



NAVAL AVIATION

# NEWS

41st Year of Publication

APRIL 1960

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## **A FRIENDLY GAME OF CAT AND MOUSE**

With radome and stinger extended, a Grumman S2F Tracker from Glenview-based Reserve Anti-Submarine Squadron 721 operates with USS Spikefish in planned maneuvers off Florida. Up and down the coasts of the United States, and far out to sea, naval aircraft maintain constant vigilance against the peril of unfriendly submarines. To keep airplanes and personnel at peak proficiency, Reserve ASW training is pursued as a fully cooperative effort (see pages 27-29).

# NAVAL AVIATION NEWS

FORTY-FIRST YEAR OF PUBLICATION, APRIL 1960

## ■ IN THIS ISSUE

- Life Blood of Polar Flight** 6 *On-the-scene report of the logistics problems encountered by VX-6 in Operation Deep Freeze.*
- Navy's Space Role** 14 *Second in a series of three articles on the Navy's place in the Space Age.*
- Supersonic Salon** 20 *Dramatic camera studies of the A3J.*
- 'Better than the Best'** 24 *VW-4s Hurricane Hunters provide a follow-up on Gracie.*
- Weekend Warriors** 27 *Seattle, Oakland and Glenview Reservists perfect ASW techniques.*
- NAS Cubi Point** 33 *A report on a major Naval Air Station located in the Philippines.*
- Bold Rescue** 36 *An account of an exciting helicopter rescue by HS-7 in heavy seas.*

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## ■ COVER

Seemingly lost in the intricate pattern of tubing and angles, Mr. H. H. Nichols, an electronic technician, adjusts radio-meter at the focus of the parabolic antenna of radio telescope at NRL's Maryland Point Observatory. Telescope was designed by D. S. Kennedy Co., Cohasset, Mass. Installation view on back cover.

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# NAVAL AVIATION NEWS

## Aircrewman is Decorated Saved Gunner During Mig Attack

Richard E. Nelson, AO1, who was a crewman aboard the P4M *Mercator* which was attacked by Mig fighters over the sea of Japan last June, has been awarded the Navy-Marine Corps medal.

The attacking aircraft made three firing runs on the P4M, wounding the tail gunner. Nelson administered immediate first aid to the crewman and covered him with his own body to protect him from bullets which pierced the fuselage during the last pass.

Soon after the crippled Navy plane limped back to Miho Air Base, the two pilots received Distinguished Flying Crosses for their actions and the other crew members were awarded Air Medals. Nelson's award later was raised to the Navy-Marine Corps medal.

## Marines Make Mark in Med 100% Pull 100th Landing in 1 Day

Marine pilots from Attack Squadron 225 of MCAS CHERRY POINT, aboard the USS *Essex* in the Mediterranean, boasted a new Navy record when all 17 of them made their 100th landing the same day. From dawn until late afternoon, on scheduled training or surveillance hops in the A4D, the Marines each caught the wire that qualified them for the Centurion Club.

In the picture, front row, left to right: Capt. C. W. Warfield, Maj. J. V. Haynes, Maj. J. P. Flynn, LCol. A. R. Boag, commanding officer; Maj. G. F. Bauman, Capt. S. J. Kittler. Rear:



HAPPY CENTURIONS DISPLAY SCOREBOARD

1st Lts. R. P. Connolly, R. T. Lawrence, R. L. Hoffman, M. T. Fountain, Lt. J. P. Kerwin, MC, USN; 1st Lts. F. M. Logan, J. D. Sells, M. L. Whitehouse, Capt. J. E. Holland, R. A. Plamondon, 1st Lt. B. P. Pike, Capt. John A. Enos, Air Intelligence Officer, and Capt. Thomas W. Nelson, Jr.

## NANews Crosses Potomac Returns to Constitution Avenue

"Practically back where we started from!" is the comment of the NANews staff on the move in late February from the fifth deck of the Pentagon to the third deck of the Munitions Building, 19th and Constitution Avenue, Northwest, Washington, D. C.

In May 1949, *Naval Aviation News* was moved to CNO territory in the Pentagon. From that time to the present, it has made four moves within the huge Defense edifice and a fifth move back to Main Navy. As the crow flies, NANews offices are less than 1000 feet from the office it left in '49. One editor says, "We've been away a long time, but we've not travelled far!"

Naval Aviation's periodical and history section is now "at home" in Rooms 3411, 3413, and 3415, Munitions Building. In its new location, which is expected to be temporary, NANews is close to one of its official sponsors, the Bureau of Naval Weapons, but remains Op. 05A5, an integral part of its other sponsor, the Deputy Chief of Naval Operations (Air).

Correspondence should still be addressed to Editor, Naval Aviation News, Op. 05A5, Navy Department, Washington 25, D. C. For its regular readers who fly into town, NANews assures a warm welcome in its new location.

New NANews telephone numbers are OXford 6-1755, OXford 6-1880.

## ATCO Becomes Popular Aids Navy Passengers at Airports

Navy men traveling by government aircraft to Pacific destinations are adding a new and pleasant word to their

vocabulary. It is ATCO for (Naval) Air Traffic Coordinating Office.

ATCO units are found in almost every air terminal in the Military Air Transport Service. A typical unit is at Clark Air Force Base in the Philippines where Alan C. Terwilleger, ABC, heads six enlisted men.

The chief and his staff are responsible for coordinating the air transportation of Navy passengers in and out of the Philippines as well as looking after their needs while they await transportation. The Navy unit works with similar Army and Air Force units.

"In a month's time," says Ter-



TERWILLEGER BOOKS TRAVELERS AT CLARK

willeger, "we may handle as many as 500 Navy passengers. We log them in and out, book them on flights, see that they have accommodations while here and, in general, look after them.

"In this job," he adds, "we find it works to everyone's benefit to have Army people taking care of Army people and Navy people taking care of Navy people. Each service best understands the needs of its own people. In our situation, it's just a case of the Navy looking out for its own."

## VX-5 Receives A4D-2N's To Develop New Delivery Tactics

Air Development Squadron Five has received three new A4D-2N's and has been assigned to develop improved en route and final delivery tactics for nuclear and conventional weapons.

Equipment which will provide increased mission capability over previous

A4D models has been devised and installed in the -2N. An automatic flight control system, advanced radar, and an improved loft bombing system are among recently developed equipment added to the aircraft.

The A4D-2N is fitted with a removable nose probe for in-flight fueling and, by mounting a "buddy" refueling store under the wing, the plane becomes a flying tanker.

LCdr. James Nance has been named A4D-2N project officer. In development of new tactics to be adopted by fleet squadrons when the -2N is delivered to the fleet, LCdr. Nance will be assisted by LCdr. Harry S. Sellers and LCdr. N. J. Gambrill.

Over the years, VX-5 has evaluated AD Skyraiders, F2H Banshees, F7U Cutlasses, F9F-8 Cougars, F3D Skyknights, A3D Skywarriors, A4D Skyhawks and FJ-4 Furies. Capt. Karl S. Van Meter is current squadron commander.

## Helo Helps to Fight Fire Threat to Buildings is Overcome

A Marine helicopter was used to help Japanese Self Defense Force personnel extinguish a brush fire which threatened Camp McGill, Japan.

LCdr. John N. Swartley, executive officer of Marine Helicopter Transport Group 16, was flying over the McGill area when he spotted smoke rising near the camp parade field. JSDF personnel were trying to beat out the fire which was headed toward some buildings and getting out of their control.

He brought the HUS-1 helicopter to the downwind side of the fire and used the down blast of his rotors to keep the blaze from traveling any closer to the buildings.

A JSDF fire fighting team arrived and followed the helicopter around the perimeter of the fire, spraying water on the flames until the fire was out.

ActSgt Bruce E. Allen of Headquarters and Maintenance Squadron 16, Naval Air Facility, Oppama, was crew chief of the fire-fighting copter.

## 'Jolly Rogers' Win Award Chance Vought Plaque Given VF-84

Fighter Squadron 84 has been named the Atlantic Fleet winner of the Crusader Fighter Excellence Award for 1959.

The plaque, donated by Chance Vought Aircraft, Dallas, was pre-



CDR. HOPPE GIVEN PLAQUE BY LCDR. OBERG

sented to Cdr. R. T. Hoppe, VF-84 skipper, by LCDr. O. H. Oberg from Commander Naval Air Force, Atlantic Fleet Staff.

VF-84 was the first to be equipped with the F8U-2 Crusader, an improved version of the F8U-1 which won the Bendix Trophy in 1956 with an average speed in excess of 1000 mph.

The original Jolly Rogers were formed as VF-17 in early 1943. While

flying the F4U Corsair, they scored 314 kills against the Japanese in the Pacific.

The squadron is part of CVG-7 and is assigned to the USS Independence.

## ASO Earns High Praise Polar Aircraft 'Up' for 5 Months

Capt. William H. Munson, commander of the Navy's Antarctic air squadron, VX-6, has commended the Navy Supply system which permitted his unit to keep 15 aircraft operational for a five-month period without one airplane being in a 'down' status for lack of a spare part.

"Even in accessible areas of the world," he wired RAdm. David M. Tyree, commander of Deep Freeze operations, "this record is considered unusual. Remoteness of the squadron's aircraft from normal supply channels made the record the more remarkable."

Normally based at Quonset Point, VX-6 deploys annually to Antarctica.



ROCKET TRAIL of "Shotput II" left its mark in the sky—appropriately the huge figure "2"—following the experimental balloon shot from Wallops Island, Virginia, by the National Aeronautics and Space Administration. The unusual formation, caused by cyclonic wind shear in the upper atmosphere, was recorded from the roof of Plant 5 in Bethpage, Long Island, New York, by the Grumman Satellite Tracking Station during the trial to study high altitude wind currents.



# GRAMPAW PETTIBONE

## It Takes Two to Tangle

A four-plane division of A4D's, scheduled for night field mirror landing practice, had taken off at 1900 from their home field and climbed to altitude for a practice division TACAN penetration. Approach Control cleared them for the penetration, the flight to break it off at the 12-mile fix and 2500 feet.

The penetration was accomplished without incident, and the division proceeded to the FMLP field. "Paddles" was contacted, they were told their signal was "Charlie" and the pattern was clear.

The flight entered the break in right echelon at 280 knots, the leader indicating 700-foot altitude. His lights were dim and steady, but the fuselage light was burned out. Over the runway the flight leader broke, held a 20° bank, reduced power to 70 percent and popped speed brakes. After about 60° of turn had been completed, he lowered the wheels and flaps and was just reaching for the speed brake switch when suddenly there was a heavy impact and an explosion!

He glanced at the gauges, was momentarily distracted by a ball of flame going forward and down to the left. He leveled out, applied back stick and full throttle, and in a vicious skid, with tremendous shuddering of the entire aircraft, slowly began to climb ahead into the inky darkness.

He decided on ejection and grabbed the face curtain, but a last quick check of the altimeter to insure safe ejection altitude showed 750-800 feet and climbing, airspeed 160 steady, engine instruments normal. He let go of the curtain, "stirred" the stick with little noticeable effect on the sickening skid and decided to stick with it to gain as much altitude as possible.

Just about this time, as the second section leader joined him, the pilot suddenly realized he still had gear, flaps and speed brakes extended. He pulled in the brakes and got a "looks O.K." on the wheels and flaps, but also a re-



port that the left wing tank was 90° to its normal position and a recommendation both tanks be jettisoned. The tanks were dropped successfully, and the wild skid immediately stopped with a reverse skid which was easily trimmed out.

They had arrived over the home base by now and were cleared to land by the tower, alert and fully aware of the entire emergency situation. A good normal landing was made, the hook dropped and the wire snagged for an easy arrestment. Fuel was gushing out of the under side of the port wing, hydraulic fluid was spewing out of the port brake lines, and the port wing pylon was twisted.

Leaving the section leader to survey the damage, let's drop back a few minutes to the wingman.

He had taken a five-second interval on the break, instead of the three seconds briefed, then held the 30° bank the leader had emphasized, alternately glancing at the leader's lights and his own instruments. Suddenly the leader's wingtip lights began to separate rapidly, so the wingman dropped his left wing down and dumped the nose in an effort to get beneath the leader's plane.

The pilot thought he had cleared but there was a shaking smash, and he had no doubt of what had happened! Immediately shifting his eyes to the cockpit, and adding full power, he eased in back stick to establish a climb. The altimeter bottomed at 300 feet and then crept up as the A4D climbed in a violent skidding right turn.

The pilot found himself pinned to the left side of the cockpit, the turn and bank indicator showed the ball hard to the left, the needle pegged to the right. Kicking rudder and using rudder trim had no effect whatever. He had power and was climbing, so ejection, if necessary, was definitely going to be delayed.

Through trial and error he now discovered that a 20° left bank would stop the skid and allow straight flight. An ejection now appeared unnecessary, barring any troubles in landing configuration.

The tower called and informed the pilot that abort gear was ready on two runways. He wisely had not changed his configuration after the collision since he had control of the airplane. At this point and now at 5400 feet, he dropped gear and flaps and retraced the speed brakes. The yaw or skid now ceased, and he apparently had normal control of the aircraft.

He made an easy descending approach to the runway, with a three-mile final and a fully controlled touchdown at 125 knots. Roll-out was normal, and he taxied into the ramp area and shut down. As he climbed down, he saw he had no rudder and the vertical stabilizer was sheared off just above the horizontal stabilizer! Fortunately, the wind had been directly down the runway, and he had no need for rudder at any time on the landing or roll-out.



**Grampaw Pettibone Says:**

Great horned toadies! Ol' Gramps sure hates to have to really chew out these two lads since they both did such an outstanding job AFTER the

collision, but look what they did BEFORE!

Standard operating procedures of this outfit called for less than 250 knots at the break, 22 degrees of bank, and a 7-10 second break up interval for daytime FMLP with 14-20 seconds on the break interval for night FMLP.

The flight leader briefed for a 30-degree bank and a three-second break interval! He then held a 20° bank himself, setting the mid-air up COLD as long as the wingman followed the briefed instructions.

They had all been thoroughly briefed just four days previously by the LSO on proper break speeds, banks and intervals! They had mighty short memories.

If the pilots in an outfit are not goin' to follow squadron doctrine, the outfit might just as well build a big fire and burn it!

## Booby Trapped

It was a dark night and traffic was pretty well congested over the busy air station. Helicopters were practicing GCA approaches to a 10,000-foot runway 90° to the wind line, and all other traffic was being landed on dual 8000-foot runways which had a slight downhill slope.

Since there was no-end-of-runway taxiway, all jet traffic which used the whole length of runway on landing roll-out was being held on a small stub end of another runway. This protruded at the end of runway point until they could be cleared back downwind on the duty runway to the nearest taxiway, a matter of about 1000 feet.

An R4Q was cleared to land on the right dual runway, and an FSU on the left dual runway. Three more FSU's were waiting on the stub at the roll-out end for clearance to taxi back to the taxiway. They were all on primary tower radio frequency and would remain so until clear of the runway. The FSU on landing approach waved off when the R4Q got in his path, and another FSU called overhead at the break for landing.

The FSU at the break was on ground control frequency, for he had been unable to work the tower on tower primary prior to take-off and had been cleared off on his night hop utilizing ONLY the ground control frequency. As the first FSU in the pattern took his wave-off, the three FSU's at the end of the duty runway were cleared to taxi back on the runway to the taxi-

way. One fighter had his nose gear steering fail and radioed the tower that he was holding with five feet of his nose sticking out into the duty runway, but he could taxi straight across the runway and hold on the taxi stub between the dual runways until help could be sent out to him. The other two FSU's taxied around him and cleared the runway safely. Meanwhile, the landing FSU operating on ground control frequency had touched down and was rolling out. Two R5D's were also calling the tower on ground control frequency for taxi clearance across the duty runway at the mid-field taxiway.

The tower called the disabled FSU and told him they would close the runway after "the plane" rolled out and taxi him across. The pilot saw an R4Q completing its rollout and starting to turn off of the other dual runway, so he called to state he would taxi across and hold. The tower rogered, so he poured the power to it. One third of the way across, the landing FSU plowed into him, driving its nose section right into his plane, hitting it broadside aft of the wing. The plane burst into flames.

The taxiing pilot jumped out and ran to escape the tremendous fire, but the other pilot was trapped in the crushed cockpit, his leg pinned in the wreckage with flames all around.

The crash crew fought heroically to

save him, two or three of them protecting the pilot with their bodies and a heavy blanket while foam was sprayed over them all to keep the flames down. After 30 minutes they were finally able to free him, badly burned but alive. He died of his injuries four days later.



### Grampaw Pettibone Says:

Great balls of fire! This is one of the worst I've run across in many years! The loss of this fine young man was so needless that it's appalling. The dead pilot had accepted an FSU for a night hop KNOWING it had a radio incapable of operating on tower frequency! This same gripe appeared on FIVE successive yellow sheets preceding the fatal flight, yet the plane was considered in an UP status!

The tower cleared him on this hop on ground control frequency, KNOWING he had a radio inoperative on tower frequency. The tower cleared a plane to land with three aircraft sitting like bowling pins on the duty runway's upwind end, for the tower had NOT received an "all clear" from the planes he had cleared to taxi downwind on the duty runway just a few moments before.

As usual in such unnecessary tragedies, many errors had to be committed to set the stage for this one. It behooves every operations officer, whether he is assigned to a station or squadron, to look over HIS outfit to see if such booby traps exist for the unwary pilot.



# LIFE BLOOD OF POLAR FLIGHTS



SKI-EQUIPPED R4D SKYTRAIN IS REFUELED ON SNOW RUNWAY AT ISOLATED BYRD STATION, ANTARCTICA, DURING DEEP FREEZE 60

"Howgozit?"

A simple question. One that thousands of aviators have asked since Eugene Ely lifted his vintage aircraft from the platform of the USS *Birmingham*. Only this time, it was Capt. William H. Munson who asked the question—and he knew the answer governed an entire Naval operation.

"Forty-four thousand gallons," said Cdr. Lloyd E. Newcomer, his squadron's operations officer and acting "exec" during deployment. This fuel was to be divided between the geographic south pole, remote Byrd Station, and NAF McMurdo Sound, the three major Navy-manned bases in Antarctica.

Capt. Munson shook his head thoughtfully. "If the *Alatna* doesn't arrive on time," he said, "we're out of business."

Capt. Munson commands the Navy's Air Development Squadron Six, which has the job of providing air support for civilian scientists of the U.S. Antarctic Research Program (USARP) during Operation *Deep Freeze 60*.

Few Naval Air Facilities are confronted with the logistic problems of NAF McMurdo Sound.

Twenty-one hundred miles from civilization and more than 12,000 miles from the U.S., McMurdo camp is perched on the volcanic ash of Ross

By Scot MacDonald, JOC, VX-6

Island, imbedded in and anchored to the France-sized Ross Ice Shelf.

Like most non-contiguous and isolated Naval Facilities, McMurdo can only be resupplied by sealift.

The problem is compounded further by the relative inaccessibility of

McMurdo Sound throughout most of the months of the year. Though planes fly in from New Zealand in the early days of October, tankers and cargo ships—even with icebreaker assistance—can seldom cut through the corona of tough polar pack ice before the month of December.

Once there, the ships berth against



FUEL KING AND LEADING CHIEF, R. L. MCKAIN, ABCS, EXAMINES SAMPLE TAKEN FROM TANKS

the thick ice, cargo ships offload onto sleds and tankers pump fuel through hose stretching eight to 10 miles over bay ice to tanks at McMurdo camp. Fuel storage facilities at McMurdo have been adequate throughout four *Deep Freeze* operations, but they have been limited.

During the first months of the initial *Deep Freeze* assault on the Antarctic in 1955, VX-6 *Neptunes* and *Skymasters* taxied up to the icebreaker *Glacier* and the tanker *Nespelem* to refuel. Their job was to launch long-distance exploratory flights. In the meantime, two storage tanks were constructed on Hut Point near the camp, and two YOG's

arctica] with hopefully crossed fingers."

McKain is a senior chief aviation boatswain's mate wintering-over at McMurdo with Antarctic Support Activities. He is also Fuel King, and the McMurdo tank farm is his row to hoe.

"The tank farm," he explains, "was planned to support four *Deep Freeze* operations. That was for the International Geophysical Year. Now the USARP scientists are going on with the program—even enlarging it—and we've had to take another look at our storage facilities.

"For instance," he continued, "we've never had a use for JP-4 before. This is the first time we've had C-130 *Her-*

runs," aerial sweeping of the McMurdo area in an effort to collect airborne insects in protruding nets. These runs were supplemented by helicopter flights to Marble Point, Cape Royds, Taylor Dry Valley, Minna Bluff, Cape Crozier, and other points near McMurdo Sound where entomologists established stationary nets to catch the tiny, wind-lifted bugs.

