

NAVAL AVIATION

NEWS



43rd Year of Publication

NOVEMBER 1961

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THE PILOT IS NOT OBSOLETE

Man is the maker, maintainer, and operator of machines of war . . . the best, most versatile and by far, the most reliable combination of sensing, deciding, acting devices we can hope to see for a long, long time. To put it directly, the man in the cockpit is still an urgent necessity for modern military operations. The missile has not replaced him, and the space age has certainly not made him obsolete.—Admiral James S. Russell, USN, Vice Chief of Naval Operations ★ ★ ★ ★

FORTY-THIRD YEAR OF PUBLICATION, NOVEMBER 1961

■ IN THIS ISSUE

- The Reserve Story** 7 *Growing pains, recognition, effectiveness and future of reserve officers and men are detailed in story and pictures.*
- Wings at Farnborough** 14 *England's impressive air show at Farnborough again attracts hundreds of thousands to see the pageantry and progress of British aircraft industry.*
- Vigilant Vigilantes** 19 *With the cry, "Professionalism is our business," VAH-3 learns the intricacies of a new jet attack aircraft, as told in a story by the squadron's Dick Cleveland.*
- Arctic Basin Probed** 23 *An intriguing study of the bottom of the top of the world searches out the sub-surface topography of the Arctic Ocean.*
- Ready Planes** 30 *Goggles, goggles and helmets mean much at NAS Pensacola's O&R department, but are only a small part of keeping up with aircraft maintenance in the program called PAR.*
- Utility/Transports** 33 *Hal Andrews views utility aircraft with the eye and pen of a dedicated historian.*

■ THE STAFF

Cdr. George F. Rodgers Head, Aviation Periodicals Office



Cdr. Paul Jayson Editor

Izetta Winter Robb Managing Editor

LCdr. R. J. Massey, Associate Editors
Scot MacDonald, JOC

Cdr. Oliver Ortman, Harold Andrews Contributing Editors

Dorothy L. Bennefeld Assistant Editor

James M. Springer Art Director

■ COVER

From Fleet Air Photo Lab (VU-1) in Hawaii comes picture of CVG-9 aircraft. In article on utility/transport planes, pictures of XRE-1 and R2D-1 are by courtesy of Dr. V. J. Berinati; XR20-1 and GK-1 were furnished by Mr. P. M. Bowers; JA-1 by Mr. Clay Jansson.

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NAVAL AVIATION NEWS

Bombing Derby This Month A3J to Enter 'Might' vs 'Mite'

The Mach 2 A3J will make its debut in inter-type competition at the 1961 "Bombing Derby," according to information from Capt. Joseph M. Tully, Jr., ComHatWing One. The derby, to be held at NAS SANFORD, Fla., 6-11 November, will be the ninth annual running of the event.

The *Vigilante*, flown by VAH-3 pilots, will compete in the "Might" vs. "Mite" loft bombing contest. In the past, the event has been a "two horse race" between the A3D and A4D.

CVSG-60 Given Trophy Rhode Island Navy League is Donor

In September aboard the USS *Essex* (CVS-9), Cdr. Robert L. Wolf, Commander Carrier Anti-submarine Air Group 60, accepted the Navy League's Anti-submarine Warfare Trophy from Mr. Harry Bardsley, 1960 president of the Rhode Island Navy League.

This perpetual trophy, which was offered to the Chief of Naval Operations by the Rhode Island Navy League, is to be awarded annually to the outstanding ASW air group in the Atlantic Fleet based on an evaluation by Commander Naval Air Force, U.S. Atlantic Fleet. The trophy, a sterling silver Revere bowl, is engraved and will permanently bear the name of the winning air group for each competitive year.

CVSG-60, based at NAS QUONSET POINT, Rhode Island, is the first to win this competitive trophy for "Excellence" in anti-submarine warfare.

VS-34, a squadron of Air Group 60, was the recipient of additional awards during the ceremonies. RAdm. Benjamin E. Moore, Commander Fleet Air Group Quonset, presented the squadron's C.O., Cdr. David M. Saunders, with the "E" pennant on behalf of Commander Naval Air Force Atlantic

Fleet, VAdm. Frank O'Beirne. RAdm. R.S. Purvis, USN (Ret.), presented the squadron with the Isbell ASW Trophy.

Seven Winners Announced Squadrons Receive Isbell Trophy

Winners of the third annual Capt. Arnold Jay Isbell Anti-submarine Warfare Trophy have been announced by their respective commands.

The four winners in the Atlantic Command are Patrol Squadron 56, based at Norfolk; Helicopter Anti-submarine Squadron Five and Air Anti-submarine Squadron 34, both of NAS QUONSET POINT; and VP-8, based at Patuxent River, Md.

Winners in the Pacific Command are Helicopter Anti-submarine Four, NAAS REAM FIELD, Patrol Squadron 42 and Anti-submarine Squadron 38,

both of NAS SAN DIEGO, California.

First presented in 1959, the trophy honors the late Capt. Arnold Jay Isbell, USN, WW II hero who received the Distinguished Service Medal for "meritorious and distinguished service" as commanding officer of the USS *Card* (CVE) and as Anti-submarine Task Group Commander from 27 July to 9 November 1943.

The winning squadrons receive an engraved plaque in lieu of the trophy which remains at the Navy Department, Washington, D.C.

Presented by the Martin Company of Baltimore, Md., the plaques go annually to the squadrons achieving the highest degree of excellence in anti-submarine warfare. Squadrons receive their engraved plaques at the ceremonies in which they are presented with Battle Efficiency "E" Awards.



USS CORAL SEA (CVA-43) became the first Pacific Fleet carrier to recover the Phantom II when LCDr. Patrick L. Working, pilot, with LTjg. B.R. Young as RIO, both of VF-121, landed an F4H down on her deck. Navy's record-holder, taxing on deck of Coral Sea, belongs to VF-114 which was undergoing RAG training in VF-121 when recovery was made. While aboard Coral Sea, the F4H was flown by VF-121 to qualify pilots and evaluate aircraft carrier performance.

BEWARE OF BE-DEVILERS



In formidable formation, the forces of Fighter Squadron 74 file in silhouette lines along the nose and fore of the wings of the first F4H Phantom II delivered to the squadron. The 'Be-Devilers' will be the first U.S. Atlantic Fleet all-weather interceptor squadron to take the Mach 2 F4H aboard a supercarrier for operations. VF-74 is stationed at Oceana.

Faster, Safer 'Cat' Shots Hancock Refurbished and Ready

After four months and four million dollars spent on a complete facelifting, USS *Hancock* (CVA-19), senior member of Pacific Fleet attack carriers, left Puget Sound Naval Shipyard and headed for her home port, Alameda, Calif., where she arrived 8 September.

Hancock's new equipment will get a thorough testing off the California coast before the ship departs for Pacific operating areas.

A new type steam catapult accumulator system will provide faster and safer catapult shots. The new accumulators also mean a saving of approximately 33% of the *Hancock's* fresh water while at sea.

A combination of plywood and aluminum, instead of the usual teakwood, is being tested on the forward part of the flight deck. Besides being much safer, the plywood-aluminum matting will last much longer than the old material, thereby eliminating many replacements.

Other improvements included re-

weaving of the ship's five arresting gear cables and relining the boilers with a new type of brick. In addition to the experiment on the flight deck, the conventional planking was remodeled. Steel and iron were scraped, polished and shined. New paint replaced old.

For the crew's recreation, the ship's closed circuit radio and TV stations were completely overhauled. *Hancock* is practically a brand new ship.

SecNav Honor for BuWeps Excellent Safety Record Noted

The Bureau of Naval Weapons has received the Secretary of the Navy Award for Achievement in Safety for the year 1960. The Honorable Paul B. Fay, Jr., Under SecNav, presented the award to RAdm. W.A. Schoech, Deputy Chief of the Bureau of Naval Weapons, in ceremonies at the Pentagon.

The award recognized the success of BuWeps and activities under its management control in attaining an accident frequency rate, severity rate, and a motor vehicle accident rate lower than the Navy-wide average.

USMC Reactivates MAG-31 Beaufort, S.C., to be Home Base

Another Marine Aircraft Group has been assigned to MCAS BEAUFORT, S.C. This is the second MAG assigned this station.

The new unit, MAG-31, is in a cadre status with a strength of approximately six officers and 75 enlisted, allowing for an orderly input of supply items and support equipment.

The group is expected to be fully operational by 1 July 1962. It will then consist of a headquarters and maintenance squadron, an air base squadron, two fighter squadrons, an attack squadron and an air control squadron. The two fighter squadrons, the attack squadron, and the air control squadron are already in existence and will be reassigned from other Marine units.

Personnel strength at MCAS BEAUFORT has been increased by 99 officers and 1235 enlisted as a result of this activation. Existing facilities at the air station are adequate to support the new unit. No new construction projects are considered necessary, according to Marine Corps Headquarters.

MAG-31 was inactivated in 1958 at MCAS CHERRY POINT following service during WW II and in Korea.

Five New Movies Released Available for 'Hometown' Showing

Release of two films on "History of Naval Aviation" (MN-8414A and MN-8414B) and three other motion pictures of public information merit has been announced.

These films, and many others, are available to service members for use as visual aids for speeches or other public appearances, especially when visiting hometowns on leave.

Other available titles include: "Summer Incident" (MN-8982), "The Sixth Fleet—Force for Peace" (MN-8529), "The Navy's Blue Angels" (MC-8863), "Jet Carrier" (MC-8997), "Sub Killers" (MC-9614), and the newly released "Portrait of Antarctica" (MN-8942).

A complete listing of all Navy films available for public showing is contained in the catalogue, *Navy Films for Public and Television Showing*.

Any Navy officers or men who want to become volunteer seapower salesmen can check out these films from their Naval District film libraries.



GRAMPAW PETTIBONE

Low Blow

After an extensive briefing two A4D-2's took off on a hi-low level navigation training hop. The flight was scheduled to end with a simulated low-level, high-speed, bombing run-in on a large dam. The instructor pilot, who was to fly the chase plane, had reiterated, "You should know the area from IP to the target like your back yard."

The student pilot flew a perfect hop, hit his IP right on the nose and passed over the target with wings level at about 200 feet and 500 knots. Right then, the chase pilot who was flying a higher trail position saw a puff of brown smoke come from the lead plane which had immediately gone into a steady wings level climb.

The student asked the chase pilot to look his plane over for damage, for he'd hit something. Inspection revealed that he must have hit a wire cable, for the canopy was gone, part of the VHF antenna cut away, and the vertical stabilizer had been sliced half way through. The ejection curtain was pulled out, but the handle was caught on some jagged Plexiglas. There seemed no danger of an accidental ejection.

They decided to try for the home base. At a greatly reduced speed and at 7000 feet, they made the trip safely. Telling the tower of his difficulty, the pilot then lowered the gear, flaps and speed brakes at 4000 feet and made a long straight-in approach to an uneventful landing.



Grampaw Pettibone says:

Now hear this! There have been 290 sorties flown to this same target in the last 24 months by this outfit, and all of 'em missed the wire and no one ever saw it! This cable had two $\frac{3}{4}$ inch strands, had been there since 1922 and is only 1000 feet from the target dam. Investigation revealed the pilot had hit it at an altitude of 150 feet.

Power lines are not shown on aeronautical charts and any low level train-



ing area better darn well be checked over pretty carefully before it is approved for minimum altitude use. Until you're SURE, keep those minimums UP!

Seems to me that 4000 feet is a little low to first check the plane in landing configuration. Wonder how he figured he'd get hold of that hung-up ejection curtain if everything turned to a can of worms?

Long, Long Minutes

An F3H pilot ejected at an altitude of 1000 feet a few minutes after being catapulted from the deck of a big CVA. His engine had flamed out only four miles ahead of the ship during initial turn for rendezvous, and he actually had little time for anything more than a quick "Mayday" before positioning for ejection. He did, however, try one relight attempt, used up 500 feet of precious altitude in the process, and at that point, he pulled the curtain.

The seat functioned as advertised, and the chute blossomed at about 800 feet altitude, so he had plenty of time to prepare for a water landing. The water was rough and white caps showed up everywhere, but his water entry was uneventful, for he submerged only about six feet and popped right up.

Releasing both rocket jet fasteners he then pulled both toggles on his Mark 3c life preserver, removed his flight gloves and APH-5 helmet and relaxed, floating easily in the water.

The parachute was partially submerged with shroud lines floating all around him so he figured if he remained fairly quiet while he carefully picked them away he'd avoid entanglement. He was right. Things cleared up in very little time, and he now was able to easily remove the life raft from its container and inflate it.

Resting comfortably in the raft after two tries to get in it, he now drew his .38 pistol and fired five tracer rounds straight up in the air to give the ship a position on him. Reloading the gun he fired two more rounds at slow intervals.

A couple of F3H's were now circling him at low altitude, so he calmly pulled his survival seat pack aboard the raft and was breaking into it to get the emergency radio and a smoke flare when the rescue helo suddenly appeared and came to a hover nearby.

Abandoning his raft, he swam to the sling which the copter men were trailing slowly towards him and was promptly and efficiently hoisted aboard. Returned safely to the carrier deck, he found only eight minutes had elapsed from flame-out to rescue and return to the ship!



Grampaw Pettibone says:

This man didn't drag his feet once he made up his mind to go. He accomplished more in the few minutes he spent in the water, rough seas, whitecaps and all, than the average man can do with the same gear in a calm pool with a survival instructor lookin' on.

One thing he proved: DON'T PANIC. Get that life vest inflated first and work on those sticky shroud lines CALMLY. It can mean your life. This gent knew every piece of his survival gear and how to use it.

How's YOUR score in this life-or-death part of our business?

ILLUSTRATED BY *Osborn*

Blunder Birds

A couple of AD-5's headed east from their West Coast base, bound for an inland target area. They each had six HVAR 5-inch rockets and a rack of bombs aboard, and it was a beautiful afternoon for an ordnance hop.

The wingman had removed his oxygen mask during the climb-out and began to feel slightly uncomfortable and disoriented. As they cruised over a desert valley, he became so dizzy he began to fear he would lose consciousness and seemed unable to control the *Skyraider* smoothly. He called the flight leader and advised him of his predicament and said he was going to land at a small civilian field below.

The flight leader told him to go on 100% oxygen which the pilot did, although he never put the mask on, just held it up to his face. The stricken pilot then made an uneventful landing while the leader circled.

The flight leader observed his landing, saw the engine shut down and the pilot wave, so he flew on to the target and expended his ordnance.

leader would fly his former wingman's plane out of there.

They had a little trouble with the Operations Duty Officer. Seems that little civilian field isn't listed in the "Enroute Supplement" or "Flight Planning Document" and is not approved for landing by military aircraft. They disregarded his warning and went anyway.

The trip to the desert field and landing were uneventful. Starting up the sick man's plane, the flight leader taxied out as the C.O. got his cranked up with the still ill pilot aboard as a passenger.

About 600 feet from the end of the runway while taxiing downwind the AD seemed to settle quickly and then abruptly nosed up! It had broken through the runway surface! Three feet deep! The Ops Duty Officer had been right. The runway was only $\frac{3}{4}$ -inch of asphalt over rolled desert sand!



Grampaw Pettibone says:

Great jumpin' Jehosaphat!
These men all showed about as much



The Three Gooneybirds
SNAP Pop CRACKLE

On the way home he returned to the small field, landed and was told by the sick pilot that it was impossible for him to fly. Taxiing out after telling his buddy he'd send help, the flight leader took off and returned to the home base.

After the C.O. of the pilot's outfit heard the story, he decided to take the pilot back to the desert strip in another AD-5. The sick pilot was to ride home with the C.O. and the flight

sense as a flock of gooney-birds. The wingman lucked out on his landing and his leader was sure dedicated. Imagine flying on to complete the hop! No radio calls to the home base—get a helo out there with a doctor aboard—just blunder through.

The airfields listed in the "Enroute Supplement" have been carefully screened by both the Navy and USAF. Any not listed are TABOO and for good reason. This quiet little airfield now needs 600 feet of runway and the

parking areas resurfaced. A real can of worms, this fiasco. That's what comes of tryin' to run your own private air-rescue service. Better to turn the job over to the Pro's.

Up or Down?

After a normal pre-flight and engine start, a young FSU pilot started to taxi out for a scheduled hop as escort on a gunnery exercise. As he left the chocks, he depressed the nose gear steering button to make a right turn onto the taxiway; but before he even used rudder to start the turn the *Crusader* veered sharply to the right! He used hard left rudder to straighten out and completed the turn. Taxiing out was no problem although he had to use nose gear steering gently, for it pulled sharply to the right whenever the button was depressed.

Take-off and the entire flight were normal. He made a practice field mirror approach to a landing, touching down just short of the mirror. Immediately the nose started bumping and bouncing and pulling to the right. He applied left brake in an attempt to hold it straight, but as the *Crusader's* speed decreased, the pull to the right became more severe. Suddenly the left tire blew and a violent skid to the right developed.

