available and how they can be enrolled—wherever they might be.

SGT. BERESFORD SIGNS UP MECHS IN SHOP

Education teams visit the mechanic at work on his jet engine, the men in supply, the coffee mess, the flight line, the proto lab, and all other working spaces.

Enrollments have jumped from a few dozen to 112 students enrolled and 46 men who already have completed courses.

Courses offered squadron Leathernecks include Marine Corps Institute, USAFI, USAF Air University, U. S. Naval Correspondence Center, Marine Corps Schools, and college programs.

CPO J. WOODS, *VA-172 maintenance chief, congratulates Cdr. Arthur Barker, Jr., squadron CO, on submission of 1000th discrepancy report of 6th fleet deployment. Plaque holds tools worn out in making repairs.*

## Detail in Sunspot Filmed

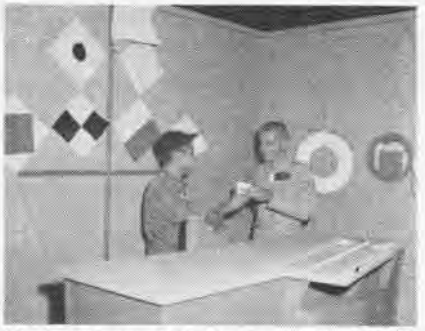
### White Gas Spots Seen First Time

Princeton University astronomers under Dr. Martin Schwarzchild have taken a photograph of the center (umbra) of a sun spot which shows clearly for the first time white gaseous dots within the umbra.

The photograph was made on the final balloon-borne observation Dr. Schwarzchild and his team made near Minneapolis this summer. Earlier flights produced the clearest sequences of photographs ever recorded of the surface of the sun and the areas immediately surrounding sun spots.

The flights were supported jointly by the Office of Naval Research and the National Science Foundation.

Because sun spots are more than a thousand degrees cooler than the sun's surface, they consequently produce much less visible light. A different film was used in the telescope camera during the final flight to bring out the characteristics of the umbra (center) while "washing out" the typical granulations surrounding the spot.



LT. SMITH (L) OFFERS LT. LEWIS COFFEE

## Home Away from Home

### Snack Bar Done in Nautical Motif

Deciding their commander, Navy Lt. Willis I. Lewis, Jr., stationed at Craig AF Base, Ala., was homesick for a flight deck, 1st Lt. Wayne D. Smith, USAF, and "A" Flight students redid the snack bar, complete with hatch, portholes and rigging.

Called "USS Rustytub," the snack bar has flags spelling out "A Flight."

THESE UNIQUE *five-inch rocket motors will hurtle rockets toward earth at meteoric speeds of 24,000 to 60,000 mph. They will serve as last stage of NASA's six-stage rocket-powered probe re-entry vehicles.*

## Safety is Praised at Jax

### Station, Fuel Depot Win Citation

SecNav Safety Awards have been presented to NAS Jacksonville and the Navy Fuel Depot at Jacksonville.

The honor combines citations for industrial and motor vehicle accident prevention. The Air Station reduced its industrial accident rate 28 per cent and its vehicle accident rate 27 percent during the year, while setting a station record of 141 days without a lost time accident.

The Fuel Depot completed a three-year period without a disabling injury accident or motor vehicle accident.

NAS Jax, which celebrates its 20th anniversary this year, has been honored with seven industrial and four motor vehicle accident prevention awards.

# SAFETY PAR EXCELLENCE

## FORMER AND PRESENT SKIPPERS OF MARINE AIRCRAFT GROUP TELL HOW IT'S DONE

MARINE AIRCRAFT GROUP 11 OFFICERS AND MEN HAVE BEEN HONORED BY CNO'S 'WELL DONE' FOR EXTRAORDINARY RECORD IN SAFETY

*By. Col. J. B. Moore and Col. N. J. Anderson, United States Marine Corps*

ON 23 AUGUST, Admiral Arleigh Burke, CNO, extended a "Well Done" to Marine Aircraft Group Eleven, stationed at NAS ATSUGI, Japan, for a great safety record. In his message, he said, "Records indicate that you have not had a pilot or maintenance error aircraft accident and only two material failure accidents in over twelve months." CNO took particular note of the circumstances under which the record was made and declared it an achievement. "A dynamic aviation safety program with outstanding leadership and supervision must exist for such an accomplishment," he said.

MAG-11's accident free record was made under circumstances of change in assignment. Two all-weather F4D squadrons were rotated, and one day-fighter FJ-4 squadron was relieved by an F8U squadron. Half of the FJ-4 squadron operated from a carrier for a period of time, two F4D squadrons initially qualified on the carrier, another F4D squadron requalified, and the F8U squadron qualified.

C.O. AND SAFETY OFFICER STUDY TORII

This record reflects a Group principle: "The only acceptable aircraft accident rate in this command is zero." MAG-11 has not had a pilot error accident since 11 August 1959. The last accident having any connotation of maintenance error occurred on 7 December 1958. The last pilot fatality was on 2 January 1959. This pilot killed himself by pulling the wings off an F4D on a strafing run.

The Group's operational qualifications were never sacrificed to encourage flight safety. Squadron Commanders were encouraged to push their pilots to the limit of their capability and that of the aircraft they operated. At the same time, commanders made sure the pilots did not exceed their limitations. The only operational restriction placed on the squadrons was that normal training would be con-

F8U-1 CRUSADERS OF MARINE FIGHTER SQUADRON 251 OF MAG-11 FLY OVER THE PHILIPPINES DURING ONE OF THEIR DEPLOYMENTS

ducted when the field was at or above GCA minimums and a suitable alternate was available. The Safety Program was designed to keep combat readiness at the maximum and the accident rate at the minimum.

The outstanding accident record and good fortune of Marine Aircraft Group-11 was not luck but foresight. Two factors stand out: the unit rotation plan of tactical aviation units to the First Marine Aircraft Wing instituted several years ago, and a dynamic and positive Aviation Safety Program. Put in effect late in 1958, the safety program has been improved and followed religiously.

Tactical squadrons have been reorganized and skillfully trained by the Second and Third Marine Aircraft Wings as replacement units for the First Wing and normally have been flying together for about a year and are in Phase Three training. This sound unit training program is outstanding. However, since the safety record was established in MAG-11, this article deals primarily with that unit's Aviation Safety Program.

One of the first steps in this Safety Program was the placing of a pilot on the landing end of the runway with two-way communications to monitor *all* take-offs and landings of tactical aircraft assigned to the group. *All* is exactly what it meant. If a plane landed at 0300 on Sunday morning, a Runway Duty Officer was there to monitor the pilot's landing. Monitoring involved observing the plane during its landing, making sure its landing gear was down, and coming up on the radio *only* if the pilot's approach were dangerous or an emergency existed. The Runway Duty Officers were well qualified Naval Aviators. They were experienced in at least one tactical model aircraft assigned to the Group. After approaches and landings were graded by the Runway Duty Officer, log sheets were delivered to the tactical squadrons, so that their safety officers might pick up any trend of poor landings by their pilots.

Next step in the program was the establishment of a Group Pilot Evaluation Board, composed of all the Safety Officers in the Group. The Group Aviation Safety Officer acted as the recorder. Each pilot in the Group filled out a brief resumé of his flying experience for the board to review. The board also discussed the capabilities and limitations of the individual pilot with his flight leader or squadron commander. After review by the board, the Group Commander checked the resumés and summary sheets and discussed any weak or below-average pilot with his squadron commander. As each new pilot joined the Group, this procedure of resumé and review was followed. In event of an aircraft accident, or near accident, or the development of any dangerous or unsafe procedure, if the Group Commander so directed, the pilot or pilots involved appeared before the Pilot Evaluation Board. Any action was recommended by the board.

Functions of the Group Pilot Evaluation Board have been modified and are now performed by the Group Commander and the affected Squadron Commander. As new squadrons report aboard, the Group Commander asks the Squadron Commanders to outline any significant difficulties they have been experiencing with their pilots. As the tour progresses, Squadron Commanders keep the Group Commander informed of the development of these pilots as well as others who, from time to time, develop problems, personal or otherwise, which tend to affect flying safety adversely. This approach, coupled with continuous contact with the squadrons in briefings, accomplishes the supervisory functions without detracting from the authority the Squadron Commanders must have.

One "gimmick" helped to focus the attention of every member of MAG-11 on Aviation Safety. Two Toriis depicted the relative safety record of each squadron in the Group assigned aircraft, one near the Group Administration Building and one at the Group Mess Hall. Each Monday morning, the Toriis were brought up to date by the Group Aviation Safety Section on the basis of flight operations covering the previous week. For each squadron, the accident rate and total hours flown since the last accident were shown on a plaque bearing the squadron insignia. The desire to have their squadron at the top of the Toriis proved a real incentive. Personnel took an active interest in keeping their squadrons at the top while others were attempting to get there.

The Group Headquarters and Maintenance Squadron maintained and scheduled only the TV/F9F-8T and R4D model aircraft. Tactical models were

MAJ. A. W. O'DONNELL, OPERATIONS OFFICER, BRIEFS PILOTS

PLANE CAPTAIN AND ASSISTANT SIGNAL READINESS FOR FLIGHT

maintained and operated by the tactical squadrons. All pilots of the Group not attached to a tactical squadron were required to qualify in a tactical model aircraft. Some pilots required jet indoctrination in the TV/F9F-8T before being checked out in the FJ-4's, F4D's, or F8U's. "Groupies" were assigned one particular squadron with which to fly, and the squadron attempted to schedule and fly them at least two hops a week.

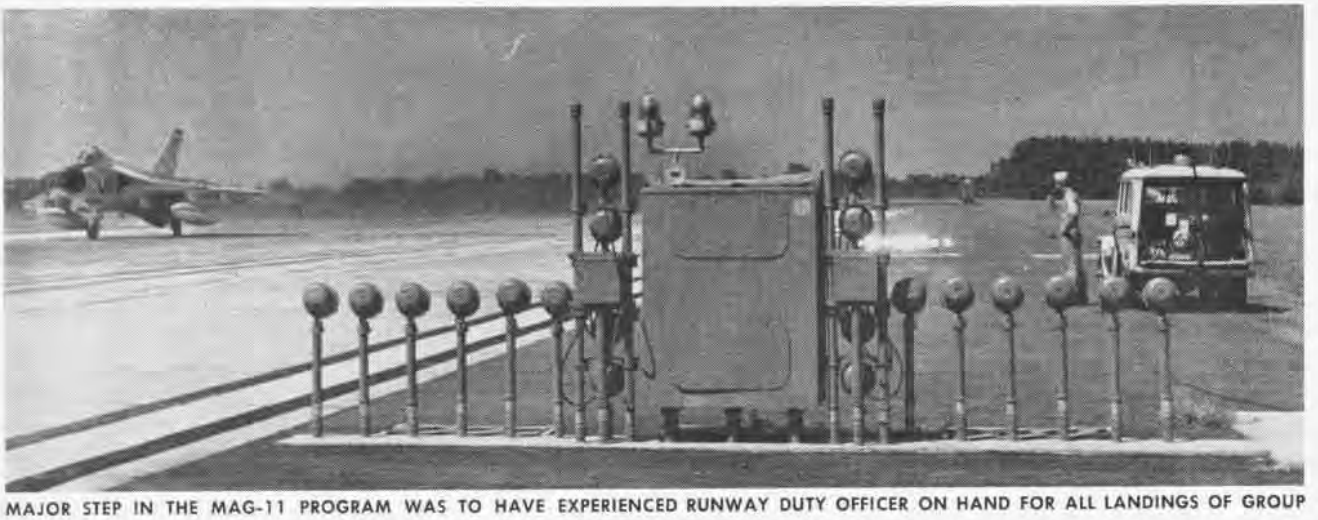
The Group Commanding Officer, Executive Officer, Operations Officer, and Aviation Safety Officer flew with all squadrons. [On page 35 is a picture of Col. Anderson checking out in the F8U-1 *Crusader.*] Because the Commanding Officer of H&MS, the Group Engineering Officer, the Air Controllers from Marine Air Control Squadron (MACS), the OinC of MATCU, and many others were on a talking, working level with the members of the fighter squadrons, they were better able to provide support.