McMurdo's bulk avgas is stored in the two YOG's and in four 250,000-gallon tanks erected near the ice barrier. In all, Chief McKain is responsible for handling a million and a half gallons of avgas. In addition, he handles the JP-4, 100,000 gallons of



ICEBREAKER GLACIER ARRIVES AT MCMURDO



ICE-LOCKED YOG'S WERE TOWED FROM AMERICA TO BECOME STORAGE TANKS AT MCMURDO

were towed through the "Roarin' Forties, Furious Fifties, and Shriekin' Sixties" latitudes, to find permanent anchorage off the Point.

Fuel storage capabilities have improved considerably since the early days of *Deep Freeze*, but fresh crises still arise from time to time.

In February this year, the Air Force, flying C-130 *Hercules* for the first time in the Antarctic, encountered both good weather and Capt. Munson's earlier problem. Weather permitted more flying than originally planned and, as operations increased in accomplishments, the supply of JP-4 fuel decreased proportionally. By February 2, only 70,000 gallons remained on the continent.

"When we get that close," Bob McKain said, "we watch the daily sitreps [situation reports filed by the tanker USNS *Alatna* enroute to Ant-

*cules* down here—or any other turbo-prop plane for that matter."

Introduction of the C-130's occasioned the construction of two 250,000-gallon tanks to store JP-4. But even with the mighty *Hercules* in Antarctica, consumption of avgas has shown no sign of decreasing.

In some areas, scientific studies are receiving greater attention and in each of these instances, the drain on available avgas has been heavy. This is particularly true in the area of aerial photomapping which has been given greater emphasis in *Deep Freeze 60*.

Normal resupply runs—to outlying stations and over-snow traverse parties—eat up most of the Antarctic avgas, but other scientific requirements create demands on the fuel supply.

One of the most unusual requirements of this year's operation launched VX-6 *Otters* on almost daily "bug

mogas, and 610,000 gallons of diesel fuel for the tractors.

Under ideal conditions, receiving this fuel is accomplished easily by Bob McKain and the men assigned to him. Icebreakers clear a channel to Hut Point, the tankers follow, tie up, and offload into the YOG's and tanks.

This year, however, the supply of diesel oil became alarmingly low and the decision was made to lay out assault pipe and hose across nine miles of bay ice to the ships rather than wait a few more days until the ships could get closer to camp.

Offloading successfully accomplished, the chore of retrieving the hose and line achieved significant importance.

"There hasn't been a *Deep Freeze* operation yet that managed to pick up all of the assault pipe," McKain said. "Every year since they brought it down in *Deep Freeze II*, a couple of miles of



CAPT. WILLIAM H. MUNSON COMMANDS VX-6

hose went to sea when the bay ice broke up. Last year they lost six miles. This year we need every inch we can get."

This need was occasioned by arrival of the C-130's, requiring a dual purpose fuel line to the snowstrip, alternately pumping avgas and JP-4. Fifteen miles of four-inch hose are on order, but will not arrive until the first ship of next year's summer support season.

"If we run low on fuel during the winter, we'll have to re-use the assault pipe to the first ship as we did this year," McKain said.

The retrieving party turned to. For the next four days, McKain got little sleep. Lank and Lincolnesque, bearded and bustling, he urged, helped, and drove two 12-hour shifts of eight men.

In the morning, he bounced out to the line in a weasel, covering a jagged, hummocked course over the pot-holed and cracked bay ice which was seared on the surface by the Antarctic's continually shining sun and corroded on the bottom by tidal action. He returned at noon, in the evening, at midnight, and at odd hours when the men, chopping free the line now sunken and frozen into the ice, ran into trouble.

The icebreaker USS *Glacier*, pressed by operational commitments, dug the channel closer to Hut Point, but suspended her drive when the channel was carved two miles beyond the end of the line. Further weakening of the ice might have endangered the retrieving crew.

In one instance, McKain encountered one of several leopard seals which push

through holes in the ice to sun themselves.

"That son-of-a-gun chased me," he said. "It bit at the treads of the weasel as I passed."

Some of the men were veterans of Antarctic operations. Driving across the pitted ice, they might have remembered SeaBee driver Ollie B. Bartley, also on a pipeline retrieving party in *Deep Freeze II*. His arm became entangled in a radio wire when the weasel he was riding in crashed through a seal hole off Hut Point. Bartley was the year's fifth fatality.

One the morning of January 5th, nine tired, cold, and happy men re-

said Capt. Munson. With the C-130's, however, *Globemaster* airdrops may become unnecessary.

[The C-130 is ski-equipped for landing on soft snow, whereas the C-124 requires a hard strip for wheel landings.]

"And none too soon," is the general attitude of men at both stations who must take on the arduous job of locating, picking up and hauling to base the heavy pallets of fuel and other cargo.

For 28 consecutive days in October and November, *Globemasters* flew over both stations and dropped the drab-green parachuted pallets to the men below. Weasels and tractors warped



IN FIRST YEAR'S OPERATION, P2V TAXIED TO TANKER TO TAKE ON FUEL BEFORE FLIGHT

turned to McMurdo camp, the job done. "Those are men!" McKain said, proud of their accomplishment. Though the men pushed themselves to the utmost, they were not entirely successful. "We had to abandon one mile of the line," he said. "It was buried too deep and the bay ice wasn't getting any stronger."

Weather set in at McMurdo. A few days later, it cleared and McKain and his men re-laid the line to the ice barrier in anticipation of the C-130's arrival.

Outlying stations at Pole and Byrd receive their avgas and other fuel in 550 gallon drums airdropped to them by C-124's. "This has been the only practical way of getting it to them,"

and weaved over the snow, bucking four-foot-high sastrugi in an Antarctic imitation of wild west cowpunching.

Forty-one flights were made over Pole Station, dropping 538 net tons of cargo. Men at Byrd chased down and "corraled" nearly 900 pallets.

The retrieving job was especially hard at Pole station, whose altitude is 9200 feet. Strenuous movements are an agony to some and frequently exertion is dangerous to the lungs.

Richard A. Kramer, AD2, assigned to VX-6, worked at Byrd during the airdrops. Retrieving was an all hands evolution. He described it:

"The first few days were hell," he said. "I think it was the altitude that made it so tough. [Byrd Station is

5095 feet above sea level.] That, along with the cold, made your chest ache when you tussled with the cargo. After a while, we got to pacing ourselves and that made the job easier.

"The hardest thing to handle was the parachute itself. It weighed well over a hundred pounds and seemed heavier. The wind would catch it and sometimes tear it out of our hands."

Drummed avgas at Byrd and Pole stations achieves a value well out of proportion to its cost in the U.S. or at other accessible areas. One official estimated that, considering transportation costs, man hours and other variables, plane commanders would shell out

capacity, loaded fuel at Norfolk, transited the Panama Canal, berthed briefly at New Zealand to top off tanks, and challenged the polar pack ice obstructing the sea approach to McMurdo Sound. She came out second best. A slab of broken ice smashed into her hull, tearing a hole below her waterline, and 140,000 gallons of avgas were lost.

*Deep Freeze* tankers have been more fortunate in succeeding operations.

Perhaps the most famous fuel loss occurred on October 31, 1956. On that day a squadron ski-equipped R4D-5 *Skytrain*, "Que Sera Sera," made the first landing at the geographic south pole before trying to land Seabees.



CONROY, ABC, CAPS 10,000-GALLON TANK

"Que Sera Sera" proceeded to McMurdo, terminating her historic flight.

Every NAF encounters the problem of contaminated or questionable fuel. At McMurdo, Bob McKain discovered that the "coolest continent on earth" sometimes has a deteriorating effect on avgas.

"We sent avgas samples to New Zealand," he said. "Tests proved that the extreme cold of the Antarctic winter lowers the octane content through stowage freeze. All the avgas tanks dropped in octane rate last winter, but only one dropped below acceptable standard.

"Almost all of it was saved by mixing the sub-standard tank proportionately with acceptable fuel from another. There was a 500-gallon remainder in each of the two tanks. This was 'contaminated' gas, spoiled by water and sediment. Normally, we'd leave that as a bottom and pump fresh gas on top. But this year, VX-6 wanted it."

The Navy air squadron put it to a functional, if unorthodox use.

Last year, "Charlene," an R4D with four years service in Antarctica, reached retirement age. Usable parts were pulled and the stripped aircraft was hauled to the foot of Observation Hill.

This year, transportation to and from the strip bogged down when the summer support operation got underway. The base population quadrupled its wintering strength and weasels experienced breakdowns faster than they could be repaired.

Capt. Munson viewed the situation,



55-GALLON DRUMS ARE FILLED AT BYRD STATION TO BE AIRDROPPED TO TRACTOR PARTIES

about \$4.50 a gallon if they had to pay for it "at the pump."

"You can see," said Capt. Munson, "why fuel is such an important item in Antarctic operations. Very few of the scientific studies could be conducted without it. And as a direct result of its availability and expense, we are particularly careful to combine as many missions as possible."

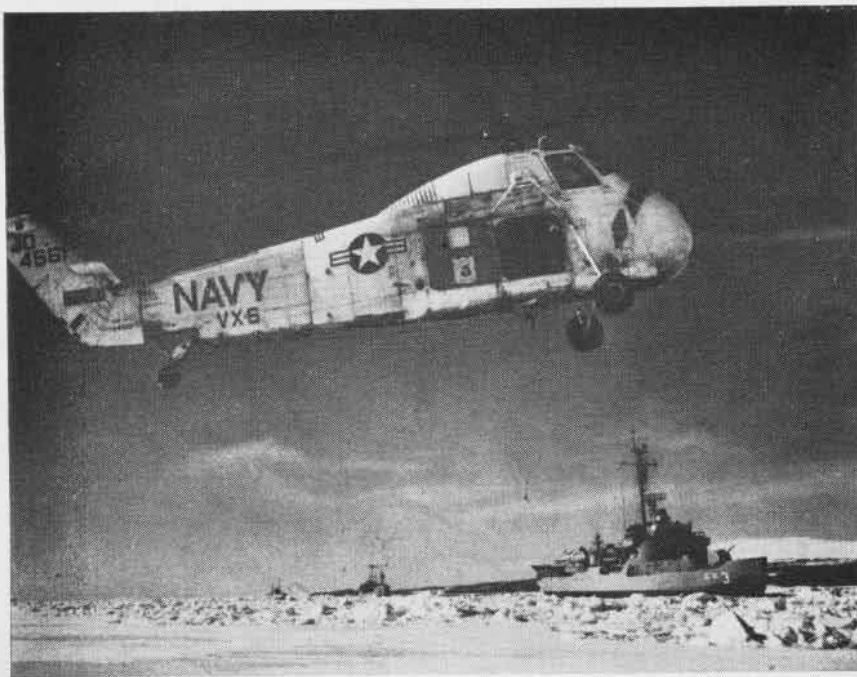
But as careful as the planners are, some fuel is wasted—not through carelessness or irresponsibility, but by the capriciousness of Antarctica itself. The amounts are small, fortunately, but every loss is a disturbing one.

The greatest single loss of fuel occurred in *Deep Freeze I*. The tanker *Nespeken*, with an 800,000-gallon ca-

As told by Mike Baronick, AOC, a veteran of all *Deep Freeze* operations with VX-6, it happened this way: On deck on the polar plateau for 49 minutes, pilot LCDr. Conrad Shinn discovered his skis were stuck to the snow at take-off time. Four bottles of JATO refused to bud her.

Four more were fired and she broke free. To assist the return flight and provide an added safety factor, excess gas was pumped free. Seven remaining bottles of JATO helped the pilot to get airborne.

The R4D touched down at the foot of Liv Glacier for refueling. Baronick, leading eight other men at the tiny and remote camp, handy-billy pumped more gas into the plane's tanks, and



VX-6 HELICOPTER SCOUTS ICE FOR USS ATKA AS SHE LEADS LESS HARDY SHIPS THROUGH ICE

studied the stranded and abandoned "Charlene," and reached a decision.

The aircraft was pulled from her parking spot, metalsmiths clipped her wings and tightened her body, electricians checked her wiring, and mechs got the engines going. On the 30th of November, she made her first "flight" as a taxi, lumbering across the four-mile stretch of bay ice to the VX-6 airstrip. Re-named "The Wingless Wonder," she covered the stretch in 11 minutes, besting over-surface weasel time by a good 30 minutes.

Bob McKain joined a group of speculators who stared each time as "The Great Antarctic Taxi" made one of her runs. He admitted it was a strange sight indeed.

"She runs on the contaminated gas," he explained. "It turns the engines all right. If they konk out, all that has to be done is change filters."

During the early part of the summer support season, McKain runs an avgas pipeline in 300 sections of 50-foot hose, a little better than three miles, from Hut Point to the ice landing strip at McMurdo.

While the Air Force *Globemasters* conducted their airdrop missions, this line fed one 15,000- and two 10,000-gallon re-usable rubber bags. This was supplemented with two 5000-gallon and one 2000-gallon bladder, and one

2000-gallon ski-mounted tank truck.

Later in the season, as the day-long Antarctic sun weakens the bay ice, the landing strip is moved further in on the Ross Ice Shelf.

McKain runs a single line over the "saddle" formed by two hills leading to the ice barrier off nearby New Zealand-manned Scott Base. He alternately runs JP-4 and avgas, flushing the lines and filling separate storage bladders.

Receiving the fuel is the VX-6 line chief, J. L. Moody, AB1, who McKain

describes as "one of the most competent and hustling men on the ice."

Lt. Garland Renegar, VX-6 pilot and line maintenance officer, describes Moody's "system."

"He just stands back and watches," Lt. Renegar says. "He'll look, get the whole picture, and act. He spots trouble before it begins, then turns to. The energy he spends in one day would keep ten average men warm for a week in an Antarctic blizzard."

Moody works, eats and sleeps on the line during operations, coming "to town" only when the workload permits—and then just long enough to shower.

"We work pretty close at times," McKain says. "Moody knows his fuel."

At the end of a working day at McMurdo, Bob McKain enters the CPO lounge a tired man. Within the next hour or two—if he doesn't sack out immediately—he meets most of the chiefs he works with—either in his position as Fuel King or as Leading Chief.

"They're a fine bunch of men, and we work well together," he said. "There's only one I have to avoid. He's allergic to fuel. If I go near him after a trip to the tank farm, he sneezes up a great Antarctic storm."

(Editor's Note: Since this story was filed, C-130 *Hercules* ski planes have arrived in Antarctica, refueled at McMurdo, and landed heavy payloads at distant Byrd and South Pole stations. All ships and "transient" aircraft have left Antarctica and come home to prepare for *Deep Freeze 61*).



CONTAMINATED FUEL IS USED BY DE-WINGED R4D THAT WAS REMOVED FROM BONEYARD

# CORAL SEA REJOINS THE FLEET

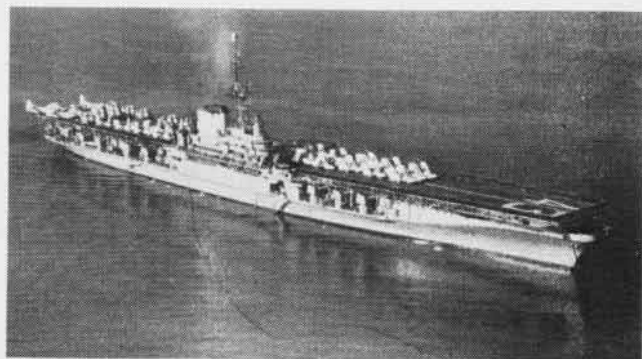


CONVERTED CORAL SEA STANDS OUT TO SEA SPORTING ANGLED DECK, HURRICANE BOW, NEW CATAPULTS AND RECOVERY SYSTEM

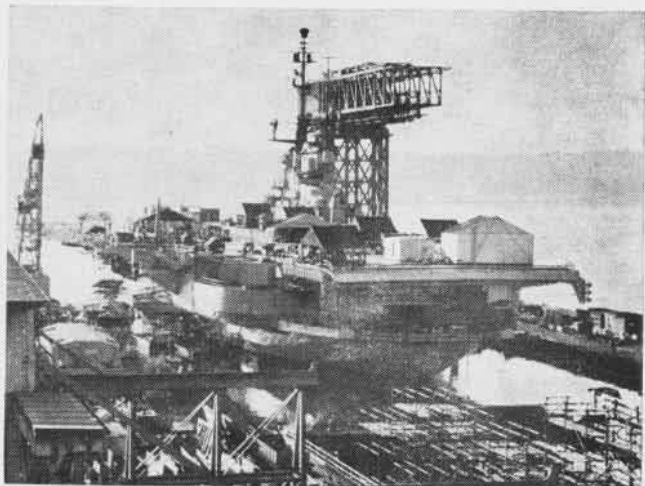
USS CORAL SEA, CVA-43, has rejoined the Fleet after a 2½-year conversion at the Puget Sound Naval Shipyard. Her 13th skipper is Capt James S. Gray, Jr.

The conversion included the addition of an angled deck, which is 192 feet longer than that of sister ships *Midway* and *Franklin D. Roosevelt*, new catapults and arresting gear, a modular Combat Information Center, hurricane bow, new offices and workshops, increased habitability for the crew, and the latest mirror landing system. Both center line elevators were replaced by deck edge types.

Symbolic of *Coral Sea's* new "missile age capability" are miniature *Sparrow III* guided missiles, presented by Raytheon. They replaced the traditional wood and chrome replicas of five-inch shells as quarterdeck railings.



HERE'S HOW SHE LOOKED IN OCTOBER 1956 BEFORE CONVERSION



FORE AND AFT SHOTS MADE DURING CONVERSION SHOW THE DEGREE OF EFFORT THAT WAS EXPENDED TO RETURN SHIP TO FLEET

## Navy Intern Goes to Sea Plans Aviation Medicine Career

A Naval Reserve Medical Officer spent a two-week training cruise this winter as a ship's doctor aboard the MSTs transport, *Maurice Rose*. This was the doctor's only shipboard experience except for one day on an aircraft carrier in the Gulf of Mexico.

The doctor graduated from the New York University College of Medicine



LT. PEDERSON CHECKS SKED WITH MSTs MD'S

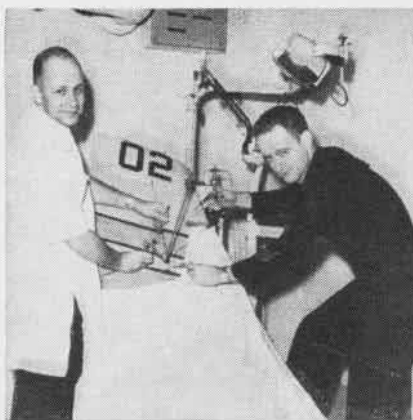
last June and is interning now at Bellevue Hospital. As an Ensign, in 1958, the young officer spent six months at NAS PENSACOLA assisting Dr. Dietrich Beischer and his staff in the physiological studies on the first American space monkey, Old Reliable.

While there, the technician completed courses at the Naval School of Aviation Medicine and passed the rigorous physical exam given Navy flight surgeons, which included a simulated seat ejection and cockpit submersion. In July 1960, as a Lieutenant, the doctor will return to Pensacola for instruction in aerospace medicine.

The doctor's name is Constance Pederson. On the Navy distaff side, she specializes in Aviation Medicine.



**FROM SPEED BOATS TO JETS** is the transition being made by Aviation Officer Candidate Theodore B. Harp who is in flight training at Pensacola. In eight years of racing outboard and inboard boats at his home town in Baton Rouge, La., Harp won several honors, including "Most Outstanding Driver of the Baton Rouge Boat Club in 1955, 56, 57 and 58" and the Pan American trophy in 1958. At right, he sits in an F9F-8 Cougar which he hopes to fly soon.



CDR. BESVEKOS, MITCHELL AND 'PATIENT'

## Dentist Has New Role Does Bit for Maintenance Crew

Attack Squadron 34 aboard the USS *Saratoga* (CVA-60) has made the ship's Dental Department a part of the Maintenance Department.

The *Blue Blasters*, under the command of Cdr. George C. Talley, Jr., were able to keep two additional aircraft flying with the assistance of the Senior Dental Officer, Cdr. George Besvekos.

When the squadron was unable to obtain two badly needed plastic tail light covers, Cdr. Besvekos, with the assistance of R. T. Mitchell, DT1, was able with the use of their dental equipment to construct the required parts. Dr. Besvekos was heard to remark that the A4D *Skyhawk* is the best patient he has ever worked on!

● A typical modern jet fighter contains enough electrical wiring to complete the electrical circuits of 38 six-room houses.

● On board USS *Forrestal* (CVA-59), 11,250 meals are served daily to crew of 3750.



## Carrier Medics Save Life Massage Man's Heart Aboard Ship

Life-saving medical procedures which would have taxed the facilities of a shore-based hospital took place aboard the carrier *Independence*.