The pilot now tried nose gear steering in desperation but it didn't help a bit. The FSU slid off the right side of the runway, dragging its left wing, and just before hitting the dirt, the pilot cut the engine.

The nose dug in and, as the port wing tore off in one big piece, the fuselage rolled over and stopped, almost completely inverted.

The pilot released his harness, fell down onto the canopy and, after what seemed an endless period of time, managed to chop his way through the Plexiglas with his knife and crawl to safety. The ever-present thought of fire really spurred his efforts. As he stood up beside his dead bird, the first fire rescue truck drove up. He'd been less than a minute inside!



Grampaw Pettibone says:

Great holy cats! Seems this lad needs a little guidance as to what constitutes a downing gripe! Of Gramps has polled quite a few FSU pilots and some say they'd go, some say NO. After this million-dollar lesson, it SHOULD be on EVERY outfit's downing gripe list! I suppose everybody has such a list—or do you?

HURRICANE CARLA CUTS CHAOTIC COURSE

A BLOWZY WIND named *Carla* churned Caribbean waters during the week of 4 September, and was detected by an unmanned weather station (a Navy Oceanographic and Meteorological Automatic Device—NOMAD) anchored in 11,000 feet of water in the Gulf of Mexico. She was studied apprehensively by Miami-based Hurricane Hunters, and inexorably pushed her destructive course northward. By early morning of the 7th, *Carla* was reported off Mexico's Yucatan Peninsula and was located next day northwest of Cuba. Then the order was given Gulf and East Coast commands to evacuate aircraft.

As the storm raged, CinClantFlt formed Task Force 135, consisting of the carriers *Shangri-La* and *Antietam*, the destroyers *Compton* and *Gainard*, and the attack transport *Francis Morton*. RAdm. F. J. Brush, ComCarDiv 6, was placed in command.

Commandant 8ND, in the meantime, set up communication centers at the Naval Station and the Naval Reserve Master Radio Control Station in New Orleans. Radiomen at these two stations were on 16-hour shifts to handle the sudden surge of messages. Over these circuits passed reports on the storm's movement, along with requests for aid and supplies.

The communications network spread to stations at Houston, Beaumont, Port Arthur, Victoria, Corpus Christi, Waco, and Austin, Texas, and Lake Charles, Lafayette, Crowley, Houma, Monroe, and Bogalusa, La. Coast Guard and Air Force units joined the network to augment *Shangri-La*, *Antietam*, the destroyers, and *Morton*.

Eleven Whiting Field hospital corpsmen joined the *Shangri-La* and were among 80 corpsmen drawn from the Pensacola area for duty with Task Force 135 until the emergency passed.

While still at Pensacola, the *Antietam* tied up to load emergency personnel, supplies and equipment. The *Shangri-La* anchored in the bay to await her complement of Navy and Marine Corps helicopters. *Compton* and *Gainard* were refueled by *Shangri-La* and dispatched to Galveston to render all assistance possible and to provide advance reconnaissance at the disaster scene. The *Francis Marion*,



MAN MOORS UNMANNED WEATHER STATION

loaded with disaster relief material and with space available for 2300 passengers, departed Guantanamo Bay and arrived in the Galveston area on 14 September.

Involved in the Pensacola loading operations were 27 Marine helicopters, 60 Marine pilots and 110 Marine enlisted men from New River, Jacksonville, N.C., as well as one infantry company, part of the Second Marines based at Camp Lejeune. Twenty doctors and 40 hospital corpsmen, as well as hospital supplies, were embarked in each of the carriers.

On the scene, as the hurricane's winds moderated sufficiently to permit air operations, *Antietam* transported urgently needed medical supplies, water and food. Two Marine helicopter squadrons flew continuously in the two-day stay, carrying air search parties and special supplies to inland communities. Over 350 cats were airlifted to a high school in Texas City, Texas, for families made homeless by the storm. Then medical technicians aboard, were dispatched to assist in inoculating some of the people of Port O'Connor, Texas, one of the cities hardest hit by the fury of *Carla*. Over 300 gallons of water, much-needed vaccine, and other medical supplies were flown to *Carla's* victims.

After an early helicopter flight over the coastline to determine the extent of damage and to search for stranded victims, Daniel G. Kelly, HM2 from NAAS WHITING FIELD, reported: "Much of the area is still under water;

a lot of dead cattle are floating around, people are stranded on bits of high ground, and a 50-foot dead whale has been washed up on the beach."

Corpsmen, put ashore at Point Bolivar, Texas, used an old community center as a dispensary and administered typhoid shots. They also helped chlorinate the town's drinking water and distributed C-rations. In all, the corpsmen of Task Force 135 gave approximately 25,000 typhoid shots to people in the stricken area.

IN TEXAS CITY, the Falstaff Brewery was hit hard by the storm. Cans were blown over a wide area. Corpsmen noted that people, without fresh drinking water, picked up the cans and drank from them. This, one commented, was a safe supply of liquids.

When word was received that *Carla* might hit the Texas coast at or near NAAS KINGSVILLE, 91 planes were sent either to Laughlin AFB or on cross-country training flights. Work crews were dispatched immediately to tie down all loose objects, windows were boarded, and the station took on the appearance of a ghost town.

Military dependents were notified to come to the station when Hurricane Condition I was officially set. The BOQ and the Petty Officer Barracks filled with dependents of all ages.

By storm's end, Capt. R. H. Matthew, Jr., commanding NAAS KINGSVILLE, said: "I would like to commend all hands for their outstanding performance of duty during Hurricane *Carla*. Well done to all hands."

Said RAdm. Brush to all units of the task force: "I take this opportunity to express my appreciation and admiration to all participating units for the inspiring spirit which has prevailed . . . and contributed so much to the success of our mission."

And it was a thoughtful Thomas R. Evans, HM1, of NAAS WHITING FIELD who commented on the over-all effects of Hurricane *Carla*. "The people were well warned in advance of the storm," he said. "The evacuation was orderly and prompt. However, some didn't take enough food to last the length of time they were away from their homes. We can learn a lot from this emergency useful in preparing for future ones."



NORTH-LOOKING VIEWS OF SEATTLE RAMP, 1931 VS 1961, ILLUSTRATE PROGRESS MADE IN THE NAVAL AIR RESERVE PROGRAM



NAVAL RESERVE AVIATION





RESERVE SAILORS AT SQUANTUM BEACH TG SEAPLANE IN 1928

FACED WITH a prolonged deadlock with Russia over the Berlin situation, the United States has issued active duty orders for thousands of Navy, Army, Air Force and National Guard Reserves.

For many "citizen sailors," airmen and soldiers, this will be the third time in uniform. Many fought and flew together through WW II and Korea.

This call-up is completely different, however: there has been no declaration of war, nor even a call for "police action." There is no "hot front" to which they will be sent.

The Berlin "add-on" is being made at the request of the President, who asked for the addition of up to 250,000 men to the Armed Forces in the face of the threats to peace.

Secretary of Defense Robert McNamara ordered the reserves to active duty after a Congressional Joint Resolution authorized the build-up. The resolution grants permission to call a quarter million men for a period of only one year.

The 1961 recall represents a departure from earlier concepts of the reserve program. The thought that reserves would be used only in a "total mobilization" condition, or emergency situation, now has been laid aside.

The Naval Air Reserve has sent 18 squadrons into active duty service during the current crisis. No Marine Air Reserves are slated to be recalled.

This, then, is Naval Aviation News' salute to the Naval Air Reserve in the Golden Year of the Golden Wings.

Naval Air Reserve Beginnings

The Naval Air Reserve has been a force "in being" for 45 of the 50 years of Naval Aviation history.

With Europe at war, and with Pancho Villa tickling at the United States' underbelly during the 1914-1916 period, the addition of an "aeronautic service" to the Naval Militia of the various states was proposed and effected in 1915.

The aeronautic group, however, had to form without funds, aircraft or airfields. Tentative plans were made for flight training for Naval Militia members that year. But most of the reserve airpower developed from local civilian plans with funds donated or raised by subscription.

By 1916 the Naval Reserve Aviation component had evolved into a loose organization of ten state-run militia units made up of aviation enthusiasts looking for air adventure and flight time. To get started, units borrowed

aircraft from any available source. Glenn Curtiss, who sold his first (A-1) craft to the Navy in 1911, offered aircraft at "cut prices" and even offered to instruct one pilot per militia unit free of charge.

When the appropriations act of 1916 established both a Navy Flying Corps and a Naval Reserve Flying Corps, the militia enthusiasts were urged to join either the regulars or the reserves to receive training.

In 1917, of course, American aviation was considered to be "far behind" that of Europe. England had a reported force of 3000 airplanes and some 18,000 members in aviation units, for example, and there were thoughts that even that number was insufficient for conduct of the war.

In 1916, just five years after the first Navy aircraft was ordered, the Aviation Branch of the U.S. Navy was like a



EARLY FLYING BOAT, PN-7, SERVED AS CREW TRAINER IN 1930'S

crawling infant trying to climb up on two feet and walk in the dark.

The "family" was still trying to figure out what to do with the new "child," what household chores to assign it when it did come of age. There were many who wondered if the Navy had any use for the flying machine.

In the government's appropriation act of 1916 (Fiscal 1917) the sum of one million dollars was set aside for the aeronautical organization. At that time the Navy had six airplanes, two were assigned to the battleship USS *North Carolina* and four were at the Naval Aeronautic Station, Pensacola. (There were many "flying boats," too.) The act limited the number of persons to serve in the aeronautic organization to a total of not more than 48 officers and 96 men, plus not more than 12 Marine officers and 24 Marine Corps men.

Thus it was that on 6 April 1917, the total manpower assigned to Naval Aviation consisted of 48 officers (including six Marines) and 239 enlisted men.

As America with its European allies went about the frightening business of waging WW I, there was knowledge at home that we lagged behind the Europeans in aircraft construction, numbers of flyers and, in general, the art of making war from the air.

The Pensacola training station was equipped to train only 64 pilots and 64 enlisted aviation men each six months.

Establishment of the Naval Reserve Flying Corps in 1916 had prompted students in several colleges to start

"flying units." The threat of general war with Mexico had caused college men to wonder how they could serve their country; flying had the greatest appeal for them.

The first Yale Unit, organized by Trubee Davison, had to lay down its own program, find seaplanes to fly, and find a place to fly from. The airplane and the flying facilities of the American Trans-Oceanic Company, owned by Rodman Wanamaker, were put at the disposal of the Unit.

In the summer of 1916, the group flew an early Curtiss flying boat at Peacock Point, Locust Valley, Long Island. By fall, four members of the unit had learned to fly alone and the remaining members were about ready for solo. That fall the unit took part in maneuvers off Sandy Hook with destroyers, battleships and a group of naval reserve coast patrol boats. Said Davison, "This work was important in several respects. . . . It demonstrated the value of aeroplanes in locating hostile ships; . . . it proved that mines could be located far more efficiently with seaplanes than by surface craft, and it showed to the Navy that civilians were not only interested in developing the aviation branch of naval warfare but were devoting their time and energy to that end.

"In March 1917, the Navy Department urged us to enlist in the Naval Reserve Force. . . . This was done . . . (and) . . . on 28 March, the Unit left college and began the actual war training in the south (West Palm Beach, Fla.). At this point the Navy began to contribute equipment and personnel which were of inestimable value," Davison reported later in an account of the Yale Unit's exploits.



CURTISS-BURGESS N-9 GAVE RESERVES FLIGHT TIME, THRILLS

On 1 June 1917, the Yale Unit moved to Huntington, Long Island, and piled up individual flight time to acquire 25 hours of air work before taking the Naval Aviators' tests. In August, two members of the unit were ordered to France, the first Naval Reserve Flying Corps members to reach Europe for duty.

While the Yale Unit is generally considered as the first Navy Reserve Flying Corps group, other colleges and universities had initiated similar flying clubs and made use of "borrowed" or donated equipment and instructors.

Artemus L. Gates, of Yale, is listed as the earliest NRFC aviator with the designation as Naval Aviator #65. (Gates later became Assistant Secretary of the Navy (Air) and

Under Secretary.) Naval Aviator #66 designator went to Robert Lovett, Yale, later to serve as Assistant Secretary of War (Air) and Secretary of Defense. Still another Yale member, David Ingalls, America's only Navy Ace of WW I, Naval Aviator #85, later served as Assistant Secretary of the Navy (Air).

Princeton's unit was trained in Toronto, Ont., with one of its members, James Forrestal, slated to be designated as Naval Aviator #154 and still later to become the first Secretary of Defense.

Training centers opened at bases of the Naval Militia at Squantum and Bay Shore. Base expansion located patrol stations along the Atlantic Coast from Chatham, Mass., to Key West, Fla., and soon spread south to Coco Solo and north to Halifax.

Before the end of June, the expansion of air training showed that pilot training had commenced for 25 men at Squantum, 20 at Newport News, 25 at Bay Shore, 27 at Huntington, 20 at Akron and 20 at Camp Borden. These were in addition to the 15 at Pensacola, which was the primary training base for the U.S. Navy. Planes were in short supply and there were mounting technical problems in the industry, both in the manufacturing of engines and in the matter of patents relating to airplanes.

In the 19 months between declaration of war and the signing of the Armistice, the Navy trained more than 6000 aviation specialists, including 2000 aviators, and built up its enlisted aviation strength to 30,000.

While early arrivals in Europe had to fly foreign-built aircraft out of necessity, the American aircraft industry in one year developed its production capability and furnished more than 200 seaplanes and landbased aircraft.

The bulk of the aviators necessarily were reserves. The early regulars who had completed flight training were needed in the Fleet to man the battleships and to take charge of the airfields that sprang up to train the new NRFC arrivals. Lt. Marc Mitscher, Naval Aviator #33, for example, was the commanding officer of the stations at Rockaway and Miami. Lt. P.N.L. Bellinger, Naval Aviator #8, took charge of the training at Hampton Roads.

In 18 months the Navy's flying forces had been established at some 20 bases abroad, attacked or sunk 12 submarines, had flown almost 2.5 million miles of coastal



MR. FORRESTAL SPEAKS AT 1941 COMMISSIONING, NAS NEW YORK



F4U CORSAIRS WERE USED IN WW II, AGAIN IN KOREA



RESERVES ACQUIRED F6F HELLCATS FOR POST-WAR TRAINING



50 LONG HAS SERVED AS THE RESERVES' TRANSPORT AIRCRAFT

patrol, had dropped more than 100,000 pounds of bombs on submarine pens and bases, and had commenced making land plane bombing drops on non-Navy targets inland.

In summation, one Navy historian said of the Navy's air arm: "We didn't destroy many submarines. We didn't drop many tons of bombs on enemy targets. We did build an enormous number of planes, motors and bases. We trained an unprecedented number of flyers and mechanics in an art still in its youth. We forged from very humble beginnings a major offensive and defensive naval weapon in those 18 months of the war."

Between Wars in the Reserves

It had taken us more than a year to get ready to fight the air battle of WW I. But we had learned that we could organize our industry for a massive production program, and we also learned that aviation duty specialists and pilots could be trained in a hurry.

After the war the demobilization was quickly effected. Instead of 2000 pilots, the Navy soon was down to slightly more than 600. Those reserves who were qualified were permitted to request retention in the regular forces. But the great bulk of the trained manpower went back to civilian life.

Since most NRFC members signed up for four-year terms, the crucial years for the reserve forces were 1921 and 1922. Although a few reserves were given refresher cruises and training in 1920, there was no money allotted for training in 1921. Interest waned. By 1922, the reserve aviation force was virtually non-existent.

Interest among the WW I aviators remained high, however, and there were many cities asking for activation of air bases for reserve flying.

New York City, in 1923, had a group of policemen who also were members of the NRFC. They were attached to the Fifth Division, Sixth Battalion, New York Aerial Police at Fort Hamilton. The group received support from the city and public subscription. Four N-9 aircraft were given to the unit by the Navy in 1923, and the Naval Aviation Reserve was in business.

There were two purposes behind the establishment of the Naval Aviation Reserve. The Navy wanted to keep proficient some of the thousands of WW I aviators and also utilize the Naval Reserve Aviation bases for training of new pilots. The program called for 1000 reserve aviators to maintain proficiency, and training of approximately 125 student pilots each year.

With money short and aircraft hard to come by, the program lurched slowly through the 1920's. Fort Hamilton is considered to have been established in December 1922; Squantum (Boston) in August 1923; Sand Point (Seattle) in November 1925. Units also were being trained at Pensacola, Hampton Roads and San Diego.

The units were manned by active duty reserve officers and men according to the size of the training program. A "single unit" training base consisted of one officer, two airplanes, and four enlisted men. "Double units" such as Fort Hamilton, Seattle, Squantum and Great Lakes had two officers and eight enlisted men as stationkeepers.

Pilot training commenced at Fort Hamilton in 1923.

During this period, the flight training students were enlisted as Seaman, Second Class, and given 45 days of primary flight training at an assigned base. This was followed

by an equal period of advanced flight training at Hampton Roads during the following year. Those who qualified in both the flight and ground school phases were given a professional examination for commission, and, if found qualified, were designated Naval Aviators, Ensigns, Class Five.

