NAVAL AVIATION NEWS

41st Year of Publication

FEBRUARY 1960

NavAer No. 00-75R-3

SHARE THIS COPY

10,000-FOOT RUNWAY ON HIGH SEAS

The meatball in the mirror tells us we're in good shape on this pass at the USS Independence. The generous stretch of deck ahead of us is equivalent to 10 times its length in terms of the land-based variety. Handling and emergency personnel stand ready to render an immediate assist if necessary. And there are no obstructions. The angled deck has brought new efficiency and effectiveness to aircraft carrier operations along with a healthy increase in safety of flight.

■ COVER

The A3J Vigilante gracing this month's cover was shot by North American Aviation's far-ranging, high-flying photographer, Stu Stallsmith, a long-time contributor to NANews. Two other unusual views of the Navy's new all-weather weapon system in flight near Columbus, Ohio, are shown on page 19.

NAVAL AVIATION NEWS

FORTY-FIRST YEAR OF PUBLICATION, FEBRUARY 1960

■ IN THIS ISSUE

Camera! Action! Chute!	**6**	*Parachute testing from plane to ground fully recorded by complicated camera set-up.*
1959 in Review	**7**	*Highlights of Naval Aviation in the past year reviewed in chronological order.*
Top Gun Tally	**14**	*Report on Naval Aviation's annual Weapons Meet at MCAAS* YUMA, Arizona.
Antarctic Science Search	**20**	*U.S. scientists and their goals at the South Pole where they operate under hazardous conditions.*
Bombing Derby	**24**	*Heavy Attack pilots' big competitive event described; winners and trophies listed.*
Naval Air Reserve	**26**	*Weekend Warrior newsmakers.*
Survival in Borneo	**29**	*An exciting, dramatic account of tenacity and courage in World War II which paid off in lives saved.*
Project Lincoln	**32**	*Programs with a future undertaken by Naval Air Development Unit operating from NAS* SOUTH WEYMOUTH.

■ THE STAFF

Cdr. E. G. Colgan	Head, Aviation Periodicals Office
Cdr. George F. Rodgers	Editor
Izetta Winter Robb	Managing Editor
Lt. B. T. Sullivan, Joseph E. Oglesby, JOCS	Associate Editors
Cdr. Oliver Ortman, Cdr. G. L. Knight	Contributing Editors
Ardis Pitman	Secretary
James M. Springer	Art Director

Use of Funds for printing this publication has been approved by the Director of the Bureau of the Budget, 10 Feb. 1959.

Published monthly by Chief of Naval Operations and Bureau of Naval Weapons to disseminate safety, training, maintenance, and technical data. Send mail to Naval Aviation News, Op 05A5, Navy Department, Washington 25, D. C. Office is located in room 5E629 Pentagon: Telephone Oxford 73685 or 73515. Annual subscription rate is $2.50 check or money order ($1.00 additional for foreign mailing) made payable to Superintendent of Documents, Government Printing Office, Washington 25, D. C. Single copy, $.25.

NAVAL AVIATION NEWS

Improved Bullpup Coming
New Engine, Warhead, Guidance

An improved *Bullpup* missile, more lethal than the one now operational in the Sixth and Seventh Fleets, is in production and soon will be placed in operational status.

Designated ASM-N-7a, the latest *Bullpup* will have a pre-packaged liquid fuel motor, replacing the present solid fuel type, a more powerful warhead, and an improved guidance system.

Cost of the improved missile will be considerably less than the earlier production model. This has been attributed to improved production techniques and higher quality standards developed by the contractor.

Bullpup was developed by the Navy and the Martin Company at Orlando.

RAPEC Tests Successful
Provides Low Level A4D Ejection

RAPEC, the Navy's rocket-assisted personnel ejection catapult, which was designed to eject a pilot and his seat from a low-flying Douglas A4D attack plane, has been test-fired successfully at China Lake.

The RAPEC system works in four stages. Propellant gases push the seat out of the aircraft; a rocket shoots pilot and seat 200 feet above the aircraft; a mechanical device separates the pilot from the seat; a parachute opens to lower the pilot safely to earth.

RAPEC was developed by NOTS CHINA LAKE for the Bureau of Ordnance while Douglas provided the seat system for the Bureau of Aeronautics. It has been under development at China Lake for two years.

The system has a two-phase ejection control. Primary control is triggered when the pilot pulls a curtain over his face. If unusual flight conditions prevent this because of excessive acceleration loads on his arms, an alternate control located at the seat front between his legs effects instant ejection. An accordion type bladder, inflated suddenly by compressed gas, forcefully separates the pilot from the airplane's seat.

Rocket Handling Improved
'Quickmix' Studied by Rocketdyne

A safer and faster method for the continuous processing of solid propellants is under development by the Rocketdyne division of North American Aviation, Inc.

Called "Quickmix," the new process is expected to provide a high degree of mobility for the manufacturing of solid propellants in the field and loading into large rocket motors.

Further work is applying the process to several specific propellant formulations being done under contract with the manufacturing methods division, AMC, Aeronautical Systems Center.

A Quickmix pilot plant which has a minimum capacity of 500 pounds of propellant per hour recently was loaded on a 30-foot truck trailer and transported from California to the division's solid propellant plant at McGregor, Texas.

Rocketdyne engineers have used the pilot plant to process several new types of solid propellant formulations.

JUDGE ADVOCATE *General of the Navy, RAdm. Chester Ward, made use of helicopters during recent inspection in the Med. Here, he lands aboard USS Des Moines, the flagship of VAdm George Anderson, Commander, 6th Flt.*

Nuclear Missile Studied
Grumman Project Covers 5 Phases

Under a dollar-a-year contract with BUWEPS which allows its engineers access to classified material while using company funds, Grumman aircraft Engineering Corporation is conducting a feasibility study to investigate the application of a nuclear propulsion unit to a guided missile.

The investigation covers heat transfer properties, reactor analysis, reactor shielding, radiation effects on materials, and materials which could be used to make the reactor, (and thus the entire missile), more compact.

RCVG's Improve Safety
First Year Figures are Released

Statistics showing the impact of Replacement Carrier Air Group training on the overall Naval Aviation safety rate have been released.

Based on the first year RCVG-trained pilots have flown A4D's F4D's, F11F's, F3H's, FJ-4's and F8U's in the fleet, they averaged one accident per 11 pilots for the year while their fleet-trained counterparts were averaging two accidents per nine pilots.

Only one in 24 RCVG-trained pilots was involved in a pilot factor accident as compared to one in nine among fleet-trained pilots.

Since so few AD pilots went through the RCVG pipeline during the year and since Marine Corps pilots were not trained by RCVG's, those categories of pilots were excluded from the overall comparison.

Interpreting the statistics, the Naval Aviation Safety Center concluded that if all fleet pilots had been through RCVG training, the 182 accidents which occurred during the fiscal year would have been reduced to 88.

The 94 accidents which would have been prevented would have meant the saving of 49 airplanes and a consequent saving of $49 million.

Twenty less pilots would have died in aircraft accidents during the year.

ENGINE AND AIRFRAME *changes resulted from test series which were flown to determine cause of F3H engine failures under certain adverse weather conditions. Both icing and water ingestion were suspected. At left, F3H Demon maintains position in water spray being released by KB-29 tanker. Dye in water was used to show impingement areas and flow along aircraft nose. External ducting (R) was rigged to carry compressor bleed air to windshield for de-icing purposes. Tests showed water ingestion was primary cause and pointed way to changes.*

F8U-2N is in Production
Will Reach Fleet Later This Year

The Navy has awarded Chance Vought Aircraft a $58-million contract for continued production of F8U-2N *Crusader* jet aircraft. The limited all-weather fighter will be delivered to the fleet later this year.

The F8U-2N will have the ability to detect and destroy targets at night or in bad weather. Powered by a Pratt & Whitney J57 engine, and equipped with heat-seeking *Sidewinder* guided missiles, the -2N has significant improvements over its predecessors.

In addition to its all-weather capability and a speed of nearly twice the speed of sound, the F8U-2N is equipped with an autopilot which will enable the pilot to hold his altitude, heading or pitch and roll attitude while concentrating on his mission.

It will have the Martin-Baker ejection seat which provides emergency escape at ground level, revised interior and exterior lighting systems, and newer instrumentation.

Ventral fins, mounted under the tail assembly, will provide increased stability at high speeds, and increased fuel capacity will enable the plane to remain in the air for more than three hours without refueling.

In addition to carrying *Sidewinder* air-to-air missiles, the F8U-2N will have provisions for additional armament and for advanced missiles now under development by the Navy Dept.

ON 15 DECEMBER, *President Eisenhower was greeted on board the heavy cruiser, USS Des Moines, by VAdm. G. W. Anderson, Jr., Commander of the U.S. Sixth Fleet, and Capt. Morgan Slayton, ship's skipper. The President came aboard the Des Moines, Sixth Fleet flagship, after a helicopter flight from Athens. He was on the ship for a three-day cruise to Tunis and Toulon.*

Helicopters Fight Fires
'Water-bomb' Blazes from 50 Feet

Twelve Marine helicopters from MCAS EL TORO adapted close air support tactics to fire fighting as they joined the California forestry service in battling a raging brush fire.

Carrying huge plastic bags known as "heli-tanks" under their aircraft, HMR-361 pilots flew over the fire at 50 feet altitude, dropping chemically treated water on the burning brush.

During the two days the helicopters dropped fire bombs, they expended 21,000 gallons of treated water.

Following the successful completion of Operation *Helitack*, the California Forestry service was high in its praise of the Marines' close air support, another weapon in the growing arsenal of fire fighting equipment.

Flight Manual Reprinted
It May be Purchased by Civilians

The Navy All Weather Flight Manual is being made available to civilian pilots by the Federal Aviation Agency at a cost of $3.50.

FAA officials describe the manual as one of the most complete textbooks on instrument flying now in print. They note it contains technical information not available in other studies and they are recommending it to civilian flyers who are preparing for advanced ratings or for the new instrument training required for a private or commercial pilot's certificate.

The book is available at the U.S. Government Printing Office, Washington 25, D.C., according to the FAA.

GRAMPAW PETTIBONE

Rescue

Day rescues and life-saving have become so frequent to helo pilots these days that a man has to be in really "dire straits" before "they consider it a real save."

While cruising in the Atlantic, the radio watch aboard a CVS intercepted an appeal for help from a merchant ship which had a crewman aboard who was stricken with peritonitis and in need of immediate medical assistance. The big carrier's C.O. decided to steam to the assistance of the merchant ship, transfer the sick man by whaleboat to a destroyer, highline him to the carrier, and then COD him to a hospital ashore.

The OinC of the HU detachment aboard the CVS insisted the sick man's transfer could be done more expeditiously by helo. Since it would be done after dark, an AD5W could launch ahead of the helo and vector him by radar to the merchant ship. The C.O. agreed.

The HUK-1 was launched some 40 miles from the merchant ship and was immediately contacted by the AD5W, which had him on radar, and vectored directly over the ship. The helo pilot

made a careful survey of the merchant ship, using his landing lights, and his rescue aircrewman lowered a stokes litter through the maze of rigging as the helo hovered. A very successful pickup of the sick seaman was made and, again vectored by the ever watchful AD5W, the helo returned to the CVS. The entire mission was logged as a "Personnel Transfer, Night."

Grampaw Pettibone says:

Bust my buttons! An ASW force at sea is a mighty potent fightin' machine. They're so used to workin' as a team that the Commanding Officer has a real job deciding which of 'em to turn loose on a mercy job such as this.

Ol' Gramps sure wonders just how many "saves" helos have made of people in distress. HU-2 alone had around 840 last count I saw. You helo outfits drop me a card, and Gramps will print a box score.

I'll betcha the total will be a dilly.

Memo from Gramp

Been receivin' so many reports of Gooney birds gettin' in the way of the barrier squadron "Connies" at Midway, that I've been tossin' and turnin' these nights trying to dream up a solution to this fix they're in. Finally hit on the solution one dark and stormy night.

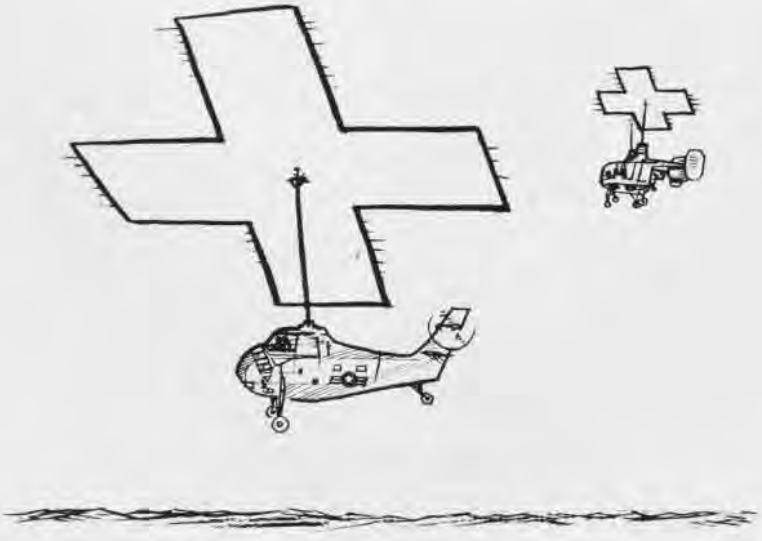
Solution: Import some Pensacola buzards to pass the word to the Goonies. It is a well-known fact that it is impossible to fly an airplane into a Pensacola buzzard, as everyone who has completed flight training at Pensy can attest. I myself have chased them all over north-western Florida and parts of Alabama and never caught one yet.

It is considered that this one action, if properly supervised, will positively eliminate accidents of this nature.

A note of caution, however; only Pensacola buzzards will do, as pilots who have tried to dodge buzzards elsewhere will testify. The result of this experiment might be a new breed of birds known as BUZZOONIES.

Alternate solution:

Require all Goonies (estimated population by rough count, 2½ million birds) be equipped with a red rotating anti-collision beacon and be painted a fluorescent orange. These are minimum requirements to improve their being sighted by worried pilots on takeoff and landing. BuWeps safety people oughta get right on this.



A Slight Case of Vertigo

Four AD-6 *Skyraiders* were launched at dusk from an attack carrier to run some low visibility intercepts.

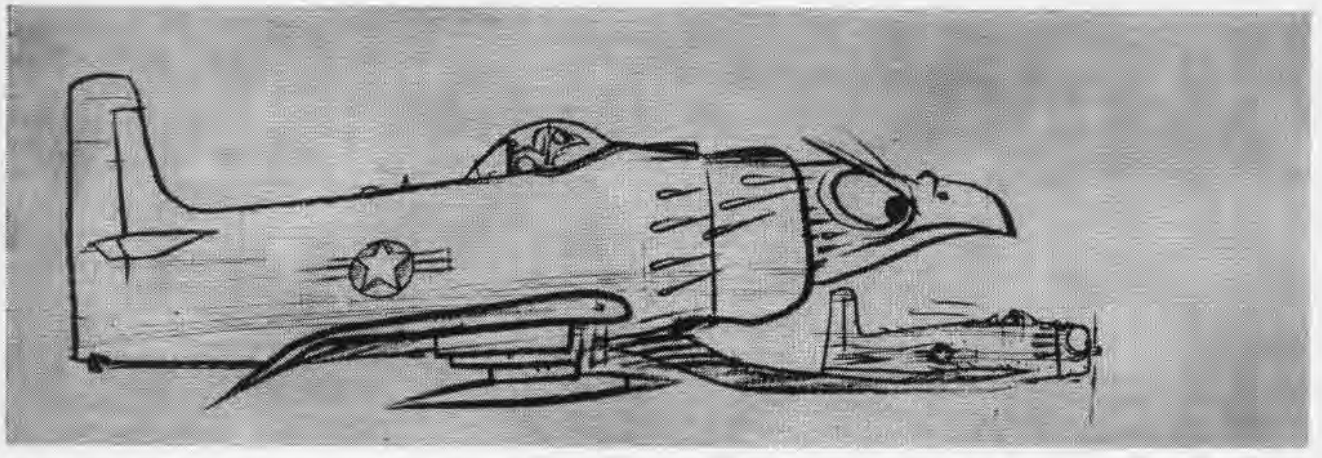
It was a particularly dark night with no moon, and the horizon was non-existent. The star-studded sky seemed to blend into the inky black water below.

The flight split up into two sections to begin the exercises, maintaining a 1000-foot separation between bogies and friendlies. Both sections inadvertently flew through clouds from time to time and because of the poor visibility, were on instruments practically all the time.

The bogey section, cruising at 5000 feet, was vectored to a new heading, and the leader started into a shallow meter—3500 feet. Putting his hand on the chute's "D" ring, he crouched in the seat, sheltered by the windshield, and then leaned out. The shrieking wind immediately tore his hard hat completely off, and as he continued to push his way out against the slipstream, the wind caught his right arm and flung it back, "D" ring and all! The pilot chute popped, and the whole cockpit seemed full of white parachute and riser cords. He seemed pinned against the canopy.

Momentarily he thought of gathering the whole thing up in his arms and jumping anyway, but gave that up as hopeless. Falling back down in the seat again, he chopped the power and pulled back on the stick as hard as he could. Watching the altimeter unwind as he pulled, he saw it go through 500 pulled 10 G's, etc., also "If you read me, rock your wings". The other AD rocked his wings and then made a series of very gentle turns back toward the carrier, now alerted to the emergency situation and standing by with a ready deck and every light on bright.

As they came up astern the flight leader started a let-down to the left, and vertigo struck the wingman again. Overcontrolling and pretty wobbly, he promptly went on the gauges this time, turned to a heading of North, where he knew the nearest land to be, and headed out, transmitting in the blind his intentions, heading and altitude. Although concentrating on his instruments, he became aware of a small blinking white light coming in from below him and to one side. This materialized into his flight leader, swinging



right turn. The wingman stated later he felt a little funny, looked around, up and down, and saw nothing but stars. Suddenly an uncontrollable feeling that they were inverted and doing a split S hit him! The leader's relative position on his canopy kept moving up, and the wingman found himself looking straight up at the leader. Thinking his section leader had vertigo, he broke away to the right, afraid they were flying into the water, and then glanced at his own gyro horizon.

It looked like something he'd seen during instrument training and only then in an unusual attitude!

"I've got vertigo" he called.

"Go on your gauges! Go on your gauges!"—this from the flight leader.

"I'm spinning."

"Bail out! Bail out!"

The wingman opened the canopy, unbuckled, and glanced at the altift. and approach zero! The gyro horizon was showing wings level and suddenly the AD began to shudder and he now noted the airspeed falling below 100 knots.

Jamming on full throttle and easing the nose over, completely on the gauges now, he pulled the risers and flapping pilot chute back in the cockpit and stuffed them under him as best he could. He had just finished closing the canopy when another AD pulled up ahead, lights on bright. His flight leader had arrived to aid the disoriented wingman.