In what is believed to be the first such case on record, Lieutenants Navin W. Todd, Jr. and Warren C. Boop, Cdr. Richard D. Nauman, and Chief Hospital Corpsman Mike Lentini massaged the heart of a stricken aviation machinist's mate.

The sailor had suffered a heart attack and was bedridden. Doctors Todd and Boop were making a routine inspection of the ship's infirmary ten days later when they heard the man gasp one bed away from where they stood.

The doctors rushed to his side and found him unconscious. They tried to find some sign of respiration or heart beat. Each doctor knew that unless the man's brain received oxygen within minutes he would not survive.

When artificial respiration failed, they rolled him over, cut open his chest, and began massaging his heart. Passageways were sealed off for swift movement of medical supplies and personnel, and Cdr. Nauman and Lentini joined the two lieutenants.

The four men took turns massaging the sailor's heart. Each pumped until his hands became cramped. When one could no longer go on, another would take over.

For more than an hour the man showed no improvement. Shortly after he showed signs of life his heart began a fast, hard, trip-hammer pumping.

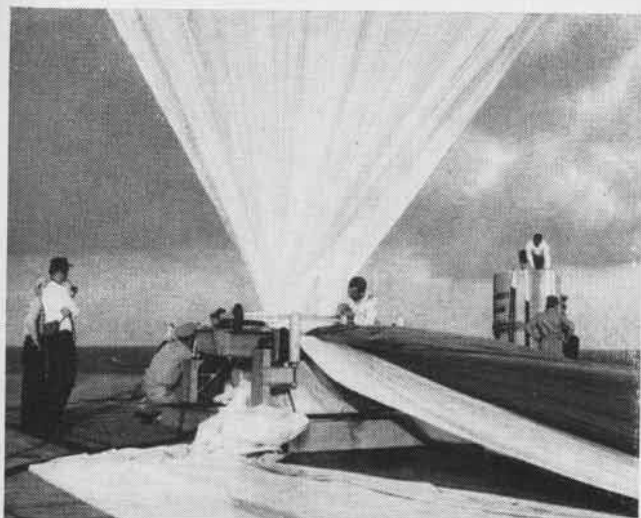
The heart was pumping so hard it was not filling itself.

The doctors tried to control the pumping by squeezing the heart. They had an electro-cautery machine brought to their side and tried to shock the heart into a stop with an electric impulse. The effort failed.

They injected fluids directly into the heart to slow it down, and called for assistance from the Naval Hospital at Portsmouth.

Two hours after the man's heart had stopped, it began to beat normally again on its own. The medical department had succeeded. The man was lifted to the base hospital by helicopter for further treatment.

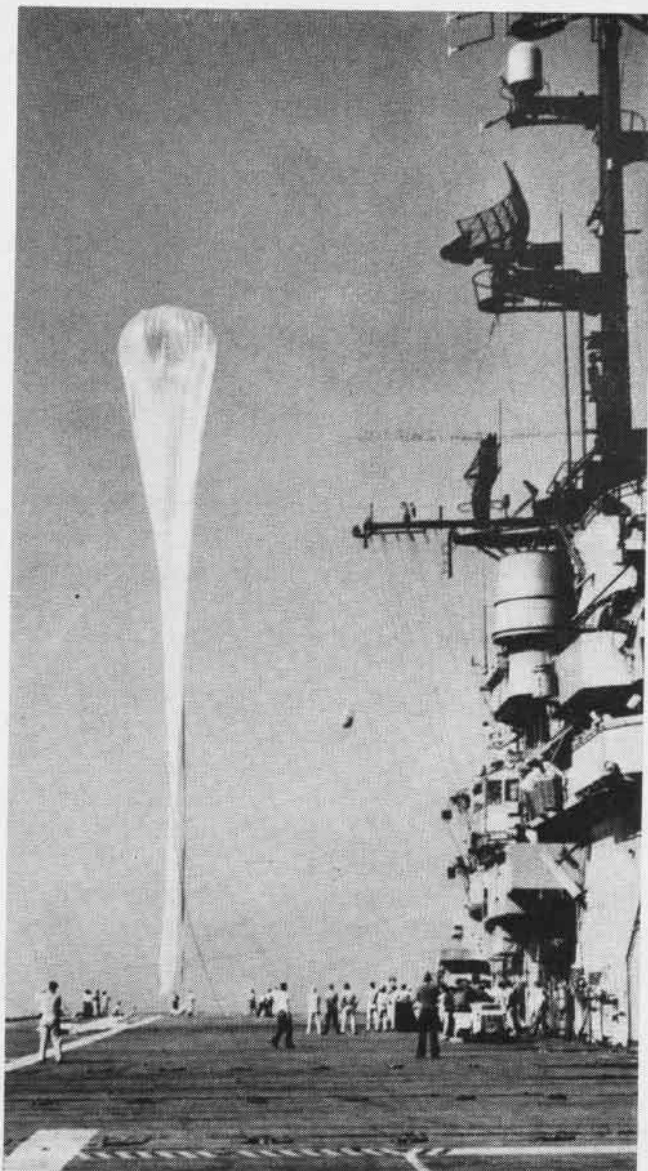
During the operation, 31 cylinders of oxygen were used and the heart was injected at least eight times.



BALLOON, FILLING WITH HELIUM, IS INCHED THROUGH ROLLERS

# 'VALLEY' LAUNCHES SKYHOOK

Skyhook Bravo, a plastic balloon containing 10 million cubic feet of helium and carrying 2903 pounds of scientific equipment, was launched from USS Valley Forge near the Virgin Islands on 26 January. The balloon reached a height of 116,000 feet during its 8-hour flight, making a record for the weight involved.



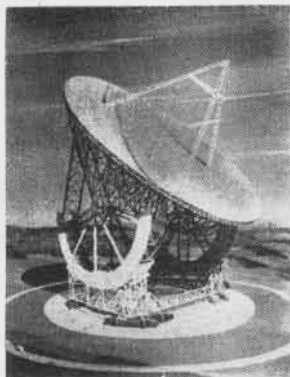
JUST PRIOR TO LAUNCH, PLASTIC BALLOON MEASURES 500 FEET



MEN FROM DD HYMAN RECOVER SKYHOOK BRAVO GONDOLA AT SEA



DAMAGED GONDOLA, RETURNED TO CARRIER, WAS USED AGAIN



# NAVY'S SPACE ROLE

**I**N the first part of this series which appeared in the March issue of *NAVAL AVIATION NEWS*, the Navy's early undertakings in astronautics were narrated. Beginning with the *Viking I*'s historic flight and into the post-*Vanguard* period, the first 10 years of Navy research and development were revealed as being exceptionally productive in a wide range of upper atmosphere and outer space scientific projects.

Regarding this phase of Naval endeavor, the Chief of Naval Operations stated recently before a Congressional subcommittee: "The Navy has long been alert to the contributions which utilization of space technologies could make to naval effectiveness. Consequently the Navy has devel-

oped over the years technical in-house competence and practical experience in meteorology, electronics, rocket propulsion, cosmology, human engineering, medicine, and a host of other areas which are contributing very significantly to our Nation's accomplishments in space.

"Control and utilization of the vast oceanic areas of the earth will depend to an increasing degree on the efficient use of space technologies for naval purposes."

Today the Navy, as a major participant in the national space effort, is involved or interested in many undertakings which have been generated as a result of United States and Soviet accomplishments in space technology.



**FIRST PHOTOGRAPH** transmitted by moon relay from Hawaii to the U.S. shows USS Hancock (CVA-19) underway. Use of the moon as a

passive reflector for relay of radio signals was demonstrated 28 January. Signals were received about two and one-half seconds after transmission.

**"It is in the national interest that the Navy, in partnership with other agencies, continue to participate fully in development of military space technologies, particularly in those areas essential to our Nation's sea supremacy and maritime security."**

**—Admiral Arleigh Burke, CNO**

**T**HE TAILORING of Navy Department and Fleet organization to enhance the performance of the Navy's space role was begun with the assignment of astronautics responsibilities to the Deputy Chief of Naval Operations (Air) and the DCNO (Development). Additionally a designation for a similar responsibility was directed for each office and bureau of the Navy, and for Fleet staffs.

Under the new set-up, DCNO (Air) is charged with over-all responsibility for Navy astronautics, excluding research and development. Besides formulating operational planning and support facility requirements for the Navy and Marine Corps, he determines the support requirements of astronautical systems for ships, aircraft and shore establishments involved in astronautical programs.

He also provides guidance for a Navy-wide education and training program in the new field and recommends types and quantities of astronautical systems for procurement, training and service use.

DCNO (Development), as his title implies, directs and coordinates Navy research and development in astronautical programs. He also evaluates space R&D projects of the Navy and other appropriate agencies and directs projects through all stages of development from basic research to operational acceptance, thus avoiding duplication.

The merger of the Bureaus of Ordnance and Aeronautics into a single Bureau of Naval Weapons consolidated previous areas of split responsibility in weapons systems and almost two thirds of the total technological development work of the Navy.

In broad terms, these major organizational changes insure the availability throughout the Navy of specialized skills contributing to astronautics.

A bit lower on the organizational chart are several agencies or facilities which constitute the bulk of the so-called "in-house" research capability of the Navy; a capability considered a

vital part of national inquiry into all matters relating to space equipments and operations. Such Navy developments as radar, telemetering gear, full pressure suits and solid rocket propellants have a profound influence on almost all U.S. space projects.

The major portion of this effort is provided by the following:

- Office of Naval Research
- Naval Research Laboratory
- Pacific Missile Range
- Naval Weapons Laboratory
- Naval Ordnance Test Unit (Patrick AFB)
- Naval Medical Research Institute
- Naval School of Aviation Medicine
- Naval Ordnance Test Station, China Lake
- Aviation Medicine Acceleration Laboratory
- Naval Aircrew Equipment Laboratory
- Naval Electronics Laboratory
- Naval Missile Center
- Naval Observatory
- Hydrographic Office
- Johns Hopkins Applied Physics Laboratory

The nation's missile and rocket program is one of extraordinary proportion and expense. Since 1950 more than 25 billions of dollars have been used in varying projects being researched or developed by the National Aeronautics and Space Administration (NASA), the Army, the Navy, the U.S. Air Force, and the Advanced Research Projects Agency (ARPA).

Collectively these agencies and military services together with the nation's industry constitute what might be called the National Space Team. Kingpin of the national space effort is NASA, successor to the National Advisory Committee for Aeronautics. Formed in 1958, NASA's primary role in astronautics emphasizes the scientific exploration of space.

An organization of more than 10,000 personnel, it has current responsibility for scientific programs involving the placement of increasingly large

payloads in orbit, satellite development, orbital manned flight and deep space explorations along with continued research in aeronautics.

One of its current projects, *Mercury*, which is concerned with manned operation of a space vehicle, is a byword of the U.S. space effort. Other NASA projects under development at present include rocket boosters, *Atlas-Able*, *Centaur*, *Thor-Delta*, *Saturn* and the 1-1½ million pound thrust single chamber engine. The scientific payloads of these vehicles range from 65 pounds to 30,000 pounds, with a take-off thrust running as high as 1.5 million pounds. The most ambitious NASA undertaking is clustering of 1½ million lb. thrust engines to produce a 3 to 6 million pound booster, which in the next decade or so, is expected to make possible the "soft" landing of a man on the moon and his return.

The extent of NASA's future programming has been laid out in a general schedule of national scientific objectives. The schedule, listing objectives in an approximate order, was prepared by Dr. James R. Killian, head of the Science Advisory Committee to the President of the United States.

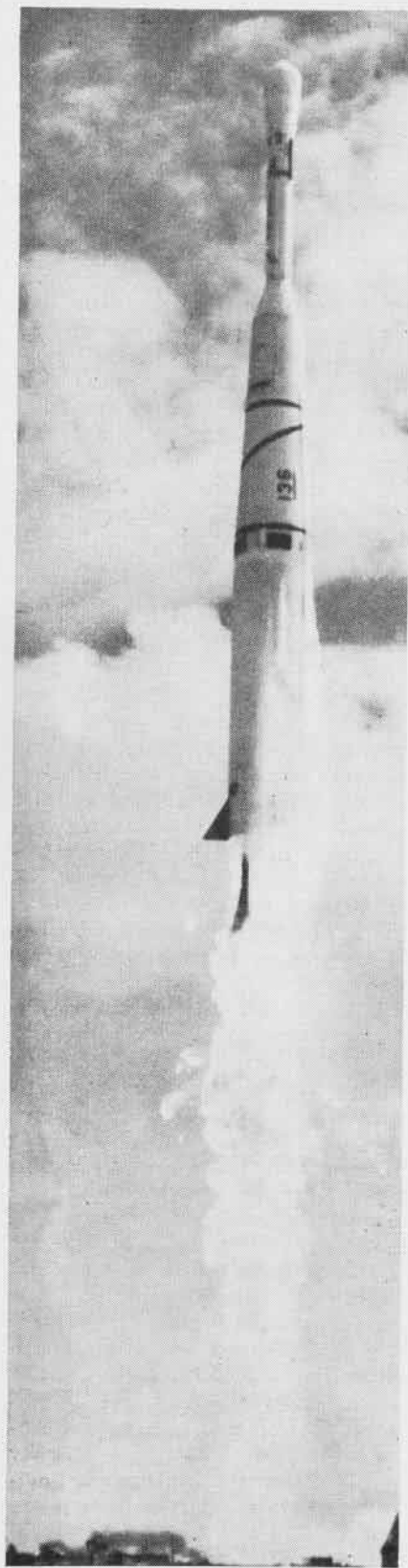
- *Early*: physics, geophysics, meteorology, minimal moon contact, experimental communications, space physiology.

- *Later*: astronomy, extensive communications, biology, scientific lunar investigation, minimal planetary contact, human flight in orbit.

- *Still Later*: automated lunar and planetary exploration, human lunar exploration and return.

- *And Much Later Still*: human planetary exploration

Also created in 1958 as a Department of Defense Agency, the Advanced Research Projects Agency (ARPA) is now transferring its military satellite and space projects to the Army, Navy and Air Force. It continues to be responsible for selected military applications of space vehicles, solid propellants, anti-ICBM systems



**FIRST TRANSIT** launch failed to orbit experimental satellite, but gained valuable data.

and nuclear propulsion. Determining high altitude atomic burst effects and the effects of space weapons on electronics are other examples of research areas under ARPA cognizance.

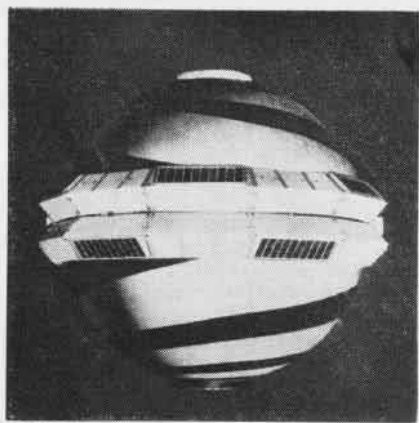
Its relatively small staff consists of a handful of government employees and 30 scientific specialists belonging to a non-profit, university-sponsored corporation known as the Institute for Defense Analyses.

Because it has no laboratories or facilities, ARPA functions as a screening agency of military requirements. It acts as a management agency dispensing funds required for its projects which are contracted out through the services. In some cases, ARPA will direct a military service to act as its agent in the research and development of a project while providing funds, policy and technical guidance as the project progresses. This process was devised to reduce duplication in advanced research and development.

ARPA, at the time of this writing, has a funded interest in projects with all of the military services including two utilizing the space environment. With the Army and Air Force it has a single project, *Notus*, a delayed repeater communications satellite which is expected to be launched this spring. Navy-ARPA efforts are centered in *Transit*, a navigational satellite system.

Such projects are of significance to military planners. In the artificial satellite particularly, with its proven ability to observe, remember and report, there is a source of immediate benefit in such fields as navigation, communications, early warning and weather forecasting. Naval requirements are largely addressed to these four areas with a long-range interest demonstrated in satellite systems which will provide assistance in routine fleet operations such as electronic countermeasures and ASW.

With ARPA-sponsored Project *Transit*, the only major satellite program of the Navy, a considerable improvement in global navigational accuracy is expected once the unique orbital system is established. In test stage at present is *Transit I*, a 265-pound experimental sphere developed for the Bureau of Ordnance by the Applied Physics Laboratory of Johns Hopkins University. The payloads of future *Transit* satellites are to weigh in the neighborhood of fifty pounds.



**TRANSIT** sphere has antennas painted on (stripes), uses solar cells to charge batteries.

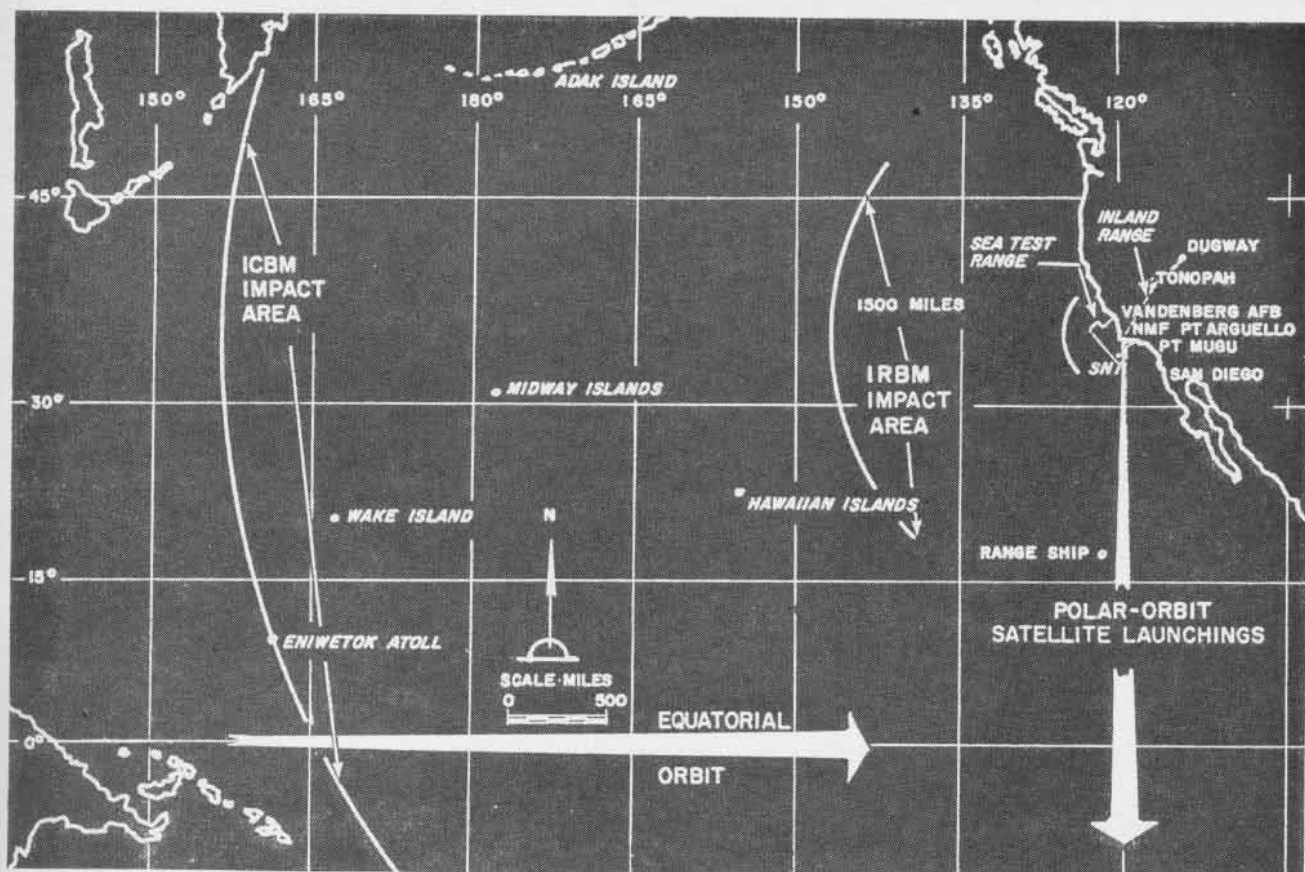
The Navy navigational system is based upon the ability of ground equipment to extract extremely accurate positional information from the measured Doppler shift of a satellite's transmitter during a single passage of the satellite over a ship's specialized receiver. (Doppler shift is the measurement of the change in frequency of sound, as in the rise and fall of the pitch of a passing train whistle.)

Other objectives expected to be realized from *Transit* are an improved understanding of the effects of ionospheric refraction of radio waves; increased accuracy in geodetic measurement such as a better knowledge of the earth's shape and the distances between land masses and of the earth's gravitational field; and improved orbital tracking.