As the program became more established the Navy Department set up certain "ground rules" for the training of previously designated Naval Aviators, too. It was determined that a limited number of reserve Naval Aviators would be given a minimum of four hours flight time per month to maintain proficiency and would participate in 15-day active duty periods.

During the post-war period, all Navy programs had been affected by austerity in the national economy. Gradually, however, a reserve of 1500 Naval Aviators evolved as the "needed" backup force in the event of an emergency.

By 1927, the training of student pilots under the reserves had become a firm program. That year a class of 50 ensigns was called up for duty with the Fleet from the reserve. The advanced phase of training was transferred from Hampton Roads to Pensacola in 1928 and a training squadron for reserve pilots was established at the Pensacola station that year.

In 1925 the organization of the reserve had been arranged to have available ten squadrons of four divisions each. In addition to four fighting squadrons, the reserves were assigned three scouting and three bombing squadrons.

By 1927, the reserve enlisted program had solidified to the point where 500 billets for 15-day active duty training were included in plans. There were 275 officer-pilot billets available.

The Navy's regular aviation forces had not grown as rapidly as had been expected during the early 1920's. While the training program was operating during the 1921-1925 period, a serious shortage of pilots existed at the end of the period.

It has been expected that some 500 reserves would transfer to the regular forces, but the number who actually passed the examinations was less than 200. The number who actually "went regular" was less than 160. The training pipeline at Pensacola put through 100 aviators in one year, yet the total number of aviators was increased by only 12, owing to attrition. These figures show some of the growing pains suffered by the aviation force during a period when more flying was expected, with fewer planes and with smaller budgets.

The 1926 re-organization of the reserve was an effort to place the reserve aviation forces on a permanent basis. Reserve pay for enlisted men was obtained for the first time the following year. Definite complements of officers and enlisted men were established for the "Fleet Reserve Aviation Division and Squadrons" under the new terminology for reserve components.

The number of reserve stations was increased to include Detroit, Minneapolis, Long Beach and Oakland. This build-up of reserve bases was intended to provide more week-end training for inactive duty aviators, rather than as a spur to primary training of recruits. New recruits in the 1929 era were sent to the four primary bases at Squantum, Far Rockaway, Great Lakes and Sand Point.

Great plans were made for expansion into the 1930's with the implementation of a five-year program for reserves. But the depression caused plans to be completely



POST-WAR PATROLS WERE FLOWN BY RESERVES IN PV-2 HARPOON



F8F BEARCAT GAVE RESERVES FAST FIGHTER FOR 1948 CRUISES



DALLAS RESERVE PHOTO SHOWS KOREAN BRIDGE CUT RESULTS

washed away. During fiscal year 1933, for example, the number of new Naval Reserve aviation trainees dwindled to only 27. No aviators in the voluntary reserve, those not assigned to pay billets, were able to take training cruises.

With no funds for training, the week-end training program was almost eliminated. Units had been opened at Miami and St. Louis in 1931, largely through municipal financing and public interest. With Far Rockaway having been returned to the city of New York, Floyd Bennett Field was established as the New York area training base in 1931. Kansas City and Glenview came into operation later in the 1930's, Great Lakes having been decommissioned as the Chicago area site.

The biggest event of the 30's was the institution of the Aviation Cadet Act of 1935, which was designed as a means of bringing new flying blood into the reserve pro-

trained men ready to step in and help the regular forces in the opening days of the war. Of the thousands of trained aviators, only 600 were available immediately. There were only 700 enlisted reserves ready.

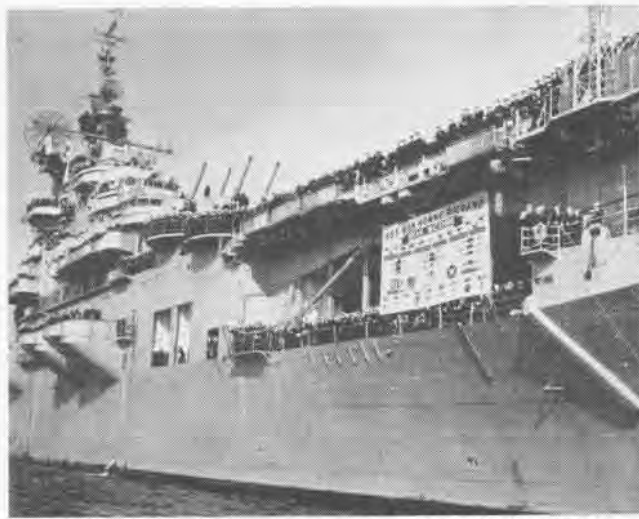
When the Pearl Harbor chips started flying, however, a lot of the machinery for quick training of a large aviation component had been started.

Post World War II

World War II training in the aviation Navy was conducted for more than 54,000 aviators and hundreds of thousands of enlisted men. The number of trained reserves grew in a four-year period to a number which staggered the imagination. From 1935 to 1940, for example, only 1,800 aviation cadets had been trained. In 1941, the input jumped to 7000, and by the end of 1943, we were training



S2F TRACKER IS THE ASW AIRCRAFT FLOWN BY WEEKEND WARRIORS



KOREA 'SCOREBOARD' IS PROUDLY DISPLAYED BY 'BONNIE DICK'

gram. The plan called for a four-year training program for aviation cadets. To qualify, prospects needed a college degree and Naval ROTC graduates were preferred. The entire four-year period of active duty was to be spent as a cadet. After the active duty stint, the aviators were all to revert back to reserve status, it was planned.

The Marine air reserves, meanwhile, had been set up to train at Naval Reserve Aviation bases, starting in 1932 with units at Seattle, Minneapolis, Detroit, Boston, New York and Miami.

The Reserve Act of 1939 was still another effort to establish a firm reserve training program, with a goal of 3000 aircraft and 6000 aviators "by 1948."

World War II, came along before the program made much headway. However, American Naval Aviation had grown to include several carriers, and war games had been conducted to establish tactics. Owing to the lack of input of regular Navy officers into the flight training program, the use of reserves had been studied as an alternative. The shore establishment had been growing to meet the needs of the Fleet throughout the 30's and bases outside the continental United States were opened for duty units.

World War II was to prove again the ability of Americans to adapt themselves to war. Instead of a "Trained and Ready Reserve," the Navy had only a relative handful of

at the rate of 20,000 a year, an increase of nearly 300%.

By the end of 1944, there were more than 55,000 trained Naval Aviators plus a similar number of aviation specialists and general service officers on active duty in aviation duties.

Again, the post war plans officers decided that loss of the trained reserves would be wasteful and made plans for the establishment of the Naval Air Reserve Training Command as the instrument to put the manpower to use.

Before the end of 1945, the machinery for the reserve command was put into action. Headquarters for the command were established in Glenview, Ill., by Nov. 1945, but commissioning ceremonies were not held until July 1946.

By 1948, the number of aviators receiving Weekend Warrior training had leveled off at approximately 6000 Navy and Marine pilots. Enlisted training was being conducted for 20,000 men at 23 Naval Air Reserve activities.

When Korean fighting began, the Naval Air Reserve and the Marine Air Reserve were tapped for a total of some 30,000 men.

While the strength of the reserve has fluctuated with the years since 1945, the level of available manpower has remained high in comparison to the "tough" years of the 1920's and the 1930's.

In 1959, all reserve air squadrons were integrated into the Selected Reserve, making all members available for duty

within hours after the commencement of an emergency. In 1959, the Atlantic and Pacific Fleets included reserve aviation units in plans for major ASW exercises.

Recent emphasis in the command has swung to anti-submarine warfare training and away from fighter/attack training. This was forced by high costs of fighter type aircraft, a declining Navy aircraft inventory, and by the need for greater efforts by the Navy in the ASW field. The 18 squadrons recalled on 1 October are all engaged in ASW, for example.

More than 300 squadrons are associated with the reserve command at the present time. They fly the *S2F Tracker*, *P2V Neptune*, the *AD Skyraider*, as principal service types. Among the jets, the *F9F Cougar* and the *FJ-4 Fury* are current types available in diminishing numbers. Recently, the *A4D* was acquired by two units in the command.



RESERVE TRAINING AIRSHIPS AIDED RECRUITING UNTIL 1959

One of the secondary missions of the command is the procurement of Naval Aviation Cadets and Naval Aviation Officer Candidates for the training command. Each of the 18 units of the command have "sales" officers and men who tour more than 1200 colleges and universities each year in search of flight candidates and non-pilot specialists. The recruiting of enlisted men for the Fleet and the reserve program is also part of the reserves' tasks.

No attempt has been made here, in the space allotted, to touch upon the persons and personalities who have contributed to the history of the Naval Air Reserve; it would be impossible to chronicle the names and contributions short of writing a book.

Nor have we attempted to cite the many changes in size, location or composition of the reserve forces since 1945.

The Marine Air Reserve Training Command, also located



AD-5 SKYRAIDERS ARE FLOWN BY NAVY AND MARINE RESERVISTS

Still flying as transports for the command are the *R5D Skymaster* and the *R4D Skytrain*. Most logistic flights for command airlifts are flown by the command itself, including the Mediterranean area.

The command's safety record for the past two years has been the best of any aviation command in the Navy. More than 230 squadrons flew the entire years without accident, resulting in a command-wide accident rate of less than one accident per 10,000 flight hours in 1961.

Training of enlisted men has progressed at a rapid pace within the command to keep up with the electronics requirements of the ASW field. Two Naval Air Reserve Electronics Training Units offer courses for maintenance and operations of varied equipments. In addition, crews are sent to Fleet Airborne Electronics Training Units.

The Naval Air Reserve has a training and advancement program that is unique within the Navy. A recruit who enters the program fresh from high school may, depending upon circumstances, advance to chief petty officer entirely within the reserve command without attending fleet or service schools.

As one of the functional commands operating under the Chief of Naval Air Training, the Naval Air Reserve Training Command has duties within the shore establishment not always associated with the reserves.

at Glenview, has had a history similar to the Naval Air Reserve. Smaller than the Navy Reserve aviation force, the Marine Air Reserve has units training at 17 stations of the reserve command. It has a history deserving separate attention.

The basic mission of the reserves has remained constant although the official mission language has changed to suit the times. Behind the language is the desire of the country, acting through the Congress, to have on hand a force of men who are ready and willing to step into uniform when conflict of any kind starts. This was true in 1917; it was true again in 1941. The availability of the reserves for Korean duty, one year after a huge cut in the military budget, proved beyond doubt the value of the Weekend Warriors as a backup for active duty forces.

And now, 20 years after Pearl Harbor, the reserve forces have been called to duty without a "shooting war."

Admiral George Anderson, Chief of Naval Operations, in a message to the Navy on 1 October 1961, said, "I am fully aware of the sacrifices which the officers and men of the Naval Reserve are being called upon to make. Rest assured that you are needed, and that your presence in uniform is in the interests of national security. Your units will add much to our over-all readiness and better prepare us for whatever assignments we may be given."



THE BLACKBURN BUCCANEER, THE ROYAL NAVY'S NEW STRIKE AIRCRAFT, DRAMATICALLY SHOWS OFF ITS FAST, LOW LEVEL PERFORMANCE

FARNBOROUGH SHOW OF 1961

THE FARNBOROUGH SHOW—the Flying Display and Exhibition of the Society of British Aircraft Constructors—is held annually at the historic airfield of Farnborough, some 30 miles west of London. Here manufacturers of British aircraft and aviation equipment display their wares in one gigantic shop window.

Probably the main attraction is the three-hour flying display. Like wine, the flying display has vintage years, depending upon the number of new prototypes being unveiled in flight. This year, although only two prototypes were on view for the first time, the flying display was as successful as ever with the addition of service aerobatic teams and squadrons demonstrating mock attacks.

Farnborough '61 attracted thousands of the British public and some 8000 overseas visitors, including a critical team of top Russian designers. The Show was divided into four main sections:

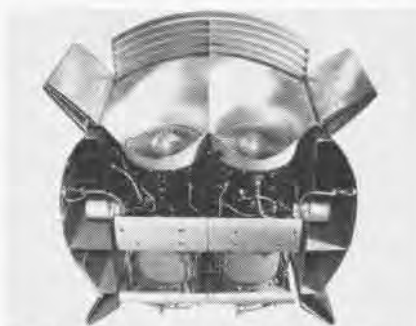
Exhibition Tent—130,000 square feet of static exhibits and models, some 300 manufacturers showing the year's progress in aviation products;

Missile Park—A static display of missiles in service and under development;

Flying Display—Three decibel-crowded hours of concentrated display flying; and last, but by no means least,

The Enclosures—Some 300 tents, where each manufacturer dispenses re-

By Commander C.E. Price, R.N.



RB.108 JET LIFT ENGINE FOR VTOL CRAFT

freshments and bonhomie to friends and potential customers.

Exhibition Tent

Main interest here was centered around the Rolls Royce and Bristol-Siddeley exhibitions of lift engines. Each of these engine manufacturers has a different approach to VTOL; Rolls Royce favours the direct lift engine, while Bristol Siddeley has developed the "single engine" concept, one engine providing lift and thrust as required.

Each displayed engines already proved in VTOL. The Rolls Royce RB 108 in quintuplet form has already vertically lifted the Short s.c. 1 with its high thrust-weight ratio, while the Bristol Siddeley BS-53 with its high rate of thrust has demonstrated its "single engine" concept in the Hawker 1172 VTOL strike/fighter.

Both manufacturers hinted at future developments of their engine concepts. Rolls Royce talked of thrust/weight ratios of 16 to 1, the structure being said to include plastic components. Of course both exhibitors displayed aircraft models, varying from small VTOL close support aircraft to supersonic airliners, showing how their respective VTOL engines could be applied.

Models of ground effect machines were exhibited by several manufacturers each with subtle variations in producing the ground cushion. Westland's model of its SRN 2, now under development, looked very futuristic, claiming a range of 200 miles at a cruising speed of 70 knots carrying 70 passengers.

Black boxes, as usual, were in profusion. The main emphasis in electronic development appeared to be in efforts to achieve 100% reliability and in the appearance of several new items of lightweight radio and navigational aid equipment. Much effort, too, was apparent in improving air traffic control methods by the use of digital computers and automatic data handling, as well as in the development of automatic approach, automatic flare and automatic landing equipment for the next generation of civil aircraft.

Missile Park

The 80-foot *Blue Streak*, Britain's major space hope, dominated the missile park. Originally conceived as a

ballistic missile, it now represents the first stage of the hoped for European three-stage space rocket. Dwarfed by *Blue Streak*, the rest of the park was filled with missiles at various stages of development: *Sea Cat* and *Sea Slug*, *Bloodhound* and *Blue Steel*, *Vigilant* and *Red Top*. *Sea Slug*, the Navy's medium-range, ship-to-air guided missile, had in recent trials achieved an 80% success in both high and low altitude firings against drones.

Flying Display

The Show opened with a flourish as a *Scimitar* of the Navy's aerobatic team thundered past at 600 knots, taking low level photographs. From that moment noise prevailed. A mock attack on the control tower, with troops and vehicles delivered by *Whirlwind* and *Belvedere* helicopters and *Beverley* troop transports, and close support given by *Hunter* ground attack aircraft, was a limited war exercise at its best. Blank ammunition, jet and piston engines at full bore, and whirling helicopter machinery produced sound effects that MGM would have envied.

No sooner had the last soldier been evacuated than the sky was filled with the colored smoke of the nine naval *Scimitars* in formation loops, rolls and wingovers. As the last *Scimitar* made an arrested touchdown to demonstrate runway arrester gear, an air group from HMS *Hermes*, steaming some 100 miles away in the English Channel, flew over in tight formation. The nine and twelve-plane *Lightning* and *Hunter* squadrons then gave Air Force demonstrations of formation aerobatics.



RAF AEROBATIC TEAM SHOWS GREAT SKILLS



SCIMITARS OF 800 SQUADRON IN FORMATION APPROACH R.N. AIR STATION, LOSSIEMOUTH

ics. Although they hadn't learned the secret of producing coloured smoke, their display was very nearly up to *Scimitar* standard.

The stately parade of civil aircraft—the graceful *Comet IV*, the purposeful looking *Argosy* troop transport and the Avro 748, said to be the ultimate answer to a *Dakota* replacement—was in contrast to the lively display by the *Buccaneer*, the Navy's new strike aircraft. With the not unusual inclement English climate, the *Buccaneer* was well nigh invisible in a coat of condensation in its very low level speed runs.