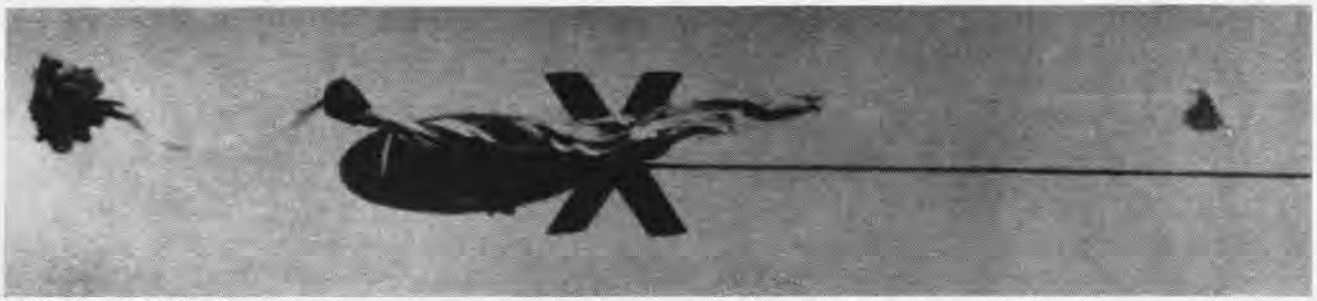
Feeling a need to communicate, the affected pilot remembered his oxygen mask, which should be still in the cockpit as he hadn't been wearing it when the hard hat was lost. It was. Plugging in the mike cord, he called the other AD and told him his troubles; hardhat gone, chute in the cockpit, vertigo, into a lead position again to take him to the airfield ashore. The rest of the hop and final landing were without incident.

Grampaw Pettibone says:

Son, you had me worried! The fog count in your cockpit was pretty high until you finally remembered that the GAUGES are your ONLY salvation in a situation like this! You were durn lucky you were in an AD. Anything else would have come unglued in a 10 G pullout.

Even though we say oxygen is required above 5000 feet at night it sure doesn't hurt a bit to use it at 4000. Sharpens your vision and tones you up, at least Ol' Gramps thinks so.

Your flight leader worked like a mother hawk keepin' you tucked in under his wing at every opportunity, no matter how hard you tried to escape him. I'd keep him well stocked with his favorite brand from now on out.



WHISTLING AROUND *"whirl tower" at 300 mph, gondola releases dummy and parachute. Dummy is at left, parachute is streaming in center. New chute designs are given 200-250 rides on tower. Camera record of such tests provides vital data concerning chute design and action.*

CAMERA! ACTION! CHUTE!

PARACHUTE photography, space satellite tracking and testing of chutes for men and machines is the three-way mission of a cooperative inter-service activity in the California desert at El Centro.

Navy and Air Force personnel have teamed with industry in the form of Chance Vought's Range Systems division to operate the joint DOD Parachute Testing Center at the Navy Auxiliary Air Station there.

Chutes are dropped at high speeds, low speeds and at varying altitudes from 50 feet to 24,000 feet. Long range telescopic lens cameras, operated by Vought technicians photograph them from the time they leave the plane until they touch the ground.

Five Askania photo-theodolite cameras are located on a semi-circular pattern across the desert floor to record exactly how the test parachutes deploy.

Not only are parachutes for pilots and aircrewmen tested at the base, but also chutes for recovery of such things as *Nike-Hercules* nose cones, NASA's space capsule, drones, final stages of space rockets and jet plane escape capsules. More than 40 different testing projects involving recovery of men and material are underway at the El Centro base with all air drops being photographed by the camera set-up.

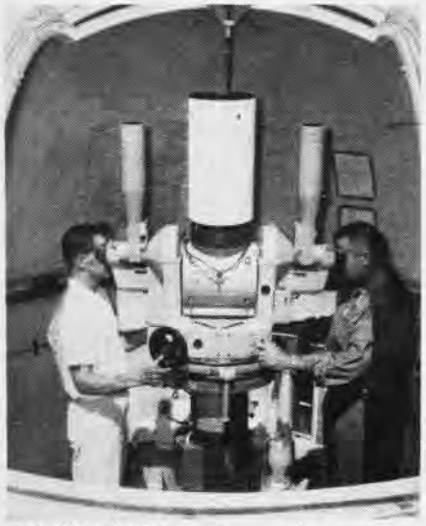
Vought also operates a 130-foot "whirl tower" which tosses out chute-equipped dummies at speeds up to 500 mph. Telemeter equipment in the neck of a 250-pound dummy torso plus strain gages in the parachute risers and 16 mm. movie cameras on ground towers, record what happens when the whirl tower operator releases the man-sized dummy and the parachute.

The third type of activity at the El Centro base involves photographing several "space travelers" as they hurtle past in the night skies. At present, the 2925-pound *Sputnik III*, *Discoverer* V and the rocket body from *Vanguard II* are being tracked by the Askania camera crews.

Every parachute designed for human jumps gets a minimum of 200 dummy runs and 500 jumps by live parachutists who are based at El Centro. Some of the chutes still undergoing tests there have been used for many years to see how they hold up with age.

Drops have been made from helicopters hovering at 50 feet to as high as 26,000 feet from high speed jets. Aircraft used in the tests include the A4D, A3D, F-100, F9F and C-130.

About 50 percent of the tests made at the El Centro base are for the Navy.



ASKANIA CAMERA *with giant 120-inch telescopic lens photographs parachute drops.*

WHIRL TOWER *at Navy base has 56-foot boom, achieves test speeds from 50 to 500 mph.*

CHANCE VOUGHT *technicians ready 250-pound dummy for ride in streamlined gondola.*

ONE WORD dominated world headlines in 1959 and that word was *space*. The orbit of man-made satellites became almost commonplace and the fantasy of man in space began to take on realistic form. Against these successes, man's ability to cope with problems on earth seemed puny and indeed provided the uneasy background which turned scientific accomplishment into an international race for space.

Naval forces were not called upon to quell shooting wars in traditional trouble spots of the world, but there was tension and hostility, as international intrigue provided incidents, and demands, threatening world peace. These changing conditions of a series of ages now seemingly climaxed by space, were inevitably reflected in naval aviation organization. On both administrative and operational fronts there were marked changes in emphasis and revisions of mission. Elements directing research and development were consolidated under a new Deputy Chief. Two bureaus were merged. A new division was established to formulate Navy requirements in space.

By Adrian O. Van Wyen
Aviation Historian, DCNO(Air)

HONORABLE *Thomas S. Gates, former SecNav, taking the oath as Secretary of Defense.*

Numerical reductions in operating forces followed recent trends. There were fewer personnel on board and fewer aircraft on hand. There were adjustments in station support, and reclassifications of ships as new and modernized vessels became operational. The aircraft maintenance system was revised with savings in manpower.

New and improved air defense and air support missiles were delivered to the fleet. Missiles in several categories were under development; some neared operational status. Tests of the ballistic missile *Polaris* and its associated elements showed definite progress. Three nuclear powered submarines were launched for its employment.

Improved models of operating aircraft, including helicopters, reached fleet units. A new airship designed for air warning patrol was delivered. A new jet was introduced into flight training. Antisubmarine planes were equipped with more effective electronics. An all-weather interceptor and an air warning plane were being readied for fleet assignment. Other types promising significant improvement were under development.

As the year opened, space continued to dominate the headlines. There were inquiries into the defense program and into our missile progress. Vanguard II and Discoverer I were put into orbit. USSR Metchta shot past the moon and into orbit around the sun; U.S. Pioneer IV followed suit. Experts predicted a space depot within five years. Radar signals were bounced off the planet Venus. There was tension over Berlin; revolt in Cuba. A ban on nuclear tests was still under discussion. The Territory of Hawaii was admitted as the fiftieth state of the Union.

JANUARY

9—The Navy's first nuclear-powered guided missile submarine *Halibut*, SSG(N)-587, was launched at the U.S. Naval Shipyard, Mare Island, California.

10—The USS *Independence*, CVA-62, was commissioned at New York, Capt. Rhodam Y. McElroy commanding.

SEAL OF *the new Bureau of Naval Weapons is examined by its Chief, RAdm. Paul D. Stroop and RAdms. R. E. Dixon and M. H. Hubbard.*

21—Tests at Indian Head, Md., of a new type movable nozzle for the *Polaris* demonstrated a successful major advance in the directional control of ballistic missiles.

24—Maj. J. P. Flynn and Capt. C. D. Warfield of the 2nd Marine Aircraft Wing, made a non-stop, non-refueling flight in A4D *Skyhawks* from El Toro, Calif., to Cherry Point, N. C., covering 2,082 miles in 4 hrs., 25 mins.

27—The Naval Air Development and Material Center at Johnsville, Pa., was redesignated Naval Air Research and Development Activities Command.

During the month: MCAAS YUMA was established, NAAS EDENTON was reduced to an OLF, *Boxer* became LPH-4, VA-156 became VF-111; VAH-16 and the former VF-111 were decommissioned.

FEBRUARY

6—In accordance with the provisions of the Defense Reorganization Act of 1958, the Office of Assistant Secretary of the Navy for Air was abolished.

16-19—Fifty-five Naval Air Reserve crews and their P2V and S2F aircraft, took part in a Pacific Fleet anti-submarine defense exercise conducted off the West Coast.

24—The operational deployment of the *Talos* missile was marked by its first firing at sea by the USS *Galveston* in the vicinity of Roosevelt Roads, P.R.

During the month: VF's 23, 43, 112, 144 and VA's 116 and 151 were redesignated VF-151, VF-11, VA-112, VA-52, VA-144 and VA-23 respectively. Old VF-11, VF-52, VF-173, VA-105, VAH-15 were decommissioned.

MARCH

1—Fifteen World War II escort carriers, since designated CVHE, were among the 43 obsolete warships stricken from the Navy Vessel Register.

2—The last F7U *Cutlass* in active service was retired by the Naval Parachute Unit at NAAS EL CENTRO.

3—The completion of three years of construction at the Naval Air Test Facility (SI) was marked by a brief ceremony at NAS LAKEHURST in which Capt. R. M. Tunnell accepted the keys to the catapult and arresting gear sites.

ADMIRAL *Arleigh A. Burke being sworn in by RAdm. Chester Ward, Judge Advocate General, for his third term as Chief of Naval Operations.*

7—The USS *Oriskany*, CVA-34, Capt. James M. Wright commanding, was placed in commission at San Francisco after completing major conversion.

10—Transfer of LTA training from the Naval Air Training Command to Commander Naval Air Force, Atlantic, and the cessation of the requirement that all LTA students also have HTA training were approved.

11—The amphibian all-weather helicopter, HSS-2, made its first flight piloted by Sikorsky test pilot R. S. Decker.

13—Aviation Cadet E. R. Clark soloed in a TT-1 *Pinto*, the first student in naval aviation history to solo a jet without previous experience in propeller aircraft.

20—The K-43, sole surviving airship of the World War II K-class, was flown for the last time at NAS LAKEHURST.

During the month: *Princeton* was reclassified LPH-5, *Randolph* became CVS-15, VF-24 and VF-211 exchanged titles; VF-71, VA-104 and FASRon 121 decommissioned.

The second quarter marked the tenth anniversary of NATO. There was trouble over Berlin as hostile fighters heckled U.S. air transports. There was trouble in the western Pacific as MIG's *made an unwarranted*

SECOND *of the Chance Vought Crusader line, the F8U-2 featuring improved speed and fire power, became operational in both oceans.*

A NEW *antisubmarine plane and modification of the presently operational Tracker, the Grumman S2F-3 made its first flight at Bethpage.*

attack over international waters; there was trouble in Panama. But between good neighbors there was fellowship and understanding as a Queen and a President officially opened the St. Lawrence Seaway. The Navy acquired an official flag and accepted a plan for reorganization. But space continued its hold on the news. Mercury astronauts were selected, Discoverer II went into orbit, two monkeys survived a 1700 mile trip in a Jupiter missile, the feasibility of missile mail was demonstrated, the X-15 ***made a glide flight.***

APRIL

2—Keel of the *Iwo Jima*, LPH-2, was laid at Puget Sound Naval Shipyard. First of its type to be built from the keel up, the new ship will be 15,000 tons, 600 feet overall and have a crew and troop capacity of about 2,500.

4—F8U-2 *Crusaders* went into service as VF-84 at NAS OCEANA received the first to be assigned to a fleet unit.

9—Four Naval Aviators, LCol. J. H. Glenn, USMC, LCdr. W. M. Schirra, LCdr. A. B. Shepard and Lt. M. S. Carpenter, were among the seven men selected as prospective astronauts under Project Mercury.

15-22—Elements of the Naval Air Reserve operating P2V and S2F aircraft from Naval Air Stations Brunswick, Quonset Point and Lakehurst took part in Atlantic Fleet antisubmarine exercises.

22—The *Henry B. Wilson*, DDG-7, first of the guided missile destroyers designed from the keel up, was launched at Bay City, Michigan. Second ship of the type, the *Towers*, slid down the ways the next day at Seattle, Washington.

25—*Bullpup* was first operationally deployed as VA-212 sailed from Alameda on board the USS *Lexington*, bound for operations with Seventh Fleet in the western Pacific.

26—HU-2 pilots of the ice breaker *Edisto*, enroute home from a tour in the Antarctic, completed 10 days of rescue operations in the Montevideo area of Uraguay in which they carried 277 flood victims to safety.

28—The office of Assistant Chief of Naval Operations (Research and Development), Op-91, was disestablished and replaced by a new Deputy Chief of Naval Operations (Development), Op-07, with authority and responsibility to execute the research, development, test and evaluation responsibilities of the Chief of Naval Operations.

During the month: NAS ATLANTA was commissioned at Dobbins AFB; VF-61 and VF-82 were decommissioned.

MAY

5—The Guided Missiles Division, Op-51, was transferred in its entirety from DCNO(Air) to the newly established office of DCNO (Development) and its Director was designated Assistant Chief of Naval Operations (Development).

7—Thirty-six escort carriers were reclassified as cargo ships and aircraft ferry, AKV.

15—The Operational Development Force was placed under the Chief of Naval Operations for technical control and program guidance, its mission was revised and broadened to centralize and strengthen the research and development program and, as a reflection of the changes, was at the same time redesignated Operational Test and Evaluation Force.

15—Seven CVL's remaining on the Register and four CVS's were reclassified auxiliary aircraft transports, AVT.

DESIGNED *for early warning duty, ZPG-3W airships are largest non-rigids yet built.*

THE HIGH *performance HU2K Kaman all-weather utility helicopter made its first flight.*

THE NORTH *American Buckeye, T2J-1 tandem-seat jet, went into use in Basic Training.*

THE FIRST *class of students to train in the T2J Buckeye, line up before their instructors at Sherman Field, Pensacola. First to fly, 2nd Lt. Mosher, is second from left, in front.*

AVCAD CLARK, *first all jet student to solo, is congratulated by RAdm. J. M. Carson.*

20—Performance of the HSS-1N helicopter during sea trials on the *Valley Forge* with Task Group Alfa promised a significant increase in ASW capability.

20—The Grumman antisubmarine plane, S2F-3, made its first flight at Bethpage, piloted by Tom Attridge.

21—The airfield at Roosevelt Roads, P.R., was named Ofstie Field in honor of the late VAdm. Ralph A. Ofstie.

26—A concept of aircraft maintenance which provided for the assignment of responsibility directly to the unit having custody of the aircraft and for gradual elimination of FASRons, was approved for implementation.

26—An F9F-8B piloted by Cdr. R. C. Tylutki, was launched by the C-14 catapult at the NATF(SI) in the first live test of the powerful new unit being developed for the nuclear-powered USS *Enterprise,* under construction.

27—The Naval Weather Service Division, with its functions and personnel, was transferred from DCNO(Air) to DCNO (Fleet Operations and Readiness).

During the month: NAS ROTA, Spain became a Naval Station; CVHA-1 *Thetis Bay* was reclassified LPH-6.

JUNE

8—The bombardment missile *Regulus* I, fired by the submarine *Barbero* 100 miles off the Florida coast, delivered a cargo of official Post Office mail ashore at Mayport after a 22-minute flight.

8—William B. Franke became Secretary of the Navy.

9—The USS *George Washington,* first of nine nuclear powered ballistic missile submarines authorized by Congress, was launched at Groton, Conn.

16—A P4M *Mercator,* on routine flight over international waters off Korea, was fired upon by two MIG's. The attack wounded one crewman and so damaged the plane that it made an emergency landing at Miho, Japan, with both starboard engines and some of the flight controls inoperative.

19—A ZPG-3W, first of four airships designed for use in air warning patrol and largest non-rigids ever built, was delivered to NAS LAKEHURST.

30—The major accident rate per 10,000 flight hours was lowered to 2.57; the safest year in naval air history.

During the month: NAF SIGONELLA, Italy, was established, NAAS EL CENTRO became an ALF, USS *Bennington* was reclassified CVS-20; VA(AW)-33, VA(AW)-35, and HATUPac were redesignated VAW-33, VA-122 and VAH-123 respectively; MCAAS MOJAVE, Naval Air Stations CHINCOTEAGUE, NIAGARA FALLS, DENVER and COLUMBUS, NARF MIAMI, NATTC NORMAN, Okla., O&R CORPUS CHRISTI, HATWing-2, and Fleet Aircraft Service Squadrons 2, 6, 8, 109, 112 and 116 were decommissioned.

There was trouble in Laos and on the border of India. Retirement promotions were banned. There was a fire in the Pentagon. Many defense projects were stymied by the steel strike. The President made a

CORVUS *missile is under development for use against heavily defended targets and ships.*

POLARIS *test vehicle is launched from deck of Observation Island, in first firing at sea.*

BULLPUP *missiles became operational; shown here in tests during the evaluation stage.*

good will visit to Europe. Fleet Admirals William D. Leahy and William F. Halsey died. Adm. Burke began an unprecedented third term. The President signed a bill authorizing merger of BUAER *and* BUORD. *The space roles of the respective services were defined. The* X-15 *made its first powered flight. Explorer VI, Discoverers V and VI and Vanguard III went into orbit. Lunik II hit the moon. Soviet Prime Minister Khrushchev made a whirlwind tour of the United States.*

JULY

2—The HU2K-1, an all weather utility helicopter powered by a gas turbine engine and equipped with automatic stabilization equipment, made its first flight.

11—The Marine Aviation Cadet program was reinstituted after a lapse of 18 years as a class of 12 MarCads began their pre-flight training course at NAS PENSACOLA.

14— A two stage *Nike-Asp* solid propellant rocket fired from Naval Missile Facility, Point Arguello, was the first of 12 designed to record radiation 150 miles up and also the first ballistic missile fired from the new facility.

NEWEST SHIP *of the carrier Navy, the USS Independence headed for shakedown at Guantanamo Bay with Carrier Air Group Seven on board.*

15—The Aviation Safety Division of DCNO(Air) was changed to a staff office, Op-05F, headed by a Coordinator, to act as principal advisor to DCNO(Air) in all matters of air safety and to coordinate the planning and implementation of aviation safety programs throughout the Navy.

18—The first airborne firing of the air-to-surface missile *Corvus* was accomplished by an A4D *Skyhawk*.

22—Within DCNO(Air) the Office of the Coordinator, Missile Ranges, Op-05G, was disestablished and its functions assigned to a simultaneously established Astronautics Division, Op-54, charged with assisting DCNO(Air) in performing his overall responsibility for directing the Navy astronautic program including formulation of plans and policies and determination of requirements.

30—The Navy announced that the Advanced Training Command and Navy and Marine Corps Air Reserve units would be issued *Sidewinder* missiles for training purposes.