Of equal importance in the requirement category is the availability of a weather satellite system. Almost all Naval operations are dependent on reliable, timely and continuous weather information; particularly in areas now devoid of meteorological observation. ASW, amphibious operations, photo reconnaissance and special weapons delivery by manned aircraft are examples of operations influenced by weather.

Vital to the fleet commander are the location, movement and size of hurricanes, typhoons, severe squall lines and the large-scale circulation patterns of the atmosphere, including jet streams. Other forecasting aids which are hoped for by use of a satellite are the radiative heat budget distribution in time and space, and the world distribution of ozone, carbon dioxide and water vapor.

The major effort in this field is *Tiros*, a NASA satellite development



**NAVY-MANAGED** Pacific Missile Range, one of three national missile ranges, provides support for Department of Defense and other specified government agencies in guided missiles, satellite and space vehicle research, development, evaluation and training programs.

which will use TV equipment to transmit cloud cover information back to earth. First test launching of *Tiros* is scheduled to take place this year.

An undertaking of the Navy in weather research is Project *Hugo* (highly unusual geophysical operation). The project, conducted by the Office of Naval Research, is supported by the Bureau of Weapons, NASA, the U.S. Weather Bureau and the NRL.

In its first successful firing and recovery, the *Hugo* rocket employing an Army *Nike-Cajun* booster and fired

from a Navy *Terrier*-type missile launcher, reached an altitude of 450,000 feet. Its specially designed cameras recorded photographs of a half-million square mile area which gave the clearest picture yet rendered of a weather frontal system and its associated cloud formations.

Other requirements considered essential to performance of the Navy's mission are based on communications and early warning satellite development. Communications satellites are envisioned as a major breakthrough which ultimately can revolutionize military long distance radio systems. Projects involving communications are being pursued by DOD and NASA.

Two known basic techniques for utilizing satellites and related media for long distance radio communications exist: *active* and *passive relay*. *Active satellites* are those capable of radiating signals generated by one or more transmitters carried by the satellite. *Passive relay satellites* and related media are basically radio reflectors in orbit.

Reflection technique, using the moon

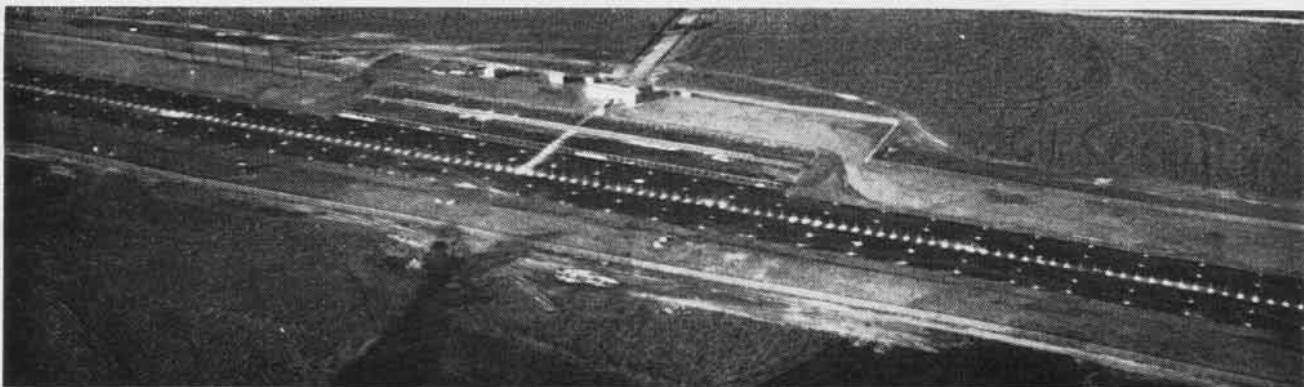
as a passive reflector of radio signals, was first demonstrated this year by the Navy with the relay of a message between Hawaii and Washington, D.C. The moon relay project is the outgrowth of discoveries by the Naval Research Laboratory where the feasibility of using such techniques for communications was shown in 1951.

The Washington and Pearl Harbor terminals used separate transmitter and receiver facilities, each with dish-type antennae 84 feet in diameter. Transmitter signals were received approximately two and one-half seconds after transmission.

The Chief of Naval Operations testified recently concerning two other uses of space systems which are under development: "The Navy needs the information which reconnaissance satellites will supply for its *Polaris* missile forces, carrier striking forces, and amphibious forces. The capability to benefit from direct readout of data transmitted by these satellites is very important. Accordingly, the Navy follows with great interest the recon-

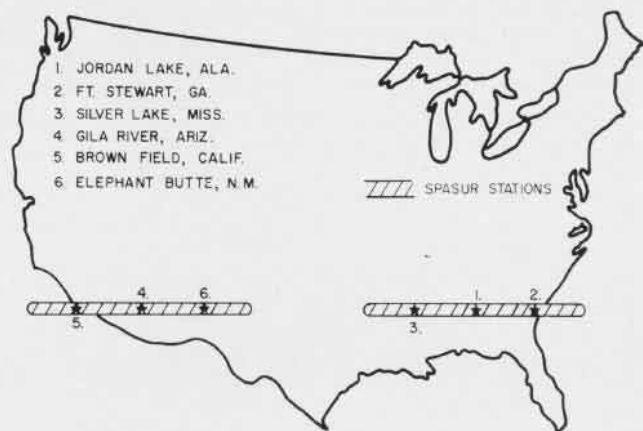
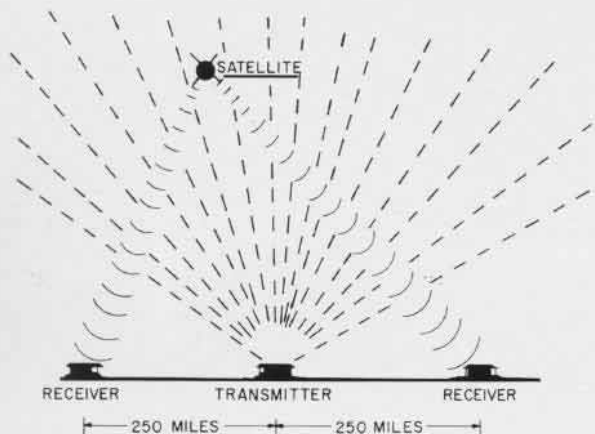


AT PT. ARGUELLO, new radar equipment is used in Pacific Missile Range operations.



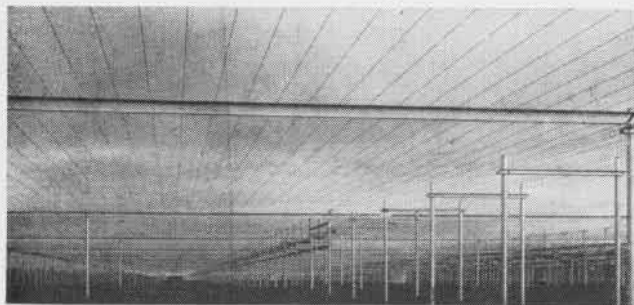
**SPASUR TRANSMITTER** station at Jordan Lake, Alabama, is one of a number composing Navy-ARPA satellite detection network stretching

across the lower United States. The system is in full operation, maintaining constant observation of all present earth-orbiting satellites.



**ELECTRONIC BARRIER** pattern of SPASUR extends upwards hundreds of miles. "Illuminated" satellites cause signal reflection to station.

**NAVY DETECTION** net is located along great circle track. Its ability to detect non-radiating satellites gives net name of "Dark Fence."



**GROUND VIEW** of station antennae array shown at top of page. An outgrowth of Vanguard Minitrack gear, this installation is 1600 x 300 ft.



**SPASUR OPS** center is located at Naval Weapons Lab, Dahlgren, Va. Satellite information is sent here to be recorded and processed.

naissance satellite programs in DOD.

"Under Project Yo-Yo, the Navy has under study a concept for a single-pass photographic reconnaissance satellite. Through the selection of sites and directions of launch at sea, such a satellite can be programmed to pass over any pre-selected point on the earth in its first pass and subsequently recovered at sea upon completion of a single orbit.

"During Project Argus high altitude

nuclear bursts last year, the Navy was given an ARPA project to air launch small satellites as a backup space sampling system.

"The air launch of small and nominal size satellites has many advantages since a high speed aircraft is substituted for the expensive first stage booster. The use of carrier-based aircraft for this purpose makes a tremendous area of the earth's surface available for use as launch points with a free choice of

launching directions well clear of populated areas."

In the field of early warning, the Navy has been conducting an important ARPA-sponsored program in missile detection under the name of Project Teepee. Using the principle of backscatter radar, Teepee is a system for the detecting of the launch of ballistic missiles at long range.

Currently operational is another key space defense system, the Space Sur-

veillance System, SPASUR, which is an ARPA-Navy development.

An outgrowth of the Minitrack system devised by the Navy during the *Vanguard* project, the SPASUR detection network stretches from Georgia to California creating an electronic barrier extending upwards hundreds of miles. Satellites passing through the barrier are "illuminated," causing a signal reflection to one or more of the four listening stations.

These signals are immediately fed to and processed through a computer at the Naval Weapons Laboratory, Dahlgren, Virginia. The computer, the Naval Ordnance Research Calculator (NORC), uses this information to compute the orbital elements of the satellite.

These orbital elements are then stored in the memory of the computer along with the elements of the known satellites. This memory constitutes the Space Catalog. The computer uses the Space Catalog information to provide satellite predictions for the various operational customers, such as Naval ships at sea and the Ballistic Missile Early Warning System.

One other aspect of Naval participation in space projects is of importance to the National effort. This is its recovery program.

Navy ships and aircraft have already been involved extensively in locating and recovering ballistic nose cones and satellite packages in both oceans following test firings by other agencies.

A complex program, involving two phases is planned for recovery of the NASA *Mercury* manned capsule. One of these concerns emergency ejection, the other, planned re-entry and recovery after orbit. While the final system has not been evolved, it is estimated that 35-50 ships and 5-12 aircraft will be required for each mission.

The basic significance of recovery is important. The data-gathering capabilities of satellite systems are more advanced than data transmission elements or data readout systems. For a considerable period of time, it can be expected that the most precise data obtained from satellites will be recorded in orbit and returned to earth by recovery package.

Another major Navy facility vital to the over-all U.S. space program is the Pacific Missile Range (PMR).

Established in 1958, the PMR has a

mission of providing range support for the Department of Defense and other designated government agencies in guided missiles, satellites, and space vehicle research, development, evaluation and training programs.

The huge complex, headquartered in Southern California and extending far out into the Pacific, was designed to provide for increased activity in national space vehicles and ballistic missiles, and satellite launchings in polar or equatorial orbits.

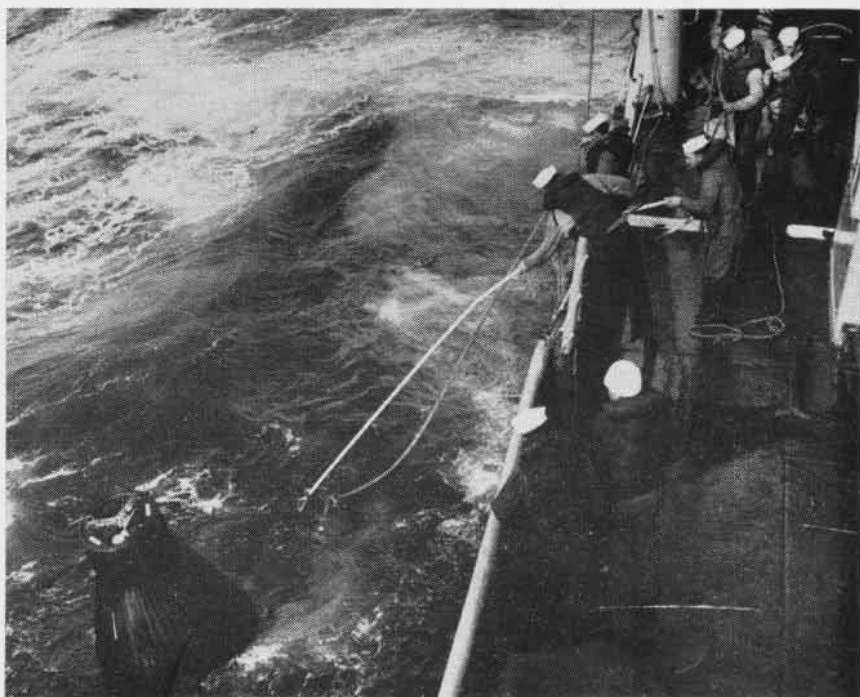
Five different ranges comprise the Navy PMR: Extended Sea and Inland Range which is used for development, testing and training in tactical missiles; the Ballistic Missile Range for handling IRBM's and ICBM's seaward to the western Pacific; the Polar Orbit Range for southward launching from the Naval Weapons Facility, Point Arguello; and the Anti-Missile Missile and Nuclear Range in the Central Pacific. Eventually there will be an Equatorial Orbit Range for eastward launchings near the equator.

A detailed word play on all Navy projects relating to the new medium is impractical from the standpoint of both security and editorial space limitations. Such space undertakings run a gamut from solid propellant research to low weight re-entry vehicles.

Because of the Navy's pioneering in the field of nuclear propulsion, the application of knowledge gained thus far is invaluable in the national search for a means to implement nuclear power as a space propellant system. This breakthrough, when achieved, is expected to make possible moon landings and interplanetary space operations with manned vehicles.

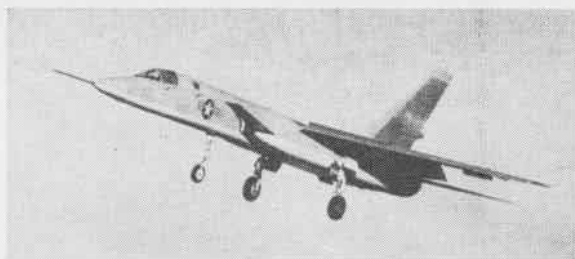
Space achievements to date owe a great deal to Naval research and development as well as to the Navy's great storehouse of practical experience and know-how in operational and technical fields. The Navy's practical and scientific knowledge in electronics, aerodynamics, rocket propulsion, cosmology, human engineering, and aviation medicine has lent positive impetus to national space programs.

The effect of these achievements and of those still to come on Navy planning and policy was voiced recently by VAdm. R. B. Pirie, DCNO(Air): "From a military viewpoint, the control of space cannot be considered an end in itself. It's clear that in Naval warfare, particularly, the use of space will help us to accomplish routine Naval objectives. On the other hand, it's equally clear that we will have to be able to prevent the use of space to the detriment of those objectives."



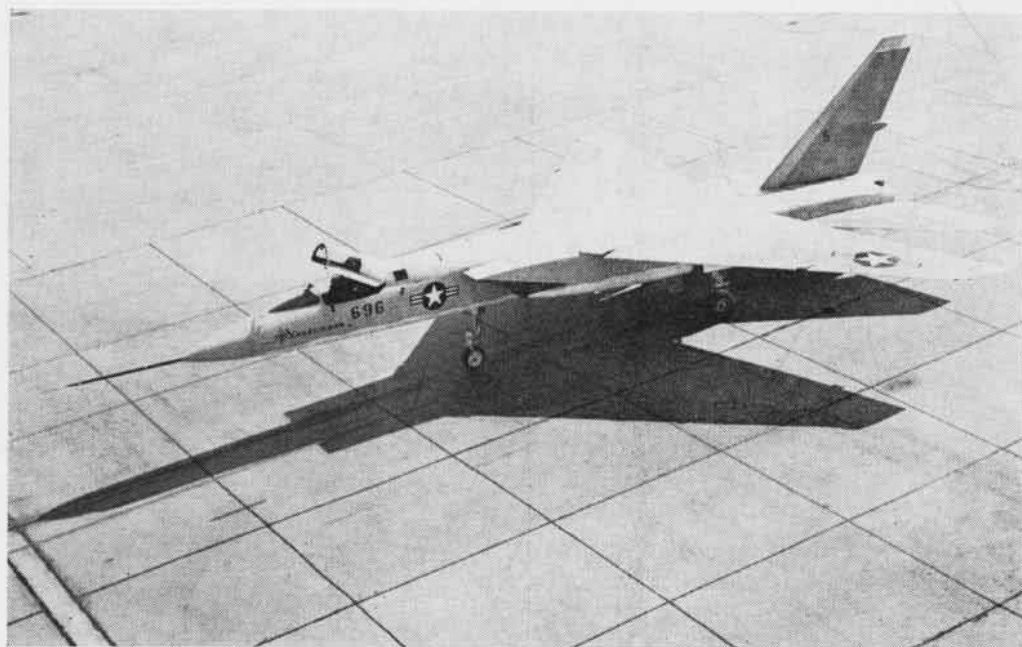
**VITAL SPACE AGE** Navy mission is recovery program. Crewmen of USS *Borie* extend grappling hook toward the Project Mercury type capsule which carried monkey Sam 200 miles off East Coast.





## SUNDAY PUNCH FOR SIXTIES

North American Aviation's 'Vigilante' presents a dramatic silhouette of power and speed. A3J-1's are undergoing flight test and development at Palmdale, Calif. Other A3J's are being tested at Columbus. At the Naval Air Test Center, Patuxent River, A3J's are proving carrier suitability.





**CATAPULT TEST SITE** at NATF(SI) Lakehurst shows elevated steam-powered catapult, center, and compressed air, jet fuel, water powered power plant at right furnish the energy required to use the C-14.

## 'CATS' MAKE NEWS AT LAKEHURST

**T**WO EVENTS of major significance to the launching of carrier aircraft took place within a three-day interval at Lakehurst, N.J.

On January 12, the first aircraft launchings were made from the new TC-13 steam catapult which will be installed in the carriers *Kitty Hawk*, CVA-63, and the *Constellation*, CVA-64, now under construction.

Three days later, Reaction Motors completed development of the Internal Combustion Catapult Powerplant, C-14, which will hurl planes from the

decks of the nuclear-powered carrier *Enterprise*, CVAN-65.

Custody of and operational responsibility for the C-14 was turned over to Capt. W. C. Fortune, Commander of the Naval Air Test Facility (Ship Installations) at Lakehurst.

Some 1800 launchings have been made to date from the C-14, employing both deadloads and aircraft at weights up to the C-14's capacity of 70 million foot pounds.

Four C-14's have been delivered for installation on the *Enterprise*. The

C-14 uses compressed air and jet fuel instead of steam.

Pilot of the F4D which became the first aircraft launched by the steam-powered TC-13 was LCdr. John Schaefer. The plane was traveling at 131 knots when it cleared the TC-13.

Soon after the F4D launch, an FJ-4 piloted by LCdr. Robert Ellis was launched at the Naval Air Engineering Facility. Its end speed at launch was 128 knots. Five additional launchings were made to complete the initial test program for the TC-13.

Like other Navy equipment intended for fleet use, the TC-13 will be tested and evaluated thoroughly at the Naval Air Test Facility before it becomes operational in the fleet.

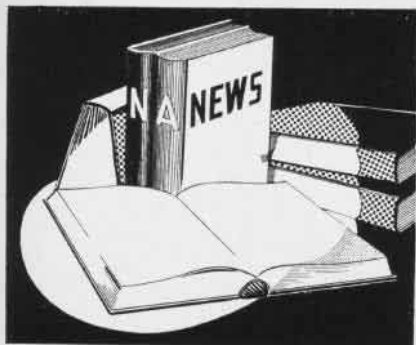
The TC-13 test program began February 28, 1959. To date, almost 900 deadload test launchings have been made. End speeds as high as 160 knots and energies up to 66 million foot pounds have been attained.

Incorporation of a new two-stage launching valve control gear has reduced the peak accelerations experienced by the pilot and the aircraft. The peak/mean acceleration ratio of the TC-13 will not exceed 1.2 to 1.3 for most present and projected carrier aircraft. The TC-13, like the air-powered C-14 will give high velocity at low gravity pull during launches.

The Internal Combustion Catapult Powerplant was described in "Big V, Little g," NANews, April 1958.



**FIRST AIRCRAFT LAUNCHED** from the new TC-13 catapult was this F4D-1 piloted by LCdr. John Schaefer. The steam-powered catapult will be installed in *Kitty Hawk* and *Constellation*.



### Marine Aircraft Book Published

Aviation historian William T. Larkins' book, "U.S. Marine Corps Aircraft 1914-1959," has been published by Aviation History Publications, P.O. Box 624, Concord, Calif.

The book contains nearly 500 photographs of aircraft, built by 48 American and foreign manufacturers, which have been delivered to the Marines since January 6, 1914.

It differs from Fahey's "Ships and Aircraft of the U.S. Fleet" and Jane's "All the World's Aircraft" in that it is essentially a picture history rather than a technical rundown of aircraft shapes, sizes, powerplants and characteristics.

