NAVAL AVIATION NEWS

OCTOBER 1974


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NAVAL AVIATION NEWS

FIFTY-SIXTH YEAR OF PUBLICATION

THE STAFF

Covers – *PH1 Harold Phillips of Combat Camera Group Atlantic has scored a photographic grand slam in this issue. He captured an HC-6 Sea Knight and its reflection, left, after a rainshower at NAS Norfolk. The wraparound cover features a Phillips view of the Blue Angels in action at an air show earlier this year.*

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Letters

Model, Far-Fetched Type

Thank you for the return of the "Far-Fetched Phantom" pictures (*NANews*, June 1974, p. 40). I'm glad we're able to be of assistance.

As a matter of interest, I thought you might like to see a copy of a letter which Fred Smalley received from a young lad regarding your story. . . . We don't get many letters like this in our office and it is something of a joy to see them. Maybe you are saturated with them to the point where it becomes old-hat, but to us it's a novelty. Hope that this is of interest to you.

Bruce Mitchell, Associate Editor
Product Support Digest
McDonnell Aircraft Company
St. Louis, Missouri 63166

June, 24/1974

Dear Mr. Smalley,
I am writing this letter to you because I would like the details for building the Far Fetched Phantom that appeared in the June issue of Naval Aviation News. I'm willing to pay for them.

Yours truly,
Patrick Ewing

Dear Patrick,

Enclosed you will find a set of instructions for building the "Far-fetched Phantom" and some pictures. I don't know how much experience you've had in building models, so, if there is anything in the instructions you don't understand, don't hesitate to contact me.

I am also sending a copy of the drawing that I used when I built my model and a picture of the completed model. The photograph will probably give you an idea of what the model should look like better than the written description.

I wish you luck.

Fred W. Smalley, Jr.

Another Buff

I have just received my May copy of *Naval Aviation News* and find it very interesting, as always.

In that issue you have an article titled "Best of the Buffs" and I agree with you that Steve Ginsberg certainly is. I thought I was doing pretty well with my collection of approximately 140 carrier and squadron insignia, plus U.S. Air Force and U.S. Marine divisional and unit patches. Although I'm pretty sure I have one of the best collections of U.S. Navy patches in Australia, I guess I'm pretty small-time considering my collection as against Steve's.

Mr. R. Cheesman
No. 10, Rachel Cres
Mt. Pritchard, 2170 N.S.W., Australia

SAR Patches

Enclosed please find the SAR patch from Naval Station, Rota, Spain. It's about time you published some SAR station patches on your inside back cover. After all, we're the ones who rescue those who fall out of the birds usually featured in your publication.

Rota is flying the HH-46A SAR-equipped helo. Previously we flew UH-2Cs which have since been sent to rework for the LAMPS program.

Lt. R. C. Seelos
Box 15, NS Rota, Spain
FPO New York 09540

Lighter than Air

I read with delight your article on th renewal of interest in lighter-than-a craft (*NANews*, May 1974). I hold commercial lighter-than-air free ba loon license (hot-air and gas balloons

The idea of a nuclear-powere dirigible is particularly exciting. Such craft could stay in the air indefinitely

Incidently, I am in the Aviatio Officer Candidate Program and wi start my training at Pensacola in earl September. While flying LTA craft an exceptional experience, I hope t fly jet aircraft in the Navy.

Jon Simmond
1547 Glendon Avenu
Los Angeles, Calif. 9002

Editor's Note: Mr. Simmonds is th man in the Canadian Club ad, "ba looning" high over Fraser Canyo British Columbia.

Better Late . . .

NANews wishes to extend a belate thank-you to Captain William Sca borough, USN (Ret.), and Charles Scriv ner for their submission of the materia on the *Ventura/Harpoon* (PV) used o pages 20 and 21 in the August 197 issue.