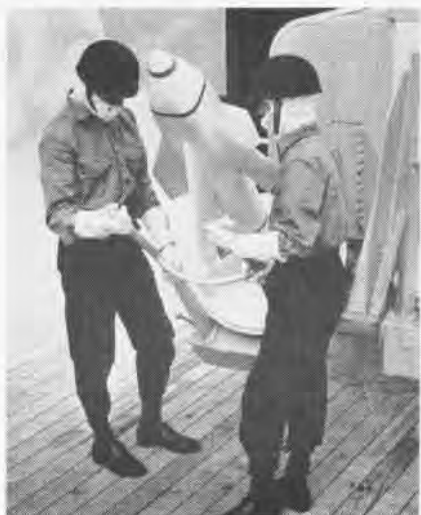
Helicopters, as ever, produced a more relaxed air to the proceedings. Westlands, representing Europe's largest helicopter manufacturers, displayed a circus of seven different types. The *Wessex*, a British version of the HSS-1N, stole the show, towing 50 tons of armoured car and vehicle transporters, loaded with a light helicopter and trucks, along the runway at 20 mph. The 1N equipment maintained the correct trail angle of the tow rope.

The aerodynamic star of the Show was the Handley Page 115. This new research aircraft had made its first flight only some three weeks prior to the show. The stark 74° swept delta platform, with single *Viper* of 2500 pounds thrust, seemed loath to leave Farnborough's 9000-foot runway. Unlike more conventional aircraft, it re-

lies on vortex-generated lift from its aerodynamically stalled wing to become airborne at an amazingly shallow attitude for a delta. Built to study the low speed handling problems of a highly swept delta plan, many saw in this aircraft the shape of supersonic airliners to come.

The other new prototype unveiled in flight was the *Beagle* bronze and white B 206, a seven-place executive twin.

Lastly, THE ENCLOSURES! These need no description. People, talking aeroplanes, with refreshment in their hands, are the same the world over.



'SEA CAT' SHIP-TO-AIR MISSILE DISPLAYED

Helo Crashes Up in FY 62 VAdm. Pirie Prescribes NATOPS

Fiscal year 1962 started badly for helicopters with six accidents in the first 18 days. Darker days lay ahead with five choppers lost in seven days in September.

VAdm. Robert B. Pirie, DCNO (Air), took action. He ordered the NATOPS (Naval Air Training and Operating Procedures) program, (NANEWS Aug., 1961, p. 6) into effect without delay for all Navy and Marine helicopter operations.

The response was positive. Only five days after the order ComNavAirPac advised CNO "consider the program inaugurated." Draft copies of NATOPS manuals were reproduced and distributed; each helo squadron appointed its NATOPS instructor; AirPac and AirFMFPac evaluators were appointed for each model, and Cdr. William B. Barron was appointed AirPac NATOPS staff coordinator. Standardization checks for squadron pilots/crews selected at random started 30 days later.

Chief of Naval Air Training established a four-day standardization course on the HUP, HUL, and HO4s, for continental air stations to convene

at Ellyson Field the first Monday of each month. The first course started 2 October and included briefings on the NATOPS program, indoctrination in standard procedures, and "one or more evaluation/standardization flights as required."

ComNavAirLant has appointed Cdr. J. Donaldson as staff coordinator and reports its program as well underway.

GCA Record is Impressive North Island Unit Near 150,000th

In June this year, GCA Unit Four, located at NAS NORTH ISLAND, controlled 2810 approaches, 915 of which were under actual instrument flight conditions. For the total Fiscal Year 1961, this unit's crew completed 26,731 approaches, or 2227 each month.

The unit has logged a total of 147,491 approaches.

Though this is a mobile GCA unit, it is immediately available any time for actual or training approaches.

Ross Balloon Record Set FAI Nods Record for Altitude

In the episodic ascent of man into and out of the atmosphere, the record-making flight of a Winzen balloon, re-

ported in NANEWS, August 1961, (pp. 29-30), now enjoys official status.

Cdr. Malcolm Ross, piloting the balloon, took it to an altitude of 113,739.9 feet after launching from the flight deck of USS *Antietam*. Its official acceptance as a balloon altitude record has been announced by the *Federation Aeronautique Internationale*, according to the National Aeronautics Association, which filed the claim.

Had Ross been able to make his ascent just one week earlier, he would now hold the world altitude record. Within that time, Guorgui Mossolov, a Soviet, in an E-66A jet, established the current world altitude record of 113,890,848 feet. Ross' record would not have permitted the Soviet's to stand, since Mossolov's flight did not increase



RADM. L. D. COATES CONGRATULATES ROSS

Ross' by a required three per cent.

In September, Ross received a gold star in lieu of a second Distinguished Flying Cross. Presentation was made at the National Academy of Sciences. Ross is now in a civilian status as chief of environmental research for General Motors' Defense Systems Divisions at Warren, Michigan.

Test Cell Ready at Memphis Gives Technical Data on Turbojets

A turbojet engine test cell, one of about 10 operating in the Navy, was put into service at Memphis Naval Air Technical Training Center. It will be used primarily to train Naval personnel to operate the other test cells the Navy has located throughout the country. Present plans call for about 200 men a year to undergo five weeks training in test cell operations.

The test cell is a thick-walled building of concrete and reinforced steel construction. In it, jet engines are tested without the time-consuming necessity of reinstalling the engines.



'MUSIC TO REFUEL BY' is provided by the ship's bands of carrier USS *Lake Champlain* in the foreground and the escort destroyer USS *Beale* during replenishment operations at sea. The mutual entertainment society joined forces in the Atlantic to put a little fun and music into the onerous but necessary hard work of refueling at sea. When "Go to your stations, all fueling detail" is passed, tubas and drums join hoses and highlines in "high C" hosannas to "Heave Ho!"



ELLYSON FIELD, Pensacola, served as an overnight and refueling stop for this formation of HSS-2 helicopters en route to the West Coast.



WEST COAST subs are detected by HS-10 helos based at NAAS Ream Field, San Diego. These HSS-2's flew cross-country from Key West.

HSS-2

Navy's newest addition to its air anti-submarine warfare arsenal, the HSS-2 jet, amphibian, all-weather helicopter, succeeded in suitability trials (NANEWS, July 61, p. 22) and reported to operational commands a continent's breadth apart. This helo detects, identifies, tracks and destroys subs while achieving maximum ranges. The HSS-2 is as small as a bus, mobile as a man, potent as a hungry hawk.

HOW TO OPERATE the newest sub-hunting weapons system, the twin-turbojet HSS-2, was handily demonstrated for pilots and men of HS-3 and HS-10 in the Fleet Introduction conducted at NAS KEY WEST. HS-1 played host squadron, training five pilots and 24 enlisted personnel of HS-10 and ten pilots and 48 enlisted of HS-3.

Contractor personnel from Sikorsky, General Electric, and Bendix, Pacific Division, conducted a training program administered by Sikorsky Division, United Aircraft.

After six weeks of ground training classes, covering all aspects of the HSS-2 and familiarization flights in the HSS-2 Weapons System Trainer, ten pilots were dispatched to Bridgeport, Conn., to ferry assigned HSS-2 helos to Key West. Contractor pilots assisted in the delivery and then acted as flight and ground school instructors.

Pilots and aircrewmen logged in 1300 flight hours in the helo, flying day and night familiarization, instrument and tactical flights as well as training test flights in two-and-a-half months of concentrated flight operations. Five HSS-2's were subsequently transferred to HS-10 at Ream Field. HS-3 men moved to Norfolk.

SIKORSKY-WISE in the ways of the HSS-2, the pilots and aircrewmen of HS-3 reported to their home station at NAS NORFOLK. Behind them were six months of training at Key West. Cdr. Arthur H. Munson was designated Commanding Officer of the helicopter anti-submarine squadron. HS-3 became the first squadron to receive operational helos of this type.

As the first of 16 HSS-2 helicopters arrived, they were greeted by ranking admirals in the area. Welcoming them were VAdm. Edmund B. Taylor, Commander Anti-submarine Force, Atlantic Fleet; VAdm. Frank O'Beirne, Commander Naval Air Force, Atlantic Fleet; and RAdm. Emerson E. Fawkes, Assistant Chief of Staff for Material, ComNavAirLant.

The versatility of this aircraft was pointed up during trials at Windsor Locks, Conn. The HSS-2 set two world speed records for helicopters with speeds of 174 and 192 mph, was flown at 120 mph with one engine out, and climbed on the same single engine at 1500 feet-per-minute. It was also landed on water with no power, descending only on the automatic turn of the rotor blades.

Addition of the night-flying helicopter improves anti-sub detection.

SECOND squadron to fly HSS-2 HS-10, flew five helos from 2 Key West to Ream Field. Plans for the trans-continental movement were completed early by Lt. W.L. Drake and were executed following the receipt of the aircraft transfer order. Originally, an R5D *Skymaster* was to transport personnel and equipment with replacement parts and tools to cover anticipated emergency needs, but was ordered to return to Key West after it reached the first stop, NAS CECIL FIELD. Hurricane *Carla* called.

Flight leader Cdr. B.R. Eagen, who is also X.O. of HS-10, settled down to a steady 130-knot pace after RONING at NAF ELLYSON FIELD. The planes made short refueling stops at Barksdale AFB and Biggs AFB, arriving at MCAAS YUMA to complete 1460 miles of flight at an average ground speed of 130 knots. This flight is claimed as an unofficial record for distance covered by helos in the time involved and was executed in a standard operational aircraft configuration.

Arrival of the flight, with VAdm. Clarence E. Ekstrom, ComNavAirPac, aboard the lead aircraft, was completed on time at NAAS Ream Field where HSS-2 was welcomed officially.

INDEPENDENCE HAS PROPER SPIRIT

FOR CENTURIES, writers have written of romance on the high seas. But recently, Capt. Harvey P. Lanham carried this a step or two further.

Commanding the carrier *Independence*, he recognized two basic facts: that one of the most embarrassing moments in any man's life is to go to a foreign country and be without a knowledge of its language and customs; and that his ship, being East Coast-based, would see duty in the Med at many European ports.

In March, after some foundation-laying with Lt. Reo Alphe Beaulieu aboard, Capt. Lanham established a foreign language training program, emphasizing the romance languages, and sent a letter to BUPERS requesting three officers be ordered to his ship to fill instructor billets.

BUPERS' reply was shot back with reassuring swiftness. The officers, the Bureau stated, would report aboard in June for a 90-day tour. Those selected were Cdr. Donald H. Scott, holding a B.A. and M.A. in Spanish from the University of California at Berkeley and a Ph.D. in Political Science from the University of Southern California; Lt. Daniel J. Pratola with a B.A. and M.A. in Romance Languages at Boston College and a Ph.D. in Romance Philology, Language and Literature at the University of California; and Ltjg.

Francis J. Romance with a B.A. degree in Political Science and an M.A. in Soviet and Eastern Studies from Notre Dame University and plans for a Ph.D. in Comparative Government at Georgetown Graduate School.

Since they are in the inactive Naval Reserve, the three instructors were not obligated to participate in this program. But all three responded quickly when approached by BUPERS.

The language laboratory established aboard the *Independence* is as well equipped as any school laboratory. Tape recorders were installed and a supply of some 200 elementary, intermediate and advanced foreign language tapes were procured. Both introductory and basic courses in Italian, Spanish and French are taught throughout the day and in the evening. Even the ship's closed-circuit television station, WIND-TV, is utilized for classes in language and lectures on the culture of countries to be visited.

Even though the Reserve instructors returned to civilian status in September, the program is set up in such a way that the crew and officers can carry on where they left off. This is the first time a program like this has been established on board a ship on such a large scale. The program is being evaluated with a view to establishing it in other major ships.

New NATOPS Manuals Out Books on 16 Models Available

NATOPS (Naval Air Training and Operating Procedures Standardization) manuals are now available for 16 models of naval aircraft, according to information from the Aviation Training Division of DCNO(Air). The following manuals were scheduled for initial distribution by 1 November: HSS-1, S2F, FJ-3, FJ-4, F9F-8/8T, A3D, F8U, AD-6/7, F3H, FJ-4B, HR2S, A4D, F4D, WF-2, HUP and AD-5W.

Sample copies will be mailed to squadrons operating the type aircraft concerned as soon as they are available. After receiving these samples, squadrons may order additional copies on Standard Form 140, addressed to CNO, attention Op-561E. The books will be listed in Aeronautical Publications Index, NW-00-500, and its monthly supplements.

Under the program, NATOPS manuals covering optimum training and operating procedures will be published for each model naval aircraft. Since the manuals are for official use only, they can only be made available to naval activities.

Sixty days after distribution of the manuals, a comprehensive program, involving annual standardization checks for every Naval Aviator in every model aircraft he flies, will get into high gear. (See "New Standards for Naval Air," NANEWS, August 1961.)



THIRTY YEARS of devotion to aviation are expressed in this collection of model aircraft built by Peter Farrar of Tonquay, England. He shows an A5J Vigilante to Larry Farmer, YN2, on staff of CiuC, U. S. Naval Forces, Europe. Farrar built more than 1300 different models at scale of 1:72, ranging from 1918 biplanes to modern craft.



A MODEL of parade formation, the HSS-1N's are led by Cdr. J. R. LeTonrneau, commanding Helicopter Anti-submarine Squadron Seven. Sometimes used for tactics, but mostly for special occasions, this formation launched from USS Randolph during a 'Middie' cruise. HS-7 is home-based at NAS Norfolk when not at sea on ASW missions.

GETTING TO KNOW THE A3J VIGILANTE

By Lt. Dick Cleveland, VAH-3



"PROFESSIONALISM is our business" is the motto of Heavy Attack Squadron Three, East Coast Replacement Air Group Training Squadron at NAS SANFORD, Fla. If a "professional" is defined as one who makes the difficult look easy, the Fleet Introduction Program (FIP) for the new Mach 2 A3J *Vigilante* under the direction of VAH-3 is a thoroughly professional operation.

Old-timers who have been through the fleet introduction of other modern jets are amazed at the smoothly coordinated, "no flap" introduction of the A3J, the most potent and most complex modern bomber ever to join the Fleet.

Initial deliveries of the *Vigilante* commenced in June, and the entire stable is now up to eight. Availability has been outstanding; accumulated

flight time has exceeded all estimates, and AOCIP's have been infrequent. A comprehensive ground school and flight simulator program are coordinated with the flight program. The first two classes of Fleet Replacement pilots are now under instruction at VAH-3. In addition to the VAH-3 RAG instructor pilots, Capt. Joseph M. Tully, ComHatWing One, and Cdr. Silas R. Johnson, commanding officer of VAH-3, have soloed the sleek new planes. In short, the initial phase of the fleet introduction is "A-OK!"

This smooth-running operation could be contrasted with the anguish and confusion sometimes associated with FIP's of the past. However, that would be grossly unfair, because it is only through rigorous application of the hard learned lessons of other FIP's

that the A3J program is running so "professionally."

Coordination is the keynote. The various parts of the introduction program have been soundly planned and scheduled long in advance, so that planes, spare parts, trained maintenance people and flight crews are all ready when needed—not too late and not too soon.

One obvious difference between this and former FIP's is the extensive use of what is called "contractor support." The builder of the aircraft, North American Aviation, Inc., Columbus Division, provides technical training, spare parts and maintenance assistance during the fleet introduction period. This kind of support has been standard for several years for planes in test and development stages, but it was not until the A3J and F4H that it has been



GOOD PLANNING, DONE AT THE RIGHT TIME, MADE POSSIBLE SMOOTH RUNNING A3J FIP

extended to the FIP. Plans call for using the same system for the FIP of all future naval aircraft.

Another important, but less obvious difference, and one which accounts for much of the smooth execution of the A3J FIP, is the work of the BUWEPs Logistics Guidance Team for the A3J. The team is composed of working level experts from BUWEPs, the Aviation Supply Office, the O&R which will support the A3J, AirLant, the aircraft builder, and the BUWEPs Fleet Readiness Representative at Sanford. These people, who all have personal knowledge of the problems of supporting the A3J get together face to face and work out solutions with little delay and almost no paperwork.

Preparations for the arrival of the aircraft started almost three years ago. North American people came to Sanford to look over buildings which might be converted to training use. The old FASRon hangar was assigned to them and converted into an air conditioned training building of 21 classrooms. Sanford Public Works crews tore into the place and had it completely refurnished and ready for its new tenants by March, just two weeks before arrival of the first training equipment.

Each classroom has a complete operating mockup of the particular system with which it is concerned—flight control, power plant, fuel, electrical, electronics, armament, escape seats, and the like. Each room is equipped to accommodate both lecture sessions and actual demonstrations. Cutaway working models of various

Vigilante parts and equipment enable students to study the operation of systems inside and out.

A novel method permits fuel system students to witness the system in operation. The large fuselage sump tank is made of glass and pink hydraulic liquid is forced through the lines in place of actual fuel. The colored fluid lets the trainees watch the sump pump fill or empty, while they observe the operation of its various valves and gauges.