It traces Marine aircraft markings from 1914 to the present, and gives the bureau number of most of the aircraft which are shown.

Rare photographs and facts, collected during a period of 23 years research, include views and descriptions of prop and jet aircraft, helicopters and a one-man rotorcycle. (Example: Two *Neptunes* were assigned to the Marines in 1952 to train aircrewmembers in airborne electronics.)

Through the use of 490 different photographs (broadside, airborne, and in some cases, crashed), it presents a detailed and accurate visual image of the evolution of Marine Aviation.

In addition to the carefully selected photographs which show the markings of as many Marine Corps squadrons as it was possible to obtain, detailed captions add to the reader's knowledge of the aircraft illustrated.

For those who are seriously interested in the history of Marine Corps aircraft, annual status tables are published for the first time. These account for every aircraft in the Marine Corps, together with their squadron assignments that were delivered between 1926 and 1943.

### Navy Blue and Gold

It does us all good, every once in a while, to get a booster shot of the old Navy spirit. A recommended method is to peruse the newly published *Navy Blue Book*. Its stated purpose is "to bring about a better understanding of the United States Navy by its own personnel, as well as by the public generally."

There are 38 chapters; each is a complete essay on some facet of the Navy—past, present or future. "Mobile Air Bases, Core of Today's Navy," pays tribute to the role of the aircraft carrier. A thumbnail sketch of pilot training and duty is presented in "Navy Fliers Control the Ocean Skies." The concept of vertical envelopment and the rugged initiation of officers and men is covered in "Atomic Age Marines." Each article is informative and readable. Sections of carefully selected photographs supplement the printed word.

Under the heading, "Navy Facts," the last 125 pages are devoted to a compilation of up-to-date information. It's one of the handiest references around, touching upon everything nautical from Task Group Alfa to the *Zuni* rocket. A complete index finishes the package.

The book is published by the Mili-

tary Publishing Institute with the full cooperation of the Chief of Naval Operations and the Chief of Information. It comes in two editions: a convenient paperback, digest-size volume which sells for \$1.50 and will soon be found in Navy Exchanges, and a hardcover version which costs \$4.95.

### Argentina Record in '59 Twenty 'O' AOC Reporting Weeks

During calendar 1959 the Supply Department, Naval Station, Argentina, Newfoundland, reported 20 weeks in which there was a "O" AOC report—or approximately 40% of the entire year.

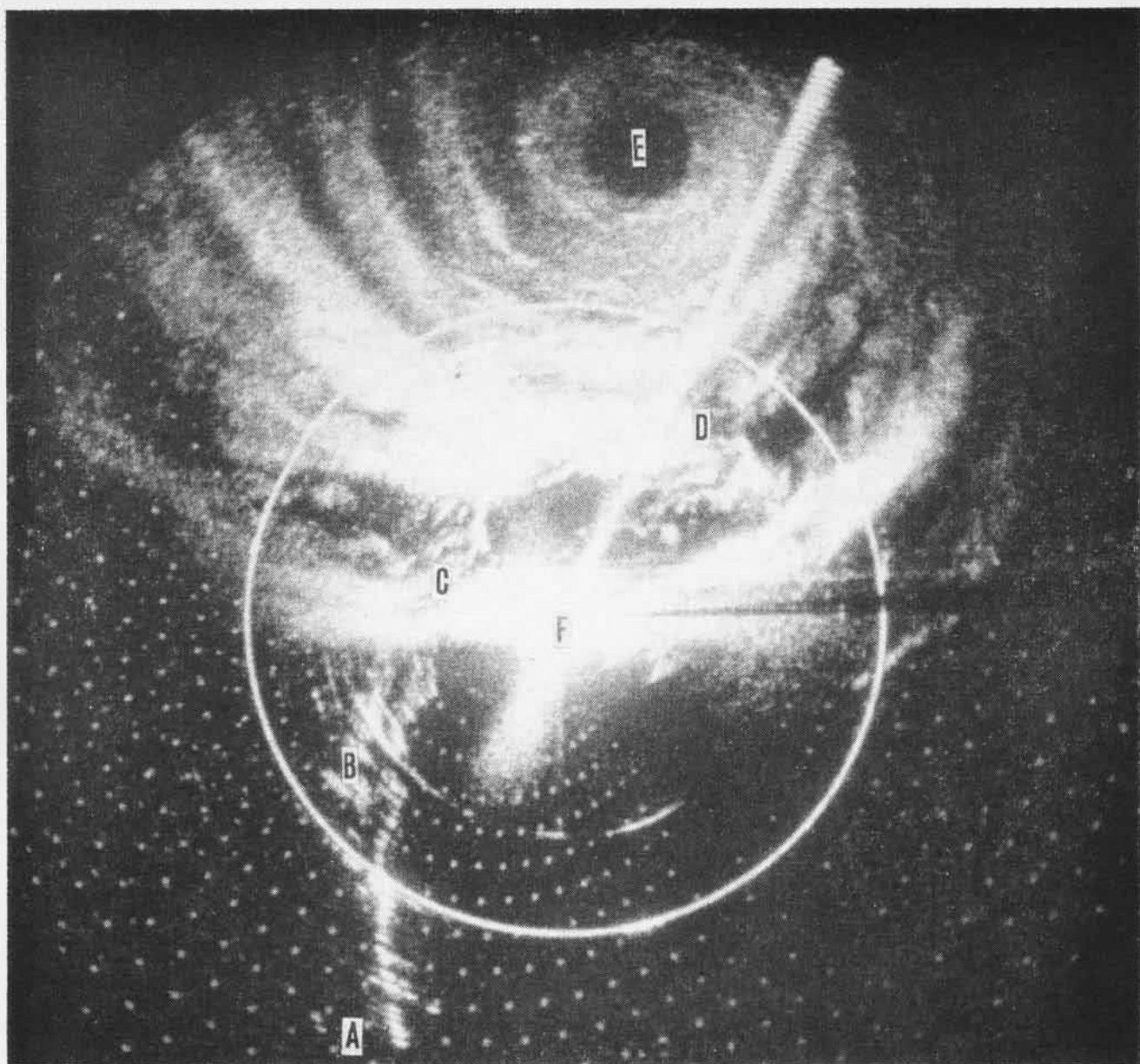
In building a "barrier" against AOC's while supporting units of the Atlantic Air and Surface Barrier, the Supply Department and Maintenance personnel went all out and ran up a new record for Argentina, eleven consecutive "O" AOC reporting weeks. This occurred during the period 4 September to 13 November.

Friday, the 13th of November, was an additional challenge. The pressure was finally "sensed" by the aircraft, and the record ended November 20th. Three "O's" were reported in December.

Argentina record-breakers resolve to make it "at least 60(%) in '60."



**TWENTY-THREE** first class petty officers have completed the leadership course at NAS Dallas. Capt. R. M. Harper, Commanding Officer, headed a group of officers who honored the graduates at a dinner at the Chiefs' Club. The graduates were first of four classes scheduled to take training. C. A. Summers, AD1, Dallas Stationkeeper, made the outstanding scholastic record of the class with a score of 3.808. R. E. Dickinson, AM1, was named the outstanding speaker.



## 'BETTER THAN THE BEST' SHOT

**I**N DECEMBER *Naval Aviation News* published a radar photograph of hurricane Gracie, made at NAS GLYNCO. The photograph was labeled "best ever taken" of a hurricane's eye.

VW-4, the Hurricane Hunter squadron based at Jacksonville, took issue. The large photo above, described as "Better than the Best," was provided as proof, with the accompanying photos at right showing a *Super*

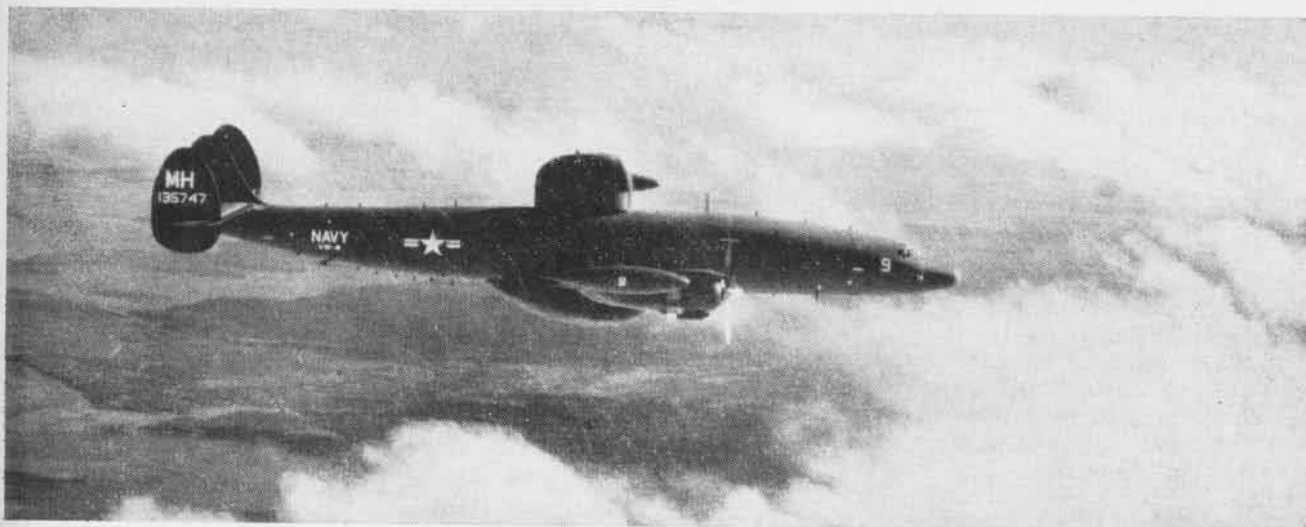
*Connie's* crewmen tracking Gracie.

In the radar photograph, A, B, C, and D represent the Jacksonville-Mayport area, the Brunswick area, the Savannah area, and the Charleston area. E shows the eye of Gracie and F gives the plane's position.

VW-4 aircraft made more than 30,000 frames of radar film on Gracie as they tracked the storm from birth to death during nine days of patrols.

The photograph above is considered rather unusual in that it shows not only the storm's eye, but portions of three separate states.

Gracie's baby picture was taken as she was born in the Caribbean and her obituary portrait was made September 29 when, after slamming into the coast, she disintegrated over the Carolinas. Frequent guests at VW-4 were photographers from the nation's press.



**WV-2 SUPER CONSTELLATION** of the Navy's Atlantic Fleet Hurricane Hunter squadron flies over the Florida coast en route to the breeding

ground of hurricanes in the Caribbean. Throughout the season, VW-4 regularly provides early storm warnings to the Eastern seaboard.



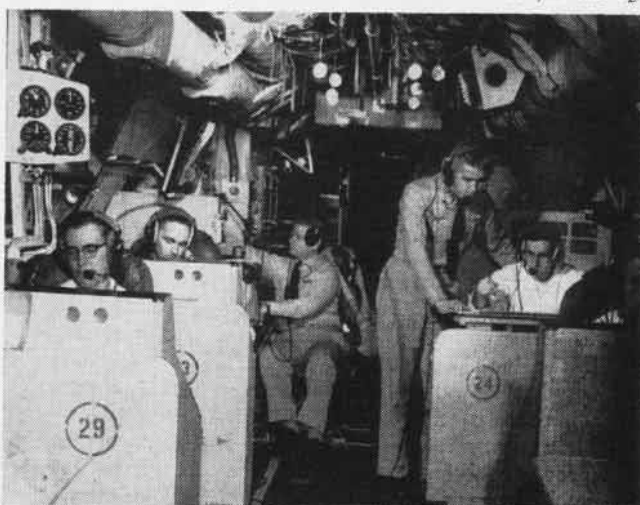
**RADAR CONTROL OFFICER**, Ltjg. Robert A. Hampton, determines the altitude of a cloud formation of the Super Connie's height-finding radar.



**MAZE OF DIALS** confronts R. C. Major, ADI, who is flight engineer of Hurricane Hunter aircraft. Here he checks instruments for take-off.



**VITAL LINK** in hurricane reconnaissance is communications. George Bachman, AT1, performs check on the high frequency radio equipment.



**SIX-MAN RADAR** team takes stations and checks equipment aboard the Airborne Early Warning plane before flying in search of hurricane.

## Extreme Heat is Created Plasma-jet Device in Space Role

Bell Aircraft Corporation's scientists are reported to be developing a device capable of generating temperatures almost twice as high as the sun's surface. The device will be used to test materials for satellites.

Called a plasma-jet generator, it uses the extreme heat released by plasma, the fourth state of matter, to produce temperatures up to 18,000° F.

(Matter consists of infinitely small particles with varying levels of energy increasing as matter changes from solid to liquid to gas. Plasma, the fourth state, is a mixture of gas and electrically charged particles at high temperatures.)

With little more additional equipment, the Bell generator is believed capable of producing temperatures up to 40,000 degrees.

A major difficulty with a plasma-jet generator is to keep it from melting. This is accomplished by surrounding the jet area with a water jacket.

Bell's experimental Plasma-jet is being used at present solely for the testing of materials used in space vehicle applications. It also could be used to coat metal with heat-resistant compounds.

Among the more dramatic uses being considered for the plasma-jet is to employ it as a propulsion system to power a manned vehicle through space.

Although such a system would provide only a few pounds of thrust, it would be sufficient over a period of time to propel a large space vehicle on an inter-planetary voyage at speeds close to that of light. When such a propulsion unit is developed it will probably use atomic power or heat from the sun as a source of electrical energy to create the plasma, according to engineers at Bell Aircraft Corp.

## Oceana Speeds Gear Issue Items, Repair Unit Centralized

NAS OCEANA has taken the long wait out of flight clothing issue.

No longer must a pilot or crewman walk the long mile to a warehouse, draw what he needs, proceed to the parachute loft to assemble his gear, test it and try it on—with the dull prospect of walking back to the warehouse if it doesn't fit.

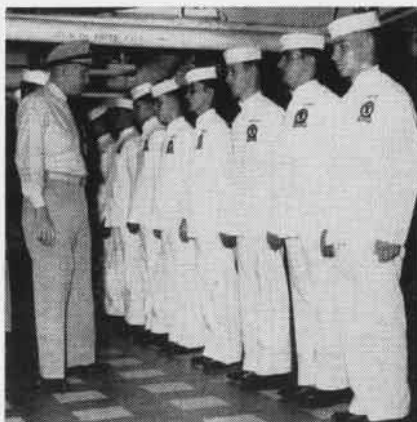
All flight clothing items were moved from the warehouse to a space in the

parachute loft in the hangar area. A supply of replacement items was put in the parachute loft on a pre-expended basis to replace defective items found during initial tests.

Parachute loft personnel draw items for parachute and oxygen assemblies from supply, test and build up the items into ready-to-go assemblies, and return them to supply to be drawn as a unit by the flyer.

Formerly, defective items were turned back to warehouse personnel who lacked technical knowledge to properly screen them for repair. Thus each aviator faced considerable lost time as well as the frustration of traveling from hangar to warehouse to parachute loft and back to warehouse.

Defective items are now replaced and repaired by parachute loft technicians, then are returned to stock.



**SNAPPY MESS JACKETS** to be worn for serving were dreamed up by Ltjg. O. D. Matthews, Commissary Officer of USS Independence. The men are being inspected by Cdr. R. D. Nauman, the attack carrier's medical officer.

## Two Log 1200 Safe Hours Palmer, Dawson Lead Squadron 6

Lt. Elgin Palmer and Ltjg. Robert Dawson of Squadron Six, NAAS WHITING FIELD, have logged 1200 hours of accident-free instructional flight.

Lt. Palmer received his wings in February 1954 and flew p2v's with VP-6 at Barber's Point. Ltjg. Dawson was an enlisted reservist from 1951 to 1956, then was chosen for ROC training at Newport. He flew the SNJ at Pensacola and went to Kingsville for advanced training in the s2f.

Both have seen their squadron go from radio instruments to basic instruments and back to radio again.

## Ingalls to Convert Ship Will Support Navy Missile Range

Ingalls Shipbuilding Corporation, builder of the Navy's largest icebreaker, USS *Glacier*, has been awarded a contract for the activation, repair and conversion of a missile range instrumentation ship.

The maritime victory hull to be converted is the SS *Skidmore Victory*.

RAdm. R. L. Moore, Jr., Acting Chief of the Bureau of Ships, said the ship will provide the Pacific Missile Range with an instrumentation ship capable of giving support to various missile/space agencies using the range.

## Radar Altimeters Bought Will Improve Low Altitude Flight

Low altitude radar altimeters designed to improve helicopter performance on ASW, reconnaissance, and rescue operations are being produced by Sylvania Electric Products Inc. under a \$600,000 Navy contract.

Designated APN-117, the altimeter is the first military unit designed for use in helicopters.

The altimeter consists of two specially-designed units—an electronic control amplifier and a control height indicator—and uses a standard receiver-transmitter, housing and mount.

The system is available as a unit or as a two-piece kit for converting a standard APN-22 to the APN-117.

Applicable to all aircraft which may require low-altitude information, including drones and missiles, the APN-117 measures surface or terrain clearance from zero to 1000 feet without adding protruding external antennas.

The altimeter may be tied in to automatic pilots or other devices requiring selected altitude data. A limit indicator system also is included in the set to provide an indication of flight below a pre-set altitude.

## Whiting Officer Honored Local Navy League Makes Award

Lt. R. B. "Bus" Bussell, Night Flying Coordinator at BTG-3, NAAS WHITING FIELD, was the first man to receive the new "Navyman of the Month" award established by the Milton Chapter of the Navy League.

Lt. Bussell was selected for his work in privately initiating a small scale charity drive to build an adequate shelter for a lone, impoverished 82-year-old woman in Milton, Florida.

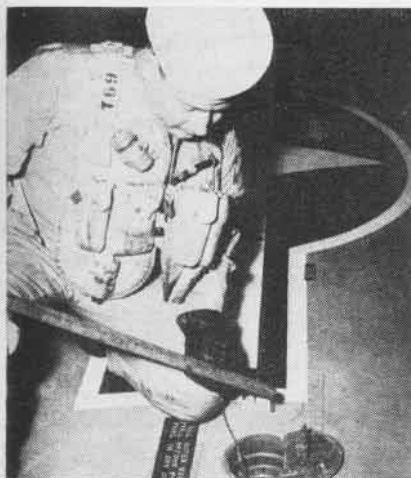
# RESERVISTS ARE ESSENTIAL IN ASW



**MEN OF VP-892**, seen on the job on this page, typify Seattle's ASW effort. **J. M. Culpepper, AOC**, adjusts P2V's temperature control.



**BEFORE A PATROL**, **L. A. Ronning, AN**, thoroughly tests the oxygen system to make certain that it is in the best operating condition.



**PLANE CAPTAIN H. E. Lempke, ADRI**, looks at fuel supply. Average flight lasts 10 hours.

**I**N THE PACIFIC Northwest area, naval aircraft fly antisubmarine patrols every day around the clock. About 18 months ago, arrangements were made for Naval Air Reserve squadrons from NAS SEATTLE to relieve the USN units from Whidbey Island on weekends.

Today the four VS outfits with S2F Trackers and the four VP squadrons in P2V Neptunes under the operational control of COMFAIR Whidbey, share this very important defense mission.

COMFAIR Whidbey has expressed approval of the Weekend Warriors' role and the training department of NAS SEATTLE has noted a significant increase in the proficiency, morale and combat readiness of the Reserve crews.



**NOSE GEAR** is checked by **LCdr. G. E. Guthrie**, Plane Commander, and **H. H. Hoag, AMC**.



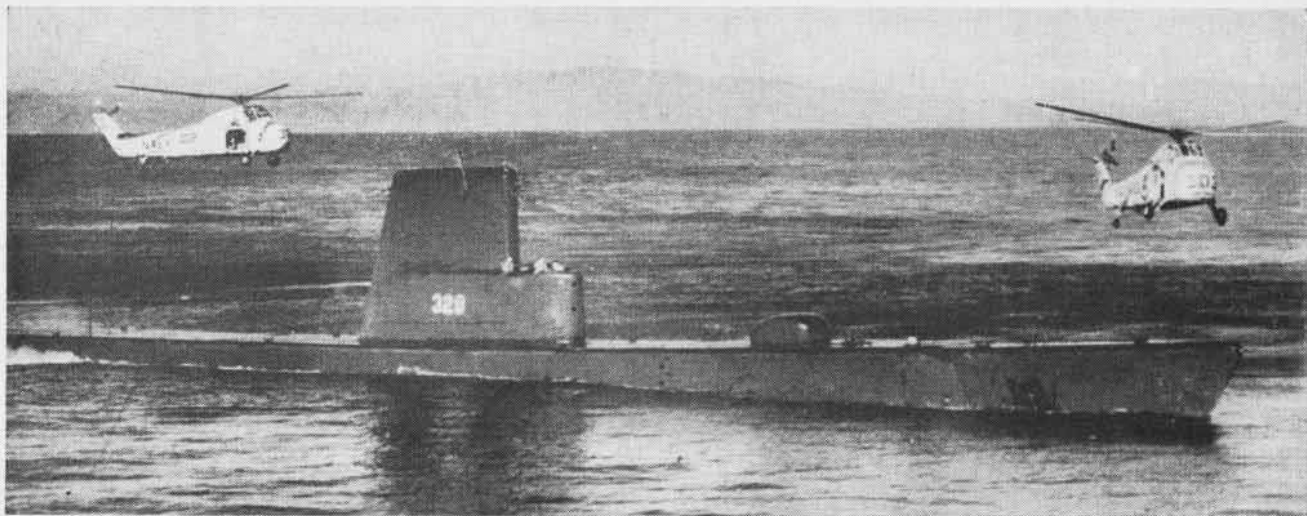
**SECURING** the engines, **LCdr. Guthrie** switches off the magnetos upon completion of mission.