The TV/F9F-8T aircraft assigned to H&MS were used primarily for instrument training for which each tactical squadron provided two to three instructor pilots, well-qualified in that model. All tactical squadron pilots were given their annual instrument check in a TV/F9F-8T even though the squadrons gave an in-model check. Except for indoctrination training flights and test hops, the TV/F9F-8T was always flown by two jet pilots, one of which was flying actual or simulated instruments. To use the TV/F9F-8T's in any other way required specific approval of the Group Commander in each case.

The Group Aviation Safety Officer was a special officer directly under the Group Commander. Under no General Staff Section for coordination or control, he was never assigned additional duties unrelated to Aviation Safety. He worked closely with squadron safety officers.

Normally, Group aviation safety meetings were held weekly following the Group staff conference. All unit commanders and the following members of the Group Staff attended the safety meetings: CO, XO, S-1, S-2, S-3, S-4, Aviation Safety Officer, Medical Officer (Flight Surgeon), Supply Officer, OIC, MATCU, Group Aircraft Maintenance Officer, Group Electronics Officer, and Airfield Operations or Liaison Officer to NAS Operations.

Foremost principle of the Safety Program was STANDARDIZATION. It was declared early in the game that where possible, every pilot in the group would fly the airplanes in the same way and wear the proper flight cloth-



MAJOR STEP IN THE MAG-11 PROGRAM WAS TO HAVE EXPERIENCED RUNWAY DUTY OFFICER ON HAND FOR ALL LANDINGS OF GROUP

ing in the prescribed manner. To leave no question in the individual pilot's mind about how he was to operate the aircraft, a Group Order entitled, *MAG-11 Policies and Procedures for the Operation of Aircraft*, was written and a copy given to every pilot assigned to the Group. To help establish these policies and procedures and to keep them up to date, a Group Standardization Board was established.

For example, squadrons flying the same model aircraft got together and determined standard hand signals to be given by the ground crew for preflight checks. A policy or procedure, once established, continued in force until it proved unsatisfactory, or someone came up with a better one.

As far as operating a specific model aircraft was concerned, the Flight Handbook was used as the Bible, and kneeboard size "Panic Books" were prepared for each model aircraft in the Group. (NAVAER 01-60JKD-501B—Pocket Check List FJ-4 Aircraft— already existed.) Since the Flight Handbook is directive in nature, in accordance with BuAer Instruction 5600.10, compliance with instructions contained therein is mandatory. Any deviation was approved only by the Group Commander, and if the deviation was other than minor, BuAer (BuWeps) approval was requested. The "Panic Book" or *Pocket List* was as much a required item of flight equipment as gloves or parachutes.

While *MAG-11 Policies and Procedures for the Operation of Aircraft* contained many items that seemed elementary to some pilots, it was a handy reference with which to refresh a pilot's memory when he deviated from a policy or violated a procedure. Among other things, *Policies and Procedures* covered the minimum requirements and syllabus governing aircraft check-out and transition flights. It listed the minimum flight equipment required by pilots operating aircraft assigned to the Group as well as general rules covering pre-flight briefings, aircraft pre-flight inspection, cockpit pre-start, starting, post start, taxi, take-off, flight approach and landing, and shut-down procedures. Aircraft left the flight line as ready for take-off as possible. All checks that could not be done in the chocks, for example, emergency fuel check, were the only items on the check list left for the pilot to accomplish before taking the active runway prior to his take-off.

LT. PROSCH, MAJ. BLASS COMPARE NOTES

The Crew Chief proved to be a handy assistant in preventing pilots from leaving the line with flaps up, speed brakes out or improper take-off trim. To reduce the possibility of foreign object damage, aircraft were not permitted to taxi in formation. They taxied along the center line of the taxiway far enough apart to eliminate any possibility of sucking up objects disturbed by the aircraft ahead. Clam shell canopies, such as those on the F4D and F8U, were closed and locked during taxiing. Pilots were permitted to open canopies when the aircraft was stopped, but a radio check reporting canopy closed and locked was required before take-off.

Other safeguards included these rules: Tactical and training flights were always conducted in company with at least one other aircraft. Pilots on test hops and flights in TV or F9F-8T aircraft were permitted to fly singly.

AIR INTAKE SCREENED BEFORE LINE RUN-UP

Formation take-offs were permitted only when the mission required such a procedure. Pilots were permitted to make formation take-offs in the familiarization phase and when scheduled by the squadron. Unscheduled aerial combat was forbidden and any display of exhibitionism became a matter for immediate discussion between the pilot and his squadron commander.

During the familiarization phase of training, simulated flame-out approaches were practiced with a qualified Runway Duty Officer from the parent squadron on the runway. Once the familiarization phase was over, practice was subject to the squadron commander's desires. Actual flame-out approaches were left to the discretion of each pilot. Pilots were required to review frequently the guidelines in OpNav Inst. 3750.12 and the squadron SOP on flame-out approaches. When an in-flight emergency occurred, and time permitted, the wingman referred to his "Panic Book" and went over the appropriate check list with the pilot having difficulty.

When possible, all approaches to a landing were GCA until the Optical Landing System (mirror) "meat ball" was picked up by the pilot and the aircraft was arrested using MOREST gear. If a mirror were not available, the POMOLA (Poor Man's Optical Landing Aid) was used to establish the proper glide slope. Use of the angle of attack was stressed, and it was used as the primary landing aid in conjunction with the airspeed indicator and mirror. On one occasion, carrier landings were made in an FJ-4 aircraft in which the pitot tube was broken off. This indicated the pilot's faith in the dependability of the angle-of-attack. Touch-and-go landings were not permitted except when conducting FMLP with a qualified LSO on duty at the mirror.

Probably the most important of all the general instructions regarding flight of aircraft in *Policies and Procedures* was the one requiring the use of instrument procedures *at all times* except on test hops and familiarization flights. Aircraft were required to remain under radar surveillance when possible, using MATCU, GCA, GCI, RAPCON or Air Defense radars. How this procedure worked was explained in an article entitled, "Positive Control Benefits Maximum Readiness" written by Lieutenant Colonel H. W.

Hise, skipper of Marine All-Weather Fighter Squadron 531, for *Wing Tips for Safety* published by the First Marine Aircraft Wing in May 1960. Excerpts from this article are given:

"A squadron in its formative stages is faced with forecasting the emphasis to be placed on the various procedures and operation for safe and effective completion of its mission. The procedures described here illustrate concepts that a VMF(AW) squadron completing a unit rotation has found necessary for effective operations. . . .

"All squadron flights except FMLP are scheduled as combat flights under instrument conditions. Take-off and approach block times are assigned to each flight. Alternate fields are designated for actual instrument flights during the pre-flight briefing and sufficient fuel to proceed to the alternate is planned for.

"Prior to take-off, pilots request and receive climb-out instructions and confirmation of approach times. Where approach and departure control facilities are available, pilots are controlled on the climb-out by departure control. They fly standard, prescribed tracks and make all required reports to the control agency, whether or not actual instrument conditions prevail. . . .

"GCI controllers are kept aware of the pilot's expected approach times and vector the flight toward the holding fix in sufficient time to make good their confirmed approach times. Five minutes prior to reaching the assigned holding fix, pilots switch to the approach control frequency and make a standard instrument position report. Pilots hold at assigned altitudes under the control of approach control and commence a standard instrument penetration, when cleared, utilizing Tacan, Rapcon, or GCI.

"When instructed by approach control to do so, pilots switch to GCA or ASR frequencies and complete a ground controlled approach to touch-down. All landing roll-outs are terminated by Morest engagement.

"De-briefing is considered as important as the initial brief. All the control agencies used during the flight should be considered at this time and any comments, discussions or questions should go to the agency concerned. . . .

"It should be noted that all flights remain under *positive control* from take-off to touch-down. Thus the procedural aspects of instrument flying become completely routine. This continual usage provides the training and practice so necessary under actual instrument conditions, in that it enables the pilot to concentrate on controlling the aircraft and more effectively detect and deal with malfunctions or communication difficulties should they arise.

"Flight discipline is another important attribute of this type flying. The pilot knows exactly what he is to do and knows that he will make an instrument approach at his confirmed approach time. He derives full utilization from his flight. This instills an all-around air discipline in conduct of the flight with particular emphasis on fuel management.

"Flight time alone is an inadequate measure of the training status of the pilot. Additional time in the air on a given flight loses its significance when it is obtained at the expense of realism and quality of training. The fuel minimums and holding times required to make GCA's and rigid approach times reduce time spent in other operations. However, each flight that is launched must be recovered and the techniques for this must be based on training the entire aircraft control and navigation system for any weather situation.

"Pilot readiness is proportional to effective training sorties completed. Using this as a starting point, flights are designed to extract the maximum of all-weather combat training from each hour flown. It is believed that this type of standard flight furnishes the maximum in overall training and provides for the safest and most efficient use of pilots, controllers, and aircraft in achieving the optimum state of readiness."

SCREEN PREVENTS OBJECTS ENTERING AND DAMAGING THE ENGINE

LIQUID OXYGEN IS BEING FED INTO ONE OF VMF-251's CRUSADERS

The outstanding safety record established by MAG-11 clearly indicates what can be accomplished when a sound aviation safety program is established and maintained with proper leadership and supervision, with every member of the command participating.

Professionalism was encouraged. The "Tiger" concept was discouraged. By encouraging professionalism and providing proper leadership and supervision for the young pilots, it was hoped that in time experience and maturity would become the foundation of their judgment.

*The only acceptable aircraft accident rate in this command is zero.*

CENTER LEFT SHOWS THE EYE OF HURRICANE DONNA. TEN THOUSAND FEET BELOW, THE SEA IS BEING RAVAGED BY 150 MPH WINDS

RADAR BLIP OF DONNA OVER MARATHON

# PORTRAIT OF A LADY

## (Excerpts from the personal log of Hurricane Donna)

### 1 September 1960

I am a cyclonic depression drifting freely westward through the lower North Atlantic, my forces comprised of low atmospheric pressures at sea level, high pressures aloft, a closed circulation with winds available up to 150 knots. Warm surface temperatures on the line provide power to all quadrants. I'm a rugged female.

### 2 September 1960

1837 (All times Zulu): Position 1,050 miles east southeast of San Juan. Blowers running ahead two-thirds with 85 knots of winds close aboard the eye. Have suspicious feeling of being watched.

1952: Suspicions confirmed, very strange aircraft approaching eye; blowers ahead full of winds of 120 knots. Using full evasive turbulence to avoid penetration.

2045: Eye penetration made by aircraft bearing U.S. Navy Hurricane Hunter markings. Change course for Puerto Rico, set speed 12 knots.

### 3 September 1960

0001: Drifting westward as before. More strange aircraft appear bearing same markings. Air waves now cluttered with messages referring to me as Donna.

### 4 September 1960

0100: Learn Naval Station, Roosevelt Roads, is future home of Navy Hurricane Hunters. Change course to northwest to avoid passing over enemy territory. Unable to prevent constant surveillance by their planes.

2000: Bypassing Puerto Rico to the north but releasing torrential rains over entire island.

### 6 September 1960

0400: Position 90 miles north Ramey AFB, Puerto Rico. Contact all quadrants for recommendations where to strike the United States.

1500: Decide to intensify and change course early tomorrow for Florida. Also using double eye technique previously unknown of hurricanes in Atlantic. Positive this maneuver will confuse aircraft.

### 7 September 1960

0400: Change course to West as planned. Plan attack on Caicos and Mayaguana Islands late afternoon.

0500: Change of course detected by aircraft. Must re-evaluate situation.

1600: Eye centered over Caicos Island. Continuing westerly course to feint attack on Cuba.

### 8 September 1960

0000: Position 30 miles SW Mayaguana AAFB. Continuing course and speed for next 24 hours, utilizing intermediate hours to regain strength after lashing lower Bahama Islands.

### 9 September 1960

0001: Change course heading directly for Florida Keys.

1600: Enemy fighters approaching from north. Deployed high overcast over eye to prevent detection.