During the month: NAAS MAYPORT became a Naval Station, VAP-61, VFP-61, VA-25, VA-63, VA-65, VF-21, VF-64, VF-81, VA(HM)-10 and VA(HM)-13 were redesignated VCP-61, VCP-63, VA-65, VA-22, VA-25, VA-43, VF-21, VA-81, VP-17 and VP-24 respectively; Fleet Aircraft Service Squadron 201 was decommissioned.

AUGUST

3—The first flight test of the antisubmarine missile *Subroc* was successfully completed by a launch from a shore installation at NOTS CHINA LAKE.

7—The Secretary of the Navy approved a six months active duty training program within the Naval Air Reserve on the conditions that it be implemented on an experimental basis for an initial maximum of 1500 trainees a year and that its effectiveness be constantly studied and evaluated.

20—Marine Helicopter Squadron 261 operating from the LPH *Thetis Bay*, completed a week of relief operations in flood stricken Taiwan in which it airlifted 1,600,540 pounds of cargo and 833 passengers on 898 missions.

21—The C-14 catapult at NATF(SI), under development by Reaction Motors to meet the special requirements of the USS *Enterprise* now building, achieved full design capacity of 70 million foot-pounds, by launching a 66,000 pound dead load at 155 knots.

25—During suitability trials on board the USS *Independence*, an A3D piloted by LCdr. Ed Decker took off at a gross weight of 84,000 pounds—the heaviest aircraft ever to take off from a carrier.

THE USS *Patrick Henry, SSB(N)-599, second of three ballistic missile submarines launched in the year, sliding down the ways at Groton.*

27—The ballistic missile *Polaris* was fired for the first time from a ship at sea by the USS *Observation Island*.

During the month: VF(AW)-4 was decommissioned and Naval Air Facility, Dahlgren, was disestablished.

SEPTEMBER

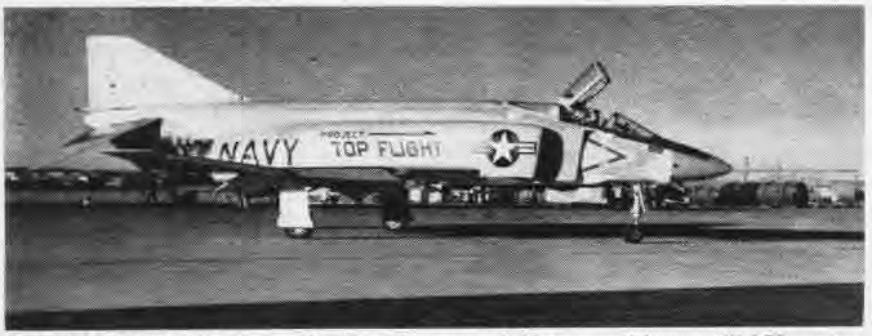
1—A Bureau of Naval Weapons was established by merging the Bureaus of Aeronautics and Ordnance. The first Chief of the new bureau, RAdm. Paul D. Stroop, took the oath of office on 10 September.

4—Announcement of CNO Aviation Safety Awards to 35 units of the operating forces, the Training Command and the Naval Air Reserve was accompanied by a report that 377 other units had logged an accident-free year.

9—Navy air and surface units located and recovered an *Atlas*-boosted Mercury Capsule in an area 700 miles short of the predicted point of impact in the Atlantic Ocean.

14—VAdm. George W. Anderson Jr., relieved VAdm. C. E. Ekstrom as Commander Sixth Fleet.

18—The Air Warfare Division, Op-55, was disestablished and its functions pertaining to readiness were transferred to Op-03. A new Branch, Op-506, was established



THIS MCDONNELL *F4H Phantom II all-weather carrier fighter powered by two GE J-79 engines, was flown by Cdr. L. E. Flint to over three thousand feet above the world altitude record.*

TOP GUN *of the annual weapons competition, 1st Lt. G. A. Davis, USMC, outscored them all.*

in the Aviation Plans Division to perform planning requirements functions previously assigned to Op-55.

25—The last class of LTA students also qualified in HTA, completed training at NAS GLYNCO, Ga. The last man to receive the dual designation was Ens. John B. Hall.

30—VAdm. A. M. Pride, Naval Aviator No. 1119, retired after 42 years of active service and thereby the honor of holding the lowest naval aviator number on active duty passed to VAdm. T. S. Combs, Naval Aviator 3064.

30—Reserves of NARTU LAKEHURST made the last flight of the airship training program conducted for 12 years under the Chief of Naval Air Reserve Training.

During the month: VAW-13 was commissioned; FASRon-113 was decommissioned.

In the fourth quarter, MSTS celebrated its tenth anniversary. Cuban resentment against U.S. was violently expressed, riots broke out again in Panama. The A-test ban was still in the discussion stage. An international agreement was reached for the peaceful use of Antarctica. Lunik III sent back pictures of the far side of the moon. Explorer III went into orbit. Rockets to Venus and Saturn were in prospect. The Armed Forces announced manpower cuts. The President completed a peace mission to Europe and Asia.

OCTOBER

1—Fleet Air San Diego was established with RAdm. Dale Harris in command.

1—An R5D *Skymaster* piloted by LCdr. J. A. Henning of VX-6 arrived at NAF MCMURDO SOUND after a flight from Christchurch, N. Z. The arrival of RAdm. D. M. Tyree, Commander Naval Support Force, Antarctica, on this first flight of the season marked the operational implementation of *Deepfreeze '60.*

2—NARTU ANACOSTIA was announced as the winner of the Edwin Francis Conway Trophy, awarded annually to the most efficient unit in the Naval Air Reserve. The Chief of Naval Air Training Trophy was awarded to NARTU JACKSONVILLE for showing the greatest improvement during the year.

5—The Navy announced limited production of a new light weight sonar suitable for use from helicopters yet with an operating capability of scan and range comparing favorably with that of shipboard equipment.

6—The USS *Kearsarge* left Nagoya, Japan after relief operations in the wake of a typhoon. Some 6,000 persons were evacuated, 200,000 pounds of supplies and medicine were delivered, and over 17,000 typhoid and antibiotic shots were administered to prevent spread of disease.

12—VAdm. Clarence E. Ekstrom became Commander Naval Air Force Pacific.

16—Five students received Naval Observer Wings; the first graduates of the Navigator-Bombardier School at NAS CORPUS CHRISTI, which began 26 May.

During the month FASRon-119 was decommissioned.

NOVEMBER

2—A student training flight at NAS PENSACOLA by 2nd Lt. David K. Mosher, USMC, and his instructor, LCdr. R. A. MacDonell, inaugurated use of the T2J *Buckeye* in Basic Training.

16—The Navy announced a contract with Lockheed for GV-1 aircraft to be used by the Marine Corps as aerial tankers and assault transports.

30—The first airship squadron of the U.S. Navy, ZP-2, was decommissioned at Glynco after 17 years of service.

DECEMBER

1—RAdm. Paul D. Stroop, Chief of the Bureau of Naval Weapons, relieved RAdm. R. E. Dixon, Chief of the Bureau of Aeronautics, and RAdm. M. H. Hubbard, Chief of the Bureau of Ordnance, thereby abolishing the two bureaus and completing their consolidation into a single command.

4—Crack teams from selected Fleet squadrons completed four days of competitive gunnery, bombing and missile firing at MCAAS YUMA in the championship round of the annual weapons meet. VF(AW)-3 took the All-Weather Fighter title in the F4D Class and VF-41 won it in the F3H Class. VMF-232 won the Day Fighter competition, VA-56 took Jet Light Attack, VA-85 took Prop Light Attack, VAH-4 took Heavy Attack. Top individual scorer was 1st Lt. G. A. Davis, USMC, competing in the Day Fighter shoot.

6—Cdr. L. E. Flint, piloting a McDonnell F4H-1 *Phantom II* powered by two GE J-79 engines, bettered the existing world altitude record by reaching 98,560 feet over Edwards AFB.

7—The USS *Dewey,* first of a new class of guided missile destroyer leaders designed to employ air defense missiles and the latest antisub weapons, was commissioned at the Boston Naval Shipyard.

30—The first Fleet Ballistic Missile submarine, USS *George Washington,* was placed in commission at Groton.

GOLDSTEIN AND ESSICK DISPLAY NEW TOOL

Pad-Eye Cleaning Eased

New Invention Blasts Debris Free

Two members of Heavy Attack Squadron Five have designed a tool that takes the misery out of un-blocking pad-eyes on the concrete aircraft parking strip.

The necessary depression of the pad-eyes causes them to fill continually with dirt and debris, making it difficult and time-consuming to tie down aircraft.

But with the tool designed by G. L. Goldstein, ADC, and produced by W. D. Essick, AD2, the unblocking can be done easily and quickly.

Their invention consists of a small can, fitted with a tube to pipe compressed air into the can. The air loosens the debris in the pad-eye and kicks it up to a shelf inside the can. The can can be emptied when it is full. A rubber fairing on the bottom of the can insures good contact.

Man of a 'Thousand Planes'

Collects Them, but Rarely Flies

Seaman Robert F. Gerbin of the Naval Examining Center's research department at Great Lakes, Ill., never wanted to be a pilot. In fact, up until a few months ago when he flew from New York to Chicago, he had never been in a plane. Despite this he owns more than a thousand "aircraft" of every size, description and national origin.

In 1950, he developed an interest in planes following visits to air shows in his native St. Louis. Since that time his collection has grown rapidly. It now contains photographs dating back from the double-wingers of the thirties to the supersonic jets of today.

Roberts first response to one of his requests for photographs and brochures came from the Boeing Company in the form of two 8"x10" photos of the B-36. He keeps a complete card file on each manufacturer which lists every model a given company might produce.

All is grist to his mill. Gerbin also maintains a stamp collection which he augments by removing the stamps from his extensive international mail.

WINGS UPON WINGS, BUT NO WAY TO FLY

Noble Performs Noble Act

Cited for Saving Life of a Child

Richard F. Noble, PH3, has been commended at NAS SEATTLE for his quick action in preventing serious injury and possible death of a six-year-old girl who fell from a moving auto.

The child's mother had posted a letter near the station's main gate and was driving along a main thoroughfare when the right door swung open. The little girl fell from the car and rolled partially under it, with her head between the front and rear wheels. Hearing a shout from Noble, the mother stopped before the wheel passed over the child, but in panic she neglected to set the emergency brake.

Noble grabbed the child and carried her to a nearby pedestrian safety zone. Asked later how close the wheel was to the girl's head, Noble guessed, "About a foot."

Capt. Kenneth J. Sanger, station C.O., commended Noble for his action.

ATU-222 Logs Safe Year

Students are First to Fly Tigers

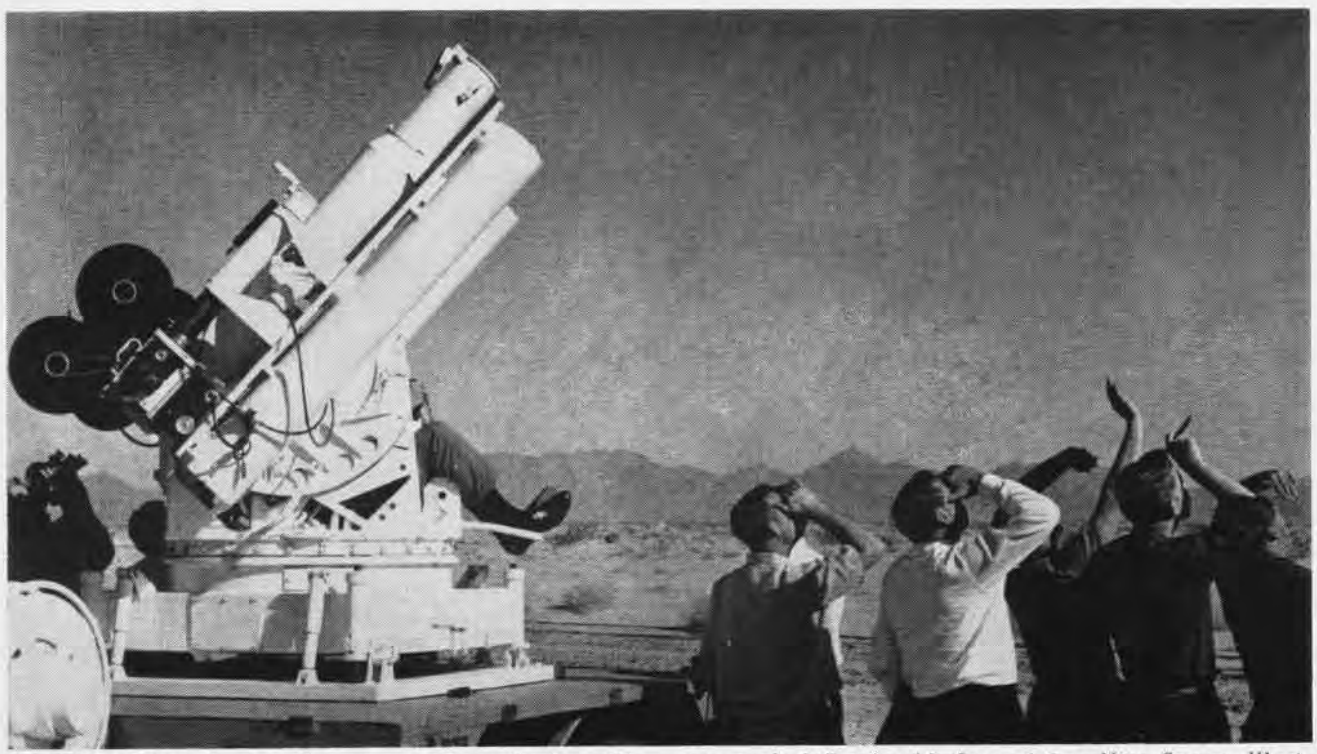
Advanced Training Unit 222 at NAAS KINGSVILLE completed a year of accident-free flight in November.

Flying Grumman F11F *Tigers*, the unit has logged more than 6000 accident-free hours and has graduated 43 students plus training and familiarizing 40 other fliers in the *Tiger*.

ATU-222's students are the first in Advanced Training history to train in transonic aircraft and the first to check out in the use of missiles.

TOP U.S. SERVICE *leaders in the Pacific met in Okinawa to attend a weapons demonstration held for military leaders of Free Asia. Left to right are: Adm. H. G. Hopwood, USN, Commander in Chief, U.S. Pacific Fleet; Gen. Emmett O'Donnell, Jr., USAF, Commander in Chief, Pacific Air Forces; Adm. H. D. Felt, USN, Commander in Chief, Pacific; Gen. I. D. White, USA, Commander in Chief, U.S. Army, Pacific; LGen. T. A. Wornham, USMC, CG, FMFPacific.*

TOP GUN TALLY



ALL EYES, *including the camera's, were trained on the busy skies near Yuma during the 1959 Weapons Meet. One event, shown in film strip, involved first "ripple" firing of four Navy Sparrow III air-to-air missiles from an F3H-2 Demon piloted by LCdr. Paul S. Johnson.*

TROPHIES, TV and total scores add up to some interesting conclusions for the 1959 Naval Air Weapons Meet. Before the smoke had cleared over Yuma, Arizona, the site of the annual shoot, Admirals Robert B. Pirie, DCNO(Air) and Clarence B. Ekstrom, ComNavAirPac, had proudly conferred the coveted awards upon the winners and commended the outstanding manner in which Cdr. J. S. "Bud" Brown and his topnotch Fleet Air Gunnery Unit had conducted the meet. Official kudos was extended also to Cdr. Jon Thomas and his VF-121 crew for their coordination of the air-to-air missile events from the Naval Missile Center at Point Mugu.

One of the unusual features of the meet was the use of closed circuit television which made possible, for the first time, the inside picture of each competitive event. Transistorized cameras, smaller than cigar boxes, were mounted in the cockpits of chase planes and helicopters and at other strategic points, including the score board. Transmitters the size of shoe boxes relayed the signals to a trailer receiver station at Yuma where the picture to be broadcast was selected from a battery of receiving sets in a temporary studio. Lt. Don Mealy, USN, a sharp exchange pilot, interpreted and narrated the entire four and a half day program which was also broadcast to the regular viewers of the Yuma area.

The TV enabled all hands, including spectators, officials and the Arizona public, to watch the best of Naval Aviation in a peacetime competition which simulated, to a realistic degree, the pressures of combat itself. The eyes of the cameras and judges and the responsibility of representing a whole fleet in peacetime combat weighed heavily on contestants' shoulders. The boys who puckered, flinched and forgot to turn on their master arming switches were undeniably exposed. The ribbing taken for such fateful errors will long be remembered. All pilots and crewmen are likely to profit from these experiences and perhaps acquire a greater degree of combat readiness for having participated in a shoot-off where the pressure was on and "the chips were down."

Teams not satisfied with their state of preparation worked feverishly on equipment, navigation and target data throughout the Meet. Some were rewarded with winning scores. Others relaxed confidently after a first day's lead to learn that first-day-bullseyes were not enough to win.

BAUER TROPHY, *commemorating Marine air hero of WW II, is awarded to day fighter champ, 1st Lt. G. A. Davis, VMF-232 (R) by VAdm. R. B. Pirie. LCol. L. H. Steman (center) looks on.*

There were many lessons learned, points illustrated, conclusions to be drawn, and results to be analyzed for weeks to come. All of which indicates the vital importance of this competitive event to peacetime Naval Aviation.

To the surprise of a number of F3H pilot-missileers, the technique used to center the aim-dot on the *Demon's* APQ-51 fire control system is a bit more critical than aligning the iron sights on a squirrel rifle. Technical experts pointed out a number of steering errors and knob techniques and the fact that the time to turn on the master armament switch is critical to the flight of the complex *Sparrow III* missile. A magnetic recording device called NADAR provides the opportunity to review the entire scope picture as seen by the pilot while locking on and steering into firing range. These recordings have inspired discussions which are still reverberating from Pentagon to Pacific on the finer points of operating this weapons system.

By Cdr. E. Ralph Hanks
Training Division, CNO

(Editor's Note: To the uninitiated but interested reader, the fire control system referenced is an advanced electronic means of finding and holding a target within certain limits prior to the launching of an air-to-air missile. Details, of course, are classified. When used properly, it works every time.)

The "cake-takers" at Yuma, for the most part, did it the hard way. VF(AW)-3, the seasoned all-weather air defense unit from North Island, reversed an old axiom to prove that old sea dogs can learn new tricks—and in a short time, too. Capt. R. F. Trudeau, highest ranking competitor in the Meet, flew the F4D for the first time just three weeks before coming to Yuma. His team won both high team and high individual awards. In spite of Capt. Trudeau's short training period, his outfit had had years of training in the F4D and in the business at hand.

In the case of VF(AW)-3, the value of additional weapons training was clearly demonstrated. The squadron's only missions are air-intercept and defense, and its entire training time has been specialized toward this end. The effects of such training as evidenced by Meet results should serve as a worthwhile example. Competing in air-

ELATED VF(AW)-3, *winners of the Forrestal Trophy: Tucker, Shirley, Trudeau, Artim in front; Donnelly, McGraw, Hall, Lindquist in back.*

WINNERS OF *the Kane Trophy, VA-85, light attack squadron, stand before an AD: Lee, Ruthrauff (front); Newton, Teter, Juricic (back row).*

intercept and lead collision rocketry against high speed Del-Mar towed targets at 30,000 and 50,000 feet, this team amassed a total score more than double that of its nearest competitor.