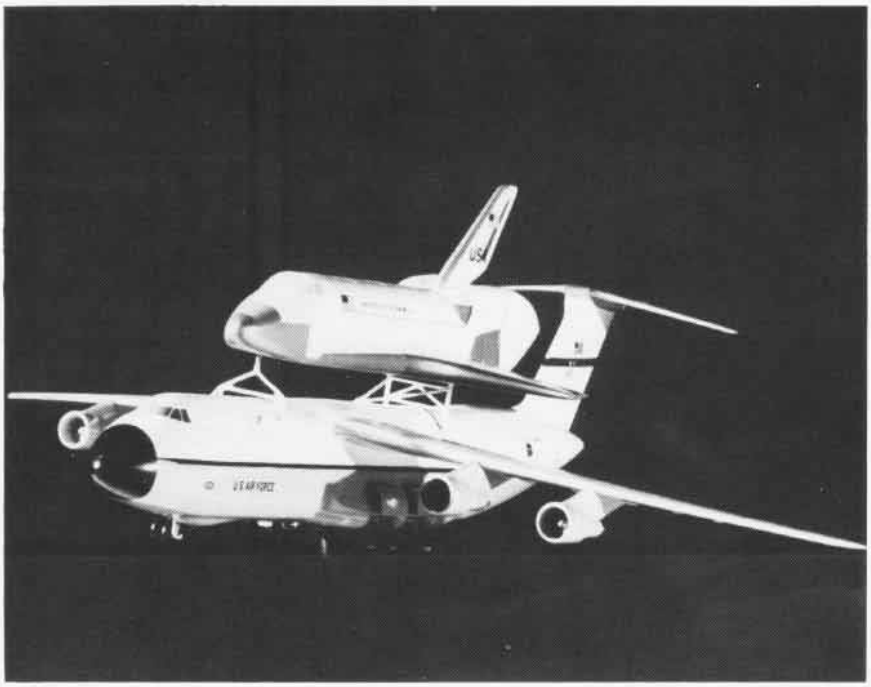
The Editor

did you know?

Piggyback Possibilities

A scale model of a space shuttle orbiter is carried piggyback atop a C-5A. NASA has directed Rockwell International at Downey, Calif., to study the possibility of this kind of ferry transportation.

The orbiter, one of the main components of the space shuttle system, is 122 feet long, 78 feet tall and weighs 150,000 pounds without a payload.



Range on Target

Since you can't measure your aim without a target, the Naval Missile Center Surface Target Division supplies ships for sinking.

Actually, the 39 sailors of the division provide the Point Mugu Pacific Missile Range with a wide variety of targets. The division maintains tanks, a bridge and other targets on San Nicolas Island, but the most popular targets are seaborne powered target (SEPTAR) Mark 35 boats.

The Mark 35 can be equipped with electronic and radar systems to receive and transmit signals. It can be outfitted with remote throttle controls or with "corner reflectors" to appear larger than its actual size on a radar screen. Some boats are rigged with a fish-net framework to increase their target size on a radar screen.

The destroyer *Burns* is being prepared for a missile program requiring a medium-sized combat target ship. The old destroyer escort *Gunason* will be used as a live-warhead target ship in the sea test range.

There is also a large complement of 18-foot SEPTAR Mark-33s for gunnery exercises as well as the only WW II PT boat in the Navy. The PT uses long lines to tow low-cost targets at 30-knot speeds for both gunnery and bombing practice.

The Naval Missile Center Surface Target Division supports other activities in Hawaii, the Philippine Islands, Puerto Rico and the Eastern Mediterranean.

did you know?

Another Bull's-eye

The first McDonnell Douglas *Harpoon* anti-ship missile equipped with a live warhead scored a direct hit on a destroyer target on the Pacific Missile Range on July 25.

The missile, one of 40 prototypes, was launched from a P-3A and demonstrated successful turbojet engine performance, flight control, target acquisition and warhead detonation. It was the ninth success in 10 launchings during the current tests against target ships.

The *Harpoon* can be launched from aircraft, ships, submarines and, with a canister launcher, from mobile shore-based systems.

More Helo Horsepower

The first two General Electric T58-16 turboshaft engines for the twin-engined Boeing Vertol CH-46E have been shipped for installation in flight-test aircraft.

The 1,870-shaft-horsepower engine will replace the 1,400-hp T58s currently powering CH-46s. This conversion is part of a Marine Corps modernization program which is expected to involve 300 helicopters over a six-year period.