**CHIEF CULPEPPER** winds film in an aerial camera used to record any valuable information.



**MEMBERS** of Crew 1 sign receipts for all the flight gear issued to them on drill weekends.



**TWO OF THE THREE HS-871 HSS helicopters get acquainted with the coast of southern California. Camaraderie became serious rivalry when the ship became the hunted and the aircraft the hunters.**

**H**ELICOPTERS with their ability to hold a contact and to maneuver easily are integral components of the ASW team. Naval Air Reservists also train wholeheartedly in this facet of the deadly "game" of detect, identify, destroy the denizens of the deep.

While drill weekends are geared to keeping skills keen, two-week active duty tours afford the best opportunity for ASW helicopter squadrons to go through their paces and pick up additional pointers. A rundown of the highlights of HS-871's 1960 cruise provides a good case in hand.

For the fourth consecutive annual training period the Oakland-based, HSS-equipped squadron travelled south to NAAS REAM FIELD, Imperial Beach,

Calif. An impressive 60 hours of flight time per pilot were logged during the 14-day period. LCdr. "Mike" Roby, assistant flight training officer, explained, "This is a staggering figure for fixed wing aircraft, but for rotary-wing types it is an almost phenomenal accomplishment."

Primarily owing to the fine maintenance work performed by the ground crews, 49 of 50 scheduled flights were completed, with aircraft availability fixed at a high 98%. Fleet squadrons HS-2 and HS-8 went all-out to help the Weekend Warriors keep abreast of the latest operational techniques in anti-sub warfare.

USS *Cbar*, SS-328, also cooperated fully by obligingly playing the

"enemy" during exercises at sea. HS-871 chalked up 35 hours of sonar practice, 11 of which were spent as actual contact time with the submarine. These maneuvers gave the six squadron sonar operators a chance to put into the practice the lessons learned in the total of 152.2 hours of classroom training they managed to accumulate at Ream Field.

LCdr. James Henry, the commanding officer, spoke for all his men when he went on record to say that this year's cruise was more successful than 1959's training stint, which was the first following the squadron's transition from utility (HU) to ASW. As a matter of fact, he termed the fourth visit to Ream Field a 4.0 venture.



**SQUADRON C.O., LCdr. Henry, goes over check-off list with crewman, Andrew Ennis, before heading out to sea for realistic exercises.**



**HS-871 PILOTS and crewmen are briefed on ASW by LCdr. Roby (holding knee pad). Foul weather did not seriously hinder operations.**



**BETWEEN ANTISUBMARINE** training missions, a VS-721 S2F Tracker undergoes maintenance and repair by men of the Glenview squadron.



**WHILE CHICAGO** was smothered under a blanket of snow, whites were the uniform of the day for VS-721 men training at Key West, Florida.

ON THE SURFACE, NAS GLENVIEW, located near Chicago, is a most unlikely locale to carry on any concentrated antisubmarine warfare activities. The facts belie any such assumption as the tale of two s2f Tracker outfits' AcDuTra cruises will prove.

VS-721, headed by LCdr. A. W. Neumann, flew to Key West, Florida, for two weeks. The 26 officers, 71 men and one civilian electronics technician spent 24 hours a day in training. Included in their highly technical syllabus were rocket firing, real practice depth charge runs, and maneuvers with other air and surface units. At the same time, the squadron was responsible for handling its own administration and supply as well as the maintenance

and repair of its own Tracker aircraft.

At the conclusion of the cruise, the commanding officer stated: "We are all extremely pleased with this cruise. It has given us the opportunity for the most realistic action we could experience short of actual wartime conditions of antisubmarine combat. Here's an example. A number of our pilots and aircrewmen got a first-hand view of how the other half lives by taking a one-day cruise aboard their 'prey,' in this case, a U.S. Navy fleet submarine!"

Travel, however, is by no means a prerequisite for improving efficiency. VS-722 spent the active duty period right at NAS GLENVIEW and labelled the cruise Operation Snowball because of the 12-inch snow that hit the area.

Despite the adverse weather conditions which provided excellent training in cold weather ops, VS-722 qualified three men for aircrewman wings and averaged almost 35 hours of flight time per pilot.

The men's accomplishments in maintenance read like a page from an Assembly and Repair report. They changed plugs, steam-cleaned engines, made a safety-of-flight check of prop brush assembly on all eight aircraft, etc. All pilots in addition to their flight time, ground school and collateral duties, attended ten hours of special weapons lectures given by the base.

Cdr. James R. Conway, the skipper (in greens, first row center, below), expressed his appreciation to all hands.



**PERSONNEL OF VS-722** were praised by Cdr. Conway when he reported that it had been a long time since "so few did so much." He ex-

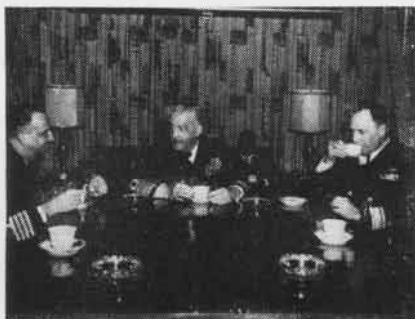
pressed his appreciation for the fine performance of all the squadron with special praise given to the men responsible for maintenance.

# IN FOREIGN SKIES

## Australia to Get Neptunes

The Royal Australian Air Force's No. 10 Maritime Reconnaissance Squadron is scheduled to get new Lockheed P2V-7's to replace its *Lincolns*. Delivery of the 12 *Neptunes* is scheduled for early next year.

Crews of No. 10 Squadron will be trained in modified P2V-5's before coming to the United States to take delivery of the RAAF's new aircraft.



ADM. LEITE (C), RADM. SHINN (USN) RIGHT

## Brazilian Visit to Wasp

When Admiral Jorge da Silva Leite, Chief of the Navy General Staff, Brazilian Navy, visited the USS *Wasp*, he reviewed the progress of the future officers of the Brazilian aircraft carrier, *Minas Gerais*. The officers are now observing operations and ASW tactics.

The new flattop will join Brazil's Navy this year upon completion of its being fitted with the latest in modern carrier equipment at Rotterdam, Holland.

Under plans worked out by the Joint Inter-American Defense Group, the *Minas Gerais* after joining the fleet will become one of the several carriers operated by the North and South American allies in the Atlantic.

## Japanese Trainers Ordered

The Japanese Defense Agency has a formal contract with Fuji Heavy Industries for 20 T1A intermediate jet trainers. The first T1A is scheduled for delivery in July 1960.

Production will be one aircraft per month until October, then two monthly thereafter beginning in November until the entire contract is completed.



TEN NEW Swedish Safirs of type 91C were handed over in February to the Imperial Ethiopian Air Force by Saab. This is Ethiopia's seventh order, and all in all, 42 Safirs are now in use by Ethiopian AF.

## Breguet 1150 NATO Choice

Certain NATO nations have decided to combine their efforts to produce an aircraft for maritime reconnaissance missions and antisubmarine warfare. Several meetings were held in 1958 under the auspices of the NATO Armament committee to establish the technical specifications of the new aircraft and to examine design studies proposed by industrial firms of various countries. The Breguet 1150 was selected.

This aircraft, both the prototype and the quantity production phases, will be constructed under an arrangement whereby the firm of Breguet (France) has formed a consortium with Dornier (Germany), ABAP (Belgium), Fokker (Netherlands) and Sud Aviation (France). For the prototypes, the engines are being supplied by Rolls Royce in the United Kingdom. Much of the

electronic equipment is being supplied by the United States. The first prototype should fly by early 1961.

The aircraft, named *Atlantic*, is a midwing landplane equipped with two Rolls Royce Tyne 20 turboprop engines developing an equivalent power output of over 6000 hp per engine. It is designed for a 12-man crew.

The aircraft is to have a span of 124 feet, a length of 90 feet, a height of 35 feet, and will weigh 80,000 lbs.

## Koreans at Barrier Headquarters

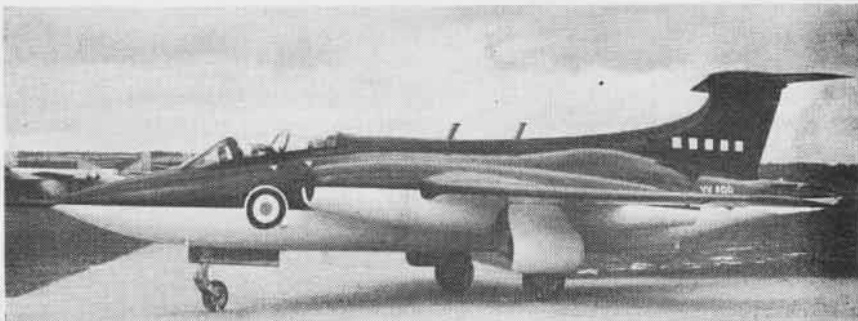
VAdm. Young Woon Lee, Chief of Naval Operations for the Republic of Korea, toured the headquarters of the Pacific Barrier and its Barber's Point facilities as the guest of RAdm. Grover B. H. Hall, Commander Barrier Force Pacific.

Adm. Lee was accompanied by his deputy and by the Director of Naval Intelligence for the Republic of Korea Navy. They were briefed on the mission of the Pacific Barrier, then escorted through the headquarters complex operational control and communications centers.

## NATO Officials at Point Mugu

Thirty-five North Atlantic Treaty Organization officers representing 12 European countries, the U.S. and Canada, visited Pacific Missile Range headquarters in February.

The Free World army, naval, marine and air force officers are members of NATO's Standing Group, Washington, D.C. The European countries represented were France, the United Kingdom, Belgium, Denmark, Germany, Greece, Italy, the Netherlands, Norway, Portugal, and Turkey.



THE BLACKBURN N. A. 39 has completed its trials on the aircraft carrier, *Victorious*. During the three-day trial period, the aircraft made some 30 take-offs and landings. This two-seat shipboard low level strike aircraft is powered by two 7000 lb. static thrust de Havilland turbojets.

## Streets Named for Heroes Glynco Makes Careful Selection

Street signs are going up on many roads and lanes constructed at NAS GLYNCO during the last three years. Names of men whose conduct and valor upheld the highest traditions of the Navy are being honored. The project received the approval of the Commandant, 6ND, and the Chief of Naval Air Technical Training.

Included in the names of the new streets are the following:

*Callaghan Avenue* honors RAdm. Daniel Judson Callaghan who was lost in enemy action in the Solomon Islands 13 November 1942 while aboard the USS *San Francisco*. He received the Medal of Honor.

*Kiefer Circle* was named after Commodore Dixie Kiefer, who died in a plane crash at Beacon, New York, on 11 November 1945. He held the Navy Cross, Distinguished Service Medal, Silver Star Medal, and Purple Heart.

*Krogh Street* was named after Lt. John Krogh, who died on 26 November 1942 in a plane crash at Exmouth Gulf, West Australia.

*Emeree Road* was named after Cdr. Ralph Arnold Emeree, who died in enemy action on 13 May 1945. His plane was shot down over Okinawa. He held the Navy Cross, Silver Star Medal, and the Purple Heart.

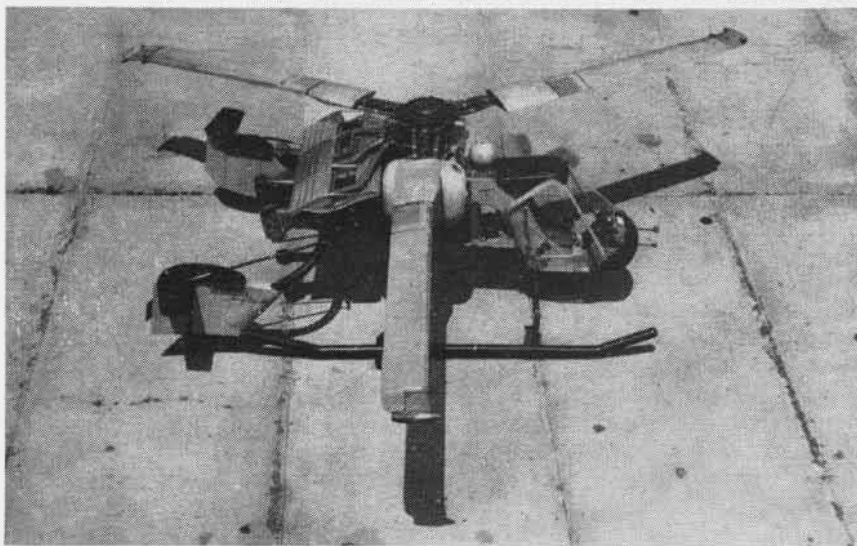
*Maxwell Street* was named after Cdr. Porter Wilson Maxwell, C.O. of VBF 87. A holder of the Distinguished Flying Cross, he died on 24 July 1945 in enemy action in the Asiatic area.

*Maher Street* is in memory of Lt. Francis Xavier Maher, Jr., who was lost in an attack against the Japanese on Jaluit Island in the Marshall Islands in February 1942. He was a member of VT-5 aboard the USS *Yorktown*.

*Powers Street* honors Lt. John James Powers, who died in enemy action during the Battle of the Coral Sea on 8 May 1942 while aboard the USS *Yorktown*. He held the Medal of Honor.

*Bull Road* was named after Lt. Richard Salisbury Bull, Jr., who died in enemy action in the Battle of the Coral Sea while aboard the USS *Lexington* as a member of Fighter Squadron 42. He held the DFC.

*Vogel Road* was named after Cdr. Raymond William Vogel, Jr., who was killed on 19 August 1951 in enemy action over Korea. He held the Air Medal and a Letter of Commendation.



## McDONNELL 120-D TESTED

**M**CDONNELL's latest helicopter, the Model 120-D, was recently evaluated by the Naval Air Test Center. Its general flight characteristics were termed outstanding.

Basically a one-man, crane-type helicopter, it was designed around the rotor system used in this country's first successful convertiplane, the McDonnell XV-1. There is no transmission or power shafting to drive the rotor. Compressed air from three Airesearch gas turbine compressors is ducted to the rotor head and out to the tip jets where fuel is injected and combustion occurs, driving the rotor.

These photos show the simple air-

frame with vertical tail surfaces for high speed directional stability and control and the cylindrical fuel tanks on either side under the rotor.

Vanes in the exhausts of the gas turbine compressors are coupled to the rudder pedals and deflect the exhaust for directional control in hovering. Equipment aft of the pilot is special flight test instrumentation.

Platforms can be installed on the runners for troop transport, fire fighting, or even for possible delivery of weapons by helicopter.

Testing of the 120-D was prompted by a possible requirement for a Navy or Marine Corps crane type helicopter.

# THEY LIVED TO FIGHT AGAIN

**R**ETIREMENT is generally a time for recollection. In the case of Chief Aviation Electronics Technician Raymond A. Machalinski, USN, who retired recently after 20 years of service, one of his recollections constitutes an unusual tale of survival in WW II.

In the opening raid of the Battle of the Coral Sea, Machalinski heard his pilot report over the intercom an electrical malfunction in the torpedo release mechanism. This was the last of the TBD *Devastators* of Torpedo Squadron Five to attack.

The pilot, Lt. (now Capt.) Leonard E. Ewoldt, turned back toward a Japanese cruiser while flying less than 50 feet off the water and released his weapon with the emergency system.

Machalinski recalls that the cruiser turned at the last minute to evade the torpedo. It was 4 May 1942, and almost three months passed before Machalinski or his pilot again saw a familiar face.

The rest of the flight had disappeared over the horizon by the time Lt. Ewoldt completed his second run and was clear of the enemy ship. Less than two hours later, the engine sputtered and he was forced to ditch.

Three days later, floating in their raft, the survivors were spotted by a Japanese destroyer. Since they had lost their rations with the plane and obtained only a few drops of water from a rain squall their first night at sea, the pair must have presented a ragged appearance as the destroyer passed close and looked them over. The Japanese ship made a 180° turn for a second look and sailed past again with the stern turret menacingly pointing its guns in their direction.

"I sure thought they were getting ready for gunnery practice," Chief Machalinski recalls, "but the destroyer for some reason passed us. The only thing we could figure out was that they didn't want to be bothered with prisoners. They saw our condition was bad and were sure we had plenty of sharks keeping us company."

The next day land was sighted in the distance, and with both wind and tide in their favor, the pair managed to get their raft beyond the coral reef into a calm lagoon and up on the beach.

Natives with pierced noses and filed



**CAPT. FURER** and Chief Machalinski sample today's rations and talk over new equipment.

teeth met Lt. Ewoldt and Chief Machalinski. The pair was fed rather than eaten. Machalinski remembers the first English-speaking person they encountered—a native who announced in a precise British accent, "I am Timothy of the South Sea Evangelical Mission."

Then there was the French priest whose first words on that May day in 1942 were, "Is it true that France has fallen?"

For the next two and a half months, they island-hopped, staying with numerous missions. Chief Machalinski remembers well having high tea with the British Resident Commissioner who maintained a communications relay station, transmitting vital information of Japanese ship movements to the Allies. The Commissioner had native lookouts stationed in banyan trees at high points. His reports, according to Machalinski, were the basis of intelligence evaluation on which the Coral Sea Battle was planned.

The two Navy men spent most of their time at Guadalcanal. They left the island by sampan a month before the Marines landed.

Their last ten days were spent at sea in a sampan with six Chinese. Their goal was Australia, over 1500 miles away over open water. The eight travellers were equipped with an old sextant given them by an elderly missionary of the Church of England, an ancient almanac, and some hand-made charts donated by a German settler

with whom the Americans had spent several days. On the voyage they carried several hundred pounds of food and two 50-gallon kegs of fresh water.

On their tenth day at sea, they were spotted by a Navy patrol plane and intercepted by a PT boat which directed them to follow her to Efate in the southern New Hebrides, over 800 miles south of Guadalcanal. They met the skipper of an old four-stack destroyer and rode with him to Pearl Harbor.

While looking around to find someone who would get them back to their unit, they were spotted by Lt. Albert B. Furer, now Capt. Furer and commanding officer of Fleet Air Electronics Training Unit, Pacific Fleet, a squadron mate who took them to Kaneohe Bay where the squadron was re-forming.

There were still other exciting events, but none more memorable than the island hopping in the South Pacific. Later in WW II, Chief Machalinski spoke at bond rallies of his experiences in the South Seas.

Chief Machalinski has transferred from VAW-11 to the Fleet Reserve.

## Fire Fighting Class Held Glynco Session Proves Popular

A two-day fire-fighting rescue indoctrination training session sponsored by NAS GLYNCO, Georgia, drew some 80 policemen and fire-fighters from the nearby area.

The training session included lectures and demonstrations of ejection seats, fuel tank locations, emergency exits, and magnesium components of aircraft used by the Navy at Glynco. Static displays of the WV-2 *Super Constellation*, F2H *Banshee*, and T2V jet trainer demonstrated various aspects of aircraft fire fighting.

An airborne helicopter crash/fire fighting demonstration by the station fire department and crash crew gave spectators first-hand information on the do's and don'ts in fighting aircraft fires.

The training session was designed to acquaint civilian police and fire-fighting agencies with the problems of aircraft fires in the event of a crash to which they might be called.

# NAS CUBI POINT

## PHILIPPINE ISLANDS



**JUNGLE EDGED**, the runway (main center line) at NAS Cubi Point when this picture was taken in October 1951. Construction had just begun. On 10 October 1952, Adm. Radford landed an SNJ.

OVER SEVEN years ago when construction was still going on, the Naval Air Station, Cubi Point, Republic of the Philippines, looked as though it had been a bomb-testing site. Disorder and chaos enveloped jungle, mountains, and even buildings.