THE HEAVY attack contest provided one of the most dramatic situations of the five-day meet. VAH-11, obviously a crack outfit, confident of victory, and whose first day scores proved it most likely to win, was steadily overtaken and beaten by VAH-4, the hard-working, training-to-the-last-minute team from Whidbey.

The hard and eye-opening facts which still resound off ready room bulkheads from the halls of FAGU-Yuma to the shores of Salton Sea, are that a young Marine, 1st Lt. G. A. Davis, charged off with high individual honors for the Meet. His squadron, another shore-based outfit, Kaneohe, Hawaii), had recently won the FMFPac competition in F8U-1 airplanes. VMF-232 had picked up new F8U-2 airplanes only two weeks before the Meet, wrung them out and fired them in to win top VF team honors as well as the top individual score for the Meet. Only a team of pro's could have accomplished this job so well.

Another point noted—a distinct tribute to the Marine Corps—is the fact that three out of the five Marine C.O.'s led their teams as "high individual" in points scored. The Navy score in this respect was only two out of eleven, including Heavy Attack.

A hearty "Well Done," however, to the Navy light attack teams, and particularly to Cdr. H. "C" Lee, Commanding Officer of VA-85, who earned "high individual" of his top-scoring AD *Skyraider* team. His team also won "high team" award in the VA (prop) events. These same awards in the very closely contested VA (jet) events went to squadrons VA-56 and VA-12.

Cdr. W. A. Racette's Utility Squadron Three boys impressed everyone with the clock-like precision with which they coordinated, launched and controlled the small jet-powered targets. Reliability of the Ryan Firebee target was a surprising 96%. As a result of multiple missions and VU-3 efficiency, it was necessary to launch only 28 of the 44 Firebees planned for the meet, 19 of which were recovered by helicopter to fly again.

Sea stories flowed like water at the informal BOQ and motel seminars held each night, but clearly visible through the vapor and cigar smoke was a thread of professional communication that ran between pilots, field service reps, and weapons experts, both Navy and Marine. This type of communication passes knowledge of weapons systems, techniques and a down-to-earth know-how, which is more vital to the professional operation of today's complex weapons systems than it was to the operation of the 30-calibre machine gun. If some of these home-spun facts are carried back to the home teams and out to the fleet squadrons who were not able to attend, then this phase of the Meet will have been successful.

The Navy's first attempt (I hope) to "rig" a TV show failed miserably when the mushroom smoke bomb, carefully rigged to coincide with an A4D nuclear delivery pass, failed to ignite for spectators at the fire power demonstration. If there was a lesson or moral to this incident, it was lost entirely in the announcer's dry humor when he commented from his sun-baked perch at the hot, dusty desert target site, "It must be wet."

Certainly, there are numerous conclusions to be gleaned from a more official and thorough analysis of the Meet, but none is more obvious than the need for Naval Aviation to take an occasional professional look at itself through such an event as this, an event which focuses training and official attention toward the vital end product—hits on the target. Perhaps the weakest point of the Meet is the indisputable fact that deployed carrier squadrons and ASW squadrons do not compete, and the Meet, therefore, does not represent the entire tail-hook Navy.

To rectify this weakness, it might be suggested as a starter, that a standardized and verified competitive exercise score from each deployed squadron be accepted and posted in the Meet competition as the scores of proxy participants. The steady improvement shown each year in four Naval Air Weapons Meets indicates that this problem can be solved to perpetuate this event as an annual affair. This spirit was also indicated in VAdm. Pirie's statement at the televised final awards ceremony when he said, "It is hoped that we can scrape up the money somehow for a bigger and better Weapons Meet next year and in the years to come." ☆☆☆

EARLE TROPHY *winners of VMF-232 pose in front of squadron Crusader: (front row) Steman, Iverson; (back row) Bergstrom, Davis, Pederson.*

VF-41 BLACK ACES' *missile team in F3H Demons won Forrestal Trophy. Left to right, they are: Cawley, McCord, MacKnight, Koch and Ewall.*

ALL-WEATHER FIGHTER (F4D SKYRAY)

Forrestal Trophy for Winning Team

Winner: VF(AW)-3, NAS North Island (6640)
Second: VF-74, NAS Oceana (2729)
Third: VMF(AW)-513, MCAS El Toro (2398)

O'Hare Trophy for High Individual

Winner: Ltjg. D. L. Hall, VF(AW)-3 (3636)
Second: LCdr. H. E. Swanson, VF-74 (1385)
Third: Capt. Russell Trudeau, VF(AW)-3 (1374)

ALL WEATHER FIGHTER (F3H DEMON)

Forrestal Trophy for Winning Team

Winner: VF-41, NAS Oceana (11360)
Second: VF-53, NAS Miramar (7960)

O'Hare Trophy for High Individual

Winner: Lt. T. H. Ewall, VF-41 (3300)
Second: LCdr. W. S. McCord, VF-41 (3150)
Third: Cdr. H. C. McKnight, VF-41 (3150)

JET LIGHT ATTACK (A4D SKYHAWK)

Kane Trophy for Winning Team

Winner: VA-56, NAS Miramar (8489)
Second: VA-12, NAS Cecil Field (8464)
Third: VMA-311, MCAS El Toro (7097)

Herman Trophy for High Individual

Winner: Lt. Joseph Malec, VA-12 (2432)
Second: Lt. R. G. Daley, VA-12 (2331)
Third: LCdr. E. Phillips, VA-56 (2321)

PROP LIGHT ATTACK (AD SKYRAIDER)

Kane Trophy for Winning Team

Winner: VA-85, NAS Oceana (9913)
Second: VA-95, NAS Alameda (8494)

Herman Trophy for High Individual

Winner: Cdr. H. C. Lee, VA-85 (2741)
Second: Ltjg. C. B. Ruthrauff, VA-85 (2513)
Third: Lt. R. O. Blackington, VA-95 (2434)

DAY FIGHTER (F8U CRUSADER)

Earle Trophy for Winning Team

Winner: VMF-232, Kanehoe Bay (9797)
Second: VF-84, NAS Oceana (5580)
Third: VMF-235, MCAAS Beaufort (4427)

Bauer Trophy for High Individual

Winner: 1st Lt. Gary A. Davis, VMF-232 (4300)
Second: Capt. R. L. Iverson, VMF-232 (2915)
Third: Ltjg. Leonard Kawalkowski, VF-84 (1894)

HEAVY ATTACK (A3D SKYWARRIOR)

Soucek Trophy for Winning Team

Winner: VAH-4, NAS Whidbey Island (9780)
Second: VAH-11, NAS Sanford (9380)

Skywarrior Trophy for High Individual

Winner: Crew 4, VAH-4, Lt. M. W. Rumble (2875)
Second: Crew 1, VAH-11, Cdr. G. H. Robertson (2685)
Third: Crew 1, VAH-4, Cdr. J. J. Emanski (2615)

INDIVIDUAL HIGH CREW *of VAH-4 won Skywarrior Trophy for Heavy Attack: Hager, Rumble and Heaton. VAH-4 also won Soucek Trophy.*

LIGHT ATTACK *(jet) winner of the Kane Trophy, VA-56, in front of A4D are: Luetschwager, Gracey, Walker, Harper, Phillips, Tambini.*

TARGETS, TEAMWORK AND TV AT YUMA

MAJOR TARGET *of air-to-air weapons contestants was radar- reflective Del Mar "Radop" shown being reeled out from F4D at 50,000 feet.*

MOMENT OF TRUTH *just ahead, Ryan KDA-4 is launched from VU-3 P2V. High altitude missile bait set reliability record of 96% in Meet.*

SHARP, SKILLED *ground crews ignored clock, kept aircraft in top shape. Trophy winning VA-56 team services A4D for jet light attack phase.*

MIGHTY MUSTER *of men, missiles and machines crowds Yuma ramp. Fleet Air Gunnery Unit, headed by Cdr. J. S. Brown, conducted shoot.*

INSIDE PICTURE *of each event was provided by closed circuit television. Small cameras on chase planes and helicopter put pressure on pilots.*

TOP GUNNER, *1st Lt. Gary A. Davis, VMF-232, indicates winning 4300 point count. Davis got 27 hits on last gunnery run for 2035 points.*

TF Assigned to Yorktown

Quickly Manages Claim to Fame

Late in '59, a TF-1 from FASRon-12 at NAS MIRAMAR was assigned to USS *Yorktown* (CVS-10) for her own use. The plane, a transport version of the S2F, will be used for mail service overseas, carrying personnel and emergency patients, and occasionally for bringing supplies aboard.

Only two weeks after the aircraft had arrived, LCdr. W. M. Fisher brought it in for the 70,000th arrested landing. Since it took some sly maneuvering to arrange the record, the pilot was presented with the "Shady Deal" award in the midst of the traditional thousandth landing ceremony.

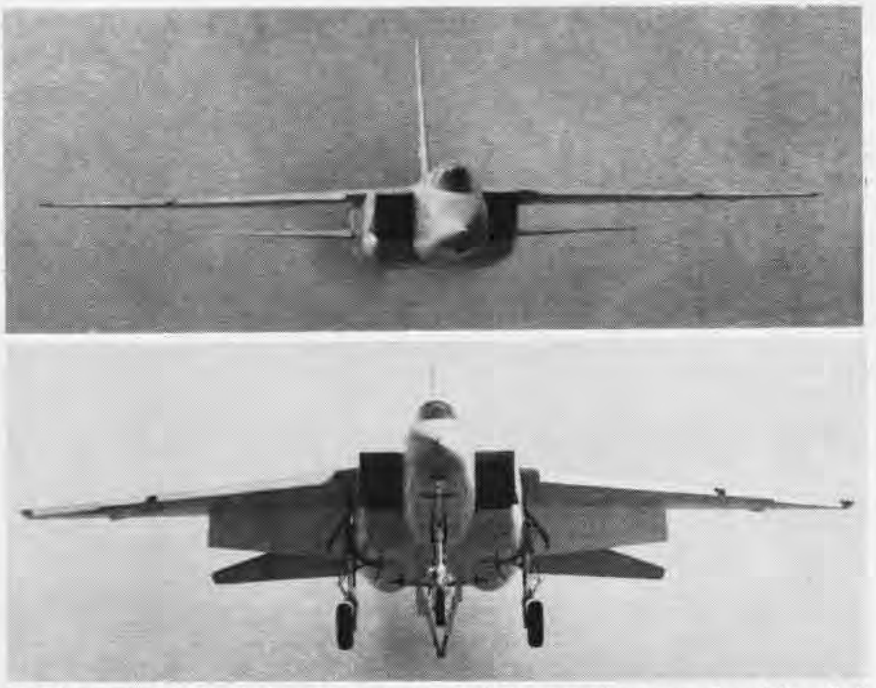
VA-15 Safety Record Cited

10,000 Accident-Free Hours Logged

On behalf of Attack Squadron 15, Cdr. Joseph Patterson, Jr., squadron commander, was presented a letter of commendation by Capt. Hugh Winters, skipper of the *Franklin D. Roosevelt*.

The mark was established 19 November 1959 as the AD-6 *Skyraider* squadron was completing 12 of the last 18 months aboard the *Roosevelt*.

Included in the 10,000 accident-free hours were 3120 carrier arrested landings, a Guantanamo Bay cruise, a Mediterranean cruise and three Atlantic fleet exercises. The squadron received 10 Replacement Air Group pilots in the last six months.



HIGH AND LOW, *the North American carrier-based A3J-1 has a wide operational capability which enables it to perform a variety of missions. The two-place jet is powered by two GE J-79 engines and uses boundary layer control to improve its low speed characteristics. It is designed to deliver either conventional or nuclear weapons and can also function as a buddy tanker. Recent Navy contract for additional production of A3J's and associated equipment has been awarded.*

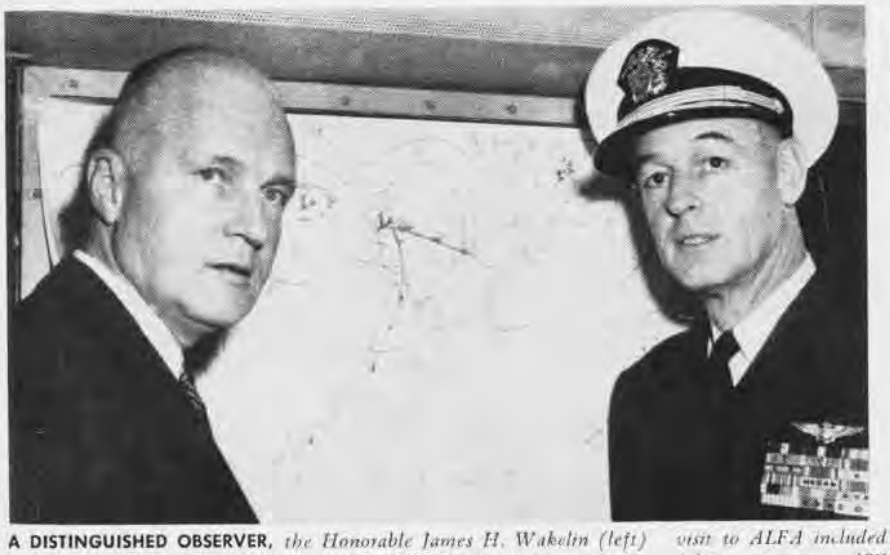
125,000 Radar Approaches

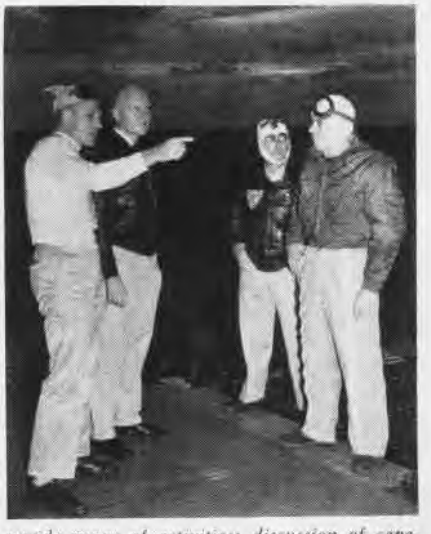
NAS Moffett Field Unit High

Moffett Field announces its 125,000th precision radar approach and claims that it is the first naval air station to reach this figure.

The title-holding approach was flown by Ens. Robert W. McFerren.

Moffett Field's radar guidance system was opened in October 1947 as a GCA (Ground Controlled Approach) unit. In February 1958, the Moffett facility was organized into a modern Radar Air Traffic Control Center.





A DISTINGUISHED OBSERVER, *the Honorable James H. Wakelin (left) was welcomed aboard the USS Randolph (CVS-15) by RAdm. John S. Thach, Commander Task Group ALFA. As Assistant Secretary of the Navy for Research and Development, Mr. Wakelin had a special interest in observing antisubmarine warfare exercises. His two-day operational visit to ALFA included a wide range of activities: discussion of capabilities of various ASW aircraft, inspection of many kinds of special equipment, and talks with enlisted men at various carrier stations. Above are Lt. Thomas Porter (left), Mr. Wakelin, Lt. J. P. Barreck, Jr., HS-7 flight surgeon, and Lt. J. W. Flight, the Randolph LSO.*

SCIENTISTS UNLOCK SECRETS OF AN

By Scot MacDonald, JOC
Air Development Squadron Six

FROM THE SCIENTIFIC point of view, the Antarctic continent is a refrigerated Garden of Eden, a laboratory nearly twice the size of the United States, and a Pandora's box filled with the mysteries of nature.

Scientists — with the help of the U.S. Navy's Operation *Deep Freeze* and Air Development Squadron Six—have turned the key in the lock of that box and are slowly, inexorably lifting its lid.

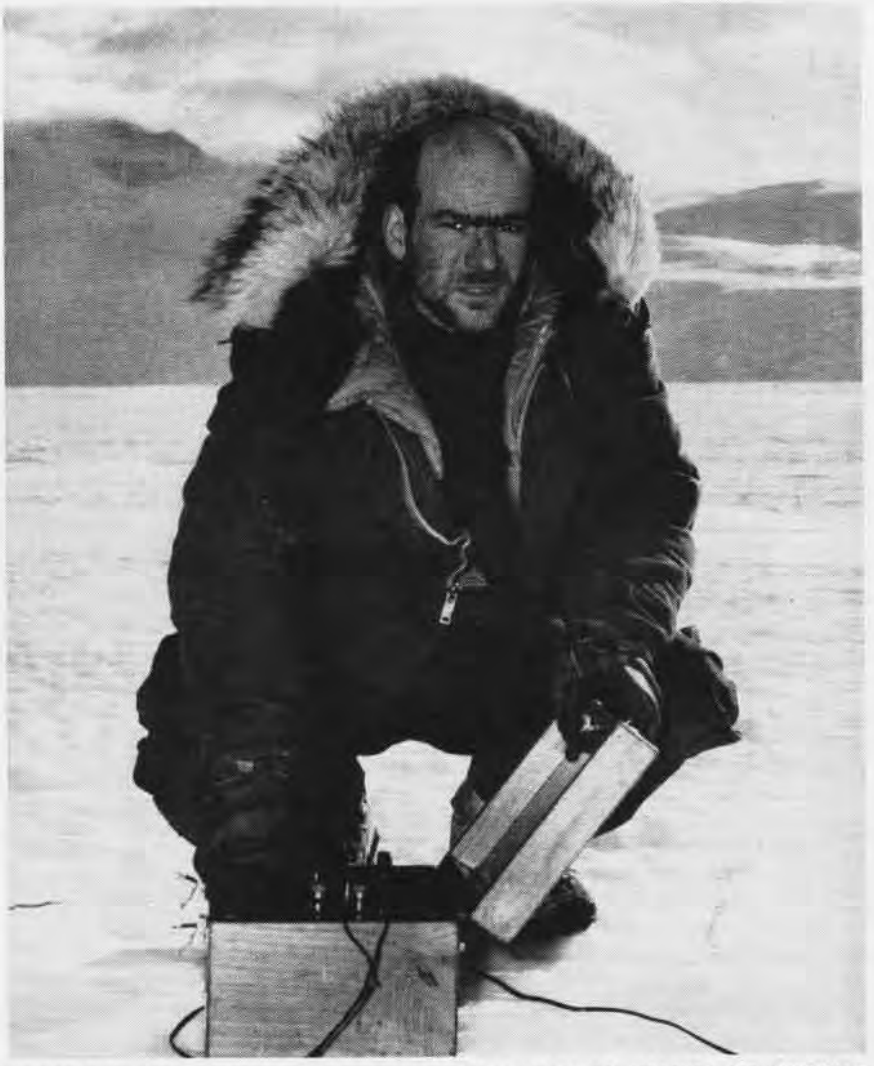
When the box is opened finally and its contents known, scientists believe the information they find will make this a better world to live in. It is a slow process; one that requires patience, ability, courage, and above all, determination.

Currently there are several scientific parties pushing over various areas of the Antarctic continent. Most of them are sponsored by the U.S. Antarctic Research Program (USARP) under grants made available by the National Science Foundation.

These are American-sponsored, but they include French, New Zealand and Scottish scientists, as well as experts from other nations.

In addition to the U.S. traverses, both New Zealand and the Soviets are sponsoring independent oversnow traverses this year.