By far the most elaborate training device is the three-trailer weapons system trainer (WST) built by the Link Division of General Precision, Inc., under subcontract from North American. This WST simulates every element of a tactical mission from take-off, climb,



NAA'S PARKER EXPLAINS FLIGHT REFERENCE SYSTEM GIMBALS



INSTRUCTOR POI



VAH-1 C.O., JOE TULLY, SOLOED EARLY



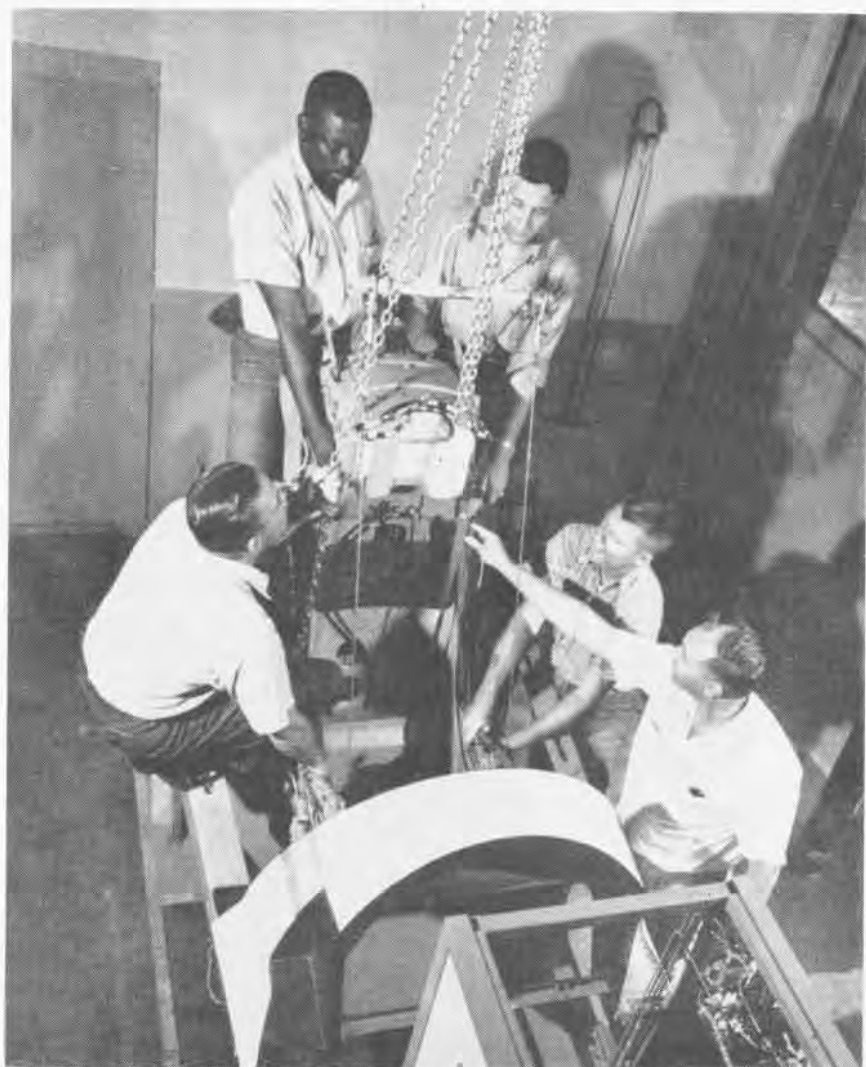
cruise and modes of attack, to return and landing. It also simulates instrument flying conditions and emergency situations. A flexible, yet accurate, land-mass simulation radar trainer is its most advanced feature.

The new mobile trainer is designed to train A3J pilots and bombardier/navigators (B/N's) either separately or as a crew. It has a pilot's cockpit and the training instructor's console in one 40 foot semi-trailer. The B/N cockpit and instructor console is in a second similar trailer with a briefing room and the "brains" of the thing—a complex analog computer—in the third.

Thirty-five North American representatives arrived in Sanford on 10 April to start preparations for the first



OUT THE DETAILS OF ELECTRONIC MODULES



AME'S REMOVE EJECTION SEAT ASSEMBLY FROM THE ESCAPE SYSTEM TRAINER



class. The staff did not have long to wait for ground training got underway 1 May with 170 men enrolled in the A3J maintenance course. Of these, 70 were from VAH-5, 70 from VAH-7, and the rest from various other commands, such as Jacksonville O&R, which will be involved with the *Vigilante* Progressive Aircraft Rework.





NAA'S JIM AILES BRIEFS VAH-3 X.O. FOR HIS FIRST TRAINER FLIGHT



CDR. MATTUS WAS FIRST SANFORD-TRAINED PILOT TO SOLO A3J

Most of the technicians assigned to the A3J program are selected, experienced mechanics and electronic technicians with sound fleet experience and aviation background. The A3J training of these people has been carefully planned, so that the most efficient use is made of their services. The first class convened barely six weeks before the arrival of the first aircraft. Graduation was coordinated with the arrival of the first four aircraft so students began on-the-job training without loss of time.

The first maintenance classes were taught entirely by highly experienced North American instructors. This group of 32 instructors, under the direction of Mr. Bill St. Clair, average 12 years of training experience.

Future Navy instructors, members of Naval Air Mobile Training Detachment #1002 from the Naval Air Technical Training Center at Memphis, were among the students in the first class. These men will assist in teaching the second class and will instruct the third class, with North American instructors monitoring. Another special class is the FAETULant detachment which will operate and maintain the WST.

Contractor support extends beyond instruction to direct maintenance on the aircraft. When the planes first arrived, virtually all of the maintenance requiring specialized A3J technical knowledge was done with the assistance of contractor technical assistance teams. When the Navy men gain more experience, they will take over more and more of the mainten-

ance as the contractor people are phased out.

North American also supplies all specialized parts needed during the FIP period. Parts are drawn directly from the assembly line in Columbus when extras are needed. In this age of fast communications and air transportation, stocks can be replenished in a matter of hours.

During the FIP period a great effort is made to get reliable usage data, so that when the Navy makes its big parts buy, it will know which parts are most likely to be needed and in what quantity. Another reason for wanting to hold off buying spare parts is that during the early days of a new design frequent changes make many parts obsolete.

An interesting new wrinkle in A3J support is scheduled maintenance and the "card" system. Scheduled maintenance checks, or periodic mainten-

ance inspections, are made at regular elapsed time intervals rather than after a specified number of flight hours. This kind of scheduling makes it easier to keep a level workload.

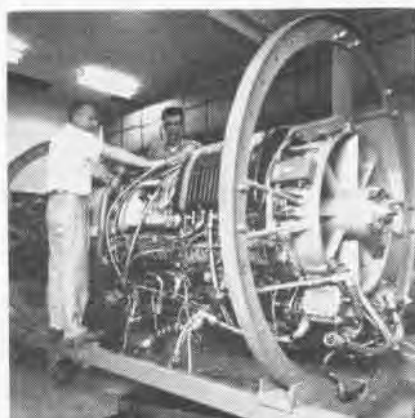
There is a card for each job required in routine maintenance. This card shows the system involved, the location of the work, the tools and parts required, the condition of the aircraft—such as power off or on—the rating needed to do the job and how long it should take. With this information on hand, it is fairly easy to schedule work so that there is a minimum of waiting around by highly trained technicians and mechanics.

Professional could also describe training of the VAH-3 maintenance officer, LCdr. Ed Kingsbury who spent two years at NAA learning the A3J.

These new maintenance innovations contribute to the smooth coordination which has characterized the Fleet Introduction of the A3J.

This professionalism has extended to pilot and B/N training. Crew training was coordinated so that the first class, consisting mostly of prospective VAH-3 instructors, completed ground school and the simulator syllabus in the WST by the time the first aircraft arrived.

As a result of the coordinated program, the maintenance support and parts support, the first Sanford-trained A3J pilot soloed just three days after the arrival of the planes in Sanford. Why did it take so long? The planes arrived Friday 16 June, and Cdr. Ralph Mattus, VAH-3 executive officer, did not launch for his 2.1 hour fam hop until Monday morning.



INSTRUCTOR AND ADJ-3 ON J-79 TRAINER

NEPTUNES PROBE ARCTIC BASIN



ULTIMA THULE (from the Latin: utmost limit) was, at the early part of this century, the major and northernmost village of Eskimos on the upper western coast of Greenland. It was co-founded and named by the late Peter Freuchen. For years, it remained in cold isolation, only occasionally visited by "outsiders." But with the establishment of the DEW Line network of listening posts in the Arctic, Thule became a bustling and effective base for the U.S. Air Force.

To the far west, Capt. Frederick William Beechy, searching for the Northwest Passage in 1826, discovered the northernmost jut of land in Alaska and named it after Sir John Barrow who had offered £20,000 to the first person who found the passage. In 1957, Point Barrow was the starting point of a deep draft ship probe across the North American Arctic by three ships of the Navy's Military Sea Transportation Service. Point Barrow, too, is an Eskimo village.

Though the waters between these widely separated points are fairly well known near the land masses, the subsurface of the Arctic Ocean to the north remains much of a mystery.

Until as recently as 1948, the Arctic Basin was believed to be a single oceanic depression. But as a result of

recent investigations, including several aerial surveys, it is now known to consist of two separate and geologically distinct units, divided by a major mountain system.

In the past, the floor of the polar basin could not be accurately charted because the ocean surface is almost entirely covered by ice through most of the summer months and all of the winter. This made the waters un-navigable for surface vessels, even the Navy's sturdy ice-pounding icebreakers. Undersea exploration by U.S. atomic-powered submarines have given a clearer picture of the nature of the undersea arctic terrain, but it is still not known for certain whether the Arctic Basin is continental or oceanic in character. U.S. geophysicists suggest, after studying limited gravity data available, that by failing to register certain seismic waves along trans-arctic oceanic paths, the basin is characterized by a structure normally found beneath oceans. But they don't know for certain.

It is important that the true nature of this bottom be determined for several reasons. From the standpoint of oceanographic studies, it is known that the Arctic Ocean is unique in that circulations of currents occur at great depths—with no aid from surface

winds, which are blocked by floating ice. This has a far-reaching (but unknown) effect on the refertilization of rich sub-arctic fisheries. And the studies obviously could yield positive information that would permit accurate forecasting of ice movement.

Then there is the problem of the "Great Arctic Magnetic Anomaly." This is a deviation from the regular terrain normally encountered beneath oceans, and it extends, in a narrow strip, from the Russian division of the Arctic Basin, across the North Pole to the arctic archipelago as far as the north magnetic pole. Nobody knows what caused this rift, but scientists suspect that it is related to a downward sloping corridor extending across the Arctic Ocean floor. Or it could be caused by the consolidation of Canadian and Central Siberian subsurface "platforms" an unknown number of years ago. Again, nobody knows.

The Office of Naval Research is seeking answers to many of these questions. It has let a research contract for gravity, magnetic, and seismic studies (or disciplines) in the basin. The principal institutions concerned are the Geophysical and Polar Research Center of the University of Wisconsin, and the School of Mines and Metallurgy of the University of Minnesota.

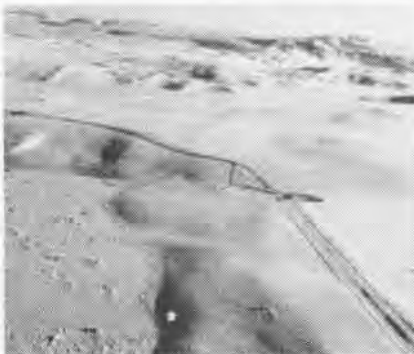
LAST MAY and June, pre-planned aeromagnetic flight lines were flown by a P2V-5 *Neptune* from the Naval Air Development Unit then based at South Weymouth, and a P2V-7 *Neptune* from Air Development Squadron Six. Bulk of the journeyman jobs were undertaken by the crew of the NADU plane, despite the fact that only one of its members, copilot Lt. J. T. Jackson, had any previous arctic flying. Their job was to give sufficient coverage to permit an aerial delineation of the basin and to provide sufficient data for determining its depth of origin.

Before undertaking the assignment, pilots and crew received cold weather survival and polar navigation training from the Quonset Point-based VX-6 squadron, which operates annually in the south polar regions.

Lt. C. W. Hall piloted the primary project aircraft, BuNo. 128362. To provide search and rescue back-up, a NADUR4D-8 *Skytrain*, BuNo. 140437, flown by LCDr. C. F. Hallums, staged at Thule, as did the VX-6 *Neptune*, while the USAF SAR Center covered from Fairbanks, Alaska. Project *Arctic Basin* centered from Thule and Nord, Greenland, in the east and Point Barrow and Fairbanks in the west.

The mission called for three aerial traverses of the north geographic pole and one of the north magnetic pole. Under the technical control of the Geography Branch of the Office of Naval Research, it was guided by Dr. Max Britton and Ltjg. Leonard LeSchack. Principal civilian investigators were Mr. Ned Ostenso and Mr. Richard Wold of the University of Wisconsin. By operation's end, Mr. Wold had flown over both north and south geographic poles within 90 days, having first conducted similar studies in Antarctica.

The NADU *Neptune* was not specifically arctic-configured for this assignment, though the VX-6 P2V had seen cold country duty earlier. The greater difficulties were experienced by the maintenance men. In the crew were W. Carey, AD1, plane captain; mechanics R. J. Kitterman, AD2, and D. A. Kraus, AD3; radioman N. J. Hoberg; technician W. R. Edwards, AT2; electrician R. A. Leblanc, AE2; metalsmiths F. T. Parrshall, AMH2, and C. J. Casey, AMH3; and technicians J. E. Clement, ATN3, and J. J. Childs, ATR3.



420 NAUTICAL MILES from the North Pole the airfield at Alert, Ellesmere I., is desolate.

The availability of hangar space at Thule eliminated most of the potential problems and, according to the Unit, the occasional times the aircraft was left out overnight produced problems no different than those experienced during the winter at South Weymouth.

Constant sunlight in May and June impressed the pilots and crew who listed it among the more memorable aspects of the assignment. What impressed them more were the "12 to 15-hour flights over nothing but ice."

Flying conditions in the Arctic proved ideal, especially in the early part of the deployment. Ninety per cent of the time over the ice pack, it was VFR at 1500 feet. As the ice began to deteriorate in early June, cloud cover built up; but at least half of the time, the sun was visible for celestial lines of position and checking the precision of the gyro.

Despite their proximity to the north magnetic pole, navigation was a relatively minor problem. The plane's two navigators, Ltjg. E. W. Sarsfield and Ltjg. A. R. Rutberg, had attended the VX-6 polar navigation school at Quonset and plotted by grid. In the plane,



PILOT LT. C. W. HALL congratulates Ltjg. A. R. Rutberg (r), co-navigator, on fine job done.

an APN-122 Doppler navigator was available for display of ground speed and drift. This proved adequate for backup, but was not used as a primary means of navigation for it could be relied on only when coupled with sun shots. The transition to grid navigation procedures from over-water procedures was made easily by the two navigators.

What made the navigators groan during the polar flights was the scant information available on winds aloft. Pre-flight planning was based on the the best information available, but there were few reporting stations. Often the winds encountered proved "180 degrees from those predicted." A constant monitoring of the track was necessary in order to stay on course and to insure that enough fuel was available to safely complete the assigned track.

Radio communications during the operation were remarkably good; polar areas have proven very sensitive to solar disturbances. The P2V-5 maintained HF contact over 800 miles, including east of Greenland and in the eastern Arctic. Radiomen also found that single sideband was reliable. Radar, effective in mountainous areas, was not so successful over the pack ice. The broken ice tended to obscure low shore line radar return.

RADAR proved valuable when mountain ranges were sighted 20 to 60 miles ahead. Though visibility was excellent, the pilots and crew found that lack of points of reference made distances difficult to judge. Radar confirmed them. Haze and reflection obscured close range visibility, and again radar was a frequent help. Terminal weather at Thule and Pt. Barrow remained good as long as the adjacent ice fields were intact. When the ice started breaking up, cloud cover increased.

Below them, as the *Neptune* tracked over the pre-determined flight lines that crosshatched the basin, the crew saw the giant ice pack in its various conditions. At times, it was a blinding sheet of uninterrupted white; at others, it was pierced by polynyas (small lakes). And when they viewed the annual breakup, they saw floes larger than city blocks torn loose and drifting. Some of the floes were overturned, exposing the rust-colored underside of frozen plankton. The craggy out-

crops of exposed terrain in northern Greenland, Ellsmere Island, the Parry Islands, Victoria Island, and the Arctic Coast of continental Canada were bleak in their environment.

The monotony of flying over the arctic ice pack was broken twice during the period of deployment. The first interruption was the chance overflight of an abandoned Soviet drifting weather station, then located at 86° 40'N, 163° 20'W. It consisted of a group of buildings, tents, and supplies located on a section of the pack ice that had started to break up.

The second interruption occurred when the plane sighted "Arlis II," a drifting ice station manned by the Arctic Research Laboratory.

In flight, continuous recording of the regional magnetic field was made by a Varian proton procession magnetometer installed in a non-magnetic fiberglass cone in the tail of the aircraft. At the same time, an ice observer, headquartered at NS ARGENTIA, also was aboard to make observations on the locations, size, density and age of ice fields encountered.

A preliminary monitoring of the recorder tape during flight revealed a few tentative and qualitative conclusions about the geology of the Arctic Basin. Among them:

The separation of the polar basin by a large mountain range appears to be correct, splitting it into two geologically distinct basins. The European Basin is very quiet, magnetically, while the Hyperborean (mountainous) Basin proved very active.