1615: Deception failed. Hurricane Hunter plane in eye vectors fighters into eye.

1620: Discover enemy fighters are F8U's from VFP-62 armed with cameras instead of weapons.

### 10 September 1960

0001: Convinced Navy has endless stream of radar *Constellations*. Dignity severely impaired for complete lack of privacy for past week. To maintain prestige will give U.S. mainland a show for their money.

0730: Attacked Florida Keys with winds of 150 knots. Regaining face by watching destruction equal to 2½ World War II atomic bombs every second.

1600: Well pleased with results of Keys attack. Change course to north to rake Central Florida.

### 11 September 1960

0200: Success of devastation exceeding expectations. Northeast quadrant now over Cape Canaveral where great missiles are being scurried to safety.

0400: Emergency change of course to northeast to avoid home of Hurricane Hunters in Jax.

1400: Intelligence reports Hurricane Hunters have evacuated Jax. Will give Jax strong blow from northwest quadrant.

1445: Eye centered 40 miles east of Jax. Activity noticed at NAS Jax. Radar *Constellation* being towed from hangar and is taking off in spite of my proximity.

1500: Must give entire coast a lashing to regain pride.

### 12 September 1960

0001: Finally escaped the blue radar *Constellation* over the Canadian border. Appears my injuries are fatal. Intelligence reports my trek broke all records being the most wicked lady ever known. Recommend to the stormy ladies who follow: Make your plans to include the Navy Hurricane Hunters—they cannot be evaded.

RALPH TITTLE, PH3, SHOOTS DONNA OVER EYE AT 10,000 FEET

VP-872 MEN ASSIST AT FLOOD DEVASTATION SITE IN HUMACAO

# F4H TOPS

## World 500-Kilometer Closed Course Speed Record by 400 MPH

VADM. EKSTROM, LCOL. MILLER WITH NEW DFC, AND MGEN. JACK AFTER RECORD FLIGHT

ON LABOR DAY 1960, Marine LCol. Thomas H. Miller piloted a production model F4H-1 *Phantom II* to an unofficial world class record of 1216.78 mph for the 500-kilometer closed course, thus bettering the official record set in 1959 by more than 400 miles per hour.

VAdm. Clarence E. Ekstrom, ComNavAirPac, presented LCol. Miller with the Distinguished Flying Cross after the flight. MGen. S. S. Jack, CG, Fleet Marine Air Force Pacific, was present at the ceremony.

The run was made in strict compliance with requirements of the *Federation Aeronautique Internationale*, and application has been made with FAI for official recognition.

[October 4th it was announced Cdr. John F. (Jeff) Davis flew an F4H to an unofficial 100-km. closed course record of 1390.21 mph on 25 September. Owing to deadlines, coverage will be in December issue.]

GROUND RADAR GUIDED ENTRY INTO GATE

*Naval Aviation News* interviewed LCol. Miller at his Washington desk to bring you this first-person account of the Labor Day flight.

**Q. Please describe the flight, Colonel. Take us from beginning to end.**

A. The start was made from the take-off end of runway 22 at Edwards AF Base. There the NAA people inspected the aircraft, started the barographs and sealed the fuel tanks. When they had completed their checks, I fired up and started the take-off immediately.

I used full afterburner for take-off, but reduced to military power as soon as I was airborne. After starting a left turn, I picked up the climb schedule and headed toward the west shore of the Salton Sea.

I started the back turn at 38,000 feet over the Chocolate Mountain restricted area and started my turn toward the starting gate. Shortly thereafter I lit the afterburners to complete the climb and accelerate for entering the starting gate.

The Edwards space positioning radar was coaching me to make a precise entry into starting point of the triangular course. The closer we could come to the corner without cutting inside, the better we would make out, since we could only get credit for the straight-sided triangular course, not the actual distance flown.

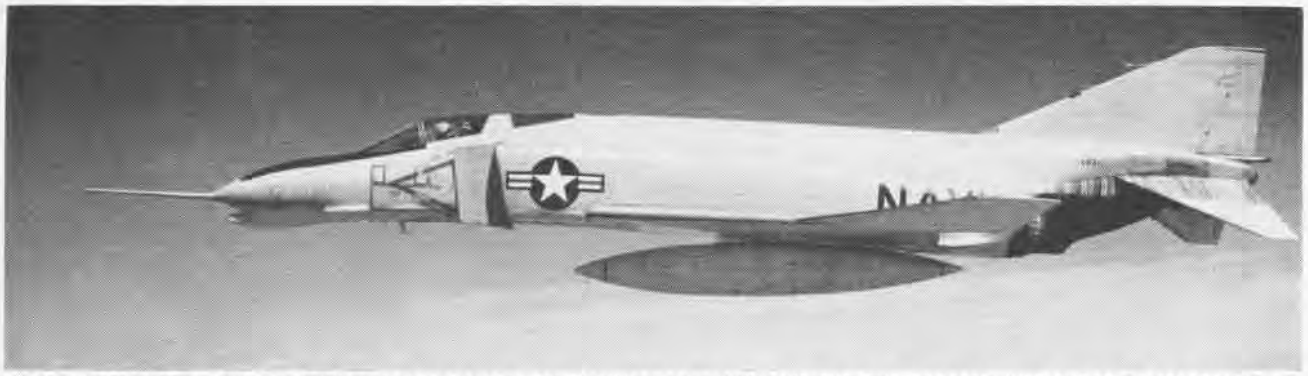
I jettisoned the centerline tank in the Edwards AFB drop area while making better than Mach 1.5 at 48,000 feet. This wasn't the ideal location for a drop, since it was just 27 miles short of the starting gate, but it was the best available.

You can get some idea of the tremendous power of this bird from the fact that between the north tip of Salton Sea and the Edwards drop area it accelerated from a subsonic speed to over Mach 1.5 while dragging a 600 gallon drop tank and gaining 10,000 feet.

After getting rid of the 600-gallon center-line tank, I held zero G for as long as possible to obtain maximum acceleration, then levelled off and entered the starting gate at 44,000 feet.

About half way down the first leg, I accelerated through Mach 2. Except for a short time during turns, Mach 2 or better was held for the rest of the course.

I flew most of the course at 50,000 feet, then dropped down to cross the finish gate at 48,000 feet. As soon as I was over the line, I immediately throttled back to idle for a downwind approach to runway 4. With the burners off, the deceleration throws you hard against the shoulder straps. After decelerating a bit, I opened the speed brakes and came on down. It was practically a split-S approach. After normal touchdown, I let the plane roll to



RECORD-SMASHING PHANTOM II WITH A 600-GALLON CENTERLINE DROP TANK LIKE THE ONE DROPPED JUST SHORT OF STARTING GATE

the end of runway 4 where the NAA observers were waiting to inspect the fuel tank seals and check the barographs.

**Q. Col. Miller, do you think this record will stand for some time?**

A. I don't know of any aircraft likely to beat it. It would be possible to set a new record with the *Phantom II*, or perhaps some later model century series fighters, if a more ideal course was available, one where the tank was available, one where tank drops could be made at optimum times.

**Q. How far did you actually have to fly in this 500-kilometer closed course record attempt?**

A. Five hundred kilometers figures out to about 310⅔ statute miles. The Edwards course actually measures about 316 miles. Of course, we can't fly precisely over the triangle because of the turns. An ideal track for the F4H, cutting over each corner of the course, would measure about 333 miles. The track for the record run was about 336 miles. If we got credit for the actual gate-to-gate distance flown, the record would have been over 1300 mph. Because of the distance flown in building up speed and altitude, the actual total flight distance from take-off to landing was close to 1000 kilometers.

**Q. What sensations did you feel during the run? Please describe the "feel" of flying so fast for so long.**

A. There wasn't any particular sensation of speed. Of course, I knew how fast it was going from the instruments, but you get more sensation of speed just driving down the freeway. It did get warm in the cockpit. The cockpit air conditioner is designed to maintain cockpit temperature for about five minutes of Mach 2 flight, about the most that will be required under tactical conditions. It took 15 minutes and 19.2 seconds to complete the course.

**Q. Do you think your part in this record run is going to help you in your present billet as a BUWEPS project officer on the F4H?**

A. I am sure it will help me tremendously. I had flown the aircraft before, but in the record run and the flights in preparation for it, I really got to know the F4H. I probably have as much sustained time over Mach 2 as any other pilot, including the company test pilots. When I get test pilot reports now, I should have a better feel for what they are talking about.

**Q. This is off the subject of the record flight, but what do you think is going to happen when we start putting nuggets (newly designated Naval Aviators) in the *Phantom II*?**

LCOL. T. MILLER MOUNTS PHANTOM II

A. There should be no major problems. It is an old man's airplane with no mean tricks. In a way, it is a tolerant bird, for it has the power and acceleration to get out of tight spots. There is no apparent "back side of the power curve" problem during the landing approach. Its J-79 engines will actually accelerate from idle to full power faster than any piston engine I have flown.

RECORD-BREAKER *Tom Miller's career reads very much like that of the average Naval Aviator. The only thing that might set him apart is the aggressive way he has taken advantage of every opportunity to build and maintain his flight proficiency.*

*He enlisted in the V-5 program in June 1942 and was commissioned a Marine Second Lieutenant in March of 1943 after completing the* PBY *syllabus. WW II found him flying the* F4F *and deploying in an* F4U-1D *squadron where he flew mop-up missions in the by-passed Central Pacific islands.*

*Miller has had his share of proficiency billets and run-of-the-mill flight jobs, such as instrument instruction in* SNB*'s. During his one "plush" tour, Service Test at Pax River (1946-48), he flew at least a dozen types ranging from the Bell* YP-59*, the first pure jet built in the U.S., to the* PB4Y*. Even though he has had only one tour in a jet squadron, VMA-224 (1955-57), he has logged over 2000 hours jet time.*

*In Korea he flew 106 combat missions in* F4U*'s and* AU*'s with VMA-323. Before coming home he did duty as Target Information Officer, and later was the Marine Target Officer on the Joint Operations Center Staff, Seoul, where he kept his hand in flying Air Force* F-86 *Saberjets.*

**POSTHUMOUSLY** *awarded Navy-Marine Corps Medal earned by Everett Bradbury, Jr., AA, who died of burns received when he pulled pilot from burning plane is accepted by parents from the Honorable Wm. B. Franke.*

## New Simulators Authorized

### GAC to Build A2F, W2F Trainers

Goodyear Aircraft Corporation has won contracts for building simulator-trainers for A2F and W2F aircraft. Amounting to $4.5-million, the contracts were let by the Naval Training Device Center at Port Washington.

Scheduled for delivery in 1962, the trainers simulate cockpit, instruments and panels, permitting complete familiarization of flight characteristics, radar and weaponry.

Engine sounds, pedal pressure and other effects and procedures normal to flying are simulated.

An instructor will be able to feed malfunctions and emergencies into the trainer and study the pilot's reaction, as well as the pilot's use of corrective measures. The system can be stopped completely if discussion of a condition is required.

The A2F and W2F trainers will be housed in 40-foot semi-trailers for ease of transportation.

Goodyear previously has built training devices for the F3H *Demon*, P6M *Seamaster*, F8U *Crusader* and ZSG-4.

**LTJG. J. P. PEABODY,** *LCdr. H. J. Hillson and Ltjg. R. H. Parker are P5M PPCs from VP-46 NAS North Island, who successfully completed the 1960 ComNavAirPac competitive exercises with perfect "Five for Five" E records.*

## Uniform Visibility Upped

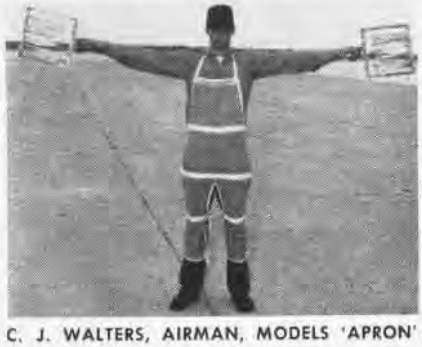
### Cecil Field Item Only One Buck

After six months of testing uniforms, the Operations Department Line Crew of NAS CECIL FIELD settled on a runway watch uniform costing $1.00.