High gas temperatures, provided by a new air-cooled gas generator turbine, and a two-state power turbine increase horsepower 33 percent and improve fuel consumption.

Flight testing will begin in early 1975 with deliveries for fleet helicopters scheduled for the same year.

New V/STOL Tests

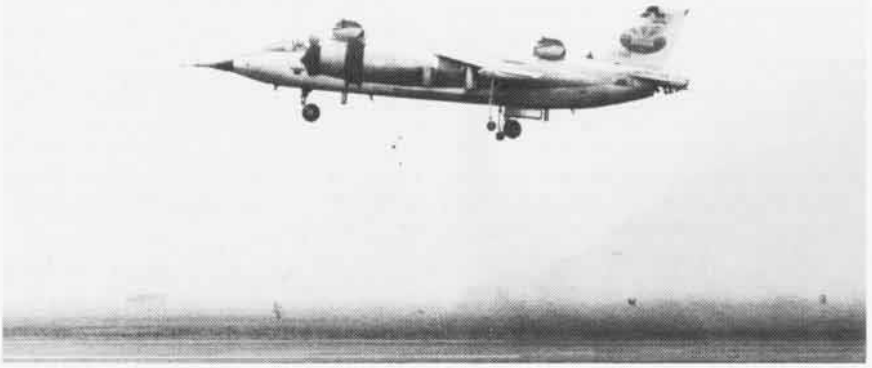
The first flight of a NavAirSysCom/West German, joint-test V/STOL fighter took place in Manching, Germany, last July. There are three experimental planes which will be used in a test evolution which will take a year. They are the only ones of this type flying in the Free World today.

These VFW-Fokker VAK-191Bs are being studied to develop and evaluate prediction methods and techniques for application to future V/STOL and other aircraft designs. Resulting data will be shared with the West German government which is providing the planes, support facilities and personnel.

This program is part of a continuing effort by the U.S. Navy for the active study and evaluation of various V/STOL aircraft configurations and technologies. The lift-plus-lift cruise V/STOL concept, embodied in the VFW-Fokker, is one of the options being considered by the U.S. Navy for its future V/STOL requirements.

Captain Robert E. Weedon is supervising the Navy evaluation. Two full-time engineers have been assigned in West Germany for the duration of the program.

The plane's VTOL control system operates by bleed air from lift engines and the main engine which is routed to the wing tip and fuselage, nose and tail nozzles. This provides control moments in hovering and transition modes. The three-axis primary flight control system consists of a triplex electrical, fly-by-wire arrangement. Included is a duplex servo-actuation system and a mechanical backup which is declutched during normal operations.



Crashing Success

Test aircraft are crashed at the Langley Research Center's Impact Dynamics Facility to provide information on what happens to light planes subjected to crash loads.

Aircraft are suspended, pendulum-like, from a structure and swung to the ground to simulate free-flight crash conditions for flight paths from zero to 60 degrees. The height the aircraft is raised by the pull-back cable determines the speed at impact – from zero to 60 miles an hour.

NASA's role covers full-scale aircraft crash simulation tests, airframe structural behavior and evaluation of energy absorption concepts.

GRAMPAW PETTIBONE

Guess Where the Fuel Is?

Following a briefing, two lieutenant commander aviators manned A-4 *Skyhawks* for a combined low level navigation and instrument round-robin flight. Each aircraft was configured with two 300-gallon external fuel tanks. The first portion of the flight, which was low level navigation, proceeded without incident. At the turnaround point, the leader executed a climbing turn to begin an IFR return to home base. Passing through an estimated altitude between 8,000 and 10,000 feet, the pilot of the lead A-4 "heard and felt an engine chug." Initial engine indications reportedly appeared normal but the engine flamed out within seconds.

After several airstart attempts, which ultimately proved unsuccessful, the pilot attempted a flameout approach to a nearby civilian airport. The aircraft impacted an earth overrun 250-300 feet short of the intended runway. The gear and flaps were down and speed brakes closed. The main gear sank approximately two feet into the overrun and folded aft, ripping loose from the aircraft. The nose gear similarly sank into the earth and was torn loose from the aircraft. The external fuel tanks hit the earth and ruptured approximately five feet past the first point of contact of the main gear.