The U.S. teams are concentrated in Marie Byrd Land and Victoria Land. The New Zealanders are interested in the area of Cape Selbourne on the Victoria Land coast of the Ross Sea Ice Shelf. The Russians are pushing from their station at Mirny to the U.S.-manned geographic South Pole Station.



SCIENTIST HOEVEN, TRAVERSE LEADER, DETONATES CHARGE TO MEASURE ICE THICKNESS

ITARCTICA

Photographs by W. A. Jackman
Chief Photographer's Mate

They all have a common motivation: a determination to search out Antarctica's natural mysteries and adapt them to the peaceful progress of mankind.

Almost nothing is known of the continent: its land mass beneath the heavy mantle of ice and snow that covers most of it, its effects on weather throughout the southern hemisphere, the influence it bears on the atmosphere and upper atmosphere below the equator.

PARTY REACHES FOOD AND FUEL CACHE ON SKELTON GLACIER 23 DAYS OUT OF MCMURDO

NAVY R4D FROM MCMURDO MAKES SKI-LANDING TO SUPPLY SCIENTISTS ON POLAR PLATEAU

Scientists, as well as Navymen who assist and support them, share an enforced distrust of the continent itself. One man of the New Zealand traverse party died this year and two of his comrades were injured seriously as the result of an accident. Others have lost their lives because of the treacherous snow-bridged crevasses and hazardous flying conditions inherent to the continent.

Typical of the scientific determination to succeed is the eight-man traverse party currently probing its way across the Victoria Land plateau. It is a U.S.-sponsored traverse led by Dutch geophysicist Frans van der Hoeven.

Since it started last October, it has been plagued by mishaps, most of them minor but some of them serious. It proceeds under a maximum speed of advancement of four miles an hour over unknown, unmapped territory pockmarked by canvasses and sastrugi (mounds of drifted dune-like snow). Its progress is slow, at times hazardous, and frequently uncomfortable.

The traverse departed New Zealand's Scott Base October 16 to conduct a 1600-mile, four-months' investigation of Victoria Land plateau. The party proceeded on a circuitous route to Skelton Glacier in the Worcester Range and struck off on a northwesterly direction to the interior of the continent.

When they reached a point approximately 520 miles from the glacier, the route took an easterly tangent for about 560 miles to Hallett Station where the traverse will terminate and the party will be air-lifted to McMurdo Sound.

Enroute, they are taking seismic soundings to determine the depth of the icecap; they are making gravity, magnetic and glaciological studies; they have made geological investigations in the Skelton area and will continue this field work when the party reaches Hallett; they are establishing topographical control points whenever ice-free areas are encountered; they are even making psychological studies of men living under the unusual conditions of the traverse.

Eight men are in the party. Originally there were nine, but on November 24 a geologist was evacuated by helicopter when he contracted a pulmonary disorder on the trail.

They have three Sno-Cats, one of which is equipped with an electronic crevasse detecting unit. The Sno-Cats pull 2½-ton supply sleds loaded with food, fuel and explosives. Additional fuel is carried in a rolling fuel transporter—two wire-shaped wheels containing a maximum of 1000 gallons of fuel.

Several caches of food and fuel are established along the route. These supplies are airlifted by VX-6 planes which provide the Navy's aerial support for trail operations. Some supplies were airdropped in November from Air Force *Globemasters*, provided by MATS.

BRITISH CACHE IS VISITED BY TRAVERSE

SACKTIME IS OBSERVED BY BALDWIN, CM2. NOTE FROST CAUSED BY —58° TEMPERATURE

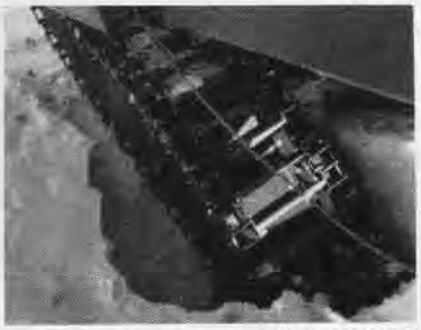
The first cache was laid at the top of Skelton Glacier by a helicopter and a ski-equipped R4D of VX-6.

Trouble started early. On the fifth day out, a Sno-Cat encountered tough sastrugi, breaking the steering mechanism. Parts were flown in by helicopter, repairs were made, and the traverse continued.

On the 17th day the party saw its first crevasse—sixty feet deep and five feet across. The right pontoon of a Sno-Cat pushed through its surface. The leading Cat turned to help and nearly lost its sled in a second crevasse.

Six hours later, both Cat and sled returned to solid surface and the party continued another two miles before foul weather set in. They camped at the foot of ice falls for several days until the weather lifted.

A P2V *Neptune* from VX-6 made an aerial photo mission upon the orders of the squadron commander, Capt. William H. Munson. The photos pointed out many crevasses between the party and its first depot, the cache on Skelton Glacier. Many crevasses were avoided but not all were detected.



SNO-CAT IS TRAPPED IN DEADLY CREVASSE

On the 19th day of the traverse, the party had slowed to a creeping, cautious pace, covering only a little more than one mile. It was well into a heavily crevassed area.

Next day, two VX-6 helicopters arrived to guide the party through the field. Army LCol. Merle R. Dawson, trail operations adviser on the staff of RAdm. David M. Tyree, rode in one helicopter. He radioed directions to the second helicopter as it hovered over selected sites and planted flagged bamboo poles. On the following day the surface vehicles followed the air-marked trail and the party reached the Skelton cache.

Continuing into the Victoria Land plateau, the party reached an altitude of eight to nine thousand feet with temperature readings ranging from minus 35 degrees to minus 58, depending on weather conditions.

TRAVERSE PARTY STOPS FOR SHORT REST FROM PHYSICAL, MENTAL STRAIN OF EXPLORING

Protection from the cold is a continuing problem, for the Sno-Cats consume fuel thirstily and none can be spared for the luxury of heating.

Storms frequently slowed down and, at times, stopped the traverse party. When weather improved, the train continued.

When the traverse is completed sometime this month, the seven scientists and one Navy mechanic will have covered 1600 miles of previously unexplored territory and gathered important scientific data.

One VX-6 helicopter pilot who flew frequently to the party at various points along the route is awed by the persistence of the eight men.

"I don't think I could muster that much determination," he said.

Yet the same pilot made three consecutive attempts in one day to air evacuate the stricken geologist, finally succeeding on the third try. He flew a light helicopter to an altitude of 10,000 feet and a distance of 280 miles each way.

(When it came time for VX-6 to decide which of the squadron's summer complement would be allowed to volunteer for "wintering over" at McMurdo Sound during the Antarctic winter night which begins next month, more than 60 members of the summer crew volunteered for the 28 billets.)

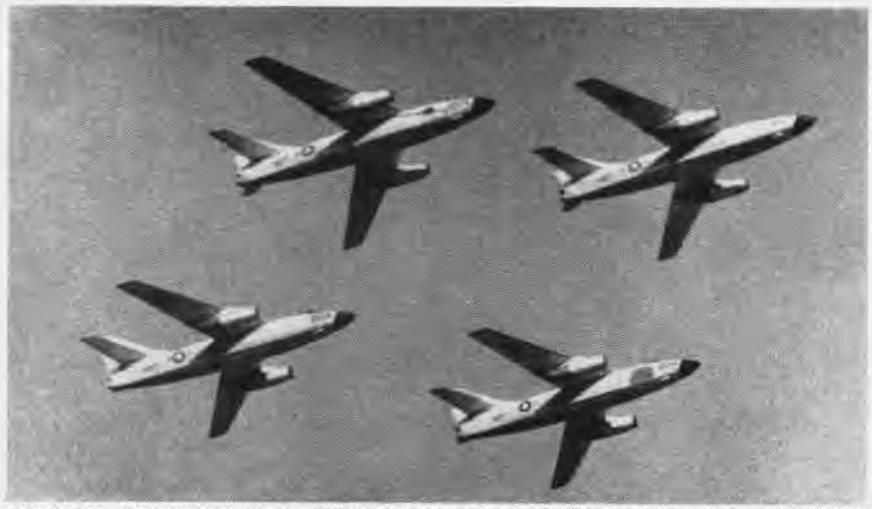
Mr. George R. Toney, U.S. Antarctic Research Projects representative in the Antarctic, said of the traverse parties: "They are absolutely necessary to the success of Antartic studies. So little is known of the continent, so little of it is mapped, that we must plan and explore as much as we can in the limited time allowed during the summer months.

"Scientific interest in the Antarctic will continue for years to come and it will spread over many fields. This year we are emphasizing biology, geology and cartography among the various disciplines. They were scarcely touched during the International Geophysical Year which ended in December 1958, for they were only incidental to the well-defined U.S. IGY investigations.

"Next year we expect to send a traverse party from Byrd Station to the coast of the Bellingshausen Sea to continue the collection of seismic, gravity and magnetic data.

"A second traverse party is planned to cover the area on the high polar plateau between McMurdo Sound, the Russian station Vostok, and the South Pole Station."

Admiral Tyree's *Deep Freeze* forces will continue to provide support of the Antarctic scientific studies.



PRECISION AND POWER MARK PERFORMANCE OF VAH-3 TEAM AS IT PASSES IN REVIEW

DERBY DAYS AT SANFORD DOWNS

AT THE STARTING gate the entries read: Heavy Attack Squadron 1 from USS *Independence*, VAH-5 from USS *Forrestal*, VAH-7 representing the *Kitty Hawk*, and VAH-11 of USS *Franklin D. Roosevelt*. VAH-9 was scratched because of deployment with the Sixth Fleet in USS *Saratoga*. The thoroughbreds, Douglas A3D *Skywarriors*, were evenly matched. All came from the same stable, Heavy Attack Wing One, operated by Capt. James D. Ramage.

The HATWing One Seventh Bombing Derby got underway at NAS SANFORD!

It took four days to run off the main competitive exercises: weapons loading, loft bombing, special weapons attack missions and shape bombing. Two more days were devoted to special events, open house and presentation of awards. The high altitude, radar scored, bombing playoff which formerly highlighted the Derby had been completed in October to determine which squadron would journey to Yuma for the Naval Air Weapons Meet.

Weapons loading crews were first to be tested. They were judged on safety, completeness of aircraft preparations and the actual loading. VAH-11 tied with VAH-3, the training squadron which entered only this event and the special carrier airmanship competition. Each posted the maximum 700 points for executing every detail perfectly.

The second phase was loft bombing, which is now the primary means of delivery for Atlantic Fleet A3D's. Scores were based on accuracy and timing. The best single drop was made by a VAH-11 crew, composed of Cdr. Dave King, Ltjg. Dick Gralow and Willard Dennis, AEC. However, each VAH-5 team splashed the target, to forge into the lead.

Site of the special weapons attack mission event was the simulator. Every conceivable emergency and malfunction was fed to the machine. Crews were graded on the manner in which they detected the trouble and the action taken to correct it. Winner was VAH-7, the squadron which will be attached to the *Kitty Hawk* after commissioning later this year.

Shape bombing was the final exercise. As many as 16 crews per squadron dropped their loads on the Lake George target. When the splashes had all been scored, VAH-1 pilots of USS *Independence* were shape drop champs.

When the final count was in, VAH-5 finished first with 2557 points; VAH-2 placed with 2511; VAH-11 showed with 2474 and VAH-7 posted 2199. It had been a good race!

The next event caught the interest of everyone in the know on naval air attack capabilities. The Atlantic Fleet

CDR. BARROW IN HIS A4D ADDED NEW EVENT

VAH-5 WINNING CREWS USE BOMB AS PERCH

VADM. BEAKLEY PRAISES LT. MALICZOWSKI

heavy attack squadrons had become so proficient in loft bombing in their A3D's that they hurled a challenge to anyone who wanted to take them on. Cdr. Bill Barrow, skipper of VA-12 equipped with the A4D *Skyhawk*, accepted. The Mighty vs. Mite contest was on.

Cdr. Ken Rowell, the commanding officer of VAH-7, was picked to fly the *Skywarrior*. It was to be a one-drop affair with winner take all, which included a special trophy donated by Douglas Aircraft. The A3D was first in on the target, but Cdr. Barrow tossed his shape on the inside for a near bullseye and emerged the victor.

Next came the carrier airmanship competition, judged by Capt. Bob Dosé, Commander, Carrier Air Group Four. The squadrons were marked on takeoff and landing intervals, rendezvous, formation flying and carrier break and landing techniques. It was a close contest, but Capt. Dosé finally gave the nod to VAH-3.

The general public witnessed the carrier airmanship work-out, the trophy ceremonies and an impressive A3D air show on the final day of the Derby. Present for the inspection and to give the awards were VAdm. W. M. Beakley, DCNO (Fleet Operations and Readiness), VAdm. R. B. Pirie, DCNO (Air), and RAdm. Kenneth Craig, ComFAirJax.

Cdr. Floyd Harris, Commanding Officer of VAH-9 during the award period, accepted the HatWing One Commander's Trophy for the squadron which is deployed aboard *Saratoga*.

Cdr. William Barrow won the special Douglas Loft Bombing Trophy.

HEAVY ATTACK SQUADRON 7 LOADING CREW PREPARES A SKYWARRIOR FOR COMPETITION

All portions of the air show were marked by split-second timing and accuracy. A four-plane group from VAH-1, led by Cdr. Sid Baney, put on a spectacular act which ended by pulling straight up for a bomb burst.

BOMBING DERBY AWARDS

VAH-5

Commanded by Cdr. L. M. Rowell, Jr.

HatWing One Bombing Derby Trophy
CNO Flight Safety Award
Loft Bombing Trophy
HatWing One Cdr.'s Trophy
Six Norden Trophies to two crews tied

VAH-7

Commanded by Cdr. Kenneth Rowell

Attack Missions Trophy

VAH-3

Commanded by Cdr. E. H. Horrell

Weapons Loading Trophy
Carrier Airmanship Trophy

VAH-1

Commanded by Cdr. Sid Baney

Norden Field Engineers Trophy for high altitude radar bombing

VAH-11

Commanded by Cdr. Gordon Robertson

Weapons Loading Trophy
Conover Trophy for radar bombing
Norden-Ketay Outstanding Achievement Plaque to Ltjg. William Maliczowski as Heavy Attack Wing One Bombing Champion

ADM.'S BEAKLEY, PIRIE AND CRAIG (L TO R) INSPECT PERSONNEL BEFORE PRESENTING AWARDS. CAPT. RAMAGE IS RIGHT FRONT

Weekend Warrior NEWS

BARTU's in the News

Bureau of Naval Weapons Air Reserve Training Units, still known as BARTU's, are composed of aviation experts and many other types of specialists whose services are on tap in the event that BuWeps should need them in time of mobilization. Exposure to diverse naval activities is one of the best ways of keeping these reserve officers up-to-date on technology.

Representing 22 units, 42 BARTU officers had the opportunity to participate in the Sixth Annual Seminar at BuWeps in Washington, D. C. Group commander and senior officer was Cdr. Clark H. Gates, C. O. of BARTU 874 at NAS Moffett Field.

Intensive briefing and presentation periods in the Bureau were alternated with field trips to naval installations such as the David Taylor Model Basin. Movement to out-of-town activities was made at night via R5D. Veteran crews from NAS Willow Grove and NARTU Norfolk made on-time arrivals at all stops. O&R Norfolk; NASA Langley Field; Naval Air Development Center, Johnsville; Naval Air Test Center, Patuxent River, were visited. Back in Washington for the final day of the two-week exposure to the magnitude of BuWep's sphere of activity, the officers held a critique. All agreed that the program gave a greater insight into the importance of their mobilization billets.

LEADINGMAN *W. M. Munden of the Overhaul and Repair Department at NAS Norfolk described sound attenuation in jet test cells to visiting BARTU officers undergoing top-level orientation tour.*

On the West Coast, a similiar training cruise was conducted. NAS Los Alamitos' BARTU's 776, 778 and 779 sent 18 officers on a comprehensive orientation tour. Stops were made at the Naval Postgraduate School, the Pacific Missile Range, O&R Alameda, NASA's Ames Laboratory at NAS Moffett Field, NOTS China Lake and Edwards AFB. A particularly high point was the entire day spent at Mare Island Naval Shipyard. The group was very much impressed by the nuclear-powered, missile firing submarines.

At the Flight Test Center at Edwards AFB, the officers viewed the X-15 research vehicle and learned about

NEW TRACKER *trainer at NARTU Anacostia permits realistic "flying" without leaving ground. Sine, TD1, and LCdr. R. D. Harlan check it.*

USE OF DETECTION *gear was taught by NATTC Memphis team in three-day atomic, biological, chemical warfare defense course at Atlanta.*

COMMISSIONED IN *September 1959, BARTU 874 meets aboard NAS Moffett Field. Cdr. Gates, center, is C.O.; Cdr. F. D. Barclay, on his left is exec. Both are employed by the Lockheed Missile and Space Division, Sunnyvale. Cdr. Gates attended Sixth Bureau Seminar.*

RADM. J. P. MONROE, *center, Commander Pacific Missile Range, and his staff, gave West Coast BARTU group a thorough rundown on the mission and functions of his activity. During the visit Port Hueneme, Civil Engineering Corps Headquarters, billeted some of them.*

the techniques for gathering data from the X-15 flights, which will be used heavily in future space programs.

Senior officer was Capt. C. C. Busenkell. Los Alamitos, Oakland and NARTU NORFOLK airlifted the men.

'Bossman' Big Success

Something new in VIP cruises at NAS GROSSE ILE was initiated by Reserve Helicopter Squadron 734. The employers of the enlisted men were invited for a weekend at the station.

Operation *Bossman* was designed to present a comprehensive picture of Naval Air Reserve Training as given to the Weekend Warriors. The schedule of events included lunch at the mess hall, a flight in a Navy transport, a tour of the station and different demonstrations of HU operations.

The HU-734 men are mainly from the Niagara frontier district of New York state who transferred to Grosse Ile when NAS NIAGARA closed.

Decal Designed at Glenview

Members of the selected reserve carry orders with them at all times which require them to report immediately to mobilization points upon the declaration of a national emergency. Rapid identification of automobiles would permit civilian law enforcement agents to expedite these movements.

Thus reasoned Lt. Douglas H. Smith of FASRon 722 at NAS GLENVIEW. An appropriate Naval Air Reserve windshield decalcomania was designed. Capt. I. M. Hampton, C. O. of the station, gave a decal to Illinois Governor W. G. Stratton, who heartily approved of the idea. It shows a traditional Minute Man and Wings of Gold.

GOV. STRATTON *receives the decal from Capt. Hampton. Frank Sain, Cook County Sheriff, and William Morris, Supt. State Police, watch.*

NAVAL AIR RESERVISTS *from NAS Oakland and Air Force pilots from Castle AFB spent a week observing carrier ops aboard USS Ranger.*

IN FOREIGN SKIES

A MISSILE PUT IN NEW TRANSPORT MODEL

Canada to Use HR3S-1

Royal Canadian Air Force officials are planning to use the Sikorsky HR3S-1, a turbine-powered transport helicopter. The turbo-copter is an adaptation of the U.S. Navy's HSS-2.

Canadian Pratt & Whitney has concluded arrangements with Sikorsky Aircraft to produce a substantial number of HR-1's in Canada.