The uniform, apron style, is worn by the runway watch at the Navy's largest master jet base.

The economy-minded, comfort-seeking research team finally selected the high-visibility tow target material, no longer serviceable as targets. The aprons can be manufactured at a cost of about $1.00 each as compared to $13.75 each for flight suits.

In use, the apron has proved satisfactory on all counts. It is economical, comfortable, and pilots report it is clearly visible from the air.



**C. J. WALTERS, AIRMAN, MODELS 'APRON'**

## Nuclear Rockets are Studied

### Lockheed, Martin Given Contracts

Requirements of a nuclear rocket flight test program are being studied by the National Aeronautics and Space Administration under contracts with Lockheed and Martin.

The scope of each of the $100,000-studies will include system preliminary design, development programming, planning of test and tracking facilities, schedules, and safety factors.

The flight test system under the study is called the Reactor In-Flight Test System. Two contractors were selected to assure a varied point of view, according to NASA.

The contract for a "paper study" does not involve actual hardware work or testing on the ground or in launch vehicles.

A prime requirement of the study is that the resulting flight test program supply technical data applicable to a useful nuclear rocket stage, although the flight test system itself need not be capable of making space flights.

**BY COMPLETING** *100 carrier landings aboard USS Forrestal during its recent 1960 Mediterranean cruise, these ten "Rampagers" of Attack Squadron Eighty-Three have each earned the proud title of "Forrestal Centurian."*

## Educators Study CIC School

### Tech Engineers Make Suggestions

The big, blue, radar *Constellation* landed at NAS GLYNCO. Aboard were nine Georgia Tech educators invited by the Commanding Officer, Capt. W. W. Bush, Jr., to analyze and criticize the methods of instruction of the U.S. Naval Combat Information Center School.

The visiting educators dug into classroom lectures, laboratory procedures, airborne and shipboard simulation methods, student selection and handling, and general facilities of the multi-million dollar training center. They also observed students controlling CIC School jets in the interception of simulated enemy bombers.

The professors made many suggestions which have already influenced thinking and will undoubtedly be reflected in future curricula.

At the end-of-visit critique, Dr. Lane Mitchell, spokesman for the educators, said it was their consensus that the CIC School was doing its job of training the Fleet's future radar operators in an outstanding manner.

**TICONDEROGA** *tradition continues in West-Pac as Capt. T. F. Caldwell, C.O., and Cdr. S. E. Sloan, air boss, hold LCdr. Harold Nemer's shoes and flight deck jersey in position for last 'shot' before being relieved.*

# RUGGED FUEL SYSTEM IN USE

## Marine Aircraft Based at Iwakuni, Japan, Get Super Service from Portable Gas Station

**FIVE RUBBER BAGS** *in foreground contain 50,000 gallons of aviation fuel for planes of the First Marine Aircraft Wing. Bags belong to Tactical Airfield Fuel Dispensing System, Marine Air Base Squadron 17. Unit pumps an average of 30,000 gallons of fuel per day.*

FIRST AIRCRAFT WING Marines at MCAF IWAKUNI are refueling jet aircraft by a system that is as effective as it is versatile. Called TAFDS or Tactical Airfield Dispensing System, it was designed for storing and dispensing fuel at advanced airfields.

One complete system consists of six 10,000-gallon rubber tanks, three pumps, three water filter separators, two meters, adequate hose, and nozzles of various sizes.

TAFDS can be flown to an advance airfield by helicopter or airplane. Once the system is laid out—two and a half hours after landing—fuel can be received from amphibious ships, railroad tank cars, drums or tanks.

A single unit (six rubber tanks) stores 60,000 gallons of fuel.

At the rate of 250 gallons per minute from each pump, a unit can fuel 12 airplanes at one time.

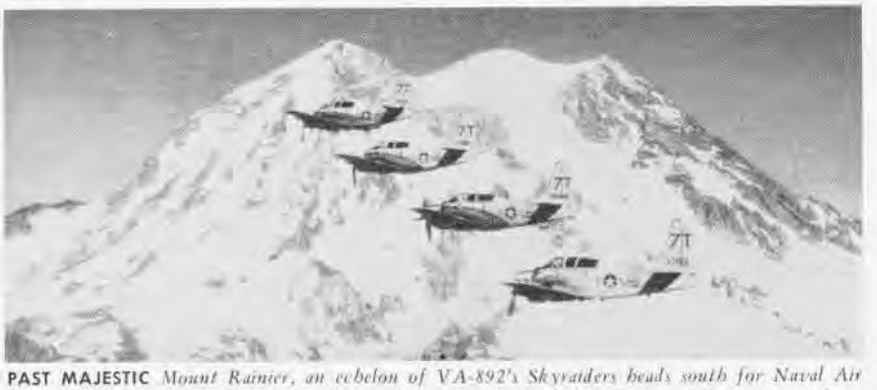
All metal connections are made of aluminum or brass to prevent fires from sparks. Tools used in operating the system also are anti-spark.

But there is one safety hazard the Marines have not yet been able to master. The station is set up on the edge of a golf course. SSgt. Robert Pickering, a section chief, says: "We are continuously having to dodge golf balls as we go about our work."

**LANCE CPL.** *Charles H. Thompson watches gauges as pumps handle 250 gallons per minute.*

**STAFF SGT.** *Robert Pickering stands on top of rubber bag to test water content in fuel.*

# VA-892 DEVELOPS FULL COMBAT READINESS



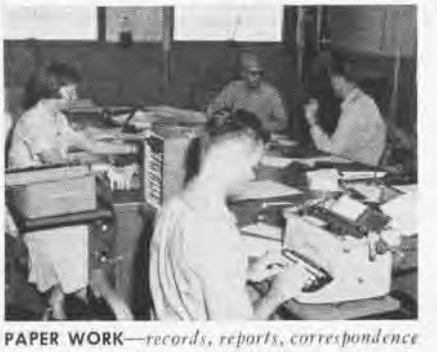
**PAST MAJESTIC** *Mount Rainier, an echelon of VA-892's Skyraiders heads south for Naval Air Station, Miramar, and two weeks of annual training duty for the Weekend Warrior squadron.*

ON THIS PAGE is shown some of the highlights of Naval Reserve Attack Squadron 892's recent cruise at NAS MIRAMAR. Flying the AD *Skyraider*, the squadron, home-based at NAS SEATTLE, put in 14 days of intensive air and ground training operations with a single objective—improved combat readiness.

The unusually successful results achieved by the veteran Weekend Warrior unit were praised by the Training Officer: "I have never seen men work as hard and as long in my life."

**SEVEN O'CLOCK** *in the morning—and VA-892 line crew is mustered by the leading chief.*

**A HEAVY FLIGHT** *schedule required an all-out effort on the part of service personnel.*



**PAPER WORK**—*records, reports, correspondence and files—are bound to take time and work.*

**IN A LOW PRESSURE CHAMBER,** *atmospheric conditions can simulate almost any altitude. As part of the training syllabus, pilots practiced regulating standard oxygen equipment.*

**LEARNING** *to unplug a rocket which failed was part of the training of an ordnanceman.*

**SQUADRON SKIPPER,** *Cdr. R. L. Meltebeke, talks over plans with pilots early in day.*

# 'OLD PRO' BRINGS NAVCAD SAFELY DOWN

A THREE-PLANE flight, launched from South Field at NAAS WHITING FIELD was making a normal training flight. In the first two planes airborne were Ens. Richard Nelson and NavCad Richard Payne. In the third plane was Ltjg. Jesse Morris, their flight instructor, who would follow them through their maneuvers and coordinate the training sequences.

The two students had just completed about 30 minutes of climbs, turns, cross-unders and lead changes. As they were making a formation turn at 7000 feet, Ltjg. Morris noticed that Payne, flying the second aircraft as wingman, seemed to be flying his airplane on an unusually wobbly course.

Payne's plane suddenly pulled out of formation, dipped to the left and dropped into a descending spiral 3000 feet below his original altitude. Morris at once surmised that the student had a dose of carbon monoxide poisoning. Jamming all the knobs on his throttle quadrant forward, Morris plunged down after him at full power. He reached the disabled student's plane at 4000 feet when it levelled off and came out of the diving spiral. Morris pulled up close to the aircraft and looked into the cockpit. NavCad Payne was completely helpless, his head leaning against the left side of the canopy, his eyes staring at the sky.

"Now I was sure he had carbon monoxide poisoning," said Morris, "and I had to do something right away. If I didn't get him on oxygen now while the plane had levelled out, it would be too late."

So Morris yelled over the radio, "Grab the oxygen hose and stick it in your mouth, Payne . . . *Now!*"

At first, there was no response, and the plane's left wing started to dip again. Morris bellowed the instructions again until, at last, he saw the student reach down, pull out the oxygen hose and put it up to his mouth.

This was the most important step in the battle of survival. If Morris could just keep him on oxygen, Payne's senses would start coming back. Morris kept talking to him, constantly, "O.K., Payne, just relax and fly along straight and level. No climbs, just keep it level and keep breathing that oxygen."

Morris had one heart-stopping

NAVCAD PAYNE AND 'RESCUER,' LT. MORRIS

twinge when the student dropped the oxygen hose from weakness, and the plane started to drop off again into a spiral. Luckily, the weary student got it back to his mouth again, and the plane straightened out.

Morris radioed to South Whiting Tower he would not bring the student back for a landing until he flew around long enough to get more oxygen into his system.

After 15 minutes of level flying, Morris had the student put on his oxygen mask, so that he could use both hands to bring the plane down to a landing. Up to this time, the disabled student had not had the strength nor the will to fumble with the mask and attach it to his helmet.

"Now came the job of talking him down to a safe landing," recalled Morris. "The student was calm and relaxed, like a man under the influence of anesthesia. This is one of the symptoms of CO poisoning. The student could care less, but I was shaking like a leaf just thinking about his attempting a landing."

Morris flew so close to Payne's aircraft that as they approached the field it looked like one plane coming in for a landing. He went over the complete check-off list by radio. Payne dropped his landing gear. His flaps started coming down and the two planes made a gentle descending left turn to the duty runway.

Morris kept talking to him all the way around to the final approach. "Relax, now. A little more left wing down, push the nose over a little more. . . . That's enough . . . enough. Now drop your right wing, that's right. Come back on the stick . . . start to level off. You're lined up O.K. We'll be all right. Don't worry. Now take off some power."

As the two planes approached the final landing, half the personnel from South Field watched in front of the hangar with bated breath. The rescue helicopter hovered overhead. The crash trucks and ambulance, motors humming, stood by on the field. Everyone watched and waited.

Morris kept talking and Payne kept coming in close. "Level off now . . . get the nose up. . . . Off with the power, all the way off. TOUCH-DOWN! You've made it!"

Payne braked the plane to a stop, turned off the runway and shut the engine down. The crash crew raced to the aircraft to help him out. They leaped onto the wing before the propeller had stopped turning and found NavCad Payne unconscious in the cockpit. He had used his last bit of physical and mental capacities to bring the plane down to a safe landing. While being given 100% oxygen, the stricken student was rushed to the Whiting Field dispensary. After 25 minutes of oxygen, a test showed that Payne had the dubious distinction of scoring one of the highest concentrations of carbon monoxide poisoning ever recorded at Whiting Field.

Is it possible that he could have brought the plane back without the help of his instructor? "Not a chance," said NavCad Payne after the episode. "I felt like giving up many times, but Lt. Morris kept screaming orders at me and I obeyed them. It was like being in another world—like under hypnosis. You don't think, you don't feel, and you lose all color perception. I was making the moves, but, luckily Lt. Morris was doing the thinking for me."

NavCad Payne is a burly, six-foot, 200-pound ex-football player from Southern Illinois University, who has completed the formation syllabus. He plans to become a Marine Aviator.

To Ltjg. Morris for his outstanding ability to analyze a dangerous situation immediately went the title of "Old Pro," presented by Cdr. R. E. Ries, Jr., skipper of Training Squadron Three.