Actually the point was a testing site, but not for nuclear weapons. Here the Seabees and their legendary construction capabilities were put to their ultimate test. Cubi Point was to

become an air station. The raw jungle terrain was, with the help of powerful blades of Navy bulldozers and the building skills of the Seabees, to become a gigantic airstrip, one of the vital points on the defense map of the South East Asia Treaty Organization.

The decision to create this airstrip and its facilities began at the time of the Korean conflict. Adm. A. W. Radford, then Commander-in-Chief, U.S. Pacific Fleet, formulated the plan for

an air station operated by the U.S. Navy in the Far East.

Quickly recognizing the need and responding to the proposal, Congress authorized the funds to begin preliminary observations. Civilian contractors arrived in Subic Bay to determine their estimates.

After a good look at the place where the air station was to be located, some said, "No, it can't be done." But there were other men who saw the point of land differently. When the Navy's Mobile Construction Battalion had their look, they said, "Can do." They could and did—and fast.

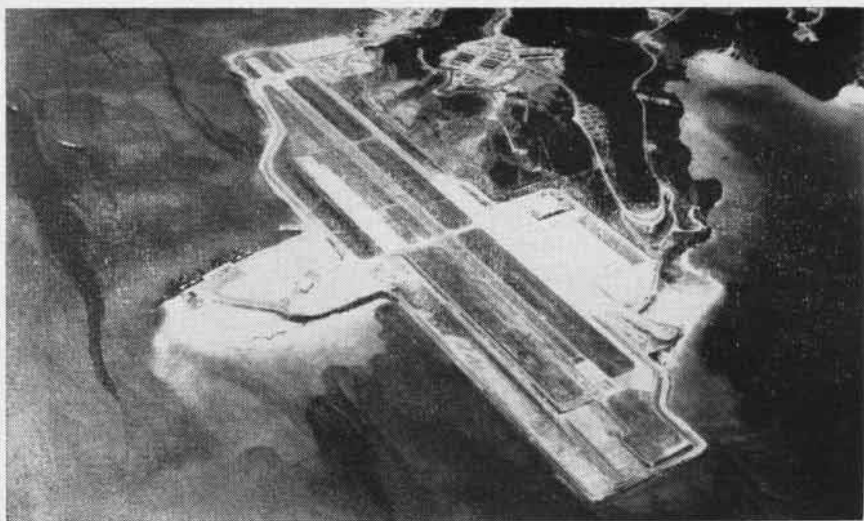
The Philippine Islands were selected because of their geographically strategic location. The mountains help make the Subic Bay a typhoon-sheltered location that is ideally suited for the combination of seaplane, land-based plane, and aircraft carrier operations. Yet the bay is large enough and the mountains are distant enough that they neither hazard nor interrupt the station's aviation routine.

On 10 October 1952, Adm. Radford landed an SNJ aboard Cubi on the unfinished strip. In April 1953, he was a passenger in the first plane, an R4D, to land on the paved runway.

There was still much to be done, however. Various facilities necessary to the operation of the airstrip had to be built. On 25 July 1956, the new station was commissioned by the U.S. Government under the United States-Philippine Islands Military Bases Agree-



**FILIPINO WORKMEN** touch up a portion of Cubi's five miles of seafront with picks and shovels while a damaged *Crusader* is loaded on a barge. Over 500 Filipinos are employed at the air station.



**AERIAL VIEW** shows the extensive facilities that are a prime factor in fulfilling Cubi's assigned mission. Subic Bay is ideally situated geographically to service our Western Pacific forces.

ment. On that date, the Seabees watched the commissioning ceremonies which were attended by the Philippines' President, the late Ramon Magsaysay, and Adm. Radford, then Chairman of the Joint Chiefs of Staff. Today, NAS CUBI POINT holds a key position in the defense of South Eastern Asia.

While the Seabees worked on the finishing touches on the new Naval air station, Cubi conducted operations to fulfill its mission of serving the Fleet. It soon operated efficiently with units of the Seventh Fleet's Naval Air Arm. Carriers periodically tied up at Cubi for recreation and replenishment, and units of the Navy's aviation forces operated regularly from the airstrip.

Cubi began to chalk up some remarkable milestones through its everyday operations. During the massive Operation *Strongback* early in 1958, which trained the Free World's fighting forces in the use and tactics of modern weapons, NAS CUBI afforded invaluable communications, supply, and logistics support to numerous units.

Since its commissioning, the station has received every carrier of the Seventh Fleet that has operated in the Far Eastern area, including the USS *Ranger* and the USS *Essex*, CVA-9, when she was deployed from the Sixth Fleet in the Mediterranean during the Formosan crisis.

The air station was also used during



**JOHN C. MINSHULL, AC3**, contacts a departing plane (white spot, center of USS *Hancock*).

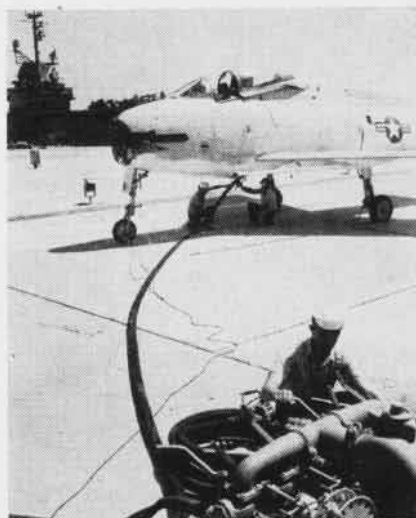
the Formosan crisis as an advanced supply base, and served as a jumping-off point for the Seventh Fleet's aerial defense. A giant development program has provided visiting aviation units with a modernized supply system, refueling procedures, and recreation facilities.

In August 1957, the Commander, Fleet Air/Naval Air Bases, Philippines, Capt. M. T. Hatcher, made Cubi Point his resident station, moving there from the Naval Station at Sangley Point. In September, a detachment of Heavy Attack Squadron Four and its A3D's arrived.

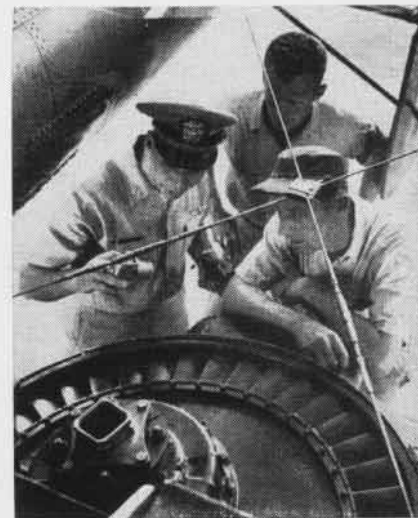
In October 1957, the Honorable Neil H. McElroy, then U.S. Secretary



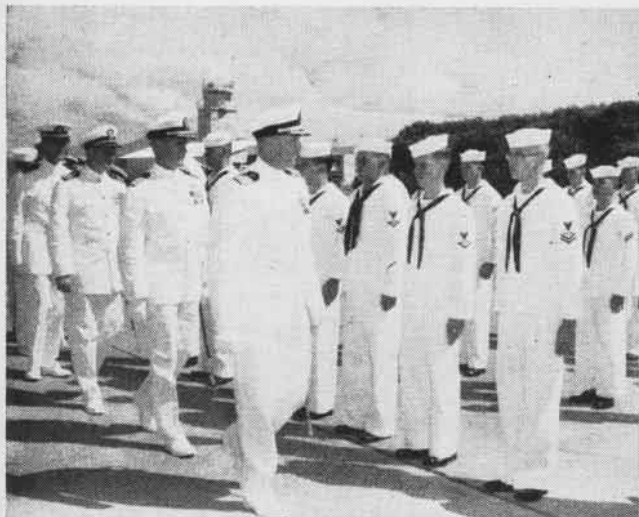
**CUBI POINT** officers discuss arrival of USS *Hancock* as they lean on waiting gangway.



**HIGH SPEED** fueling system is used to gas an F14 Fury against the backdrop of USS *Hornet*.



**PILOT AND TWO** crewmen are giving their full attention to a unit of an HUK-type copter.



**IN SEPTEMBER 1959**, Fleet Aircraft Service Squadron 113 was decommissioned. Over 120 men, 10 officers were added to the NAS command.

of Defense, visited Cubi during an inspection tour of military installations in the Far East. Earlier that month, MCB-5 arrived to relieve MCB-11 in the final stages of Seabee operation at Cubi. They departed in May 1959, the last complete battalion to work on the air station they had built.

In September 1959, FASRon-113 was decommissioned and absorbed into the air station as the Maintenance Department. In November 1959, Commander, Fleet Air Philippines was redesignated Commander, Fleet Air Southwest Pacific, and moved to Guam in December 1959.

Now based at Cubi Point are Marine Air Group 11, Utility Squadron 5 Detachment A, and frequently rotated detachments of VW-1, VW-3, VAW-11, VAW-13 and VCP-61. Cubi is the permanent duty station of approximately 600 officers and men. A ComFAirSoWestPac detachment remains at Cubi with Cdr. D. H. Wells as chief

staff officer for Naval Air Bases, Philippines.

NAS CUBI POINT, commanded by



**EIGHTEEN-FOOT** python was brought back dead by Marines guarding perimeter areas.



**ON THE READY**, Airman G. W. Maynard watches a jet scream past his crash fire truck during take-off as he stands by on the truck's turret.

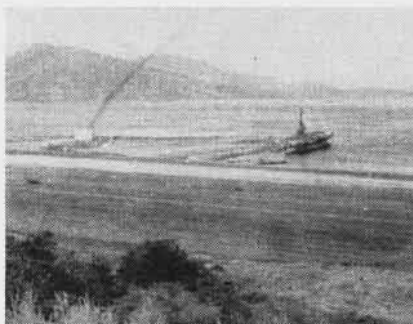
Capt. August A. Barthes, is a vital segment of the Naval Air Arm belonging to the U.S. Seventh Fleet, for Subic Bay is one of the largest complexes in the Western Pacific.

The men of the tower and desk stand watches around the clock, as do the men in the flight-supporting divisions. Radar nets, an extensive weather-tracking office, crash nets and emergency standby crews, refueling crews, trucks, and high speed systems, communications experts, and night security guards are all a part of the night and day routine in the airstrip area of Cubi Point.

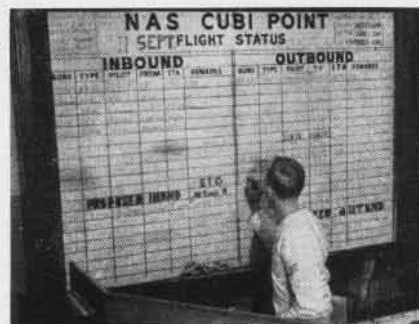
This routine is big business. Its eventual aim is the adequate support of air contingents attached to the Seventh Fleet and other units of the South East Asia Treaty Organization. The station occupies 1354 acres of land leased from the Philippine government to provide that support in conjunction with the cooperative defense.



**AIR MAPS** and charts are available at Cubi for air and service activities in Far East.

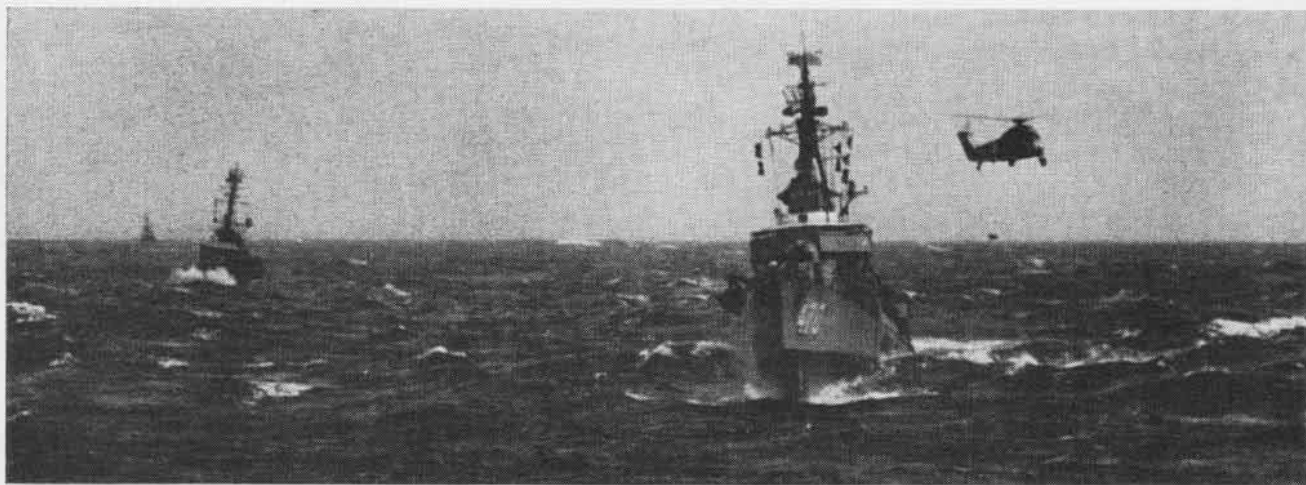


**ATTACK CARRIER** Lexington and debarked air group use aircraft refueling and parking area.



**ANOTHER LOCAL** flight is penciled on the Cubi Point flight status board by Ed Oliver.

# HS-7 HELO MAKES BOLD RESCUE



LITTER STREAMED, HSS-1 HELICOPTER OF HS-7 APPROACHES DESTROYER BACHE WALLOWING IN HEAVY SEAS FOR RESCUE

WHILE GALE force winds lashed their hovering helicopter, an airborne Navy rescue team safely picked up an injured man from the deck of the destroyer *Bache* and transferred him to the carrier *Randolph* for treatment.

The airlift was made 200 miles southeast of Cape Hatteras while both ships were operating with Task Group Alfa. HS-7 provided the helicopter.

Ens. David D. McCarthy had been smashed by pounding surf against the destroyer's steel superstructure. Shipmates found him unconscious, bleeding so much his life was in real danger.

A hospital corpsman applied pressure bandages to halt the flow of blood from several head and facial lacerations. The ensign regained consciousness, and the *Bache* signaled the *Randolph* an urgent request for a doctor.

A *Randolph* doctor was dispatched by helicopter to the *Bache*. Numerous attempts to lower him from the aircraft to the destroyer's deck were made, but he could not be landed.

Ltjg. D. G. White, co-pilot of the helicopter, said, "The sea was against us. The *Bache* was rolling so badly we could see the length of its keel. I don't

see how those destroyermen kept on their feet."

But the severity of the injured man's wounds, and the resultant bleeding required a transfer to be made.

For nearly two hours the men of *Randolph's* deck force battled the elements, attempting to prepare a pulley-type highline so the injured man could be transferred to the carrier. Three attempts, involving changes of course and speed for the entire task group, failed.

Because *Randolph's* regularly-assigned rescue helicopter was undergoing



MEDICS ABOARD RANDOLPH SCURRY TO REMOVE INJURED MAN FROM HELICOPTER



RESCUED DESTROYERMAN IS RUSHED TO SICK BAY

repair, an HSS-1 helicopter was enlisted for the ultimate air transfer. Larger and less maneuverable than the rescue helicopter, this all-weather helicopter was stripped of its submarine detection gear so that there would be room for a six-foot litter.

A crew comprised of Ltjg. B. C. Lamberth, pilot, Ltjg. D. G. White, co-pilot, J. A. White, AD2, and L. W. Nash, SO3, crewmen, took off from the carrier. Thirty minutes later the HSS-1 had hovered into position above the rolling destroyer. White and Nash carefully lowered the litter in a sling to the ship.

When the litter was detached, the helicopter pulled away while the *Bache's* crewmen securely strapped Ens. McCarthy into the wire rescue basket.



PILOTS AND CREWMEN OF RESCUE 'COPTER

The destroyermen flashed the green approach flag to the helicopter four minutes later. The helicopter's rescue cable and hook were lowered to the rising and falling deck so that members of the *Bache's* deck crew could attach the basket to the hoist.

Four lines, one originating at each corner of the wire basket, joined at a heavy center ring, to which the destroyermen engaged a hook secured to the end of the helicopter's cable. The injured man was lifted with the aid of a mechanical hoist by White and Nash who swung it with difficulty out of the wind and into the helo.

Thirty-nine minutes after it was launched, the HSS-1 was again tied down on the carrier's flight deck and the injured officer was carried below to sick bay for medical treatment.



35-TON TRACTOR TOWS CONTROL TOWER AND GCA WANIGAN ON SLEDS ACROSS SEA ICE

## THEY MOVE AN AIRFIELD

CAN YOU imagine moving MOFFETT FIELD or NAS LAKEHURST to a new location within a matter of 24 hours? It has been done in the Antarctic.

The sea-ice runway at NAF McMurdo SOUND became unusable in January, the heart of Antarctic summer, when pot-holes began to develop. Large C-130 *Hercules* planes were expected by the end of the month. They would join the P2V *Neptunes*, R4D *Skytrains*, UC-1 *Otters* and helicopters already at McMurdo.

Under the leadership of Lt. Spencer C. Lawless, operations officer, and with the help of Richard F. Bollinger, ETC, and Erwin P. Rayfield, ACC, the airstrip was moved with remarkable speed.

Ground Control Approach radar mechanisms, the operations control tower, crash crew facilities, and all messing quarters already were mounted on sleds at the original airstrip.

Low ground pressure tractors hooked onto the sleds and began to drag them

at a snail's pace from the sea ice runway to the higher Ross Ice Shelf some ten miles distant.

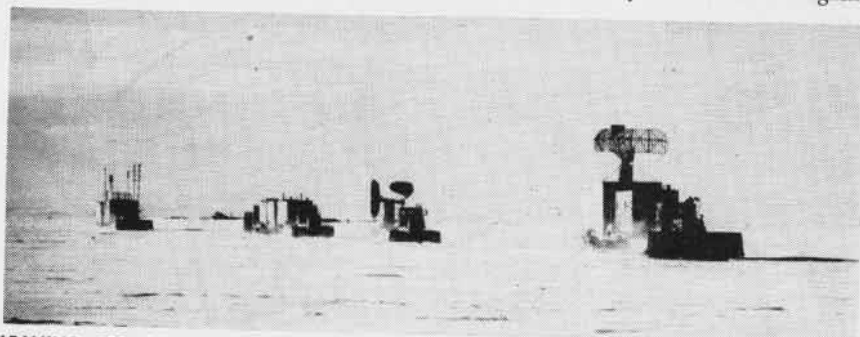
The move required considerable care by the tractor drivers assigned by LCdr. Frank D. Wilson. The radar receiving apparatus, the communications equipment and control tower stood to suffer great damage if their electronic parts were jostled.

Compounding the problem, the sled bearing the control tower was top-heavy because of its great height and bulky superstructure.

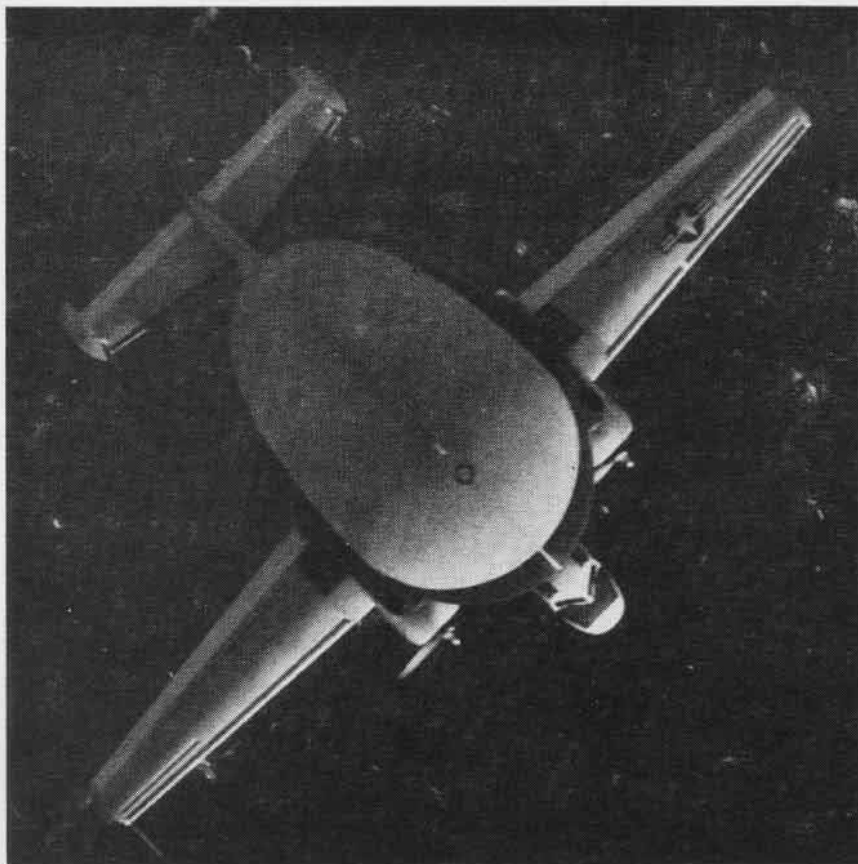
By comparison, three 5000-gallon and one 2000-gallon fuel tanks were easy to move.