The HR3S-1 design has the same rotor system and power plants as the HSS-2. A feature of the HR3S-1 is its rear loading capability. An inclined ramp drops down to permit speedy loading or unloading.

The basic airframe of the HR3S-1, like that of the HSS-2, provides an amphibious hull, retractable landing gear, 24-hour all-weather flight capability, and automatic stabilization equipment. Power-operated rotor blade folding, which is incorporated in the HSS-2, will be optional in the HR3S-1.

Twin-engine performance and reliability will be provided by two G.E. T-58 gas turbines of 1250 hp each.

The HR3S-1 is designed to carry out such military missions as casualty evacuation and transportation of troops, supplies and weapons. Specifications and performance data are classified.

Sidewinder on RAAF Sabre

The Royal Australian Air Force is equipping its *Sabre* jet fighters with the *Sidewinder* missiles. Already *Sabres* so equipped have been used by RAAF.

According to RAAF authorities, this modern guided missile will increase enormously operational effectiveness.

French Admiral Views Missiles

Adm. Henri L. J. M. Nomy, chief of the Naval General Staff of the French Navy, visited the Convair plant in California with members of his staff to observe the production of *Terrier* and *Tartar* missiles.

Adm. Nomy has been French Navy chief of staff since 1951. He participated in World War I, became an aviator in 1923, and held naval aviation assignments in the 20's and 30's.

He was cited for courageous conduct at the defense of Boulogne during the battle of France in 1940, then joined the resistance movement.

He escaped to London in 1943 and in 1944 became commandant of the French Naval Aviation Forces who took part in the landings in Southern France.

CDR. ED DIBBLE *(R) and LCdr. Lon Helms (L), Air Operations Officers of the Lake Champlain brief LCdr. Scordino and Bannls (C) of the French Navy. Both French Navy officers have been skippers of P2V squadrons.*

Ensign Visits Father's Old Ship

"My father will be glad to learn that I'm aboard the old *Langley*," remarked Ens. F. Patrick Dillon as he toured the French antisubmarine carrier *LaFayette*, moored at Toulon, France.

Ens. Dillon's father, RAdm. (ret.) William M. Dillon commanded the *Langley* (now LaFayette). The former USS *Langley* was turned over to the French Navy 2 June 1951.

Ens. Dillon visited Toulon aboard the USS *Des Moines* (CA-134), flagship of VAdm. George W. Anderson, Jr., the Commander of the Sixth Fleet.

Dutch Pilots Train Here

Three officers and a chief petty officer of the Royal Netherlands Navy have reported to the United States to be checked out as S2F *Tracker* pilots. They will form the nucleus of a carrier ASW squadron.

The officers reported from P2V Squadron 320 at the Netherlands NAS VALKENBERG. They are LCdr. Lucas Oldholff, LCdr. Piet Van Wdezik, and Lt. Harry Tangerman. The chief, Hans J. Mulders, came from the carrier *Karel Doorman* where he flew an *Avenger* torpedo bomber.

They began four weeks training at NAAS KINGSVILLE in late November. On completion of that course they reported to VS-39 at NAS QUONSET POINT for operational training.

From Quonset they will return to the Netherlands, where they will be instrumental in setting up an S2F squadron aboard the *Karel Doorman*.

Italian Sailors Trained

Twelve members of the Italian Navy have completed a five-week course in aviation electronics at FAETULant, NAS JACKSONVILLE.

The group was under the direction of Second Chief Radarman Cevenni.

When chosen to attend school in the United States the men were sent to Rome to learn English, then to Washington for six weeks of instruction in American speech and customs.

At Jacksonville they studied the SG-2 compass, Mark 10 IFF, and the ARN-26 radio compass.

When they completed their studies at Jacksonville they were ordered to Norfolk for further Navy training.

DUTCH SUBMARINE HUNTER, *a Sikorsky HSS-1N, is assuming ASW duties with NATO forces in Europe. This is the first of this type to be delivered to a foreign nation. Dutch pilots have been trained at U.S. Navy bases.*

NOW IT CAN BE TOLD

SURVIVAL SAGA IN BORNEO

On 13 January 1945, during World War II, a PB4Y from VPB-101 was on patrol over Borneo. It was forced to land when four enemy fighters made an attack. Of the crew of ten, only four were to survive the ordeal of the next five months.

The mission that brought such drastic consequences started out smoothly enough. The crew had dropped propaganda leaflets and were headed up the west Borneo coast toward Brunei Bay. LCdr. Marvin T. Smith, USNR, was at the controls, flying at 7500 feet between two layers of clouds. The copilot and navigator, Ltjg. Robert J. Graham, USNR, had just taken a bite out of a ham sandwich.

Then it happened! Four Japanese fighters swept out of the clouds, attacking in pairs from eleven and one o'clock. Almost before the *Liberator* crew knew of the attack, the enemy had knocked out two engines and critically wounded the nose gunner. The artificial horizon was destroyed. When the plane emerged from the clouds after losing 4000 feet of altitude, it was in a sharp glide. With ditching inevitable, LCdr. Smith headed the plane east, trying to get as far away as possible from the enemy concentrations at Brunei and Miri.

Suddenly the enemy planes reappeared and Chief Robbins, top turret gunner, and Fischer, a waist gunner, went into action and shot down one fighter. But that was all there was time for. Landing could be put off no longer if the *Liberator* was to avoid a mountain in its path. LCdr. Smith made a perfect wheels-up landing and the plane skidded along for about 150 yards before stopping in mud.

After destroying all the classified documents and gear, the crew broke out a rubber life raft on which to get the wounded gunner out and headed for some trees on the side of a rice paddy. They carried with them a cloth survival map of Borneo, a glossary of Malay terms, two first aid kits and a radio set.

At the edge of the rice paddy, the men paused to do something for the nose gunner, but even as they stopped, he died.

At that point, some Malay natives came out of the bush bringing rice. Using the glossary, the Americans got them to agree to bury the body of the gunner. Despite their willingness to help provide food, it was clear the Malays were deathly afraid of the Japanese. Fearing that under pressure the natives would report their presence, the two officers and seven men decided to leave immediately—and alone.

They headed for a high range of mountains eastward, but the dense jungle and extreme heat slowed them. Worst of all was the myriad of insects, especially mosquitoes and leeches.

The party decided to go to Kudat on the north tip of Borneo where they had heard (falsely) that the Australian guerrilla forces had set up headquarters. This would take them two months, but undaunted they set out to find a guide.

Lt. Graham made his way to the next village and explained to the chief, with the aid of the glossary, the need for a guide. But fearful of reprisals, the chief, though friendly to the Americans, agreed only to provide a guide to the next village. At each village, the reaction was the same, so the party had a succession of guides.

They slugged along over the mountains and pushed on in spite of their badly swollen feet which had been infected by leech bites. They managed to walk 12 hours a day for 13 straight days. All this time their only food was rice, and their beds were the dirt floors of native huts.

All were suffering from malaria and dysentery, and every day they grew weaker. In two weeks they could travel no more. At Pommaton, their glossary was of no help, for the people were Dyaks. Thereupon, Lt. Graham began to compile a dictionary, and before he emerged from Borneo, he had mastered several local tongues.

Although they were reluctant to take care of the Americans—a Japanese outfit was less than 30 miles away—the Dyaks finally agreed to let the white men stay until they were strong enough to travel.

Arrangements were made to put three men in each house to reduce the food problem for their hosts. At this point, the party split. Lt. Graham and two crewmen, Harms and Robbins, were put up at a house six hours away up the river.

For two weeks, LCdr. Smith and the five men with him rested and tried to regain their strength. They had no medicine—the native cure for malaria consisting of a mixture of hot water and wood ashes did absolutely no good

—and their health became steadily worse day after day.

On 12 February, LCdr. Smith got word that a party of 30 Japanese was headed for Pommaton, so he decided his group would get out, all except Shepherd, the assistant crew chief, who was too ill from malaria to walk. Shepherd was taken out in the jungle and placed in a native lean-to. The natives promised to bring him rice. These plans made, LCdr. Smith and four crewmen set out toward Kemabong, on the way to Kudat.

THE PARTY had left none too soon, for that afternoon the Japanese patrol reached Pommaton and occupied the house LCdr. Smith had left. From his lean-to Shepherd could hear the Japanese, and one party passed within 300 yards of him.

Six days later, the Japanese left and Shepherd was carried back to the house. For eight more days, he was fed by a Dyak native and his wife. On the 26th of February, he stood on his feet for the first time in 25 days and immediately decided to have the natives row him to the house where Graham, Harms and Robbins were.

When he arrived, he learned that Graham had gone to a village named Lang Naut where he had heard that two downed Army airmen were. Lt. Graham had left his men the sole weapon of the party, a .38 pistol and 17 rounds of ammunition.

After two days of travel—greatly accelerated by Lt. Graham when he learned from a friendly native that Graham and his guide were being sought by seven Japanese on patrol—Graham reached Lang Naut. There to meet him were SSgt. Francis E. Harrington and Cpl. John R. Nelson, gunners on an Army B-24 which had gone down some three months before. Their plane had been hit by AA fire during an attack on Brunei, a high caliber shell exploding in the cockpit and killing both pilot and copilot. The other seven members of the crew bailed out and became separated during their fall. Lt. Graham successfully persuaded Harrington and Nelson to return with him to Pommaton.

During Lt. Graham's absence, the Navy crewmen had suffered increasingly. Dysentery had laid Harms low, and the attacks grew worse, exacting a toll of pain and sleeplessness. Robbins was in even more pitiful shape. At the base of his spine, a huge tropical ulcer, about four inches in diameter, hollowed out to the extent that the bone was exposed. Extreme pain and delirium dogged him, and at one time he became so lifeless that Shepherd had regretfully dug him a grave.

Furthermore, he was unable to retain food. But a native woman kept on trying to find something he could eat. Finally it was discovered Robbins could retain rice fried in wild boar lard. From then on, he gained rapidly though the excruciating pain from the ulcer didn't let up.

Two days after Lt. Graham and the Army men came back, the group of five had to get out. Word came that LCdr. Smith and the four men with him had been led into an ambush, captured and killed. (Maj. Tom Harrisson, commanding officer of the Australian guerillas in Borneo at the time, later showed Lt. Graham a flight jacket which had been removed from a dead Japanese. It was LCdr. Smith's. No trace was ever found of the four other crewman.)

IT WAS obvious then that danger lay on the road to Kemabong, so it was agreed that they had better return to Lang Naut where food and living conditions were superior.

Lt. Graham, the Army men and Shepherd would go first, carrying a large cooking pot and preparing the way. Harms and Robbins were to follow, carrying rice.

One of the men in the advance party tired rapidly. On the second day of the four-day journey, he was swaying as he walked. He said he would go no further.

Lt. Graham, who could no more carry him than he could leave him there to die, hit upon a solution typical of the resourcefulness and skill he showed throughout the long ordeal.

He had read a short story, Graham later explained, involving a doctor and a diabetic patient who took a trip together. Their car broke down several miles from the nearest town, and before they could get back to civilization, the diabetic became desperate for his daily injection of insulin. The doctor had no insulin with him, but he knew that stimulation of the man's glands would provide a temporary cure. He therefore "confessed" that he had been the lover of the diabetic's wife and that this was a plot to get rid of him. The cure worked, and the man got back to civilization.

GRAHAM used the same method. He deliberately called the sick man a yellow coward, a quitter, every unspeakable term of disgrace he could think of. The man reacted as expected: he rose from the ground intent on murder, and he lasted for the journey to Lang Naut for the sole purpose of getting revenge on Graham who spurred him on with a steady stream of revilement.

As Lt. Graham recalls the short story that inspired him, the diabetic thereafter hated the doctor who had saved his life. Not so the man Graham saved. "I would never have got there if Mr. Graham hadn't done what he did," he said. "Without his help, none of us would have got out at all."

JUNGLE, EXTREME HEAT, ILLNESS SLOWED MEN DOWN IN EFFORT TO REACH NORTH BORNEO

ALTHOUGH WILLING TO HELP, NATIVES WERE CLEARLY AFRAID OF ENEMY REPRISALS

MEANWHILE Harms and Robbins were continuing their saga of pain and difficulty. Chilled by a heavy rainstorm, they soon felt attacks of malaria coming on. There was nothing to do but ask the guide to get them to shelter as fast as possible. No sooner was this accomplished than Robbins' malaria chills became so severe that Harms and the native boy had to lay on him to keep him warm.

Just as Robbins passed into the fever stage, Harms started having chills, and this time Robbins and the native boy lay on him for warmth. Throughout the night, they alternated with attacks of malaria, and still found the strength the next morning to go on again. They travelled three more days, on one of which they walked for 13 hours.

But the trip was worth the anguish, for at Lang Naut they not only were among definitely friendly natives, but their diet was vastly improved, consisting of pineapples, hog meat, papayas, and a kind of potato. The attitude of the natives was the result of the sacrifice made by an American missionary named John Willfinger who, two years earlier, had deliberately presented himself to the Japanese when they had threatened to take reprisals on natives who failed to disclose the whereabouts of their white friends.

On 16 March, the men received word that five other crewmen of the Army B-24 were staying at a village some four or five miles away. Graham, Shepherd, and the two Army men decided to meet them, leaving Robbins and Harms still suffering from dysentery and malaria.

On the journey, Graham's group met a Dyak official in the Dutch Government. This man had not only been making arrangements for hiding the airmen, he had also organized an army of some 500 Dyaks equipped with blow guns. They made a fine harrying force and kept the area free of the Japanese. The Dyak official told the Americans to proceed immediately to the new hiding place where they would be joined by the other five Army men.

The new hiding place proved to be a house situated in a small, deep valley, surrounded by mountains so steep that the sun shone in the valley only four hours a day. To get to this haven, the men had to crawl down the mountainside, handing themselves down by roots and bushes. At the house they found the wife of the Dyak official who later nursed them through attacks of malaria.

Four days after their arrival on 24 March, the five Army men joined the group. Though these men had been in Borneo two months longer than the Navy men, they were in far better condition because they had not done much walking and had received food and aid from the kindly Dyak official.

It was no temptation for the Navy men to stay in their new hideaway. On 9 April they received their first communication from the outside world to the effect that Australian guerrillas would attempt to take them out in six weeks. On 29 April, they actually saw a white man, Maj. Tom Harrisson of the Australian Army, who brought them medical supplies, a package of cigarets and word that preparations to get them out of Borneo were being made.

At his direction, the group went on 12 May to the place of their evacuation. They lived in Lang Barang in the home of a missionary. The combination of medicine and good food rapidly brought them back to normal.

At the same time, Harms and Robbins who had remained at Lang Naut were regaining their health. Just as they were making a comeback from malaria, an infection from leech bites developed on Harms' left foot, making it swell to twice its normal size.

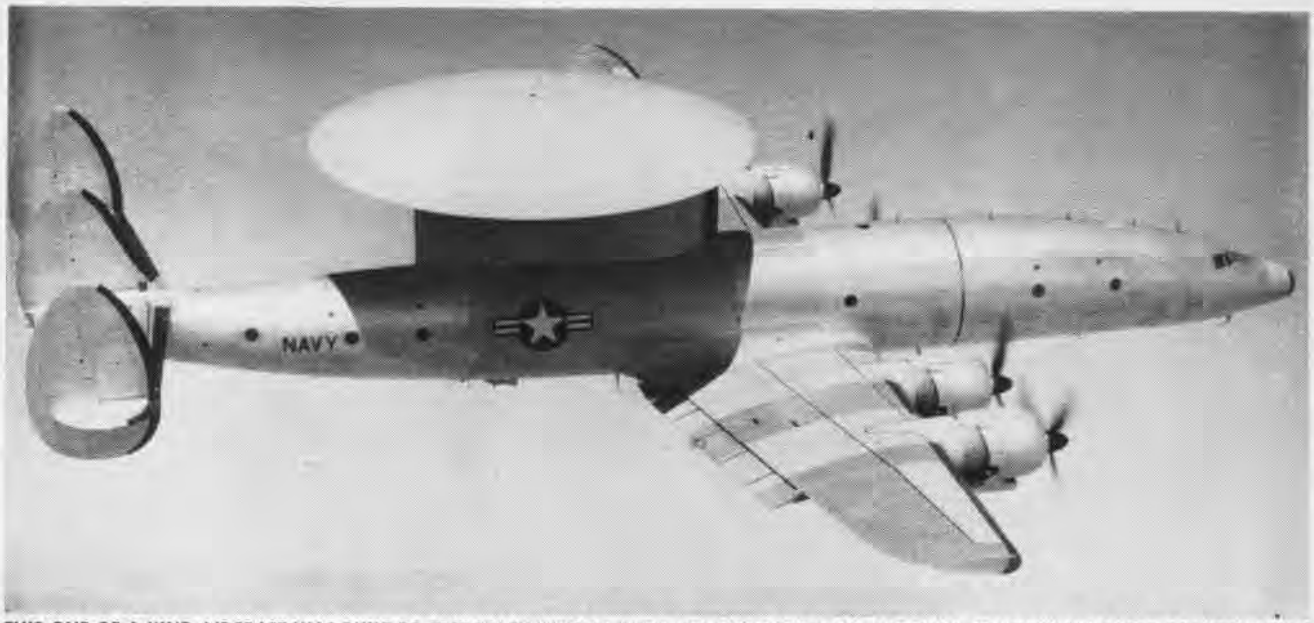
The natives treated it by piercing Harms' foot in hundreds of places with sharply pointed bamboo sticks and letting the fluid drain out. At the same time, his right foot had an ugly, purple-colored knot from which pus drained. Between the two infections, Harms couldn't walk for nine weeks.

The good food they had first enjoyed ran out. Heavy floods washed out the garden and they were once again back on the unvaried diet of rice. On April 9, however, an Army sergeant parachuted into the area with medical supplies. Under treatment Robbins started to recover, and Harms improved. However, Harms still could not walk when they received word 21 April of the details of rescue.

The following day, Robbins went to the village where Lt. Graham, Shepherd and the Army men were, and Harms was carried to another point.

On 10 June, Harms was evacuated and sent to a Navy hospital at Morotai. Then during the last week of June 1945, Lt. Graham, Robbins and Shepherd who had preceded to a special evacuation point were flown out by Australian pilots. The planes had landed on "Harrisson Field," an airstrip consisting of mats made from lengths of bamboo spread out over a rice paddy.

The long months of privation and disease were over. Determination, courage and persistence linked with the Australians' evacuation plans had brought out the four men who survived of an air crew of ten. Survival in Borneo was their personal victory.



THIS ONE-OF-A-KIND AIRCRAFT WAS BUILT TO TEST FEASIBILITY OF HUGE MOUNTED ROTATING ANTENNA OF LOCKHEED SUPER CONSTELLATION

TESTS TODAY FOR EQUIPMENT TOMORROW

By LCdr. G. R. MacClelland

DWARFED by the cavernous blimp hangar at NAS SOUTH WEYMOUTH, Mass., is as strange a collection of aircraft as have ever been assembled under one roof: Airship, *Super Connie*, P2V, R4D, F3D, F4D, JD, SNB and even a tethered free balloon swaying in the breeze from the huge clam shell doors. A strange set of hangar fellows, yet all share with pride the NADU tail marking!