# COMMUNISM RAPPED AT NAS GLENVIEW

**FBI COUNTERSPY** *Herbert Philbrick of "I Led Three Lives" fame takes a turn at the mike.*

**INTENSE CONCENTRATION** *of ten thousand participants at the symposium is registered in the faces of these Nuns. Representatives of all faiths took part in the communism discussions.*

WHAT BEGAN as a routine community relations gesture at NAS Glenview turned out to be such a success that it drew a blast on page One of the communist Daily Worker.

Capt. I. M. Hampton, station commander, granted permission for several civil groups to use the base theatre for a five-day symposium called Education for American Security.

Among the speakers were Dr. George Benson, minister and former missionary to China; Dr. Gerhardt Niemeyer, professor of political science at Notre Dame; Frank Barnett, director of research for the Richardson Foundation; Dr. E. Merrill Root, author of "Brainwashing in the High Schools," the Rev. Frederick Becka, Marynoll missionary priest interned in China; Dr. James Hart, dean of the Commerce school at DePaul University; Dr. Anthony Bouscaren, associate professor of political science at LeMoyne College; Rev. Stanley Parry, chairman of the political science department at Notre Dame; Lt. Frank Hantz from the Office of Naval Intelligence; Tom Mass, chairman of the workshop discussion groups; and Herbert Philbrick, famed counterspy for the FBI and author of the radio and television series, "I Led Three Lives."

VAdm. Robert Goldthwaite, Chief of Naval Air Training, gave the commencement address.

The sessions drew nearly 10,000 citizens. From among the hundreds of letters received by the school came such comments as these:

"Continue the fine work . . . We need more of these programs to put our side on the offensive . . . great service to our country in helping the citizens to understand the nature of communism and the terrifying progress it has made in the last few years. . . . I learned much and hope to make others aware of the dangers of communism. . . ."

Education for American Security was the brain child of Lt. Frank Vignola, an inactive Naval Reservist attached to AirTU 723, and LCdr. Charles Bigler, Air Intelligence Reserve Programs Officer, both assigned to the Naval Air Station at Glenview.

**LEADERSHIP REPRESENTATIVES** *of several aviation commands attended. Here Raymond O. Cobb, ADC, and Cdr. C. C. Davis, both of NAS Atlanta, engage Herbert Philbrick in conversation.*

**DR. FRED SCHWARZ,** *host and moderator, uses gestures to score his point during lecture.*

# SURVIVAL TEST SUCCEEDS AT NAS OAKLAND

**1545.00.** *Pilot is fully strapped in, and all hatches are jammed or obstructed to simulate as nearly as possible ditching or crash procedure.*

**1545.30.** *Pilot outlines hole he desires to use. He has removed shoulder harness, disconnected radio cords and unsheathed his knife.*

**1546.00.** *Entire top portion of surveyed window has been shattered. Pilot uses two hands to cut through plastic filler between plexiglass.*

**1546.40.** *Top and both sides of windows are now shattered and membrane cut. The pilot uses his left foot to kick the panel outward.*

**1546.45.** *Now for the last big push, the pilot uses his hand to clear the way and then prepares to leave the aircraft going out head first.*

**1546.50.** *On the deck! The happy pilot is out of the S2F, having knifed and beaten his way to freedom in exactly one minute 50 seconds.*

# OCALA IMPACT RANGE OPENS

THE EAST COAST'S first Instrumented Target Range has become operational. Located in the Ocala National Forest, it is officially named Ocala Impact Range, but commonly known as Pinecastle.

Ribbon-cutting ceremonies were held Wednesday, 3 August, at the Impact Range, with RAdm. Kenneth Craig, Commander Naval Air Bases, Sixth Naval District, doing the honors at the control tower and barracks sites.

The Navy acquired the nine-square-mile facility in 1951 under a permit from the Department of Agriculture. Originally, the target was used by Pinecastle AFB, thus the name, Pinecastle Range.

Planning for the new range in the Ocala Forest began seriously in May 1959. Construction of the Range consisted of a control tracking tower, three observation towers, a barracks, and a mess hall designed to accommodate twelve men in comfortable style.

The control tower, 40 feet high, houses tracking equipment. It was designed by NOTS CHINA LAKE and manufactured by O&R, NAS NORTH ISLAND at a cost of $33,000.

The control tracking tower and barracks are located five miles from the flight line in order to provide maximum effectiveness for optical tracking.

Three observation towers are located 6000 feet from the target center to provide maximum security for the personnel. The towers vary from 60 to 100 feet in height.

Additional security is provided as the roofs of the buildings are of heavy steel. The front glass is bullet proof.

The Tracking Instrumented Range was developed primarily to train pilots in weapons delivery techniques. Equipment tracks aircraft throughout the maneuver and delivery, producing a graph or visual picture of the aircraft's maneuver and the electronic equipment computes the plane's true ground speed. In the light of this information the pilot can correct errors and improve his technique. Loft bombing and over the shoulder bombing (idiot loop) are the type of maneuvers performed at the Range.

The tracking instruments are so sensitive they can be set off by insects traveling by. If a dragon fly passes within a few feet of the telescopic lens, the tracking device may go into operation.

Because it would have been an expensive, time-consuming project to send a crane to the area during construction, a helicopter piloted by Lt. I. W. Hastings, Jr., of NAS JACKSONVILLE O&R Test Line was used to hoist the equipment to the tower platform.

The lift of the six pieces of tracking equipment, the heaviest of which was 600 lbs., was accomplished with nary a scratch in the half-hour operation by the skillful chopper pilot.

**FLIGHT DURATION** *of the Phantom II on internal fuel tanks alone represents considerable improvement over present fighters. In addition, the F4H-1 can carry three external tanks for added capability. A test airplane, above, flies with a 600-gallon centerline tank mounted between the aft missiles. Below, it carries two wing tanks, each of 560-gallon capacity, in addition. The three-tank configuration was used at start of the 500 km. speed record run.*

## CVA-59 Buys School Bus

### Gift Made to Retarded Children

Crew of the super-carrier USS *Forrestal* (CVA-59) presented a Volkswagen bus to the Tidewater Association for Retarded Children on September 13. The ceremony, which took place at the Norfolk Naval Shipyard, culminated a project which originated with the Protestant Christian Fellowship Group of USS *Forrestal*.

The idea of buying a bus was supplied by Chief Aviation Boatswain Mate R. W. Jennings whose wife was a volunteer worker at the pre-school for retarded children. The carrier's Protestant Chaplain, Cdr. A. M. Oliver, learned that the two vehicles used for transportation were inadequate, and that a bus would make attendance possible for 14 children who were without transportation.

When the plight of the children became known aboard *Forrestal*, the project snowballed, and soon the entire ship and its attached units were supporting the campaign.

When *Forrestal* stopped at Gibraltar during her recent Mediterranean cruise, a Volkswagen bus was purchased and the idea became a reality.

On hand for the presentation were officials of the Tidewater Association for Retarded Children, teachers of preschool, and CVA-59 officers and men.

# NAVY SPLASHES AF IN TRAINING

**INTO THE COLD PACIFIC** *goes 1st Lt. Jimmy Adams, USAF. He must now free himself from parachute harness and swim to life raft. Crash boat puts tension on line to simulate sea pull.*

THE NAVY has been taking the Air Force to sea off the coast of California but it's no pleasure trip as far as the "Wild Blue Yonder" men are concerned. No sooner do they get out beyond the breakers than they find themselves floundering in the chilly Pacific!

Actually, the sailors aren't forcing the Air Force men to walk the plank in a throwback to the age of piracy, but have been giving them practical instruction in how to survive if forced down at sea.

An estimated ten percent of all ejection fatalities are due to drowning, and the aviation safety officers at the Oxnard AF Base were concerned that their pilots might become additional unfortunate statistics if forced to eject over the ocean.

The safety officers contacted their Navy counterparts at the nearby Naval Missile Center, Pt. Mugu, Calif., as the logical people to help them with their problem.

The aviation safety officers of the two services were agreed that the only way to simulate the conditions of parachuting into the ocean was to use the real thing rather than a comfortable swimming pool. Thus Air Force fliers soon commenced going to sea in Navy small craft in order to be tossed overboard.

The pilots are dropped off a Navy crash boat in parachute harness, although without parachutes attached to the harness. They are dragged by a tow line as the boat proceeds at a speed which approximates the pull of a heavy sea on a parachute. They must free themselves from the harness and swim to a nearby life raft.

One of the main things achieved is to get the men over the "Panic Barrier" of being dunked in the sea.

According to Lt. "Gabby" Haynes, Personal Equipment Officer at Oxnard AF Base, nine out of 68 participants thus far in the dunkings have been unable to get out of their harnesses and would have drowned in a real ejection. Two others punctured their life rafts while climbing aboard. Had they been far from help, they would have died of exposure.

**FROGMAN** *Bill Berryman, HM1, is on hand to help Lt. Adams if he needs assistance.*

During the training, Navy frogmen standby on the crash boat, ready to go to their assistance.

Operation *Sharkbait*, as it was dubbed by the Air Force, has been called a complete success by LCol. Vernon Henderson, Commander of the 437th Fighter Interceptor Squadron. He also has high praise for the Navy Coordinator of the project, LCdr. Archie L. Mills, Aviation Safety Officer, PMR.

**ONCE ABOARD** *the raft, the officer is picked up by AF helicopter and returned to base.*

# DUTY CAT BACK ON GUARD

CAPT. CAMERA HANDS DUTY CAT TO CDR. ESLINGER FOR POSTING ON VALLEY FORGE

THE DUTY CAT of VS-24 has taken up his old duties as guardian angel of squadron pilots and aircrewmen aboard USS *Valley Forge*. The last time he stood a watch was four years ago when the old squadron was decommissioned.

The Duty Cat took up his duties in 1948 when the original VS-24, composed of 18 torpedo bombers, reported for shake-down training aboard USS *Wright*, CVL-49. A young pilot/artist drew the lightning-struck feline on the ready room briefing board to indicate a squadron plane was still aloft.

From that time on, it was decreed that flight operations would not begin until the ritual of placing the Cat on watch was accomplished. He would remain on duty until the last aircraft returned. It became the duty of the junior flying officer to post the Cat. When the squadron moved ashore, so did the Duty Cat.

As VS-24 advanced in age, so did the Duty Cat in stature. He grew from a chalk-drawn image on a blackboard to a colored drawing on cardboard backing and finally to his present state of fancy coloring on a plexiglass plaque.

Somewhere along the way, he became the principal figure on the squadron insignia. Only those pilots and aircrewmen who had completed day and night carrier flight qualifications were permitted to wear the patch.

The esteem in which airmen held the Duty Cat patch is told in the instance of a pilot who, after finishing his night flying qualifications, applied for the shoulder patch. Squadron pilots learned during the course of investigating his eligibility that the pilot in question had qualified during twilight hours, not in pitch darkness. Consequently, his patch was altered. The Cat wore sunglasses.

According to squadron legend, the original VS-24 operated without a shipboard fatality from the time the Duty Cat arrived until the squadron was decommissioned.

Together, the first VS-24 and the Duty Cat saw duty aboard the carriers *Wright*, *Siboney*, *Palau*, *Saipan*, *Cabot*, *Leyte* and *Antietam*. Squadron pilots flew TBM-3 *Avengers*, AF *Guardians*, and S2F-1 *Trackers*.

When the new VS-24 was commissioned this summer, Capt. J. A. Camera, the original squadron's last skipper, returned the Duty Cat to Cdr. Robert H. Eslinger, current skipper and the old squadron's last exec.

Today as before, VS-24 flight operations begin only after the junior qualified flying officer installs the plexiglass replica in the ready room.

## Radio Astronomy Milestone

### Saturn, Nebula Signals Received

The first conclusive signals from Saturn and from a planetary nebula of our galaxy have been received. Using an 85-foot radio telescope with a ruby maser amplifier, scientists at the University of Michigan, under contract to the Office of Naval Research, detected the planet's radio waves.

Professor Fred T. Haddock, Director of Michigan's radio astronomy program, reported the findings at the 13th General Assembly of the International Scientific Union in London. The Michigan telescope is part of ONR's continuing program of radio astronomy, which is producing significant findings.