The dividing range of mountains was not of a sufficiently high magnetic sensitivity to show up as a marked

anomaly, but the range did clearly delineate as a boundary between the magnetically active and quiet basins.

The survey discovered a major subsurface structure over 550 nautical miles in length and 60 miles wide on the North American side of the mountain range. It is well outlined by marked magnetic activity and promises to be a major discovery of significant importance to the better understanding of the crustal structure of the Arctic Basin. It may also interrelate the North American and Russian geology and crust deformations.

THE STUDY of the Great Arctic Magnetic Anomaly mentioned above proved inconclusive. It is either a deflection of the horizontal field due to some channeling effect within the earth's crust, or it is no anomaly at all, only giving the appearance of one. This area of the study requires more data before an accepted decision can be made.

And finally, three aerial crossings of the generally accepted "fracture zone" extending north from the Greenland Sea failed to detect any unusual magnetic activity. This could indicate that the fracture zone doesn't exist, that the zone isn't magnetically active everywhere and the few flights across it were over non-magnetic stretches, or that the magnetic activity is so narrow and/or of such low amplitude that they were not noticed at the time of crossing.

NADU SOUTH WEYMOUTH's and VX-6's aerial surveys are only part of the studies conducted under the University of Wisconsin, but they are important pieces in the Arctic Basin

puzzle. One flight line was flown by Lt. L.D. Player in the VX-6 P2V (see NANews Sept. 1961, p. 31).

The NADU *Neptune* was absent from home base for 35 days during this deployment. In that time, it flew 200 flight hours over 35,668 nautical miles. Broken down, this covered 26,750 miles of the Arctic Ocean Basin itself and the adjoining Canadian archipelago. Reaching and returning from the basin, the plane flew 8918 miles of flight lines over land and ice-covered water.

NADU's far northern flights showed that polar operations by a non-arctic specializing activity are entirely feasible. A minimum amount of training could transform any ready organization into an efficient polar operational unit.

The Unit, now under command of Capt. R. G. Shults, was impressed by the "bush pilot" techniques used by the pilots of the P2V-5 in making approaches to the airfield at Point Barrow. The crew flew in awe through Anuktuvuk Pass in the Alaskan Brooks Range. They cruised at 4000 feet, occasionally seeing the summits of peaks up to 10,000 feet lining the pass.

Not even a starboard prop failure on the return flight to South Weymouth from Fairbanks, followed by a complete port engine failure, lessened the enthusiasm of pilots and crew. The plane switched to all-jet, one prop windmilling, and landed easily at Fort St. John, British Columbia, for a ten-day engine change delay.

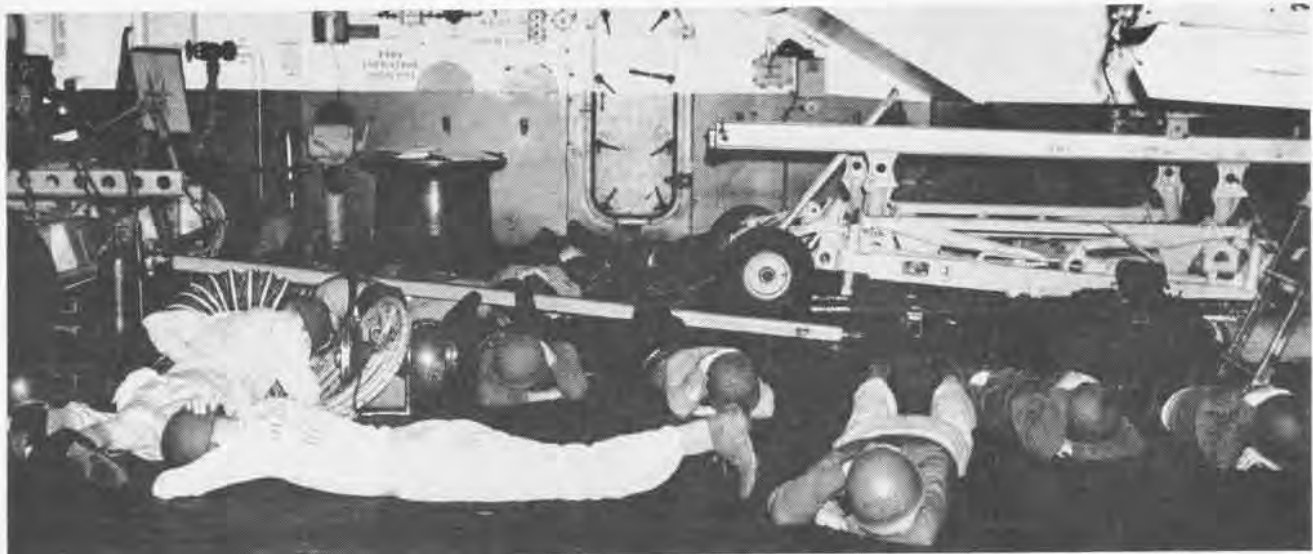
Would they go back again for more north polar flights? The answer was a near-unanimous yes, with others in the Unit eager to fill any open billets.



PRE-FLIGHTING the NADU *Neptune* at Thule AFB, Greenland, the crew readies the aircraft for long-range flights over the Arctic basin.



PROJECT CREW, standing from left: Wold, Carey, Rutberg, Hall, Geer, Haberg, Jackson; front, Ostenso, Edwards, Parrish, Leblanc, Kraus.



LYING PRONE, HEADS HELMETED, FACES CUSHIONED, SARATOGA SAILORS CONDITION THEMSELVES FOR ATOMIC BLAST SHOCK WAVE

SARATOGA AND SURVIVAL GRUELING DRILLS TEST BATTLE EFFICIENCY

BACK FROM A TOUR, USS *Saratoga* sailed serenely into anchorage at home port Mayport, Fla. Her officers and men on the brink of battle fatigue, anticipated a richly deserved rest.

Six weeks earlier she had sailed, equally serenely, to Guantanamo Bay, Cuba, and had begun a series of exhaustive drills designed to test her battle efficiency. The training and testing was administered by Gitmo's experienced Fleet Training Group.

Procedures were simple, *Saratoga* reports: lectures, demonstrations, and drills, drills, and more drills.

The six-week training period was divided into two general types of instruction: damage control and defensive warfare. In each instance, the sound of the bosun's ear-piercing piping, followed by his staccato dictum: "This is a drill . . . This is a drill . . ." drove men to the voids, to the fantail, to the gun mounts in repetitive problems. Fire drills, ABC warfare, general quarters, abandon ship stations, were exercised, manned, with regular unpredictability.

Each new day promised only more drills. "Rockets" struck the ship;

"fires" ravaged her compartments; "men" fell overboard and were saved; gaping "holes" perforated her plating; even "atomic bombs" were detonated underwater nearby. If the crew's reaction was not swift enough, not effective enough, the drill was repeated until speed and efficiency minimums were met.

At end of training, the ship met her final test, Operational Readiness Inspection. At its conclusion, Capt. Roger W. Mehle, commanding, said: "Saratoga has done a highly commendable job. To each . . . Well done."



'SARA'S' SMOKE-EATERS REACH SCENE QUICKLY TO QUELL FIRE



IN MATERIAL CONDITION 'ZEBRA,' MEN SECURE WATERTIGHT DOOR



ATOMIC RADIATION 'HOT SPOTS' ARE SOUGHT OUT BY TEAMS



REPAIR PARTY MANS SOUND-POWERED PHONES IN MAIN LOCKER



CIC MAN OPTICALLY TRACKS APPROACHING 'ENEMY' AIRCRAFT



NOZZLEMAN IN BREATHING MASK READIES TO FIGHT SMOKE, FIRE

11,000 ROUND TRIP TICKETS

By Cdr. J. C. Little, VR(F)-31

AIRCRAFT ferrying responsibilities and a new basis for procedures were established 1 July 1961 by OPNAV Instruction 3710.6B.

Although only four months in operation, the new methods apparently are working out advantageously. Ferry squadrons have, in general, reported favorably on their experience thus far with the new program.

One look at the problem under the old set-up will underscore the advantages of the new. While the ferry mission is generally associated with the two Aircraft Ferry Squadrons, VR(F)-31 at NAS NORFOLK and VR(F)-32 at NAS NORTH ISLAND, only about 30 per cent of the Navy's ferry task today is accomplished by these two squadrons. (During the final stages of W/W II some 650 regular ferry squadron pilots moved almost 2000 aircraft every month, but personnel economy has cut regularly assigned ferry pilots to about 100 and deliveries accomplished by them to about 280 per month.) Remainder of the total task today is accomplished by each transferring activity or reporting custodian, and the problem of monitoring economy and efficiency in the total program has become increasingly complicated.

The Navy's policies and procedures employed in the accomplishment of the aircraft ferry task are clearly defined in OPNAV Instruction 3710.6B. Promoting economy and efficiency are the aims of this instruction which became effective 1 July 1961. Aircraft procurement, maintenance, repair, and retirement, plus ever-changing requirements, generate in the vicinity of 11,000 aircraft ferry movements in the course of an average year.

VR(F)-31 and VR(F)-32 have proved their ability to move aircraft expeditiously and economically. Centralized control is the tool that permits them to do this. Collecting in one place for planning purposes all the information concerning a large number of aircraft which require ferry movement permits the ferry squadrons to minimize both one way deadhead commercial transportation for ferry crews and ferry crew man-days of



LCDR. C.F. BELL, 'PAR' REP, COMMANDER FLEET AIR, NORFOLK, MEETS INCOMING PILOT

waiting for transportation. Revision of aircraft ferry policies expands the capabilities that only centralized control can offer to the other 70 per cent of the ferry traffic that is all too frequently forced into uneconomical practices by lack of an alternative.

The search for new procedures was governed by two basic assumptions: (1) centralized control of the entire task was necessary and (2) it would be completely uneconomical from the standpoint of personnel to try to staff the existing ferry squadrons to a level that would permit them to assume the entire load. The resulting plan promulgated by OPNAV Instruction 3710.6B merges the present systems:

movement by "owners" and movement by ferry squadrons.

Ferry squadrons will remain at about their present strength of 50 pilots each to continue the miscellaneous tasks they now handle, but in addition they will assume control of almost all ferry movements. Ferry movements conducted entirely overseas, localized ferry movements that can be effected without expenditure of travel or per diem funds, and BU-WIPs RDT&E ferry movements are exempted.

In general, control is effected by the following basic procedures:

- Each aircraft, when ready to begin the ferry movement, will be declared RFI to the appropriate ferry control squadron.
- The ferry control squadron then assigns one of its pilots or turns the aircraft back to the declarer who assigns a pilot. In the latter, and majority of cases, the pilot assigned is given TAD orders to the ferry control squadron until he returns to his squadron.

Economy of operation is the biggest advantage of the plan. Almost complete elimination of travel fund expenditures either eliminates deadhead legs by ferry crews or provides them with government transportation in another ferry aircraft in the course of its own ferry movement. Additional



PILOT TALKS WITH SCHEDULING OFFICER

savings are anticipated by permitting more efficient use of transport type aircraft and by minimizing delays while ferry crews wait for return transportation.

While economy dictated the new procedures, there are also fringe benefits. At times when a ferry movement becomes a burdensome chore to the owner activity, such as during intensive pre-deployment training, pilots can not be spared. Provision is built into the new system for the owner to indicate in the ready-for-issue (RFI) message a desire not to furnish the ferry pilot. Conversely, should the owner particularly desire to furnish the ferry pilot, for example, as in the course of a PAR delivery, this also may be indicated in the RFI message.

Other benefits may be fewer delays for ferry crews while waiting for transportation, faster return to primary duties, elimination of ten day re-flies on RFI aircraft, and, for the comptroller set, the capability of being able to fund the total task.

Duty Spook Strikes Again VAW-12 on Alert for Saboteurs

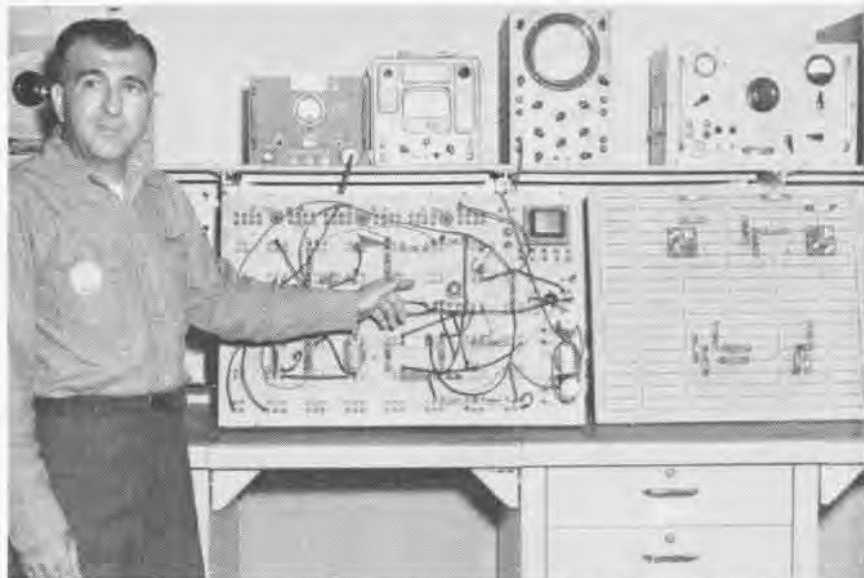
It's getting so you can't trust your buddy in VAW-12. If you did, he might turn out to be the "Duty Spook" and you might find yourself in hot water.

This remarkable situation evolved via the inspiration of the squadron's executive officer, Cdr. W.H. Cruise. In order to emphasize the importance of proper security, he periodically designates an officer in the squadron as the Duty Spook.

The Spook's job is sabotage. He is ordered to "sabotage" a piece of gear without having to identify himself to security personnel. And he does this by placing a Plexiglas tag on a piece of equipment or an aircraft. The tag reads, "This piece of gear has been sabotaged."

If he gets away with the caper, he leaves the area and reports his presence to the squadron duty officer by phone. The SDO then groans (the Duty Spook has a penchant for performing his skulduggery in the sleepy hours of the morning) and tightens up security patrols.

Cdr. Cruise has noted an over-all improvement in the squadron's security efforts—directly attributable to the duty game of "Spook and Swagger."



WALTER R. GUIN, TD2, POINTS AT OLD BREADBOARD. HE HELPED DESIGN NEW MODEL (R)

ELECTRONIC BREADBOARD MADE

IT WAS A CLANCY experiment in the old days for an instructor at the Navy's Memphis Training Devicesman School to trace out a circuit in a classroom "breadboard." Frequently this training device malfunctioned, the instructor sweated hours of embarrassment, and the students lost confidence.

William H. Mathews, TD1, among others, was unhappy about it. At nights he experimented in his kitchen, trying to improve the unit to the extent that it would meet Navy standards—and better them.

When he thought he had the problem licked, he took his modified device and subjected it to the rigid evaluation tests of his fellow-instructors. It proved not to be perfect; but it was a good start.

L.E. Ryan, TDC (since promoted to Ltjg.), was one of the first to offer an improvement. He replaced Mathews' mounted steel strips with springs. Others offered suggestions. Stationary tube sockets were eliminated. More modifications were made to make it easier for students to build circuits they have seen diagrammed and to prove to their own satisfaction that the theory behind the circuitry was sound.

The old boards were complex in design and had a long list of things that could go wrong. Numerous cold-solder joints caused high resistance.

Pin-jack connections, easily worn by continual usage, often resulted in connection failures. The necessary maze of wires—most of them unconnected with the problem at hand—confused the students. When the board failed, valuable lab-time was lost.

After two years of modifying Mathew's model, an entirely new board—different from the Navy's model—was submitted to the U.S. Naval Device Center Regional Office for evaluation. The new board won the Navy's approval and is officially named "The Electronic Circuit Experimental Panel."

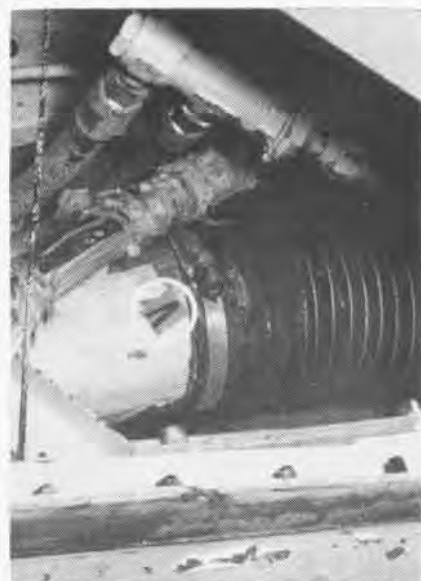
The new board incorporates the best of simplicity in design. Coil springs, like those attached to screen doors, replaced the pin-jacks and eliminated the need for connecting wires. The springs are resistant to wear and make excellent electrical contact. They float in separated grooves on a wooden base over which is fitted another panel which is slotted to allow access to the springs. Fixed interval slots, 140 to each board, are patterned to allow any conceivable arrangement of parts in circuit building.