The Naval Air Development Unit (Project Lincoln) is as unique as the variety of its aircraft might suggest. One of the Navy's Research and Development Commands, its projects have included such widely diversified activities as jet air defense (SAGE system development), blimp operations in the polar region, and electronic evaluation and development of the Lockheed "Roto-Dome" *Constellation*.

This diversification is indeed the key to NADU. While most commands need to be manned and trained in a single operational area, NADU must be prepared in many. This not only requires a high degree of proficiency in personnel, but also demands a great deal of ingenuity on their part since problems encountered with prototype equipment are not always solved with textbook answers.

To meet this demand, officer and enlisted personnel who are ordered into the Naval Air Development Unit must have a background of operational experience compatible with the Unit's needs. This does not mean each and every man ordered to NADU must be an electronic expert, but it does mean he should be currently qualified in one of NADU's areas of activity. These areas are many.

The chain of command leading to NADU is also unique. Commissioned in 1953, NADU is under the technical control of the Office of Naval Research, the management control of the Bureau of Naval Weapons, and the military control of Commander, Naval Air Bases, First Naval District. The formal mission of the Naval Air Development Unit is to:

1. Operate and service aircraft and airships as assigned by the Chief of Naval Operations for detection, tracking and interception functions in air defense systems, and for utility flights in connection with the transportation of special equipment and personnel.

2. Provide available services for Project Lincoln, Massachusetts Institute of Technology, and assist that project in the design, development and test of equipment and systems used in the various functions listed above.

3. As directed, participate in experimental or prototype air defense and ASW systems which may be established to determine their effectiveness.

Not included originally, but becoming an increasingly important part of NADU's mission is support of the newly formed Mitre Corporation, a U.S. Air Force sponsored scientific laboratory. Mitre is an outgrowth of Lincoln Laboratory formed to supply scientific assistance to the Air Force in the field of air defense. They will deal primarily with operational problems of new equipment while Lincoln Laboratory will remain in the basic research field. NADU supports both labs.

As in any Naval command, however, mission accomplishment is always a much more varied and interesting process than the factual statement of mission implies. NADU proves to be no exception. Cdr. R. M. Hayler, Projects Officer, put it this way: "The fascinating thing about this business is that here at NADU, we're dealing with a blend of the practical present and the projected future."

This feeling of sharing in the future is in evidence throughout the Naval Air Development Unit, but nowhere more so than in the Projects Depart-

ment, the nerve center of NADU. It is here that the theories of basic research, which have been harnessed by the engineer, appear in the form of electronic equipment to be evaluated, developed and, if possible, improved.

The manner in which these projects reach NADU is as varied as the type of projects assigned, for there is no single project source. Unlike the Naval Research Laboratory, in its own right a scientific laboratory working primarily on internally generated projects, NADU supplies assistance wherever there is a system or piece of equipment in need of practical evaluation. Such services are rendered regularly to Lincoln Laboratory and in addition to such civilian contractors as may be designated by BuWeps or the Office of Naval Research. In general, projects dealing with basic research would be generated by either Lincoln Laboratory or the Naval Research Laboratory, and those of equipment development and improvement would be originated by BuWeps.

Projects may vary from one flight to several years, from unclassified to top secret. The majority, naturally, fall somewhere between these extremes. However, the duration and classification of a project are but two of many variables; location is another. Recent project deployments saw *Connies* operating in Europe, Brazil, Africa, Canada, and the Pacific nuclear bomb tests; an airship crossing the Atlantic both ways while setting an endurance record of 264 hours, 14 minutes; a flight to within 600 miles of the North Pole by another airship, and the RAD flight checking TACAN Stations from Argentia to Roosevelt Roads. An impressive itinerary for a shore duty outfit!

FREE BALLOON WAS ONCE PROJECT VEHICLE

For NADU is shore duty despite all the water that has passed beneath the wings of her aircraft. While a trip to the North Pole makes news, equally or more important flights are operating locally. While the crew of one *Connie* may be momentarily enjoying the Brazilian winter bathing, two more crews are pre-flighting in the cold New England dawn for project flights which extend 200 to 300 miles into the Atlantic Ocean.

No stranger to cold New England mornings is NADU's C.O., Capt. E. A. Rodgers. A native of Fall River, Massachusetts, he's right at home in this land of snow, fog, lobster and electrons. Capt. Rodgers is frankly delighted in his return to home territory, and equally delighted with his present command.

"It goes without saying, we're all impressed with the importance of our work here at NADU since it is impossible, in this electronic age, to visit a fleet unit and not see some visible contribution by the Naval Air Development Unit. Yet aside from the obvious professional benefits we all share by our association with the Unit, there's the additional bonus of sea-type shore duty," Capt. Rodgers says.

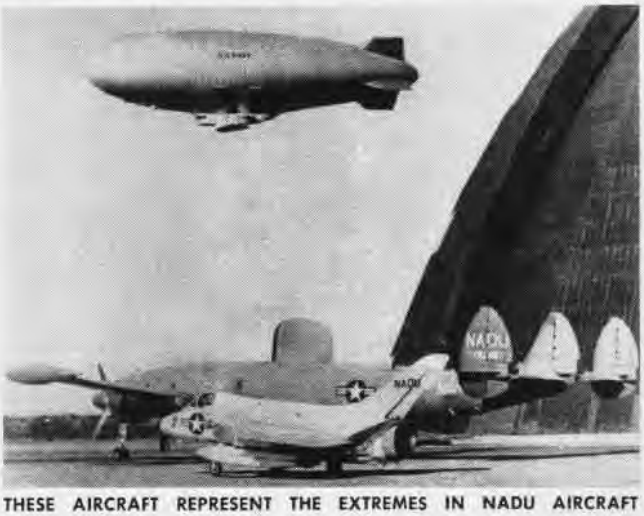
"In all outward appearances, NADU is more like a fleet squadron than a shore establishment command. This not only makes for a more exciting tour but, by working closely with the Fleet, we ourselves are kept abreast of current operational needs and planning.

"A large percentage of past projects have been closely connected with AEW; however, at this time we are greatly expanding our ASW program. Not only is this an increasingly important phase of naval warfare, but we feel we are ideally suited for this part of our mission, being physically located in the center of a great deal of ASW activity, interest and experience."

For example, Lincoln Laboratory is generating considerable interest in ASW, Raytheon is concentrating its ASW work in a new plant at Newport, R. I. The carrier *Wasp*, with Commander Task Group Bravo embarked, is homeported in Boston, and New London's sub base is just a few miles down the road.

"Who wouldn't be enthusiastic about working with an outfit like NADU?"

LTA CREWMEN ARE CALLED UPON TO CHANGE A TIRE THE HARD WAY


THESE AIRCRAFT REPRESENT THE EXTREMES IN NADU AIRCRAFT

MOUNTAINTOP VANTAGE POINT

By Gunnery Sgt. Jack Sheehan

MARINE AIR Control Squadron Two, the "eyes and ears" of the First Marine Brigade at the Kaneohe Bay Marine Corps Air Station, undertook in December the job of becoming the "movingest" outfit at the station.

The brigade's aircraft early warning system had been busy for weeks evaluating new locations for radar sites, and it appeared that an early morning hike to the top of 683-foot Ulupau Crater had paid off.

To say that MACS-2 personnel stumbled onto the site would be untrue; the site is the highest point on the Marine Corps Air Station.

Thirteen radar technicians, communications and electronics personnel began the trek up the sheer cliff walls of the crater at about 0600. The climb took about an hour and a half up a trail that had not been used since World War II when the Army used the mountain top for gun emplacements and lookout stations.

On reaching the top, the Marines barely had enough time to catch their breath and smoke a cigarette when helicopters began airlifting supplies up to the crater rim.

Dropping supplies on the rim of the crater was comparable to trying to stop an automobile doing 50 miles per hour on a dime. The Marines working at the top of the crater had only a narrow foot path to work in. One false step meant a fall of about 400 to 500 feet over the side.

Hurriedly, life lines were strung along the rim to keep the Marines from tumbling to certain death. For the next several hours, 26 helicopter-loads of radar and radio equipment were airlifted to the mountain top.

With radar antenna and screen erected on the crater rim, the men busied themselves setting up radio and other electronics equipment in bunkers dug into the side of the mountain, and were soon open for business.

To evaluate the new site, two Kaneohe Bay *Fury* squadrons were designated as "enemy" aircraft and a third fighter squadron equipped with *Crusaders* was designated as "friendly" protective forces.

For two days and nights the "enemy" aircraft attempted to infiltrate the "friendly" protective aircraft defense line to conduct air strikes on targets on Oahu and Molakai without success. The brigade's aircraft detection system proved too great an obstacle for the attacking forces.

Wave after wave of attacking aircraft were turned back by the *Crusaders* as the invading 'bogies' were detected far enough away on their approach to the islands.

Prior to the installation of the new aircraft early warning system on Ulupau Crater the Brigade's aircraft detection system was hampered by a blind spot caused by the crater. Low flying aircraft approaching the air station from the southeast could not be detected on the unit's radar equipment.

"We've tried the highest point," remarked squadron officials, "now we are going to try the most distant." They were referring to the tip of Mokapu Peninsula, known in the Hawaiian Islands as Pennsylvania Battery.

HELICOPTER *lowers radar equipment on roof of bunker dug into the side of Ulupau Crater.*

RADIO *and radar supplies are unloaded from wire basket at site of radar installation.*

VANTAGE POINT *on crater offers view of 650 unit Capehart Housing Project at Kaneohe.*

Additional WF-2's Bought

Tracers to Reach the Fleet Soon

Grumman has been awarded a $26,365,776 contract for additional production of WF-2 *Tracers*. The WF-2 is the first carrier-based aircraft employing a highly sophisticated radar and data reduction system, which enables the plane to "see" and pinpoint enemy aircraft or surface forces over the ocean long before land-based radar could provide detection.

The first *Tracers* have passed their Board of Inspection and Survey trials and their Fleet Introduction Program trials. They have been provisionally accepted and are expected to be delivered to the fleet soon.

An all-weather aircraft, the WF-2's long-range radar is housed in a saucer-like radome carried above the plane's fuselage. The radome is the largest ever attached to a carrier-based aircraft.

Basically a modification of the S2F *Tracker* and the TF-1 *Trader*, the WF-2 has a 72-foot, four-inch wingspan, is 45 feet, four inches long, and weighs 21,024 pounds empty. The all-weather aircraft is powered by two R-1820-82A Wright piston engines.

Patuxent Sponsors School
UHF Direction Finders Studied

Representatives from 15 Navy and Marine Corps stations converged on NAS PATUXENT RIVER for a five-day "cram course" on the use of ultra high frequency radio direction finders.

The course was taught by William D. Raynor, Philco Engineer, who is assigned to Patuxent under the auspices of the Bureau of Naval Weapons.

Coordinated Service Effort
School Given Obsolete Aircraft

The Navy, Marine Corps and Air Force combined efforts to brighten the eyes of the Vista Del Mar school children in Gaviota, California.

The U. S. Naval Missile Facility at Point Arguello arranged for a Marine helicopter to airlift an obsolete F-86

MARINE HR2S TRANSPORTS SABRE-JET TAIL

Sabrejet from Vandenberg AFB to the Gaviota school for educational and recreational purposes.

The 462nd Medium Marine Helicopter Transport Squadron from El Toro volunteered two Sikorsky HR2S helicopters to assist in the airlift operation as a training exercise. One Sikorsky helicopter, primarily used in combat to transport troops and cargo from aircraft carriers at sea to the beachhead, carried the first section of the 4000-pound jet, suspended by cables, approximately 45 miles to the Gaviota school.

The transporting copter was piloted by Capt. J. A. Vittitoe, officer in charge of the operation, and 1st Lt. J. C. Shelton.

Another helicopter, piloted by Maj. R. L. Simonds and Capt. F. F. McCune, USMC, landed near the school earlier in the day to direct landing operations.

NEW EXTINGUISHER USED

SAR HELICOPTER LIFTS NEW PORTABLE CHEMICAL EXTINGUISHER TO SITE OF BLAZE

NAS GLYNCO demonstrated the effectiveness of the New Navy airlift type dry chemical fire extinguisher in December as Navy and civilian fire fighting representatives looked on. Coordinated between personnel of the station's Crash Crew and Fire Department, the training exercise proved to the satisfaction of onlookers the practicability and use of the unit.

A column of black smoke and leaping flames from aviation fuel at the simulated crash site signaled the beginning of a chain of events which culminated in the flames being extinguished and the supposedly trapped pilot in the plane's cockpit being saved from a fiery death.

The 800-pound dry chemical fire extinguisher can be moved quickly to the site of a crash by helicopter where crash crew and fire fighting personnel battle the flames as the helicopter attempts to drive the flames downward with its rotors, deflecting the fire from the cockpit area.

The dry chemical, which is considered an excellent agent for quick knockdown and rescue, is helped in its effects by the directed rotor downwash of the helicopter. Rescue can be made by men in conventional firemen's clothing while the flames are controlled by the downwash, even if no other extinguishing equipment is available. The intense heat and dense clouds of smoke normally associated with aviation fuel fires can be deflected away from the fire fighters.

The extinguisher is compact, simple and rugged. Developed after years of research and field tests, the new unit has been in the field since late August. For on-base fire it can be mounted on a rack and transported on the bed of a pick-up truck. When an off-base need arises, the unit can be lifted easily from the truck and carried to the scene by a helicopter.

Crash crew personnel at NAS GLYNCO are undergoing training periods in the use of the new dry chemical unit for fire fighting and rescue operations. The versatility of the new equipment is expected to insure pilots and crewmen of aircraft an even greater margin of safety in firefighting in remote off-station areas.

GW FIRING SYSTEM TESTED

'SABOT' IS JUST VISIBLE AT THE TOP OF THE WATER COLUMN AFTER THE FIRING TEST

DOCKSIDE at the Electric Boat Division of General Dynamics Corp., Groton, Connecticut, a series of tests are being conducted to check out the *Polaris* missile firing system aboard USS *George Washington*. Above, a tower of water belches from one of the nuclear submarine's 16 missile tubes, which was flooded.

A one-ton cylinder, dubbed *Sabot* for an ancient piece of artillery equipment, was fired. It is retrievable, re-usable and economical. SSBN-598 is the first of its class. Launched 9 June 1959, it is scheduled to become operational later this year.

Helo Pilot #5000 Named

Ens. Renner Gets Card from C. O.

Ens. William S. Renner has been designated helicopter pilot No. 5000. His card was presented by Capt. Joseph T. Watson, Jr., Commanding Officer of Ellyson Field. Capt. Watson holds card No. 494.

Helicopter training in the Navy and Marine Corps was transferred from Lakehurst to Pensacola in December, 1950. At the time of the move, 376 pilots had been trained at Lakehurst.

FBM Sub Commissioned

Will Require Two Complete Crews

The Navy's first Fleet Ballistic Missile Submarine, *George Washington* SSB(N)-598, was placed into commission 30 December 1959 at the Electric Boat Division of General Dynamics Corporation, Groton, Connecticut.

Displacing 5400 tons, the 380-foot *George Washington* is the first submarine designed to fire *Polaris* intermediate range ballistic missiles while submerged. She is equipped with 16 missile launching tubes. The *Polaris* missile, which is presently in an advanced testing stage, is scheduled to become operational in 1960, two years ahead of original estimates. The missile will have an initial range over 1200 miles and will be capable of carrying a nuclear warhead.

Nine FBM submarines have been authorized and four have been launched. The *George Washington* is the first submarine to be named for a famous American. Other type subs are named for marine creatures. In view of the strategic importance of the *Polaris* weapons system as a deterrent force, the Navy broke from tradition and decided to name the Fleet Ballistic Missile Submarines for great American patriots.

The new sub will be the first Navy ship to have two complete crews, a Blue and a Gold. While one crew is at sea operating the submarine, the other will be ashore for recreation and refresher training. This practice will enable the *George Washington* to remain on station for extended periods of time and thus take advantage of its nuclear power plant capabilities.

Commanding Officer of the *George Washington* is Cdr. James B. Osborn of Stockton, Missouri. The sponsor of the ship is Mrs. Robert B. Anderson, wife of the Secretary of the Treasury.

HEAT RESISTANCE IMPROVED

A NEW PROTECTIVE metal coating which permits a heat-resistant metal to be used at temperatures as high as 2200° F. has been developed by the Naval Research Laboratory.

The discovery was made by George Sandoz, working under Dr. B. F. Brown.

Methods of applying the protective coating include dipping columbium in a molten zinc bath, electroplating the metal, or by applying the coating in vapor form in a vacuum chamber.

Potential uses of zinc-coated columbium include the construction of aircraft structures and engines and the construction of high-temperature nuclear-power plants.

The coating will permit an increase in the operating temperature and efficiency of jet engines for aircraft propulsion.

Using ordinary grades of zinc as the starting material, the coating has the capability of automatically "healing" itself when flaws or defects occur in the metal at high temperatures.

It was designed to prevent the oxidation of columbium, a high-strength, heat-resistant metal which is used in the manufacture of metal parts and components which must withstand extremely high temperatures.

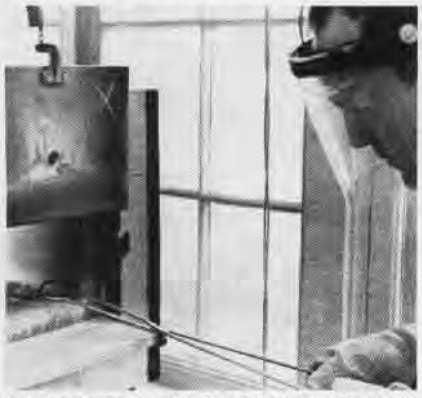
Alloys of columbium can stand up under temperatures which would turn iron, nickel and cobalt into soft putty or actual liquid. The main drawback to using columbium in the past, however, has been that when exposed to oxygen in the air at high temperatures it has corroded to a crumbly powder.

Demonstration tests at NRL have shown that alloys of columbium can retain their characteristics at temperatures ranging from 1600° F. to 2200° F. while in an environment containing oxygen, when the coating is applied.

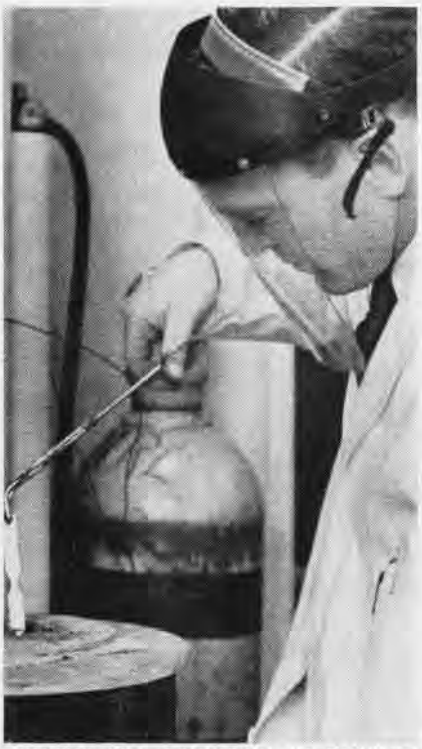
Although zinc ordinarily boils at a temperature of 1680° F., it is possible to use it in this application because it is retained, not in its true state, but as an alloy of columbium. At high temperatures, the zinc is released gradually from the alloy to form a protective layer on the surface of the metal. This layer serves as the "envelope" which shields the metal from attack by oxygen.