Saturn's atmospheric temperature, minus approximately 280°F, was about that expected on the basis of optical studies. Radio waves were emitted from various depths in the planet's atmosphere.

This measurement, at a frequency of three centimeters, may make possible a study of the temperature and density of the rings of Saturn and of the distribution of the gases in its atmosphere. This will require precise measurements at various frequencies.

The planetary nebula detected is a remote, gas-surrounded dying star. This observation is significant because the source is small and distant—3000 light years away—and radio emission from a planetary nebula had not been detected before.

## VAdm Hayward Appointed

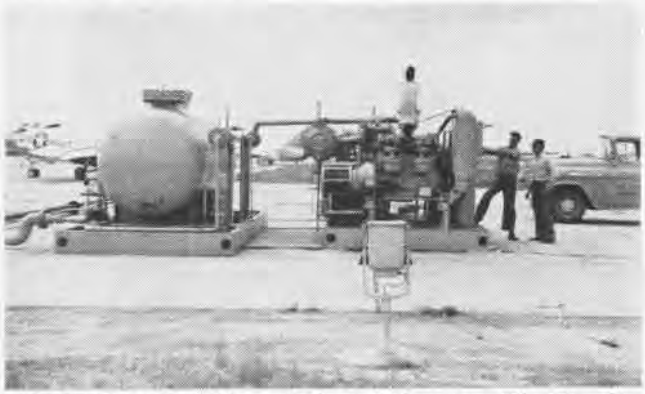
### Heads Panel in DOD-NASA Board

VAdm. John T. Hayward, Deputy Chief of Naval Operations (Development), has been appointed chairman of the Aeronautical Panel on a joint NASA-Department of Defense board for coordination of the nation's aeronautics and space programs.

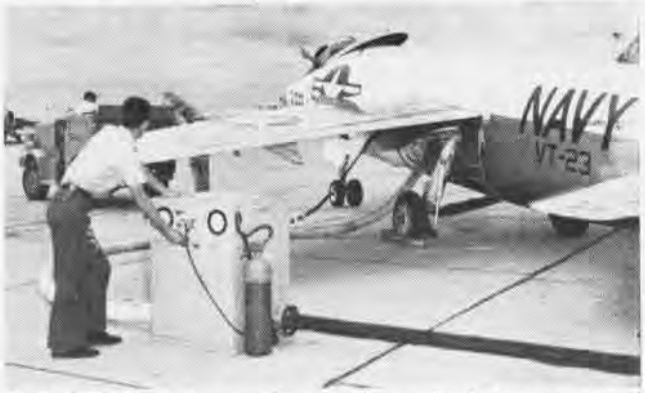
Other panels include Launch Vehicles, Manned Space Flight, Space Flight Ground Environment, Unmanned Spacecraft, and Supporting Space Research and Technology.

The agreement establishing the Aeronautics and Astronautics Coordinating Board provides that it will review planning to avoid duplication; coordinate activities of common interest; identify problems requiring solution by either NASA or DOD and insure a steady exchange of data.

# KINGSVILLE'S CALIOPE CUTS AIR START COST



**COMPRESSOR AND TANK** *are the heart of the system. The 225-cubic-foot tank holds enough air to start five Tigers simultaneously.*




**E. D. ROGERS,** *AA, mans the control console during air start of supersonic F11F. Flexible hose can be folded when not in use.*

SINCE JUNE of 1960, Training Squadron Twenty-Three at NAAS KINGSVILLE has been starting its F11F-1 *Tigers* with a new "Facility Type" air start system dubbed the "Kingsville Caliope" because of the musical sounds emitted during operation. Its users enthusiastically claim it has made such portable turbine air starters as the GTC-85 "almost obsolete."

The Kingsville unit is one of four prototype systems purchased from Wells Industries of North Hollywood, California, manufactures of somewhat similar systems for commercial users of jet engines. The first unit was installed at Miramar and has been in successful operation for over a year. The third is now being installed at Pensacola, while the fourth is also scheduled for Kingsville.

The "Caliope" represents an exception to the trend which has led us to expect each new generation of equipment to be more complex, more sophisticated and more costly than the last. Its design is based on a desire for rugged simplicity and low cost per start.

The storage reservoir holds 225 cubic feet of air at 500 pounds per square inch pressure. The compressor is of proved design. Duplicate compressors in coal mines have given reliable service for up to 20 years with only minor overhaul every five years. A water-cooled, six-cylinder, 154-hp, diesel drives the compressor. The distribution manifold is assembled from 20-foot sections of six-inch, flange-bolted, steel tubing.

Flexibility has been achieved through system components which can be assembled in various configurations. The Kingsville layout provides 10 starting spots and a capability of starting five engines simultaneously. Another planned configuration provides 30 spots for "compact" naval aircraft, with the same simultaneous starting capability.

While with the Miramar and Kingsville installations, planes must be backed into the starting spots, in future installations planes will be able to taxi into the starting spot before shutting down. One plan calls for underground installation of distribution pipes.

Another approach involves use of "flat pipe" and portable consoles. Sections of the new pipe have been tested at Miramar. Production pipe will have a maximum height of three and one-half inches with a 10-degree ramp incline so that planes will be able to taxi over it. Control consoles can be plugged in at various locations.

The facility type system is expected to reduce drastically the high price of air starts. With allowances for operations, maintenance, first cost and interest, each start will amount to less than 50 cents. Maintenance alone on the portable turbine air starters has been running almost $2,000,000 a year.

**THE STARTING LINE** *at the Kingsville installation shown here has five outlets along one side of 400 feet of 6-inch steel distribution manifold. The sections of manifold can be assembled so that airplanes can be spotted on either side of the main manifold.*

# THE FARNBOROUGH SHOW, 1960

BRITAIN'S 'METEOR U' MARK 16 PILOTLESS TARGET AIRCRAFT

ROTODYNE, CALLED WORLD'S FIRST VERTICAL TAKEOFF AIRLINER

*By LCdr. J. W. H. Neads, R. N.*

BRITAIN'S 21st Farnborough Show, 1960, ended with a flourish. The spectacular mass formation flying of Treble One Squadron was breathtaking. The Flying Display and Exhibition of the Society of British Aircraft Constructors is annually an important event in the Aviation world.

This year's show gave some idea of the speed of an operational scramble of V bombers of Bomber Command, the first rolling in about 30 seconds from the signal. Following this, a *Shackleton* of Coastal Command landed, after approximately a 24-hour sortie—another taking off to repeat the performance just before the Show ended.

Demonstrations of near vertical take-off, by a variety of conventional aircraft, make one wonder if it is not already with us. Perhaps the greatest novelty is watching the Short SC.1 make transition from vertical to forward flight and back, a sight as yet quite unorthodox to a fixed wing aviator. The ugly thought creeps in—"Will he spin?"—but no, such thoughts are a vestige of more conventional aircraft experience.

The other aeroplanes of more staid form or airline utility have been seen before in print or reality, including eight varieties of turbine-powered helicopters all airborne at one.

This Missile Display, both in the missile park and also alongside the static aircraft display, is the most comprehensive yet shown. The present U.S./U.K. discussions on *Skybolt* highlight the Avro *Blue Steel* stand-off bomb. This 36-foot, bomb-shaped weapon, with 11-foot wing span, is powered by a Bristol-Siddeley *Stentor* two-barrelled rocket motor, burning HTP and kerosene. Its inertial guidance system is capable of maintaining position even though the bomb should fly evasive courses after release.

In the air-to-air range, the De Havilland *Firestreak* was again shown on both the *Sea Vixen* and the *Lightning*. This is an infra-red homing weapon following lead pursuit trajectory. Beyond *Firestreak* there is mention of a weapon called *Red Top*, but as yet there is no official information.

Working from the ground, the guided weapons are more numerous, and among these were ones used by the Army. Firstly, *Malkara*, an anti-tank weapon of Australian origin, is a wire-guided, 200-lb. anti-tank weapon with a 60-lb. head. Another weapon, a private venture by Pye Ltd. (Electronics), is also a wire-guided anti-tank weapon, but weighs only about 80 pounds.

Staking a claim to be the smallest guided missile is Vickers-Armstrong *Vigilant*. This is a two-stage, solid-motor vehicle, again wire-guided and weighing only 27 pounds.

In the larger size, the Army also operates two regiments of surface-to-air *Thunderbird* missiles powered by solid rocket motors.

A representative *Thunderbird* site complex includes both a tactical control radar, and target illuminating radar, as well as all the computing and servicing ancillaries necessary for operation of eight launchers. Although weapon sighting before launch is automatic, the firing is still controlled by a human monitor. Initial flight power is derived from four booster motors which fall off when exhausted. Homing is a semi-active proportional navigation course and warhead detonation by proximity fusing.

Another similar looking system also displayed was the R.A.F. surface-to-air missile, the Bristol Ferranti *Bloodhound*. Although capable of being mobile, it will normally be operated from fixed sites. This may be likened to a pilotless intercept by two *Thor* ramjets burning kerosene, assisted at launch by four booster rockets. The semi-active guidance system works in conjunction with the British Thompson Houston *Sting Ray*, a surface target tracking and illuminating radar. A computer within the missile generates guidance signals and directional control of the missile is achieved by twist and steer movements of the moving wings.

Also in the missile park was a replica of the quarterdeck of the new County Class G. W. Cruiser, together with a *Sea Slug* launcher. The exhibit showed the operation of missile flight controls, together with an example of a target engagement sequence. Beam-riding guidance is used, and the control signal generated in the missile itself steers the weapon through two axis pitch and yaw steering of the control surfaces.

The other Navy missile in the exhibit was the *Sea Cat*, a short range, ship-to-air guided weapon. Claiming exceptional maneuverability, the missile is steered by the wings which have a considerable sweepback. The square tail fins are set at 45° to the plane of the wings. Interest has also been shown in this weapon by Sweden, Australia, New Zealand, West Germany.

Components, accessories and servicing systems seem to increase yearly and

this year was no exception. By rear-ranging stands, available floor space was increased, but even so there is a waiting list for future shows.

Of considerable interest was the BS-53 lift/thrust ducted fan by Bristol-Siddeley engines. Essentially it is an *Orpheus* engine fitted with a two-stage ducted fan. The by-pass delivery is ejected from two swivelling elbow ducts on each side of the engine and the hot gasses are ejected through a similar split duct at the rear end. The elbows swivel to direct gas downwards for vertical lift and to the rear to provide forward motion. Since the two effluxes are some distance apart, a balancing moment about the CG can also be obtained.

Probably the most powerful engine shown was the *Olympus 21* with a dry rating of 20,000 lbs. thrust; whilst another version of this engine is said to develop 33,000 lbs. with reheat. However, in their exhibition coats of coloured lacquer and chromium plate, they give little indication of the enormous power they produce.

As for the future, a number of projects were described, among them the T.S.R.2 for the Royal Air Force. This is a strike reconnaissance aircraft powered by two *Olympus* engines with reheat and designed for supersonic speed at various altitudes. The Bristol 188, a supersonic aircraft of welded stainless steel construction, powered by two Gyron Junior engines, will be used for research in the M 2.3 range at very high altitudes, and its first flight is expected next year. Many were disappointed that the Hawker P.1127 VTOL fighter was unable to appear. This aircraft will use the RS-53 lift/thrust ducted fan engines.

In the transport line, Vickers-Armstrong of the British Aircraft Corporation is working on a family of subsonic jet liners (VC-10 series) all with rear-engined layouts. Another member of this group, Hunting Aircraft, has also progressed design work on a small twin jet rear-engined transport for short haul work. The Hawker-Siddeley Group makes its contribution to the future with a rear-engined jet transport from the DeHavilland stable, which employs three engines. This is expected to fly at the end of next year.

• Charles M. Harris, HN, topped a class of 19 to become honor man of Leadership Class 14-60 at NAS Glynco. He scored 1296 points out of a possible 1700 to win top honor.