Lt. R.E. Strong, Training Officer, estimates the basic board costs about \$2.00 to manufacture. A modified assembly line, operated by TDC's R.A. Coffman and A.J. Smith, builds a unit in less than three hours in the shop.

'PAR' FOR THE NAVY



EXAMINATION TEAM makes inspection of S2F, will evaluate its deficiencies to determine the extent of work required to place the aircraft in satisfactory condition for next duty tour.



DISCREPANCIES NOTED by PAR inspectors are marked by "check" sticker tape, checked above.

FOR MOST of its 40-year history, the Overhaul and Repair Department, NAS PENSACOLA, has had one method of rework in the overhaul of Navy aircraft and equipment: substantial disassembly and rework of the entire aircraft and all its components, regardless of condition. So complete was the job that an overhauled airplane or engine could not be distinguished from one factory-new, except for the attached familiar, helmeted, goggled gosling, signifying that this

*By Cdr. Dick Schram,
WEPTU-721*

was an O&R Pensacola product.

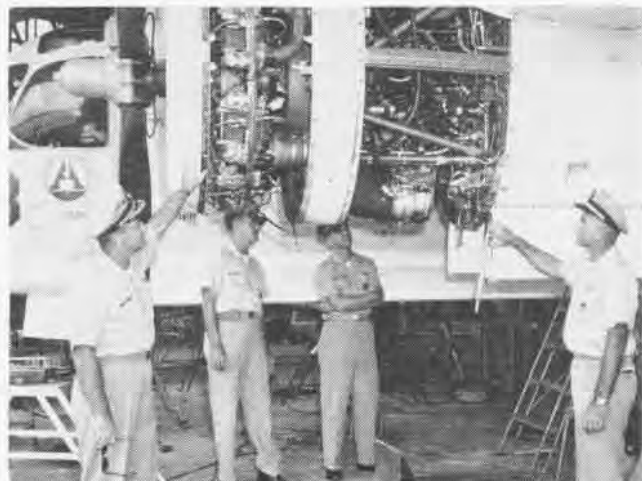
Recently, the word "PAR" has become a key word in Naval Aviation, joining the long list of acronyms of military jargon. *Progressive Aircraft Rework (PAR)* is a program designed to minimize costs without sacrificing aircraft usefulness.

Long accustomed to the brand-new appearance of aircraft emerging from

O&R shops, aircraft ferry pilots reporting to Pensacola and other O&R activities have sometimes been dismayed to find that the PAR airplane didn't have a new coat of paint, or perhaps the seats in a light utility transport hadn't been re-upholstered. In many instances, the original engines were still installed. Many squadrons, long used to "leaving it for O&R" as the aircraft neared overhaul time, found themselves faced with accomplishing many routine mainten-



EACH PAR AIRCRAFT receives individual attention according to its needs. Hangar scene shows departure from "assembly line" technique.



DOES IT NEED a new engine? PAR team discusses condition of S2F engine to decide whether or not replacement power plant is needed.

ance items upon return of the aircraft. Accordingly, O&R personnel in the Aircraft Transfer Group assumed the role of customer service organizations, adjusting ferry pilots' "complaints."

Capt. Jerry F. Daniels, O&R officer at Pensacola, says, "A great many of these 'complaints' are traceable to a misunderstanding of the objectives of the PAR program. PAR is designed to maintain aircraft at the highest level of operational readiness and material condition with minimum man-hour and material expenditures and the shortest time away from operational status. Rework requirements which do not contribute directly to these ends have had to be eliminated."

Designed to take advantage of past maintenance experience and proce-

ures, powerplant and airframe systems prior to sending the aircraft to PAR. Those discrepancies which PAR feels should have been handled by the custodian are noted and sent back to the custodian for appropriate action.

Chief advantage of improved aircraft maintenance on the part of operational activities is that it allows O&R to spend more of the allotted PAR time on desired additional work. With a limit on rework man-hours and in-process time per aircraft, the aircraft receiving improved maintenance by the operating activity may expect a few more items to be taken care of by O&R in the "essential, but not mandatory" category.

The new PAR system provides for more frequent inspection of the airframe. For example, the S2F series are scheduled into O&R every 15 months for PAR, instead of every 36 months. As a result of frequent structural inspection, a more specific operating period for each airframe component can be established.

Under the PAR concept, O&R negotiates a work agreement for each aircraft received with the customer liaison representative. O&R PENSACOLA supports ComNavAirLant and the Naval Air Training Command for PAR, processing the S2F, TF, WF, T2V and T2J aircraft. LCdr. H.D. Hall represents AirLant; LCdr. L.H. Beba, CNAResTra; and LCdr. A.D. Fowler, the Basic Training Command.

The PAR process includes in order: initial examination of the records of the aircraft, thorough steam wash, visual inspection in the examination and evaluation (E&E) area, determination of work to be done, and an agreement between the liaison officer and PAR officer concerning the extent of the O&R work. This is part of the PAR work order.

Upon completion of pre-PAR inspection and the issuance of work orders, the aircraft is moved into the main hangars for rework. PAR processing of aircraft is based upon the priority lists of required BUWEPs directives applicable to the particular aircraft and local engineering directives. Methods and extent of disassembly to be followed are listed and the special inspection items noted.

For example, in the S2F series the upper surface skin of the outer wing panel is opened for inspection to determine the extent of corrosion. If

there are suspicious areas, the entire skin section is removed by the O&R metalsmiths for further investigation and replacement, if necessary.

Major airframe components, such as landing gear members, engine mounts, and control surfaces, may be removed for detailed inspection and rework or replacement in accordance with their established maximum operating life. Aircraft engines which have reached 100 per cent of maximum service time are replaced. If not due for overhaul, engines are thoroughly tested for performance within established standards for the particular series powerplant. Electronic equipment is functionally tested in place against performance standards for mission requirements.

The latest inspection equipment and



USE OF flashlight and mirror determines whether using outer skin should be removed.

methods available to the aerospace industry assure the structural integrity and mission capability of all elements of the aircraft. While the basic objective of the PAR program has been to eliminate unnecessary cost of refinements which contribute little or no gain in performance, reliability or durability, no compromise is made with quality of material or workmanship.

A prime objective of the PAR program is the maintenance of aircraft at a level of readiness that precludes the need for scheduled overhaul. Improved engineering concepts and better manufacturing processes have eliminated the need for the "complete disassembly" overhaul of earlier aircraft.

Although the program handles each aircraft rework as the equivalent of "more than a Major Periodic Inspection," the aircraft "owner" is held responsible for keeping up the avion-



FINAL ELECTRONICS test determines whether S2F is ready for another operational tour.

methods available to the aerospace industry assure the structural integrity and mission capability of all elements of the aircraft. While the basic objective of the PAR program has been to eliminate unnecessary cost of refinements which contribute little or no gain in performance, reliability or durability, no compromise is made with quality of material or workmanship.

Aircraft completing the PAR process are rolled out from the final assembly hangar to the flight test line, where the O&R test pilot thoroughly flight-checks the aircraft and its operational equipment. Following the flight test the airplane and its log books are delivered to the ferry pilot for return to service with the Atlantic Fleet, or a Training Command unit.



PACIFIC FLEET'S first permanent hunter-killer task group, headed by USS Kearsarge and composed of four destroyers and four destroyer escort vessels, has returned to San Diego after seven months with the Seventh Fleet.

Striking Efficiency Shown Repairs Done with Lightning Speed

Two men took shelter in a work trailer when a violent thunderstorm raged over NAS JACKSONVILLE. The trailer was attached to an operations trailer which houses the Ground Controlled Approach radar system.

Then the steady drumming of heavy rain pelting on the metal roofing was interrupted by a splintering, searing crash. Owen T. Smitherman, ETC, and Clayborn M. Winfrey, ET1, came hurtling out of the workshop to investigate. They saw that the radar trailer had been struck by lightning.

They rushed inside, assailed by the stringent smell of an electrical fire which burned out relays and fuses. They immediately pulled power and generator switches to prevent a spreading fire and then evaluated the damage.

Radar scopes relaying information from the trailer to the controllers went dark. They found that a 40-foot high frequency radio antenna had suffered a direct strike; about 25 feet of antenna had been burned off. This rendered the search radar completely inoperative, knocked out the precision radar remote amplifier, blew out the remoting relays to the RATTC, and knocked out the automatic circuits to the emergency diesel power generator.

Realizing that the radar systems are vital to the control of instrument air traffic at the station, they turned

to, aided by Burton E. Rader, EN1.

Inside the control center, Marion A. Greenwalt, ETC, was also working frantically, keeping in constant contact with the field technicians. Several radar repeater fuses were blown and one repeater was completely inoperative.

The lightning bolt struck at 1304. Within 15 minutes, the precision radar was operating again. And at 1400, just 56 minutes after the complex systems were disabled, the Radar Air Traffic Control Center was operating fully and normally. As a direct result of the efforts of these technicians, the flow of instrument air traffic controlled by radar from approach to touchdown functioned at NAS JAX without appreciable interruption.

P2V ASW Device Delivered Barber's Point Gets Simulator

With the arrival of the latest ASW training device, designated 2-F-70, patrol squadrons based at Barber's Point are now able to practice all phases of submarine detection and destruction without getting "feet wet."

The 2-F-70, which simulates the P2V Neptune patrol bomber, incorporates all the latest systems used in the Fleet. It permits flight crews to practice hunter-killer operations and in-flight emergency procedures. It also provides pilots with realistic instrument flying practice.

The trainer, which is controlled by a huge "electronic brain," is housed in three large mobile trailers.

June Was a Record Month VAH-5 Claims High Flight Time

June came busting out all over for Heavy Attack Squadron Five as it totted up its flight hours. At the end of that month, the squadron logged in 847.4 flight hours. Each of the flights involved was launched from and returned to the decks of the USS Forrestal.

Cdr. A. W. Smith, VAH-5's C. O., said, "This is believed to be the highest number of hours ever flown from an aircraft carrier of any Sixth Fleet Heavy Attack Squadron in one month."

The many flight hours allowed the Savage Sons to complete all of their 1961 competitive exercises. Flight crews averaged more than 52 hours each in completing a total of 57 exercises, 41 of them resulting in "E's."

Four Safe Years for VP-21 Logs 35,000 Accident Free Hours

By the end of FY 61, VP-21 had accumulated over 35,000 accident-free flight hours in four consecutive years of safe flight operations.

During this period the squadron operated as far east as Lebanon, north to Alert, Northwest Territories, Canada—less than 500 miles from the Pole—and south to the Canal Zone.

The squadron operated in sub-arctic climatic conditions for much of last year, thus exposing it to hardship working and extremely hazardous flight conditions.

Their Forecasts are Good Coral Sea Met Department Tops

First place for surface weather observations by U.S. Navy ships has gone to attack aircraft carrier USS Coral Sea (CVA-43), Pacific Fleet, in the first annual Naval Weather Service Contest.

A plaque in recognition of this accomplishment has been received by Coral Sea's Meteorological Department. All-Navy competition for top honors in this field took place among 90 ships from January to December 1960.

Only 19 of Coral Sea's 3748 observations were in error. Navy-wide errors in surface reading went down from 8.2% in 1959 to 4.6% in 1960 and promise to drop even lower by the end of this year, safety experts say.



CDR. 'TONY' FEHER, one time USS Langley pilot (1) points to Curtis airplane flying off Pennsylvania as Capt. W.C. Fortune, C.O. of NATF Lakehurst, and pioneer pilot, LCdr. 'Pappy' Byrne look at "flying machine." Their reunion was held at Lakehurst facility.



50 Years of Naval Aircraft

UTILITY/TRANSPORT AIRCRAFT

SUPPORTING THE OPERATIONS of the Navy's combat aircraft through the years have been the utility and transport aircraft. Assigned to utility or transport squadrons and to air stations for the most part, they perform a variety of duties in support of the Fleet. In many cases they have been able to support the Fleet's missions even more directly; the Grumman J2F-5 Duck (above) is combat-equipped for an early World War II anti-submarine patrol.

A wide variety of aircraft have served in these roles.

In many cases, only one of a particular model has been used, and in some cases, quantities similar to those for combat aircraft have been procured.

In the Twenties, obsolescent combat types were used for general utility duties. This practice continues to the present day. However, combat models, even modified, have not been suitable for many roles.

One of the first needs to be filled was that for transport aircraft. In 1927, the Ford Tri-Motor was tested, and one was purchased as the XJR-1. This was followed by smaller,



FORD TRI-MOTOR, purchased as XJR-1 in 1927, was Navy's first transport airplane. Other JRs, redesignated RRs, were bought later.



POPULAR COMMERCIAL design of late Twenties was Fairchild 71. Whirlwind-powered Navy XJQ-1 operated on wheels or twin-float gear.



ONLY ONE Curtiss Kingbird was purchased. The twin-engine RC-1 served with Marines at Quantico and San Diego from 1931 to 1936.



ORIGINALLY DESIGNATED TA's, Atlantic (Fokker) tri-motor RA's served with Marines. RA-4 had P&W Wasps; nose was later lengthened.



FIRST OF THREE Wasp-powered Bellanca's purchased as RE series was the XRE-1. It served as a radio test airplane at NAS Anacostia.



DOUGLAS DOLPHIN amphibians were Navy and Marine Corps RD's. Landing gear on RD-3 was raised to clear water, not to reduce drag.



FIRST DOUGLAS transport to enter wide airline use was the DC-2. Both Navy and Marine Corps flew them as R2D-1's with Wright Cyclones.



KINNER ENVOY, an early low-wing commercial model, was tested; three purchased as XRK-1's. They were extensively modified during service.



MARINES USED Cyclone powered Curtiss Condor biplane transports as R4C-1's in mid-30's.



SINGLE NAVY JE-1 light utility transport of 1938 was improved Bellanca commercial type.



AMPHIBIANS FLOWN by Navy/USMC were JRS-1's, civilian S-43's, used from 1937 on.

single-engine types—a Fairchild 71 and a Fokker Super Universal and by three Fokker trimotors for the Marine Corps. The Fokker trimotors were initially carried as TA-1's and listed as bombers. Sikorsky S-38 amphibians were purchased as PS's. In this case, trials were carried out with VP equipment, but service was as a utility transport.

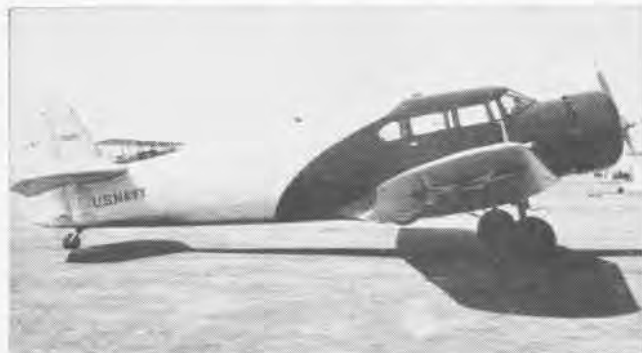
By 1930, transports were considered appropriate to Naval Aviation, and the VR class was established. Types in service were redesignated. The Ford and Fokker trimotors then in service as well as those subsequently purchased were RR's and RA's respectively. The PS's became RS's.

Other designs available in the commercial market were also added in small numbers. These included the first Douglas transports for the Navy, the twin-engine *Dolphin* amphibians, designated RD's, and the Lockheed XR0-1 *Altair*,

a streamlined low-wing monoplane with retractable landing gear.

The year 1932 saw development initiated for a new utility airplane designed solely for this Navy role. For many years, the Loening OL amphibians had served primarily as utility airplanes. The Grumman XJF-1 was designed with a similar over-all configuration, but incorporated many of the advances in aircraft design and construction that had been made since the original design of the Loening amphibian. The new twin-row Pratt & Whitney R-1830 engine was enclosed in an NACA type cowling. Armament provisions were included in the design.

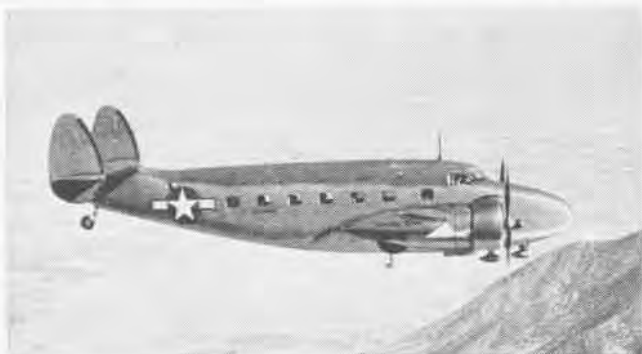
By the mid-Thirties, JF's, powered by either P&W *Twin Wasps* or Wright *Cyclones*, were in service with Navy and the Marine Corps. The basic design, revised with a larger



FAIRCHILD MODEL 45 commercial design featured cantilever low wing, retractable gear. Navy's single JK-1 is shown in "command" paint job.



ORIGINAL LOCKHEED *Electra*, a twin-engine, twin-tail transport appeared in mid-Thirties. Navy XR20-1 was used as command transport.