The coating is termed self-healing because it can repair flaws introduced in columbium alloys by rapidly reestablishing a protective surface over the bare region of the metal surface. In addition, it is ductile and plastic at high temperatures, thus preventing bare spots from developing even when the base metallic material is subjected to stresses.

Industry and other government laboratories have been informed by NRL of the new coating, and all are now conducting tests to determine its use.



ZINC-COATED METAL IS REMOVED FROM VAT



SCIENTIST DIPS COLUMBIUM IN SOLUTION

Extra Sonobuoys Bought

Hazeltine to Build 32,000 Units

The Navy has awarded Hazeltine Corporation a follow-on contract for 32,000 sonobuoys, with repair kits, in addition to the 12,000 sonobuoys the company is presently constructing.

A sonobuoy is an electronic system packaged in a cylindrical tube. Launched from a Navy ASW airplane, it is guided into the ocean by a descent-slowing mechanism. Upon hitting the water, the sonobuoy's hydrophone, which is an underwater microphone, is released to a predetermined depth.

Simultaneously, its batteries are activated by the sea water. The sensitive electronic device then picks up sounds of nearby submarines and sends signals to the launching plane.

MORE THAN 15 YEARS *after being injured when his ship, USS Gambier Bay, was sunk during the battle of Samar, Moss J. Kelly, AQ1, of VAH-11 receives a Purple Heart from his C.O., Cdr. G. H. Robertson, at Sanford.*

Multi-Engine Training Move

SNB Beechcrafts Arrive at Whiting

One day in December, 32 twin engine SNB *Beechcrafts* flew into NAAS WHITING FIELD en masse from Pensacola's Sherman Field. This completed the long-planned transfer of the Multi-Engine Training Group.

The 32 SNB's touched down at their new base on North Field where they share facilities with Basic Training Group Two.

The relocation of the METG from Sherman Field to Whiting was prompted by the need for more space at Sherman to handle the increase in jet basic training operations there.

Multi-engine training is under command of Maj. E. W. Cassidy, USMC.

'OLD COUGARS NEVER DIE'

SHEER TENACITY OF THIS COUGAR WON APPLAUSE OF PACIFIC MISSILE RANGE STAFF

OL' 23 HAS FLOWN her last mission, but her fate will not be that of other pilotless, target aircraft at Pacific Missile Range headquarters. There's a special reason.

Ol' 23 is an F9F-6K *Cougar* with a charmed life. In March 1954, she rolled spanking new from the Grumman assembly lines in Bethpage, N. Y. A month later, she reported for duty with VF-61 at NAS NORFOLK.

Ol' 23 was known as Buno. 130893 in those days. After two years with the fleet and on the Atlantic coast, she retired. She just couldn't keep up with the "youngsters"—those F3H *Demons* and F8U *Crusaders*.

Because they weren't able to fly high or fast enough, the Navy found other things for *Cougars* to do. Some got training duty, others photographic assignments, and still others, including Ol' 23, drew short straw! They became pilotless, target aircraft.

In the O&R shops at Norfolk, mechanics stripped Buno. 130893. of her guns and valuables and painted her red—bullseye red! On 8 December 1958, she reported to PMR headquarters and had a big 23 painted on her nose.

No one expected her to last long. The life expectancy of a "NOLO," Navy jargon for "No Live Operators," is only three missions. Resigned to her fate as a high speed target for the missile-totin' fighter planes that had replaced her, 23 looked into a mighty bleak future.

Flight number 3 came and went. So did flights 4, 5, and 6. And then, the fateful 7! On that mission, a *Sparrow III* ripped through her canopy, tore it and her rudder off. It looked like curtains for 23, but she made it back. That's when the boys at the PMR target division began to call her Ol' 23.

Six more missions, and everybody rooted for Ol' 23. No one was really sure she'd finish them, because that *Sparrow III* damage made her unsafe for a pilot check flight after she was patched up.

Thirteen was another unlucky number of Ol' 23. During that flight, something went wrong. She suddenly flipped on her back. The controller of her flight tried vainly to restore her to normal flight. Ol' 23 went into a spin, heading for the ocean below. Miraculously, she got hold of herself, straightened out and flew home to a rousing welcome.

On 28 October 1959, Ol' 23 was cruising along on her 15th mission, thumbing her nose at the *Terrier* AA batteries at the Marine Corps base at Twentynine Palms, Calif. But she was a little too smug; one of the rockets smashed into her right wing close to the fuselage. She shuddered and shook, but wouldn't give up. After struggling back to base at San Nicolas Island, off-shore from Pt. Mugu, the controller on the ground brought her in for a safe landing.

In bad shape, she knew she'd never fly again. Her engine had burned out in that last desperate effort to get home, and her wing was too badly shot up to be repaired. Her tenacity, perhaps, had destined her for an end even worse than the one she'd tried so valiantly to avoid—the junk yard!

But RAdm. Jack P. Monroe, PMR Commander, decided that Ol' 23 was a special plane, too special for the junk yard. So she's back in the repair shops. No, she won't fly any more, and her repairs will be only superficial. But she's going to look just as sharp as when she rolled off the assembly line back in '54.

The Admiral is looking around the area for a school that would like to have Ol' 23, so she can spend the rest of her days proudly under the searching eyes of children preparing for roles in the Space Age.

Ol' 23 would probably be the first to tell you that those Navy missiles are deadly accurate. She'd probably also tell you that if any of the 23 rockets fired at her during those 15 missions had had regular, fused explosive warheads instead of dummy ones, she'd never have made the next flight. But who can be sure? After all, Ol' 23 is a *Cougar* with a charmed life.

'RESCUED' AND RESCUERS AFTER EXERCISE

Air/Sea Rescue Practiced

Pilots Try Out Anti-Exposure Suits

In order to obtain real experience in being rescued at sea, pilots of VF-62 with the aid of helicopter unit, HU-2, Det. 45, and the approval of CAG-10, tried out their cold weather anti-exposure suits off Mallorca in the Mediterranean.

After swimming around in the suits testing them for leaks, the pilots were "rescued" by the helicopters lowering the latest type of rescue seat.

At the time of the test, VF-62 was operating aboard the USS *Essex*.

After their successful cold weather simulated rescue, pilots and rescuers posed beside a helicopter: front row; left to right: Ltjg. J. D. Kaufman and Ltjg. J. W. Fowlkes, VF-62, E. A. Thornton, AMS3 of HU-2, Cdr. G. H. Winslow, VF-62, Lt. W. M. Stollenwerck, CVG-10, Cdr. E. L. Feightner, CAG-10; second row: Lt. R. L. Rose and Ltjg. R. F. Berg, VF-62, Ltjg. G. E. Barry, HU-2, Ens. R. B. Breitenbach, HU-2, Ltjg. G. W. Brown, VF-62, Ltjg. R. G. Snow, VF-62, and Ltjg. W. A. Kerr, Fighter Squadron 13.

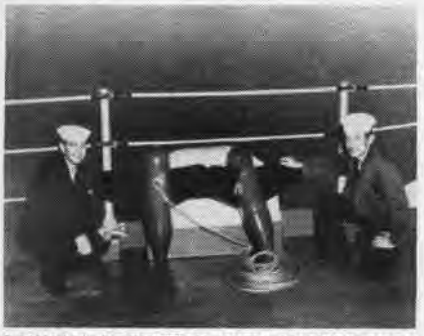
Anchor Markers for the Bay

Salisbury Sound Men Inventive

The extremely strong current of San Francisco Bay is well known. No prisoner has ever escaped from Alcatraz alive because it is impossible to swim in its usually icy, churning waters.

Ships have been unable to keep an anchor buoy or marker afloat, unable, that is, until A. D. "Frenchy" Rocheleau, BM3, of the USS *Salisbury Sound* (AV-13) put his initiative to work.

He designed what is now known as "Frenchy's Forecastle Froth Moth" or "Supersonic Anchor Buoys." With the help of Richard Bauman, fireman, he used water-fillable bombs carefully sealed to retain their buoyancy and



BAUMAN, ROCHELEAU WITH ANCHOR BUOY

then added "fings" (a combination of fins and wings) to help them swim against the current.

Standard wooden anchor buoy blocks just wouldn't work, but "supersonic" space age buoys, red for port anchor and green for starboard, do a fine job for the *Salisbury Sound* as it tends seaplanes in San Francisco Bay.

Sheehans Are Patriotic

8th To Serve Is Naval Aviator

There are ten children in the Sheehan family. The eighth member to serve in the Armed Forces received his Naval Aviator Wings in designation ceremonies at NAS Corpus Christi. Ltjg. James E. Sheehan had his wings pinned on by his wife and his mother was present for the ceremony.

The pilot, who has received orders to Patrol Squadron 49 in Bermuda, has two brothers who were in the Navy, four in the Army, and a sister who served in the Marine Corps, either during WW II or Korea. However, James is the only one now on active duty.

Still at home are the two youngest Sheehan offspring, who are both girls.

CHERRY POINT O&R COURSE

AT INTERIM *rework section, Ltjg. Dunlop learns something about the wiring of an F3H-2N Demon. This first-hand knowledge will help to alleviate many of the fleet problems in his squadron.*

Six Naval Aviators graduated from a six-month aircraft maintenance officer course at O&R, MCAS Cherry Point. They were: Lts. J. E. Bartocci, R. A. Ways, T. A. Drum, Jr., and S. P. Dunlop, from NAAS Kingsville; and Lts. C. H. Eley and D. G. Beaty of Chase Field, Beeville, Texas.

The 1040 hours of instruction were divided into several phases. After an orientation into the functions of the Overhaul and Repair Department, the students studied production planning, customer service, material procurement and engine scheduling.

Finally, the Naval Officers worked in the disassembly, interim rework and power plant sections for on-the-job experience. Engineering, inspection, transfer and supply were covered.

The pilots are now qualified to act as fleet maintenance officers.

RECONSTRUCTING *an aircraft was a final project. Lt. Ways goes about completing the job.*

INSPECTION *after overhaul is important phase of the course. Ltjg. Drum overlooks nothing.*

LETTERS

SIRS:

We would like to mention a recent accomplishment of the VF-13 maintenance department. Perhaps some other F4D squadron can top it, but we have our doubts.

During a 10 day operating period, from 6 to 16 November 1959, VF-13 F4D's flew 176 straight sorties without a cancellation due to lack of availability or downed aircraft. This was accomplished while operating from the USS *Essex*, with Mk. 8 hydraulic catapults, which are not noted for gentle treatment of F4D's.

In March 1959, our fourth month with the F4D, VF-13 flew a total of 500 hours, practically all of which was flown in the FCLP pattern. We would also like to know if any other "FORD" outfit has yet flown 500 hours in one month.

CDR. N. R. BERREE
Commanding Officer

VF-13

SIRS:

An article in the October NANEWS, titled "WV-2 Aircraft Commander—VW-14 Claims Youngest on Barrier," correctly restricts that claim to the Pacific Barrier.

Ltjg. Philip E. Oppedahl, recently detached from VW-13, was a ripe, old 23 when he was designated a WV-2 aircraft commander.

Furthermore, currently serving with Atlantic Barrier Squadron VW-15 is 24-year-old WV-2 aircraft commander Ltjg. Richard E. Meyer.

K. C. HOOPER, CDR.
ComFltAir Argentia

RADM. ROLF JOHANNESSON, *Commander of the Federal German Naval Forces, boards a helicopter at Pensacola. He visited NABTC en route to Charleston, S. C., to represent his government in the transfer of a U.S. destroyer.*

MISS ROBB, CDRS. SLATTERY, BOODA, HUFF, MR. SPRINGER, CDRS. COLGAN, RODGERS

NANEWS' ROBB HONORED

IT WAS A bleak day in December 1942, when the bright-eyed and fresh-caught Wave jaygee reported for duty at Navy Department headquarters in Washington. Behind her were three years of Federal Civil Service, a tour as English instructor at the American College for Women at Istanbul, and a stint with a Scripps-Howard newspaper. Her name was Izetta Winter Robb.

The same Miss Robb, now managing editor of Naval Aviation News, has been cited by RAdm. C. S. Cooper, ACNO(Air), on completion of 20 years Federal Service.

After brief service in the office of the Director of Public Relations, Miss Robb was transferred to the Aviation Periodicals section of the Bureau of Aeronautics where Capt. "Min" Miller rode herd on the biggest stable of name writers south of New York City.

One day in 1944 one of the writers bungled a story which was being written for the Navy issue of Flying Magazine. The Navy editor in charge of the project grew more and more exasperated as the writer wrote and re-wrote the piece. Finally he tossed it to Miss Robb and said, "Give me a story."

Forthwith she gave him a readable, intelligent story of the Waves in Naval Aviation. It was one of the few things unrestricted she wrote during the war, for on the whole her time was taken up with a classified publication which used the material that could not be published in *Naval Aviation News*.

However frightened she might have been by the magnitude of the assignment, Miss Robb accepted the job as managing editor of the *Naval Aviation Confidential Bulletin*.

Within a year the magazine was listed among the top five service publications when in a fleet-wide poll Navy commanders were asked what publications they considered most essential to them in carrying out their wartime missions.

The war ended and Miss Robb, like most of the other wartime Navy writers, turned in her uniform.

On April 3, 1946, she answered a plea to come back and manage the Bulletin as a civil servant. She remained as managing editor of the Bulletin until its publication was suspended during an economy move, and then became managing editor of *Naval Aviation News* in 1954.

When Admiral Cooper presented Miss Robb her 20-year service pin in the Pentagon, there were present five former editors of the *News* whom she had helped to 'break in.'—*J.E.O.*

• During the first year in orbit, *Vanguard 1* satellite made 3,921 revolutions of the earth and travelled 131,318,211 miles.

• Utility Squadron Four is training all pilots from VU-2, VU-4, VU-10 and GMS Ron Two selected to fly the F3-3. The familiarization course is eight weeks long.

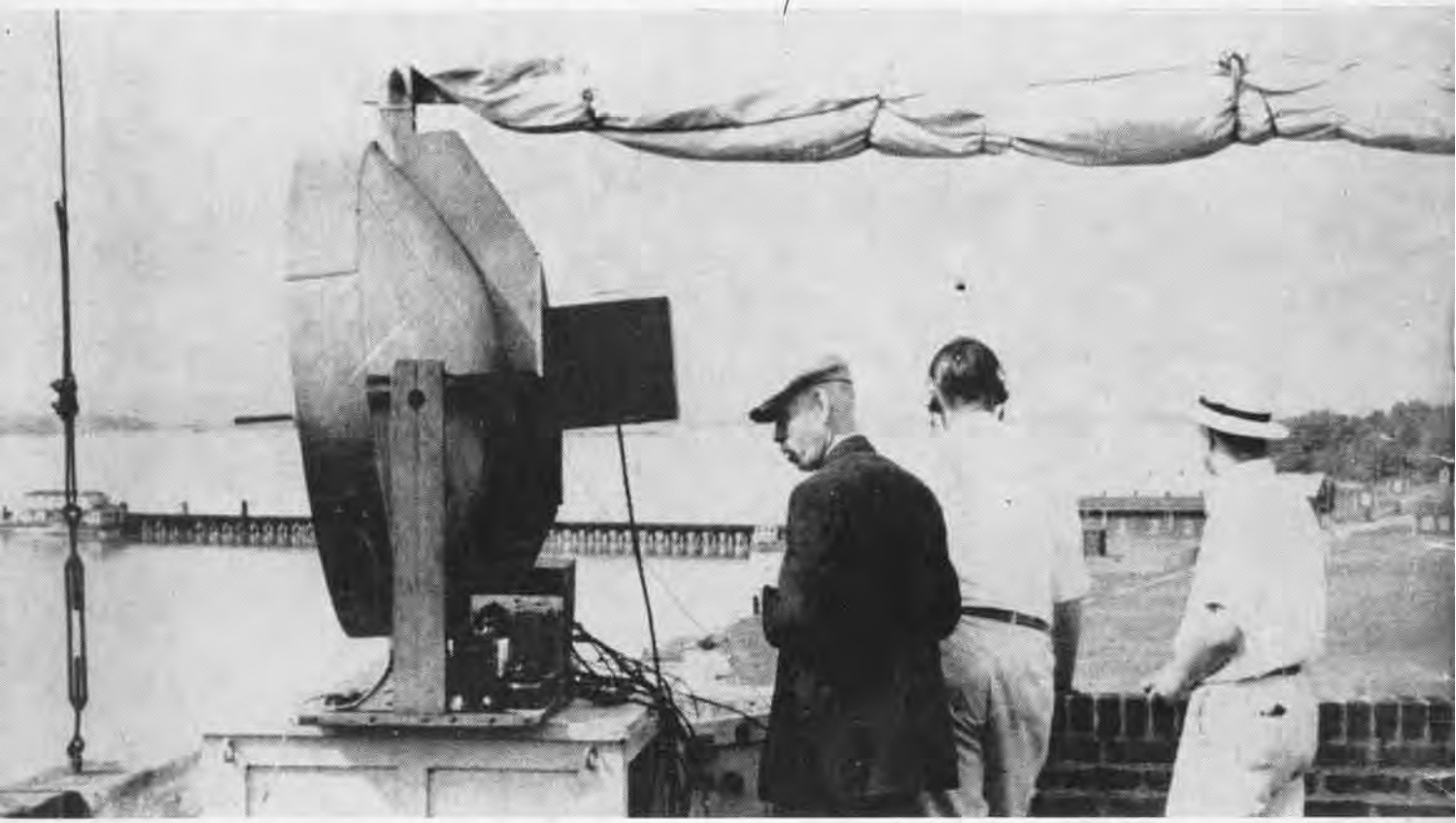
VF-213

SQUADRON INSIGNIA

During the 1959 deployment USS Lexington had Fighter Squadron 213 and Heavy Attack Squadron 4 Det. L embarked as part of CVG-21. The constellation Leo symbolizes the all-weather mission of VF-213, commanded by LCdr. M. D. J. Turley and flying F4D Skyrays. VAH-4 uses a modern design to indicate the high-performance of the A3D Skywarrior and the ability of Cdr. J. J. Emanski's outfit.

VAH-4

HAPPY LANDINGS (REG. U. S. PAT. OFF.)



U.S. Patent 2,677,127, a 1954 radar patent issued to the Navy's Dr. R. M. Page, covers an invention known as the Plan Position Indicator. To pilots groping for an invisible runway or skippers of surface ships plowing through a fog-enshrouded sea, this particular patent is the best life insurance policy ever written, for this radar device unlimited by weather and darkness gives continuous, unerring position information. In WW II and Korea, radar had a profound effect on the course and outcome of land and sea engagements. A pioneer of this remarkable breakthrough was Dr. A. Hoyt Taylor shown above in the dark suit conducting one of his numerous experiments in 1922 involving reflecting radio signals. Dr. Taylor's work and the work of Leo Young and Dr. Page of the U.S. Naval Research Laboratory led to the development of current radar equipment. Since the acceptance of its first airplane, Naval research has been a major factor in aviation progress. The air-cooled radial engine and the full pressure suit are two examples of thousands of developments. Thus Naval Aviators and Naval Aviation are bulwarked by a scientific team second to none. If you are interested in flying, fly the best. Write NAVIATOR, Glenview, Illinois, or visit your local Navy recruiting office.

NAVAL AVIATION
NEWS