**FIRST MILITARY** *pilot to fly Army VZ-2 tilt-wing VTOL research aircraft is Marine Major Don Segner, test pilot at NATC Patuxent River. He completed first conversion at Langley Field and logged five hours flight time.*

## Navy Metallurgist is Cited
### Wins Franklin Merit Certificate

Richard R. Moore, chief metallurgist at the Naval Air Engineering Facility, has been awarded Franklin Institute's Certificate of Merit. He developed a materials fatigue testing machine which revolutionizes metallurgical concepts, according to NAMC PHILADELPHIA.

The Moore rotating-beam machine provides designers of planes and missiles with an accurate knowledge of the strength of materials undergoing repeated stress, strain, and vibration.

**MGEN. G. A. BLAKE,** *Chief of Staff, U. S. Pacific Air Forces, presents USAF Air Medal to first U. S. Navy diver to receive the commendation, R. W. Carroll, BM3, who retrieved first capsule orbited and returned from space.*

## FAW-11 Trains Its Own
### 12 Radio Aircrewmen Graduated

September 9, 1960 was graduation day at the Fleet Air Wing Eleven Radio School. Twelve men, out of an original class of 23, completed the rigorous 13-week course designed to train patrol plane radio operators.

The course covers international Morse code, typing and radio operator procedures. Graduates must be able to receive 18 words per minute.

The school, which was set up by FAW-11 in 1952 to meet its own needs for radiomen, also trains men from other units in the JAX area.

## 'Sons of Sanford' Return
### Ring Bell on First Try at Jax

Heavy Attack Squadron Five, "the Savage Sons of Sanford," returned home recently after seven months aboard USS *Forrestal* in the Sixth Fleet. The first crew to become airborne on the squadron's first stateside training flight scored a direct hit on the Radar Bomb site at Jacksonville.

A direct hit, or in bombing parlance, a "shack," is a rare occurrence in high altitude radar bombing, akin to a baseball no hitter. However, Heavy Five has scored four "shacks" in the past three months.

On this most recent achievement, the deadeye bombardier was Chief "November" Baron of Lt. "Hoot" Foote's crew.

## This RecSta Has a Heart
### Norfolk Transients Get VIP Care

What is your opinion of Receiving Stations? If it is negative, chances are you haven't passed through Norfolk lately.

Says Capt. E. B. Pugsley, Commanding Officer, "Sailors here in a transient status are not numbers—they are individuals."

Here's one sample of what he means: Seven hundred sailors scheduled to board two aircraft carriers and several destroyers the next days were treated to steak dinners with all the trimmings, guest appearances by beauty queens, and gifts provided by area merchants at the Navy Recreation Park.

A *Forrestal* sailor said, "This is one of the nicest things that ever happened to me." Another said, "It makes you feel that you are really wanted."

KALOPANAGIOTIS ACCEPTS VCP-61 PLAQUE

## Attache Honors a Desire

### Delivers Plaque to 'Adopted' Son

When Capt. Alvin C. Berg reported as Naval Attache at the U.S. Embassy in Athens, Greece, his first trip was to present a squadron plaque to 15-year-old Christos Kalopanagiotis.

Heavy Photographic Squadron 61 had written from the Pacific Fleet to ask that the plaque be delivered in person by a Naval Aviator.

In 1952, when a detachment of the squadron was stationed in Europe, some of the men "adopted" Chris—then a sickly, under-nourished waif of six—through the auspices of the "Save-the-Children Federation." They pledged to contribute a sum of money regularly to his support and to assist in obtaining medical treatment.

Men of the squadron have changed and the squadron has been on duty in the Pacific for some time, but the men have remembered Christos with money, personal letters, photographs, and packages of clothing and gifts.

Up to now, English-speaking friends have translated the letters. But Christos now is a high school student and is learning English so that he can carry on correspondence with the squadron.

He hopes to enter the Naval Academy after high school and then become an officer in the Royal Hellenic Navy.

## PMR Gets New Facilities

### Eniwetok to Monitor Coast Shoots

Facilities of the Eniwetok Proving Ground have been turned over to the Pacific Missile Range to improve the Range's ability to evaluate missile flights made from launching sites on the West Coast.

Eniwetok Atoll is the westernmost of the northern Marshall Island group and is located 1050 miles southeast of Guam and more than 2300 miles southwest of Honolulu. Bikini Atoll is some 200 miles eastward.

The Atomic Energy Commission still will be able to use Eniwetok if the occasion demands.

Eniwetok has been in a stand-by status most of the past year. Its facilities will augment present PMR capability by providing an impact area in which suitable instrumentation may be installed easily to meet changing requirements of training programs.

## Pfc. Saves His Shipmate

### Buddy Trapped Under Generator

A Marine trapped under a multi-ton mobile generator in a flight line accident at MCAS *Cherry Point* was rescued by a fellow Leatherneck who reacted quickly and coolly to a life-and-death emergency.

Pfc. Wendell L. McLaughlin, a plane captain with VMF(AW)-531, suffered fractures of the shoulder, hip, pelvis, a dislocated back, and internal injuries when the generator toppled over on him.

Credited with rescuing his friend was Pfc. Gomer L. Lewellyn who freed McLaughlin by using a second mobile generator to raise the machine. He then pulled the unconscious man out onto a cleared area, took his pulse, noted that his breathing had almost ceased and that his face had begun to turn blue.

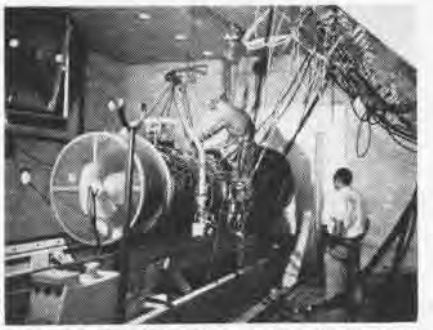
While others on the scene rushed to call an ambulance, Lewellyn administered mouth-to-mouth respiration.

By the time an ambulance arrived, McLaughlin had begun to breath regularly, his pulse had strengthened and color was returning to his skin.

## Kaneohe Gets Jet Test Cell

### To Aid in Local Repair of Engines

A new Turbo Jet Engine Test Cell was placed in operation at MCAS KANEOHE BAY early in July. Built in support of the Navy's Complete Repair of Gas Turbine Engines program, the cell will facilitate all tests required before repaired engines can be restored to service. It can also be used to diagnose engine discrepancies and thus eliminate trial and error trouble shooting. With the aid of the test cell, engines which formerly had to be shipped to mainland O&Rs can now be completely repaired and tested locally.



NCO IN CHARGE RIGS J-65 FOR RUN-UP

Engines to be tested are mounted on a rail-type thrust-measuring stand in the engine test room with all supply, sensing and control lines hooked up. The operator controls the engine and monitors its operation from a soundproof control room. Test equipment shows temperature at various points from inlet to tail pipe, exact RPM, thrust, amount of vibration, fuel flow, and pressures in various parts of the engine. The present facility is instrumented to test engines up to 30,000 pounds thrust.

Hot exhaust gases are cooled and quieted in the stack room. Gases pass through three water spray rings and one sheet of water. The temperature is reduced from nearly 3000°F to 450°F. The noise level is reduced to the equivalent of heavy street traffic noise.

Similar installations are in operation, or soon will be, at Cecil Field, El Toro, Point Mugu, Beaufort, Glynco, Barber's Point, and Patuxent River. Other cells are being built at Cherry Point, Memphis, and Lemoore air stations.

**BITE-SIZED BOMBERS,** *queen bee and her brood, found a home on helicopter rotor at NAS Jax. They were dislodged by carbon dioxide but returned. Mechs removed cover and started engine, but by evening they were back again.*

LEXINGTON PLANK OWNERS RECOGNIZED

## Lex Anniversary is Noted

### Nine 'Minutemen' Plank Owners

On 15 August at San Diego, RAdm. Alexander S. Heyward, Jr., ComCarDiv 5, presented nine "Minutemen" of the USS *Lexington* (CVA-16) with a piece of flight deck planking, commemorating their five years of service since the ship's recommissioning on 15 August 1955.

Adm. Heyward was the Commanding Officer of the *Lexington* when she was recommissioned.

A letter citing "faithful and continuous service" was given each one of the original "Minutemen."

The plank owners are: Stephen Wachtler, SH1; Mariano M. Ballera, SD3; A. B. Bersamin, SD1; Jerry B. Jones, BT2-P1; Lloyd Warren, GMSM; Clemente Ladrillono, SD2; Rolando F. Villanueva, TN; Hermenigildo Suarez, TN; and Julian A. Sobongan, TN.

At the end of the ceremony, Capt. S. B. Strong, Commanding Officer of CVA-16, presented Adm. Heyward with a piece of flight deck planking.

**SUPERSONIC LIFE** *begins at 45+ for Col. N.J. Anderson, MAG-11 CO, shown receiving final instructions in F8U-1. Qualified in all of Group's other types. Marine pilot was granted a CNO age waiver for the x-out.*

## Polaris Systems Developed

### NAMC Builds Launcher and Catcher

Naval Air Engineering Facility (Ship Installations) at NAMC *Philadelphia*, played a major role in the research and development tests leading to the successful launching of the *Polaris* missile from the submerged submarine, *George Washington*.

NAEF(SI) handled several projects in two major areas: systems for launching the missile, and systems for recovering test vehicles. The facility designed several test launch systems as well as the launch system installed in the *Polaris* submarines.

Since many test launchings had to be made to gather data for launcher missile design, it was important to develop a system for recovery of the highly instrumented test vehicles. The recovery method had to be such that it did not affect the missile's underwater or air travel.

Two successful systems for catching test vehicles in mid-air were developed. *Skycatch* recovers ground launched vehicles, while *Fishhook* catches vehicles from underwater launch tests.

The facility is now working on a third recovery system dubbed Project Snare. Snare operates without the wire attachments used in *Skycatch* and *Fishhook*. The mid-air missile catch is to be made in a nylon net.

## Tiny Light is Developed

### Will be Used in A3J-1 and F4H-1

General Electric has produced a new lamp for A3J *Vigilante* and F4H *Phantom II* wing tips which generates as much light as a 150-watt household bulb but is smaller than a postage stamp.

The lamp is shaped like a tiny envelope, bulging slightly in the middle, and is about half an inch square. It is made of quartz to withstand high temperatures.

Electronics engineers at North American said the smaller, powerful lamp was developed for wing tip use because of a need for visibility at distances, for resistance to friction heat and varying thermal pressures, and also because the sleekness of the fast-flying A3J leaves little room for the older and larger type lamps.

The lamp now works only on the electrical systems of the A3J and F4H aircraft, but engineers predict its eventual adaptation for consumer uses.

**STUCK SLUG** *perplexes ActMSgt. John Kiraly at MCAF Iwakuni pistol range. When he fired a round, low powder charge failed to force the slug through the barrel. It stuck, sounding "more like a dull crack from a 22-cal. rifle."*

## New Prop Design Studied

### Variable Camber Looks Promising

A variable camber propeller which promises increases up to 30 per cent in the range of high-speed transports and gains of as much as 50 knots in the speed of low-level attack planes is being developed by Hamilton Standard under Navy contract.

The propeller would be the first ever to adjust the camber or surface curvature of its blades to increase or decrease lift. It could add significantly to the climb and take-off performance of many aircraft while maintaining high efficiency for cruise.

For long range aircraft such as early warning and anti-submarine types, take-offs with heavy fuel loads would be possible even from short runways, with endurance improved as much as 20 percent. A Hamilton Standard engineer said in the case of future vertical take-off aircraft the propeller might mean payloads half again as big as those envisaged now.

The prop would use six or eight blades mounted in tandem on a common hub, with the rear blades staggered behind the front ones. Each pair of front and rear blades would create a single air foil surface similiar to a wing with the flaps extended.

To change camber, the propeller would automatically alter the angles at which the front and rear blades meet the air. Since the two blades are in effect one surface, this change of angle would vary the overall camber of the blades, just as a wing's curvature changes when the flaps go down.

# LETTERS

SIRS:

Dagnabit, you've goofed again! Note sentence beginning in Southeast corner, page 21, of NANEWS Sep 60. I quote verbatim: "One of the most interesting, though not necessarily important, pieces of information to come from the reports to date is that of humans attacked the *ration* has been *12 miles* to every Female—" (my underlining). Better jack up your proofreader.