The aircraft continued up a shallow incline onto the runway with the ruptured external fuel tanks releasing a large amount of fuel — which ignited. The forward sections of the external tanks veered to the left, streaming fuel and coming to rest approximately 600 feet from the point of first impact.

The aircraft came to rest in a level attitude on the right edge of the runway and 700 feet from impact point. It continued to burn.

The pilot jettisoned the canopy and exited the aircraft. The A-4 continued to burn beyond repair. Airport firefighting facilities were inadequate for extinguishing the flames which were later put out by the local fire company. The investigation revealed the fuselage tank had less than one gallon. The accident board did not find any material failure.

Grampaw Pettibone says:

Great gallopin' ghosts! What a mess! When all is said and done, it looks like this fella just plain allowed himself to run outa gas. Gas he had — in the drop tanks! He just didn't monitor his fuel indications to ensure that the "go juice" was transferring.

However, this wasn't the driver's only sin. He used improper relight procedures, executed a flameout approach in violation of NATOPS, and others. And I believe there's definite supervisory error here. Why didn't this guy know the correct procedures? Smells like unit training smells! I believe this outfit better shape up their NATOPS program lest lightning strike again.

Nostalgia

When the engine of an SB2C-4 momentarily cut out immediately after take-off, the plane settled back on the runway. However, instead of landing on its wheels, as it should have, it settled on its belly because the pilot already had retracted his landing gear. The plane required a major overhaul before it could be flown again.

The accident board reported that although all pilots had been advised and instructed not to retract wheels until they were sure that a landing could not be made on the same field, there was a noticeable tendency among pilots to pull up wheels as soon as planes became airborne.

Grampaw Pettibone says:

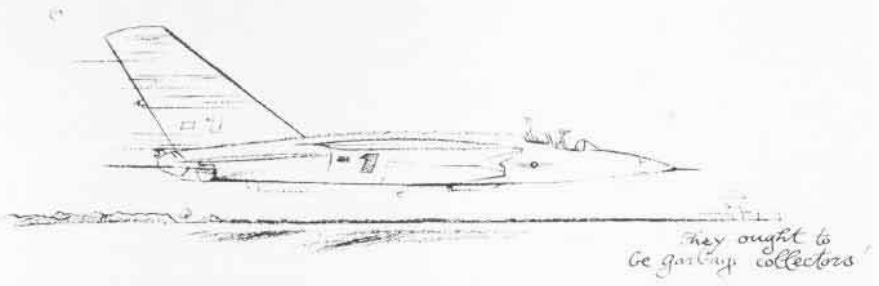
Let's look at the record. It confirms the board's observation about pilots raising their gear prematurely — to the extent of approximately 100 accidents a year. Taking into account the strikes, overhauls and repairs involved, it is estimated these accidents cost the Navy an average of $25,000 each [1945]. Add that up on your abacus!

The parade of alibis explaining these embarrassing exhibitions includes everything from slipstreams and bumpy runways to misinterpretation of signals by flight crews. Needless to say, none ever satisfactorily explained the necessity for such ultra-

ILLUSTRATED BY Osborn

snappy raising of the landing gear.

Some pilots evidently don't take kindly to the "instruction and advice" referred to by the board. It shouldn't be too hard, however, to find a cure for this sort of foolishness. All that is necessary is for commanding officers to convince themselves that there is absolutely no reason for raising the landing gear the instant planes become airborne (which is practically self-evident), then to issue a one-sentence order on the subject, and then to dish out the right kind of medicine to make it effective. And don't wait until you have one of those accidents in your squadron before taking action (June 15, 1945).



The Big Assist

A senior Naval Aviator and his junior Naval Flight Officer (NFO) manned an RA-5C *Vigilante* for a training mission which included a bombing exercise. The brief preflight and departure from home plate were uneventful.

During the exercise, the RA-5C developed radio problems and joined on the wing of another aircraft en route back to base. The flight leader informed the tower that his wingman had radio problems and would require a green light. Upon arriving at the field, the *Vigilante* regained radio communication and so informed the tower.