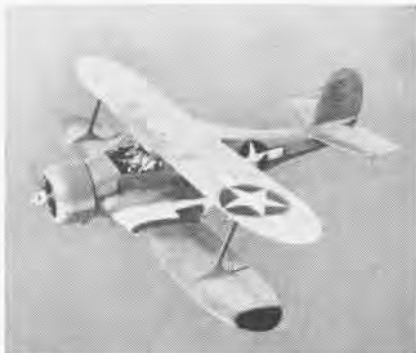
LARGER LOCKHEED model 14 and 18 transports served as XR40-1 and R50 series. R50's, including R50-3 (above) saw wide WW II use.



SMALLER LOCKHEED model 12's were used by Navy as JO series. XJO-3 with tricycle gear was experimented with as a possible carrier type.



CLOSELY RELATED to SNB's were Beech JRB's. JRB-4 is shown here with gear partially down.



BEECH GB-2's had unusual biplane configuration, 1 struts and retractable landing gear.



DOUGLAS DC-5 high-wing transport served Navy as R3D-1, Marines as R3D-2 (shown).

hull and designated J2F-1, went into service in 1937.

The first Navy low-wing, all-metal transports also went into service during this period: Douglas DC-2's as R2D-1's.

Small numbers of other contemporary commercial designs continued to be procured as staff or command transports as well as general utility types. Designations of some of these types can be confusing. In some cases, this was due to the use of the same model number series by both Navy and the Coast Guard. In other cases, manufacturers' letters were switched. Thus the XRQ was the Fairchild 71, while subsequent Fairchilds were the XR2K-1 and XJK-1. The XR2Q-1 was a Coast Guard Stinson *Reliant* while both Navy and the Coast Guard used XR3Q-1's, later versions of the *Reliant*. Kinner *Envoy*s had been assigned the XRK-1 designation.

Grumman's twin-engine, commercial amphibian, the G-21, was added to the Navy's inventory as the XJ3F-1, followed by small quantities redesignated JRF-1. And Sikorsky's larger, new amphibian transport, the S-43, also entered service.

By 1940, the pace of Naval Aviation had accelerated and a number of new utility transport aircraft were entering service. Douglas DC-5 high wing transports, R3D's, were purchased as cargo/passenger planes as well as for Marine paratrooper operations. The first Navy twin-engine Beechcrafts, JRB's, were purchased as drone control airplanes

with a special raised cabin section over the cockpit. Standard versions followed. The smaller personnel transports were redesignated as Class YG: a Beechcraft model 17 biplane and Fairchild 24's, as the GB-1 and GK-1's respectively were the first types procured under this designation. Large numbers of J2F *Ducks* were ordered as were the first Douglas DC-3's as R4D's and Lockheed *Lodestars* as R50's.

Increasing numbers were ordered in 1941. With our entry into the war, orders were greatly increased and a considerable number of miscellaneous civil aircraft from large transports to small personal types, were purchased directly for Navy use. These included large four-engine flying boats, operated by Pan American Airways and American Export Lines, which continued to be flown by the airlines under contract.

To provide the air transport needed for world-wide wartime operations, cargo versions of VP flying boats were developed. The PB2Y *Coronado* conversions were the most widely used, while the XPB2M-1R conversion of the *Mars* led to the development of the JRM series. Long-range, land-based transport needs were met with the Douglas DC-4's, produced jointly as Navy R5D's and AAF C-54's. Army Curtiss C-46's became the Marines' R5C-1 cargo transports, while the Consolidated B-24/PB4Y design was the basis for the C-87/RV transports.

One new development for general transport use came



ONLY A FEW of Fairchild's popular model 24's served with Navy. This one is the GK-1.



STAINLESS STEEL construction was feature of WW II Budd RB-1 Conestoga cargo plane.



DEVELOPED from winning racing plane, Howard DGA-15's were used as GH's in WW II.



MARTIN MARAUDERS, AAF's WW II B-26 series, were Navy's JM-1 target-towing planes.



MARINE CORPS used AAF Curtiss C-46 as RVC-1. One engine was feathered for training.



TRANSPORT VERSIONS of B-24/PB4Y designs were RY's. RY-3 was developed from PB4Y-2.



COLUMBIA produced J2F-6's, developed post-war XJL-1 amphibian as possible successor.



PROTOTYPE of Douglas JD-1's, still in service, was XJD-1, converted from AAF A-26.



TWIN-ENGINE light transport amphibian, Grumman JRF-5 Goose, served after WW II.



FIRST NAVY four-engine landplane transports were WW II R5D's, still in service.



DESIGNED FOR Navy for transport was XR60 Constitution; two prototypes were built.



TAKEN OVER from USAAF were four Noorduyn Norsemans as JA-U's, used in High Jump.



BEING TESTED at Naval Air Test Center prior to Marine service is the Fairchild R4Q-1.



DOUGLAS DC-6B'S, entering Navy transport service as R6D-1's, today operate with MATS.



MANY NAVY DC-3's operate in original configuration; 101 are R4D-8 "Super DC-3's."



REFUELING BANSHEE is one of the turboprop-powered, low-loading Convair Tradewinds.



CARGO/PASSENGER transports are Navy R4Y-1 versions of Convair 340 airline type.



DEEP FREEZE service was reason for purchase of UC-1 Otters built by de Havilland, Canada.

under the Navy's program, the Budd RB-1 *Comestoga*, a stainless steel, twin-engine cargo plane. Problems, largely relating to the use of stainless steel in aircraft structures, were never adequately solved, and the production program was finally terminated. Cessna's small twin-engine, five-place transport, which also avoided the use of aluminum in its construction, was also purchased in limited numbers as the JRC-1.

For towing targets at speeds higher than those of other utility types, unarmed versions of the AAF's Martin B-26 were acquired for use as the JM's.

As the war neared an end, development of new types for several of the utility/transport roles was under way. To provide the Naval Air Transport with a long-range, land-based transport which could also serve as a potential commercial airliner, Lockheed designed the XR60-1 *Constitution*. Two prototypes of this very large R-4360-powered, double-deck, transport were built. They were to become familiar to many when they were put into service with NATS after their test program was completed. As a water-based counterpart, Martin proceeded with the JRM program. Five of these were to serve for many years with VR-2.

Also built was a single Consolidated-Vultee XR2Y-1 prototype, using the wings and tail of the RV-3 on a new fuselage designed directly as a transport fuselage, capable of being pressurized. This type was dropped before testing

was completed and proposed civil use didn't materialize.

For a J2F replacement, the Navy turned over the Columbia Aircraft Corporation which had taken over *Duck* production from Grumman as the J2F-6. The resulting midwing monoplane, XJ1-1 prototype amphibian was tested in the post-war period, but no production orders were placed, and this type of airplane gradually passed out of service.

The Grumman-developed XJR2F-1 utility/transport amphibians were more successful. The long line of Navy UT and Air Force SA-16 *Albatross's* have followed from these prototypes.

For target towing and other utility duties, two AAF Douglas A-26's were converted to XJD-1 prototypes at NAS NORFOLK. The "production" conversions which followed continue in service today as target-towing and drone control airplanes.

A small number of AAF Noorduyn *Norseman* UC-64A single engine transports were acquired from AAF surplus. These could be flown with wheels, floats, or skis and were used for Operation *High Jump* in 1947. Like the de Havilland UC-1 *Otters*, which were purchased some ten years later for *Deep Freeze* operations, they were built in Canada, having been designed for "bush flying" in the Canadian North.

In the late Forties, transport requirements were re-examined and re-equipment started. Air Force C-119



FOUR OF THE FIVE Martin JRM Mars flying boat transports, which served for many years with Transport Squadron Two, fly in formation.

Based on PB2M-1R design, four JRM-1's had Wright R-3350's; one JRM-2 had Pratt & Whitney R-4360's. They set many a record.

Packets were purchased as R4Q's for the Marines, to replace the R5C-1's. Douglas DC-6's as R6D-1's and Lockheed Constellations as R7V's went into service with NATS, later with the combined MATS and the Navy's Fleet Logistics Wings. One hundred R4D's were rebuilt to the new super DC-3 configuration as R4D-8's — one more from the AF was added later.

A new transport role came into prominence during the Korean conflict: the COD (carrier-on-board delivery), first performed with converted TBM-3R's. To provide a more effective airplane for COD operations, the S2F design was revamped into the TF-1. TF's perform all of the COD duties today.

As successors to the Mars seaplane transports, Convair's XP5Y-1 design was redeveloped into the turboprop R3Y series. The -1 was a straight transport version. The -2 incorporated bow-loading provisions for amphibious assault use and tanker installations for flight refueling. A limited number went into service, but powerplant problems led to

premature retirement of these last Navy seaplane transports.

To supplement the R4D's, and provide more modern equipment for general support transport operations, Convair 340's were purchased as R4Y-1's. Two 440's followed as -2's.

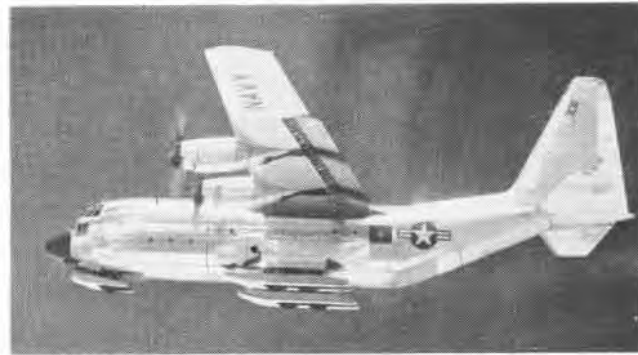
In the late Fifties, evaluation was conducted on two Air Force Lockheed C-130A airplanes, one of them in a flight refueling tanker configuration. As a result, the improved C-130B was developed into the GV-1 tanker/transport for the Marines. These are now going into service with Marine VMR squadrons. In addition, four C-130B's with combined ski-wheel landing gear were purchased for VX-6 operations in the Antarctic.

At the other end of the size range a group of Piper Aztecs operate in the Navy colors as UO-1 light personnel transports.

Future operations will include new transports—many of them will probably bring the Navy into the ranks of the turbine engine transport operators.



PROTOTYPES for the Navy/Coast Guard UP's and Air Force SA-16's were two XJR2F-1's. Latest version of Albatross is ASW airplane.



LOCKHEED HERCULES serves Marines as GV-1 tanker/transport. Four with ski, C-130B's, perform yeoman service today in Antarctica.

LETTERS

SIRS:

While I found the article entitled, "Calling Barricade Riggers" (August NANAWS, p. 40) of considerable interest, I don't think USS *Yorktown* has been keeping up with the records set by the V-2 division of USS *Lake Champlain*.

Of course, the *Champ* set a barrier record of one minute, 20 seconds, last year, but since then we have beaten our old record three times. Our record now stands at one minute, one second. This record was set with an arresting gear crew of only 18 men.

Now I would like to ask the USS *Yorktown*: "Are there any challengers?"

EDWARD F. MOORE, ABE-1
Arresting Gear P.O.

USS *Lake Champlain* (CVS-39)

SIRS:

With reference to the article "Calling Barricade Riggers" (August 1961 issue of *Naval Aviation News*, p. 40), the following is submitted for review:

In the running of the last three competitive exercises in "barricade rigging" aboard the anti-submarine aircraft carrier USS *Kearsarge* (CVS-33), the individual times for rigging were 58 seconds, 57 seconds, and 56 seconds respectively. While it is not our intention to belittle the excellent accomplishments of our sister carriers (USS *Lake Champlain* and USS *Yorktown*), records are made to be broken. It is only our desire to enter and further the competition.

To enable other carriers to approach what we consider an efficient rigging time, we highly recommend that during competitive and actual riggings coffee breaks be eliminated.

THE KEARSARGE RIGGERS

AOCP Rates Due to Jump Supply Office Changes Reporting

The Aviation Supply Office has issued a new instruction (ASO Field Instruction 5442.1D of 30 August 1961) which changes the requirements for reporting aircraft out of commission for lack of parts (AOCP's) and aircraft not fully equipped (ANFE).

This change in reporting requirements will probably result in a change in AOCP/ANFE statistics, according to people familiar with the former workings of the system. Principal changes in reporting requirements are:

- The proviso has been added that an item requirement, which otherwise meets the AOCP/ANFE standard, is AOCP/ANFE only if the material has

been requisitioned but is not actually available within the geographical confines or perimeter of the station nor physically on board the ship where the aircraft is located.

- Cut-off time for reporting is now 1600 local time on Wednesdays instead of 1200 each Friday. Only planes that are officially listed in an AOCP/ANFE status at that moment will be listed in the statistics.

- Only items which have been in an official AOCP/ANFE status for at least seven or more days will be listed.

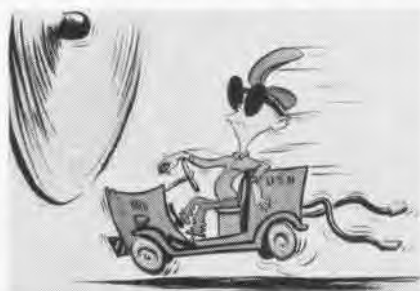
- The AOCP/ANFE Report is extended to include status code "B" pool aircraft under controlling custody of AirPac or AirLant and assigned to fleet operating squadrons.

- Only parts required for aircraft service change kits classified *immediate action* may be included in the AOCP/ANFE report.

The Aviation Supply Office states that "the AOCP/ANFE rates may increase" owing to a change which says in effect that once an aircraft is listed as AOCP or ANFE, it must continue to be listed that way until the ship or station actually gets the needed part. Documents indicating future delivery on (date) will not be sufficient.

VT-21 Reports Safe Flying Squadron Logs Record Safe Hours

VT-21, all-jet, advanced training squadron, NAAS KINGSVILLE, reached its 15,000 accident-free hour in August. It accomplished this in seven months, averaging over 2000 flight hours per month. VT-21 is commanded by Cdr. J. H. Crawford.



MUGS, Dilbert's half brother, is cartoon character adopted by Naval Aviation to spotlight use of Mobile Unit Ground Support Equipment. Chas. Shneck and Norman Bensene, both AEC's at Memphis, originated "MUGS."

ABOUT THE AUTHORS



CAPT. CLEVELAND, SR., (C) AND HIS BOYS

Lt. Richard R. Cleveland (*Getting to Know the A3J*, p. 19), NAO, VAH B/N and VAH-3 PIO, comes by his love of Naval Aviation honestly. His father, Capt. William L. Cleveland, USNR (Ret.), flew from the old *Langley* and *Lexington* and was personal pilot for Admiral Halsey during WW II.

Of Capt. Cleveland's four sons, three are now naval officers on active duty, and the fourth, Bill, Jr., was a Marine aviator in Korea and is now a Weekend Warrior in a Jacksonville VR squadron.

Upon his graduation from the University of Miami in Florida with a Bachelor's degree in airport management, Dick attended OCS at Newport and was designated Ensign (1355—Naval Aviation Officer—Reserve) in November of 1955. He was ordered to VAH-7 where he flew as A3D B/N.

Dick was released to inactive duty in 1959 and signed up with North American Aviation, Columbus Division, where he flew as test B/N in the A3J program.

At North American, Dick became the first B/N to do Mach 2 in the A3J. Now he is the second Mach 2 B/N to be by-lined in NANews.

With the acceptance of a regular Navy Commission (Lt., 1350) in Oct. 1960, Cleveland was ordered to active duty and assigned to VAH-3. He now serves as an Advanced Missions Instructor.

Cdr. Dick Schram, USNR-R, (*PAR for the Navy*, p. 30-31) is a Chicago dynamo who generates a lot of action in three main fields of endeavor. When not plying his civilian trade as marketing manager for Chicago Aerial Industries, Inc., he is either working as a Naval Air Reserve Weekend Warrior (WEPTU-721, NAS GL5NVR15W) or moving around the country putting on flying exhibitions as the "Absent-Minded Professor" in a careening Cub airplane. Often he combines the latter two avocations to promote Naval Aviation, appearing at Air Force shows with the *Thunderbirds* exhibition team or with the Navy's *Blue Angels* at Navy shows.

An aviation enthusiast since high school days, Cdr. Schram has also had considerable interest in overhaul and maintenance problems, wears a WW II Navy Commendation Medal for his work on O&R expansion programs.



SQUADRON INSIGNIA

Flying a heterogeneous assembly of aircraft—from helos to Hercules—Air Development Squadron Six (VX-6) enriches the heritage of Naval Aviation. Commanded by Cdr. Martin D. Greenwell, officers and men demonstrate durability in a demanding duty as they deploy to the Antarctic on Deep Freeze.



OLDEST AND NEWEST

USS Essex as CV-9 and her sister ships changed the concepts of warfare in WW II and enabled Naval Aviation to play a dominant role in Korea. This month, some 20 years after the debut, Essex as CVS-9 is a proud potent practitioner of a new art—ASW. Latest look in attack carriers is USS Kitty Hawk, CVA-63, joining the Pacific Fleet this month.