Also, this particular info has been known from long standing, as witness the antiquity of the "Rhyme of the Man-Eating Shark," one verse of which I quote:

The most chivalrous fish in the Ocean,
With manner forebearing and mild,
Though his visage be dark,
It's the Man-Eating Shark,
Who will eat neither woman nor child.

R. C. WOODSIDE
CDR, USN

U.S. Army Intelligence School
Fort Holabird, Baltimore, Md.

¶ Aye, correctly it should read, "ratio has been 12 males," which it did up to the time we saw the magazine. It's a tough life, and this is our lament:

Aye, lad, what ye say
Has ruint our day.
We never knew it was wrong 'till we run it.
We ne'er proofed a goof—
Some one goofed our proof—
And we've a heckuva hunch who done it!

SIRS:

In his book, *The Spirit of St. Louis*, Charles Lindebergh paid clear tribute to Don Hall and his great contribution to the historic Lindbergh flight. Two points are well underscored in that book—the design and production of an airplane in record time in order to beat all competition, and the fact that the efforts to crowd as much fuel inside the "Ryan NYP" were so successful as to come out 50 gallons above preliminary computations.

That was a very fine story by Elretta Sudsbury in your September issue. *Naval Aviation News* seems to miss nothing in its attempt to cover aviation, and you are to be commended in paying this very well deserved tribute to an expert designer whose achievement is acknowledged by many in the field of aeronautical engineering.

JOE STEIN
Deputy Director
NASA Public Information

SIRS:

This is to report what is believed to be a record for the A3D-2P and six pilots. From 5 July until 3 August a total of 1117 passes, landings, and traps on mirror approaches were made. Six A3D's, 100% availability, made the TRANSPAC to Naha, Okinawa from Guam on 30 July 1960. Carrier qualifications were conducted without mishaps as scheduled on the USS *Ranger* (CVA-61) on 2-3 August 1960. Can any squadron top this?

J. J. CROWDER, CDR., USN
Commanding Officer, VCP-61

**THE GOLDEN 'E'**, *the "Admiral's Trophy" of the Naval Air Technical Training Command, was presented this year by RAdm. D. J. Welsh to Cdr. S. E. Mendenhall, the skipper of NATTU Pensacola, for its efficient operation.*

SIRS:

The crash crew at NAS NORFOLK will be pleased to learn that their ingenius "new flare gun warning system" really works. An identical device has been in use at NAAS BROWN FIELD for over two years.

So, what else is new at NAS NORFOLK?

E. W. OLIPANT, LCDR.
Flight Officer

## Range Ships are Re-named

### Two will be Operational Next Year

Two Pacific Missile Range ships used in space tracking and recovery operations have been re-named. The former *Skidmore Victory*, is now USNS *Ranger Tracker*, AG-160, and the former T-AG-161 has been renamed USNS *Ranger Recoverer*, AG-161.

The *Range Recoverer* is in operation. The *Range Tracker* is undergoing overhaul and will join Pacific Missile Range forces in September 1961.

**CHARLES SHARPLESS,** *ASO Support Guidance Committee representatives, shows Barbara Kane plaque given by Air Development Squadron 6 in appreciation of support given Deep Freeze by Aviation Supply Depot, Philadelphia.*

### Attention Naval Aviators

The 50th Anniversary of Naval Aviation will be celebrated during the month of June, 1961, in Pensacola, the Cradle of Naval Aviation.

If you are or ever have been a Naval Aviator, your name and address is desired by the Public Information Officer, Chief of Naval Air Basic Training, U.S. Naval Air Station, Pensacola, Florida, in order that you may be sent an official invitation.

## Apache Flight is Successful

### Small Rocket Built for Research

Successful flight of a low-cost, high altitude research rocket powered by a new *Apache* solid propellant motor has been announced by New Mexico State University and Thiokol Chemical Corporation.

The *Apache* delivered a 35-pound payload to an altitude of nearly 40 miles. Initial gross weight was 223 pounds.

The *Apache* is 104-in. long, has a 6¾-inch diameter, and sells for less than $1500 in quantity. It was designed as an 'off-the-shelf" rocket for such applications as high altitude and test sled research programs.

## Pilots Join Century Club

### Log 100 Night Transitions in -1N

Two HS-5 pilots, LCdr. Rae A. Duxbury, RN, and Ltjg. Bradley A. Butcher, were awarded Century Club certificates aboard USS *Lake Champlain* when they completed 100 night transitions in the HSS-1N helicopter. LCdr. Duxbury is an exchange pilot.

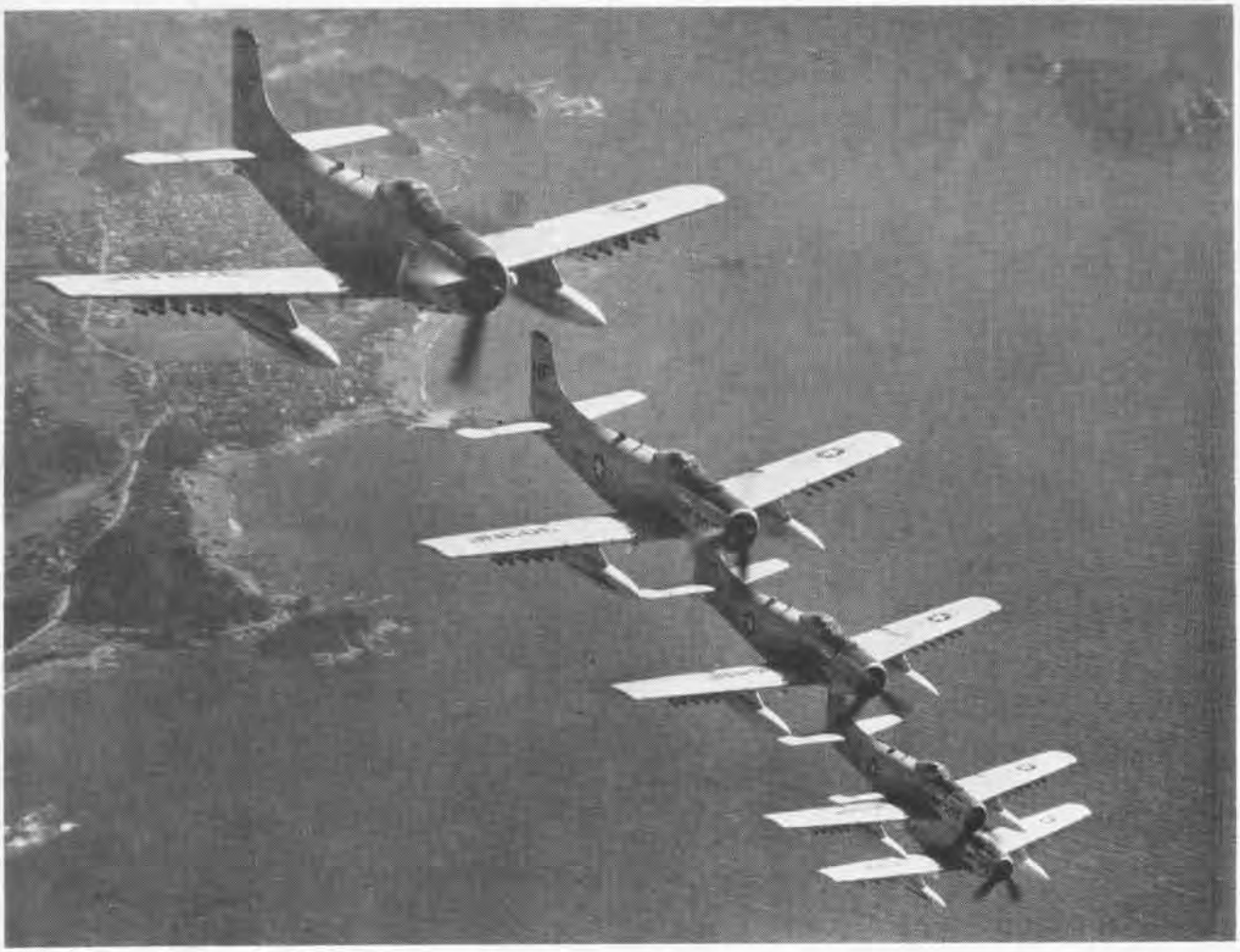
Cdr. Robert W. Raddatz, commander of ASW Air Group 54 and Helicopter Squadron Five, made the awards.

The HSS-1N has automatic equipment which enables it to transition at night from high level forward flight to low level hover.

It is necessary for an ASW helicopter to hover stationary above the water before it can lower its active sonar ball into the water to detect and track submarines.

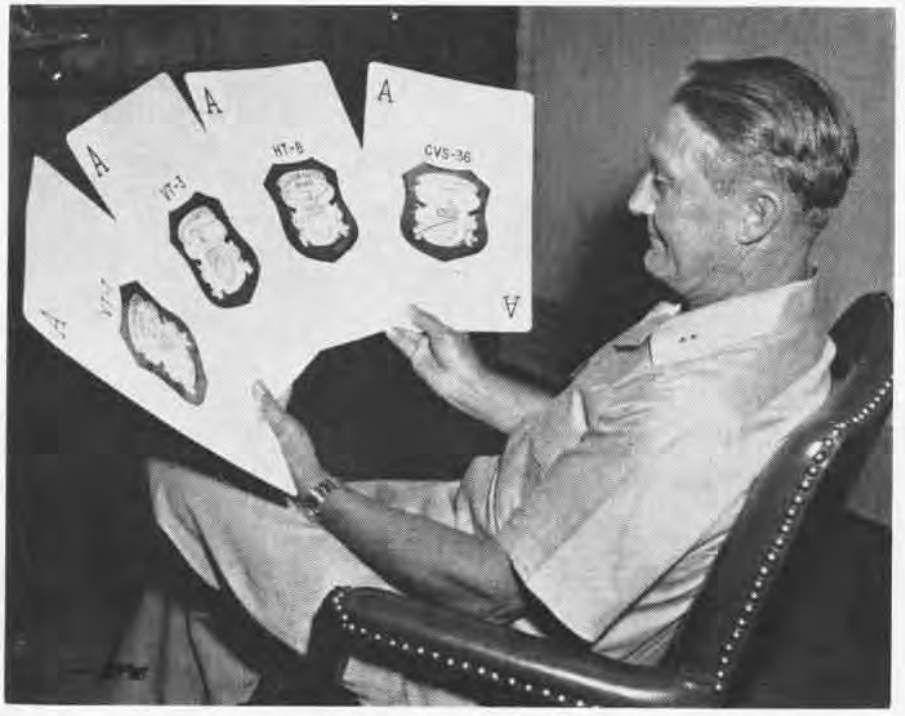
Night hovering is impossible without this equipment, since the pilot at low altitude is unable to "sense" his altitude above the water and his lateral movement.

The HSS-1N equipment is composed of a radar altimeter and a radar doppler, coupled to the automatic stabilization gear, which enables the copter to sense its altitude and horizontal motion, even on a dark, moonless night.



## SQUADRON INSIGNIA

Attack Squadron Fifty-Two won the FY '60 CNO Safety Award the hard way. In February 1959 VF-144 turned in its Cougars, changed its designation to VA-52, and drew AD-6's. Jet pilots and maintenance crews mastered the AD without RAG training. RAdm. F. D. Foley, ComCarDiv One, presented plaque to VA-52's commanding officer, Cdr. Alfred S. Taddeo.




# DUERFELDT'S DREAM HAND

'Best hand I've ever had,' is the satisfied comment of Rear Admiral Clifford H. Duerfeldt, Chief of Naval Air Basic Training. The four ranking Safety Aces in CNABATRA are Training Squadrons Seven and Three, Helicopter Training Squadron Eight, and USS Antietam (CVS-36). Each received the Chief of Naval Operations Safety Award for FY 1960. Behind these records are devotion to duty, high maintenance quality, and continuous proficiency. For the latest word on how the game goes and up-to-date info on flying techniques, be a regular reader of Naval Aviation News.