The flight made a normal approach to the duty runway. The interval was extended due to a wet runway and the pilot reported at the 180 with gear and flaps down. At this time, the aircraft reported 3,200 pounds of fuel remaining. When the RA-5C was on short final, the aircraft ahead of him reported he was taking the arresting gear. The pilot, hearing this, waved off and was cleared downwind to another runway.

Fuel state at this time was getting low but sufficient; however, no long delays would be possible. A landing check was again made with the NFO in the rear seat who acknowledged that the *Vigilante* was ready for landing. As the aircraft approached the 180-degree position with fuel at 2,600 pounds, the flaps were lowered to the 50-degree position and the landing checklist was again repeated. The NFO reported "all set for landing." A normal approach was made and lineup was left because another aircraft was rolling out on the right side.

The aircraft touched down, wheels up, near the approach end and came to a stop 3,500 feet from the approach end.

Grampaw Pettibone says:

Thunderin' tarnations! I can't believe it! Every time we have a minus-the-rollers landing all the same conditions appear: distraction (pilot waved off because aircraft in front took the gear); non-NATOPS (pilot didn't utilize challenge and reply).

And, in this case, the gent in the back was no help at all — in fact he "assisted" the wheels-up landing by assuring the driver that the machine was ready for landing!

Would you believe that we had 12 unintentional wheels-up landings last fiscal year — *TWELVE!* Would you also believe that the majority of wheels-up landings are made by multiplaced aircraft — and this means that at least two people have their "heads up and locked."

Every pilot has the preventive medicine readily available — *the checklist.* Use it!!

Hooded Caper

A lieutenant junior grade was scheduled for a morning daylight radar navigation flight in an A-7 *Corsair II*. The chase pilot was a lieutenant with considerable experience in the *Corsair*. The briefing, which was very thorough, included altitudes, check points and terrain features. In the event of lost communications, the lieutenant junior grade was briefed to climb and go contact. Additionally, the chase pilot was to fly in front of the hooded aircraft, causing it to fly through the jet wash as a signal to go contact.

Following preflight, start and taxi, the two A-7s launched as scheduled. Leveling-off at assigned altitude, the lieutenant junior grade lowered his instrument hood and went "on the gauges."

Approaching a checkpoint, he did not respond to radio instructions from the control center; however, all later transmissions were properly acknowledged. Passing another checkpoint, the chase pilot observed that the lieutenant had drifted right of course toward rising terrain.

The chase pilot added power to overtake the lead aircraft and broadcast instructions to "turn left." This was followed by a call to "turn hard left." Seeing no response, he transmitted "turn left and up," followed by "pull up!" No change in aircraft attitude was observed and the aircraft impacted the mountain approximately 50-75 feet from the top of the ridge. The aircraft disintegrated and was scattered over a two and one-half-mile area. Total elapsed time from the point where the chase pilot noted the error in track to the impact was approximately two minutes. No ejection attempt was observed.

Grampaw Pettibone says:

Great balls of fire! Unfortunately, we will never know exactly what happened—radio failure or preoccupation in the cockpit or both. Either way, we lost the young lad and the flyin' machine, to boot.

Seems to me that this route of flight at the altitude this lad was operating didn't allow much deviation from the old course line. Now, after we lost the driver and machine, this particular route is being "reviewed" to increase the lateral clearance from the high rocks. Sounds like a little "closin' the barn door after the hoss escaped."

SUBHUNTERS

EYES IN THE SEA

By JOCS Dick Benjamin

Within the sea, hearing is seeing. Two hundred miles off the Virginia coast, the P-3 *Orion* continues its patrol, searching for potential enemy submarines.

Wednesday, 0910: Suddenly, a radar blip. "Bearing 090, ten miles." The *Orion* banks and heads for the contact area.

0916: The cause of the radar echo – a submarine. Its position, heading and speed are reported to the headquarters of Commander in Chief, Atlantic Fleet. The headquarters staff knows the exact location of every friendly sub in the Atlantic. The new contact is added. The data is relayed to a CV near the contact area. The order – proceed and investigate.