Even the crash crew's mascot, a Malemute named Stormy, was affected by the relocation. Stormy had spent her entire life on the air strip and had to be transplanted to her new home in one of the sleeping wanigans.

Less than 24 hours passed from the time operations were secured at McMurdo until they were resumed again.



LEAVING OLD AIRSTRIP IN DISTANCE, TRACTOR TRAIN APPROACHES NEW STATION SITE



BROADCASTING RADAR PHOTO OF COASTLINE, WF-2 TRACER APPROACHES NAS QUONSET

## VAW-12 RECEIVES TRACERS

CARRIER Airborne Early Warning Squadron 12 received the first WF-2 Tracer to be delivered to an operational squadron in the Atlantic Fleet. Delivery was made January 20 at NAS QUONSET POINT.

En route from the Grumman plant at Bethpage, L.I., to Quonset, the saucer-topped plane broadcasted a radar picture of southern New England.

When LCdr. John Lavra landed the plane at Quonset he was greeted by RAdm. Benjamin E. Moore, ComFAir Quonset, Capt. John C. Lawrence, commanding officer of VAW-12, and a large segment of the press.

VAW-12, which normally has an operating unit on every large carrier in the Atlantic and the Mediterranean, spent many months of planning and preparation for receiving the WF-2's.

Last September the squadron sent a dozen pilots and controllers and a number of maintenance men to NAS

PATUXENT where an evaluation of the Tracer was conducted in conjunction with similar elements from VAW-11.

The Patuxent evaluation crews, which included landing signal officers, were the nucleus around which VAW-12 built its squadron training program.

Pre-flight classes for the WF-2 were organized with the assistance of NAS QUONSET's Mobile Training Division and covered all phases of maintenance and operations.

The training program enabled VAW-12 to put the Tracers to immediate use upon their arrival. The AD-5W Skyraider detachment now deployed on USS Forrester will be the last CVA unit to deploy. Hereafter, WF-2's will replace all AD-5W's in the Atlantic.

The WF-2 has many advantages over other carrier AEW types. It can remain a longer time on station, and improved radar increases effective range.

## HU-2 Gets HUS 'Copters Evaluation and Training Underway

Four Sikorsky HUS-1 helicopters have been delivered to HU-2 for evaluation. Three will remain at Lakehurst. The fourth went to Norfolk.

The utility squadron will put the HUS's to many uses. The helicopter's tremendous load capacity and increased speed will allow detachments to transfer personnel and cargo more expeditiously. The Norfolk detachment already has proved that the large helicopter is capable of picking up expended target drones.

The HUS is almost twice the size of its predecessors, the HRS and the HO4s. Powered by a Wright R-1820 engine, it has a maximum gross weight of 12,000 pounds. With normal atmospheric conditions prevailing, the helicopter can lift about 3200 pounds.

Its maximum speed is 128 knots and it normally cruises at 90-100 knots. It is equipped with some of the latest navigational equipment, such as Tacan, low frequency and ultra high frequency homing devices, and automatic stabilization equipment which allows "hands off" flying.

HU-2 pilots and crewmen are undergoing flight training in the HUS. Seven instructional flights are required by the squadron before the pilot can solo the HUS. Twelve flights are required.

Receipt of the HUS marks one of the Navy's first transitional steps in utility helicopters. Next year HU-2 will receive the turbine-powered HU2K.

## Huge Squadron is Formed Headquarters at Barber's Point

Hawaii's island of Oahu became home base for the U.S. Navy's largest single aircraft squadron on 1 February when a Wing and three early warning squadrons of the Pacific Barrier merged.

The new squadron at NAS BARBER'S POINT was designated Airborne Early Warning Barrier Pacific. It is commanded by Capt. J. B. Burks, former Chief of Staff to RAdm. Grover B. H. Hall, Commander Barrier Pacific.

The new squadron results from the consolidation of the Pacific Barrier's Airborne Early Warning Wing Pacific, Airborne Barrier Service Squadron Two, and Airborne Early Warning Squadrons 12 and 14. The merger involved some 2500 officers and men. In numbers, the squadron is Navy's largest.

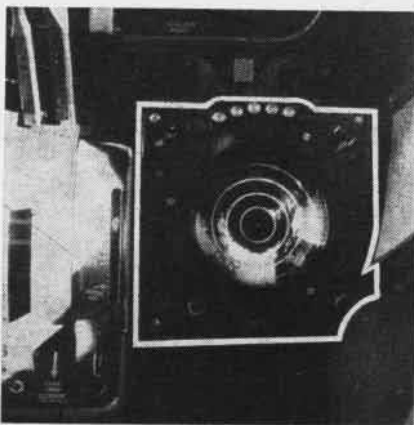
## Safety on Land and Sea CVA-62 Launches Drivers' Program

A gory movie in vivid color, entitled "Death on the Highways," is the firing-pin for a major safety program aboard USS *Independence*, CVA-62. The campaign was started to cut down the ship's share of the 600-800 Navy men killed in traffic accidents each year.

Every time an *Independence* crew-member receives a court summons for a traffic violation from the Shore Patrol or the civil police, the commanding officer, Capt. James W. O'Grady, is notified. The man is required to attend a series of lectures and movies. A more advanced school is planned for second offenders.

Designed for shock treatment, "Death on the Highways" shows mangled and burned bodies before they have been removed from the cars which carried them to their deaths. One young sailor, when asked what he thought of the movie, answered, "It's sure going to slow me down."

The program aboard ship is coordinated by a safety team headed by Ens. John Hayward and J. S. Walters, PNC, in close cooperation with Mr. C. B. Hare and G. T. Spain of Norfolk Naval Base public works department. Aim of the campaign is not to punish, but to instill in each individual an awareness of the danger of unsafe driving. All *Independence* men are encouraged to attend the course on a voluntary basis.



**NEW INDICATOR** of Sperry APN-59 radar, outlined above, has image 1000 times brighter; can be seen clearly in sunlight without hood. Cathode storage tube also holds targets longer, according to a company announcement.

## FAA Studies Human Factors Navy Flight Surgeon Heads Unit

Capt. C. E. Wilbur, MC, Navy flight surgeon, formerly with OpNav's Flight Safety Division, now heads the Accident Studies Branch, Medical Standards Division, Office of the Civil Air Surgeon, FAA. This office deals with "human factors" in aviation.

The Civil Aeronautics Board is responsible for determining the probable cause of civil aircraft accidents. When an air carrier accident occurs, investigating teams are set up, including representatives of the Federal Aviation Agency. The several teams involved

are: Structures, Power Plants, Weather, Operations and Human Factors.

It is to this last named team that Dr. Wilbur, or his representative from the Accident Studies Branch, is assigned. The Human Factors team studies aircraft accidents in order to reconstruct the events on the basis of aero-medical evidence. In some cases it has been the only evidence; in others it offers supplementary or corroborative data.

Ever since Wing Commander Bruce Harvey, British Joint Services Mission, spurred by the two *Comet* disasters in 1954, emphasized the need for retracing events by autopsies, this approach to reconstructing events from aero-medical evidence has been supported by leading aeronautical agencies.

Dr. Wilbur's unit is seeking information by the aero-medical route in these areas:

1. Causative factors in the air crew, for example, a heart attack or other incapacitating condition.

2. Reconstruction of the sequence of events by determining what happened to the people in the cockpit and fuselage. Did death occur prior to impact or by some later event or subsequent circumstance?

3. Injury correlation with crash forces, relating injury patterns to the kind of damage or destruction in the aircraft.

The Armed Forces Institute of Pathology has given enthusiastic support to the new Human Factors unit.



**AMERICAN SHOWMANSHIP** characterized the appearance of the carrier-based Navy Band of Carrier Division Three at several popular performances at Sasebo, Japan. The band is currently embarked in the USS *Bon Homme Richard* (CVA-31), flagship of RAdm. Andrew McB. Jackson, ComCarDiv Three and Commander Task Force 77. Under the



direction of Chief William A. McBride, bandmaster, the band played to full-house audiences estimated at over 6000 Japanese School children. The 17 musicians entertained their audiences with programs ranging from classical to dance music and jazz combo selections. Tape recordings by Radio Station NHK continue to carry the band's musical message.

# LETTERS

SIRS:

Cdr. Berree's letter in the February edition of *Naval Aviation News* concerning the accomplishments of VF-13 cannot go unanswered. With due respect to his fine squadron which has operated under some large-size problems, we in VF-74 have to report that the "Be-Devilers" flew 526 hours in November 1959.

It should be added that the record was established under some noteworthy handicaps, such as having six planes deployed on the USS *Forrestal* for most of the month, the necessity of grounding six planes for a week of boresight and alignment in preparation for "Top Gun," and a carqual commitment on the USS *Independence* at the end of the month.

In addition, I should like to state that over the 30-day period from 16 September to 16 October 1958, the "Be-Devilers" of Fighting 74 flew 614 hours.

We expect that VF-13 will have an even higher mark to shoot at in 1960.

C. L. JOSLIN, CDR.  
Commanding Officer

SIRS:

In the third paragraph of the article titled "Tailor-Made for Jets," on page 10 of the January 1960 issue, the runway length is given as 14,200 feet.

The correct length as programmed and built at NAS LEMOORE is 13,500 feet for each runway.

CAPT. W. W. MOORE, CEC, USN

BU DOCKS

SIRS:

We would like to answer a question posed by the Commanding Officer of VF-13 in the February *Naval Aviation News*.

Our answer to whether any F4D squadron has flown 500 hours in one month is most emphatically YES.

In April 1959, VMF(AW)-542 flew 677 hours; in June, 610, and in January of this year, following our deployment overseas, 504 hours.

During the first ten working days of February, we have flown 183 sorties for 308.9 hours without a cancellation owing to aircraft availability.

J. C. VANCE, JR., LCOL., USMC  
Executive Officer, VMF(AW)-542

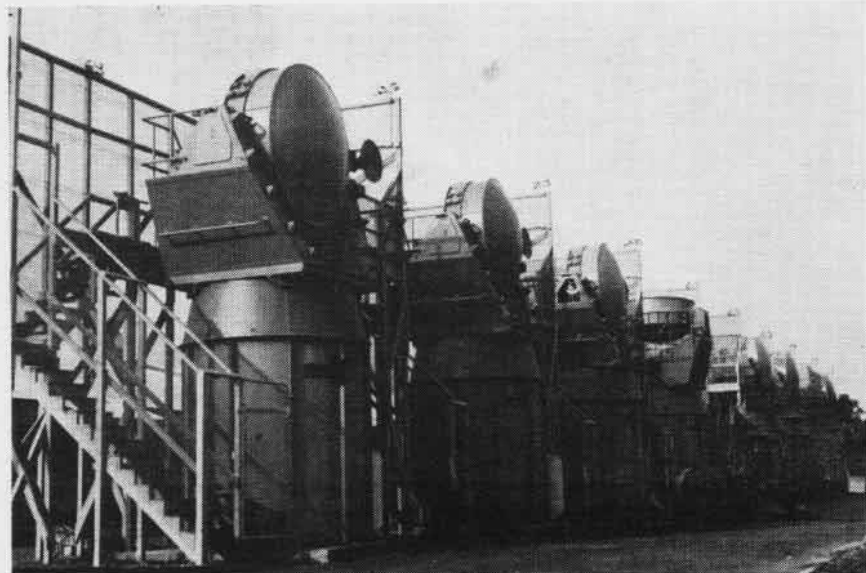
## Safety Awards Presented ATU's 222, 301, 402 Judged Best

Three units in the Advanced Training Command have received safety awards for exemplary flying safety records during the calendar year 1959.

RAdm. J. C. Clifton cited Advanced Training Units 222 and 402 at NAAS Kingsville and ATU-301 at Corpus Christi as "best in class."

Flying F11F *Tigers* out of Kingsville, ATU-222 flew 6,716 accident-free hours. ATU-301, flying AD *Skyraiders* at Corpus, flew 16,284 hours with an accident rate of 3.08. Kingsville's ATU-402, flying s2F *Trackers*, logged 23,469 hours with a yearly accident rate of 0.43.

Cdr. W. L. Coulter is OinC of ATU-222; Lt. Col. J. E. McDonald, ATU-301; Cdr. J. R. Jackson, ATU-402.



**SILENT SENTINELS** which one day will be used with the Navy's deadly ship-to-air Terrier missiles are tested at Sperry Gyroscope Company's MacArthur Field, Long Island, plant. These radars, called SPG-55, automatically acquire, "lock on," track and guide the missile to its target.

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## FROM NANNEWS' EYRIE

SINCE WE no longer dwell on the fifth deck of the largest office building in the world and inhabit a less lofty perch on the third floor of the Munitions Building (Room 3413), we cannot forbear a word about our late residence, the Pentagon. We enjoyed our eleven-year tenure in what has been irreverently called "puzzle palace," "concrete cobweb" or "five-sided wind tunnel."

In farewell salute to the huge edifice on the banks of the Potomac which even without us currently houses 27,500 workers—10,000 of whom are military—we pass on herewith some staggering facts from the *ANAF Register & Defense Times*:

"[The Pentagon] covers more than six million square feet of space, has 7600 windows, 65,000 light fixtures (of which 1000 burn out every day), has 200 acres of lawns and terraces, and the building itself covers 34 acres.

"Many of the Pentagon's messages are carried by men who ride large tricycles with square boxes behind. But the bulk of communication goes through the world's largest switchboard. The big board handles 270,000 calls a day to more than 50,000 telephones connected by 175,000 miles of cable.

"This is a big enough system to accommodate a city of more than 200,000 persons.

"If you decide to walk every foot of the corridors of the Pentagon, be prepared for a 17½-mile hike. Officials say the maximum distance between any two rooms is only 1800 feet—or about a six minute walk. It just seems longer.

"The distance around the outer edge of the building is a mile, and there are 150 stairways and 19 escalators.

"Most of the generals, admirals, colonels and privates... use the facilities of the six cafeterias and nine beverage bars for their coffee breaks. During an average day, they and their civilian colleagues drink 33,000 cups of coffee, 6000 pints of milk (may be an ulcer story there) and 6000 soft drinks."

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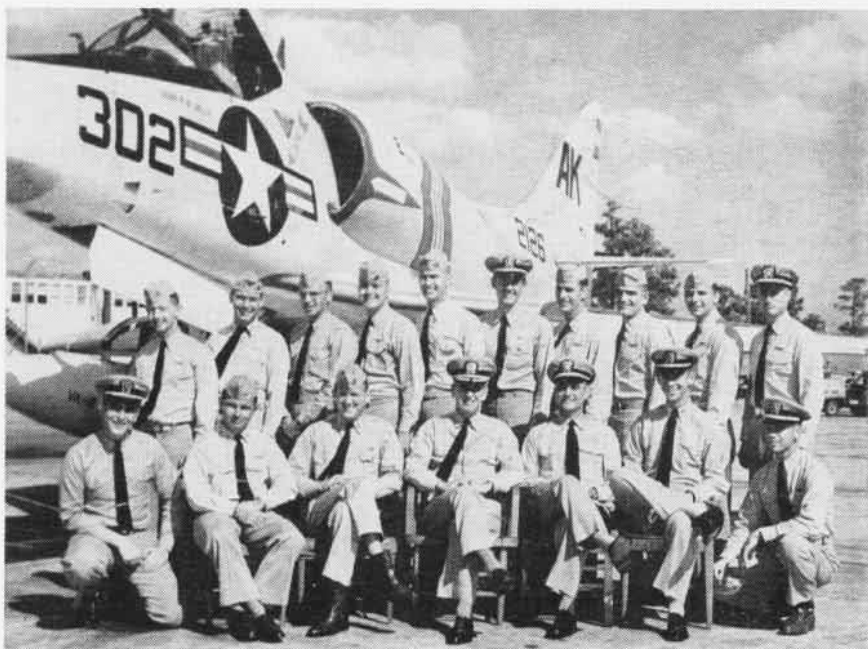


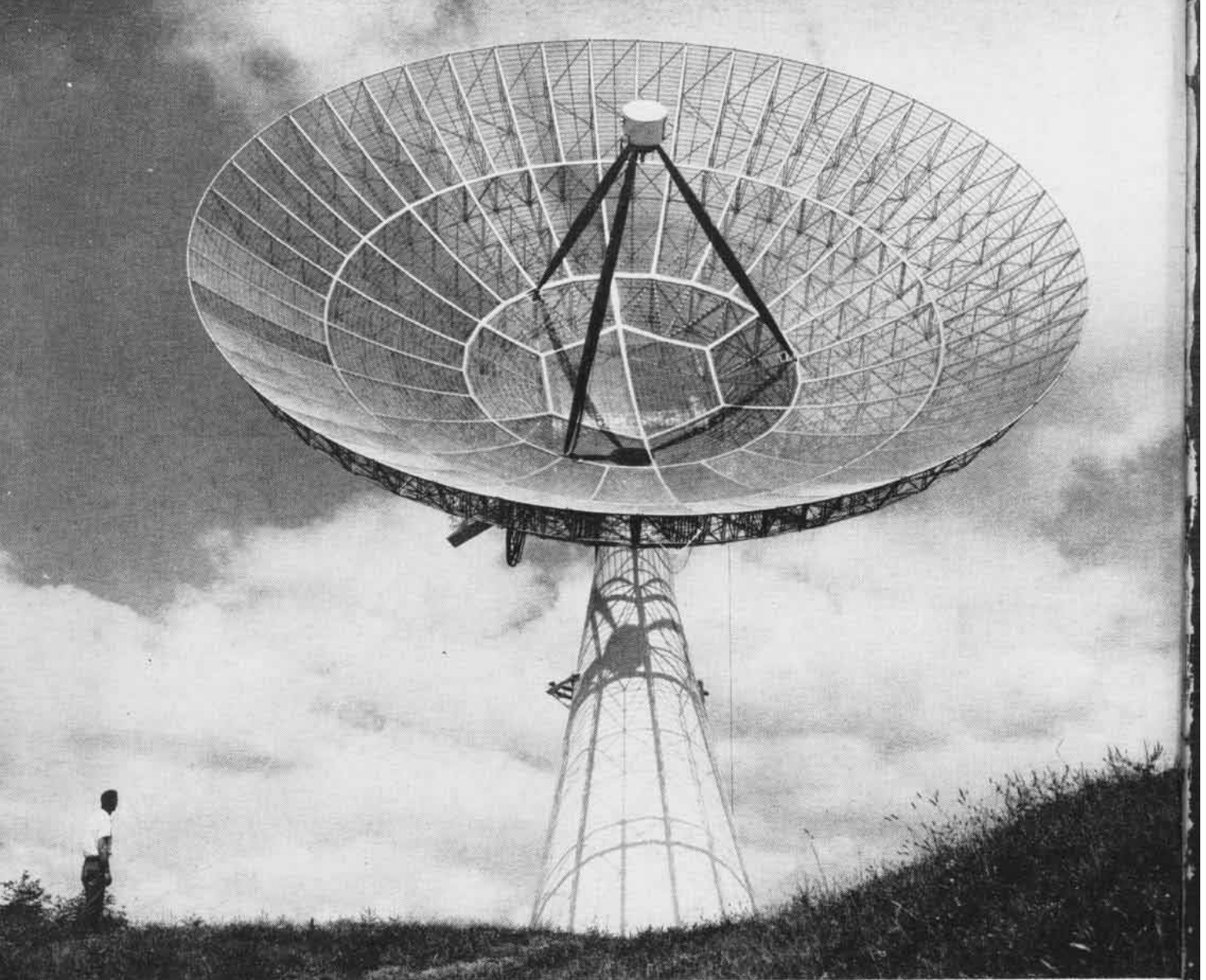
## SQUADRON INSIGNIA

Attack Squadron 12, headed by Cdr. W. B. Barrow, was the NavAirLant jet light attack entry at the 1959 Naval Air Weapons Meet. Lts. Joseph Malec and Richard G. Daly took first and second place in individual honors. VA-12 came in second as a team. It will deploy next summer aboard the USS Forrestal equipped with new A4D-2N Skyhawks.



VA-12





## BIG 'DISH' FOR RESEARCH

Naval Aviation News brings you this month another important article on Navy in the Space Age (p. 14). Covers this issue represent Navy's role in research. This large steerable radio telescope, operated by the U.S. Naval Research Laboratory at the Maryland Point Observatory, is one of the huge tools required in this day. The telescope was designed for studying the radiation of the sun and moon, for searching for radiation from the galaxy and for pinpointing optically invisible objects. The 84-ft. 'dish' antenna can trace celestial objects from horizon to horizon.

N. A. NEWS

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