A P-3 Orion picks up a radar blip while on patrol in the Atlantic and heads for the contact area, above. An S-2 Tracker sweeps the area and makes contact with a submerged submarine, opposite.

The order is received from Norfolk. Aboard the carrier, the task force commander's first problem is time. His planes will arrive over the target's estimated position an hour and 20 minutes after the sub was first sighted.

"Altimeter, 29.94 . . . ."

The carrier's ready rooms. The aircrews learn about the contact area 80 miles away: cloud cover, visibility, air and water temperatures, search procedures.

"On the flight deck, remove tiedowns, wheel chocks and all loose gear. Stand by to launch aircraft."

Moments later S-2 *Trackers* are catapulted from the carrier's flight deck and make their way toward the contact area. They will soon be joined by SH-3 *Sea King* ASW helicopters. Data collected about the target will be channeled through the carrier's combat information center (CIC). All reports go there for immediate evaluation. Command decisions depend on a total, up-to-the-minute picture.

1035: CIC receives a message from the S-2s. They are over the sub's estimated position and are swapping data with the P-3. The original contact has been lost. They must regain it.

The *Trackers* try a sonobouy. After entering the water, these detection devices lower a hydrophone and raise an antenna. In a quiet sea they can pick up and broadcast a target several miles away. This moment – no target.

Throughout the search the S-2s also use magnetic detection gear (MAD). Radar is useless against a submerged target. A sensing device in the tail boom of the *Tracker* will detect large metal objects fathoms below, be it a sub or a sunken wreck. Nothing yet.

1110: The helicopters join the search. They combine moderate aircraft speed with the ability to hover over a target area and dunk a sensitive sonar ball. Unlike a ship's sonar, the ball is free of surrounding, man-made noises. But this morning, its pulses find nothing. The *Sea Kings* try several areas. Still no contact. Every ASW mission demands patience, determination, more patience.

Miles away from the search area the submarine moves about on the ocean's surface. It has evaded the planes for two hours. What are the prospects now?

Meanwhile, the *Trackers* widen their search.

Spook – an unidentified surface contact by radar. Possibly a sub. By the time the *Trackers* reach the estimated contact position there is no trace of the target.

"Pilot, radar. Spook became sinker, five miles."

Now the hunters concentrate on magnetic detection.

"MAD man, MAD man."

An S-2 has a contact that classifies the object below as a submerged, conventionally-powered submarine. It also reveals the sub's direction and approximate speed. Twelve minutes later, the contact vanishes again. Sometimes this game of cat and mouse is played for hours, even days.

The helos' time is running out. They can stay on station only half as long as the *Trackers*. A second relay of *Sea Kings* from the carrier must relieve them.

1320: The skipper of the sub decides it's time for another look around. He has his boat brought to periscope depth.

Spook. Another radar fix. "Target five miles."

"Bogey upstairs. Go deep all ahead."

Too late. The helicopters are not far off. They swoop down on the area and lay a pattern of sonobouys as they follow the ocean's surface. The carrier immediately begins picking up signals which give the sub's exact location. The information is relayed back to the SH-3s. As the data comes in over the UHF channel, the *Sea Kings* again descend. They level at 150 feet and turn to the wind line. They drop to 45 feet where they hover and drop their sonar.

For several hours the submarine contact is held. Then the sonar echoes become confused. Above, they wonder. Seaweed? Fish? A wall of cold water? All will affect the signal. The confusion of echoes gives the sub time to escape. The carrier is informed that all contacts are lost. The hunt begins again.

Hours later the sub takes advantage of nightfall to take on the fresh air it will need to stay down during the next day.

"Commence snorkling, commence snorkling."

The task force covers a wide area. Strategy pays off. An S-2 gets a fix and reports it to the carrier.

"Radar contact bearing 210 degrees, seven miles from original datum."

A destroyer has since joined the airborne sub hunters. In the morning, sonar technicians aboard the tin can are still listening to the sub below.

Below, they listen to the hunters above. The sub didn't have time to take on sufficient air for an extended stay under the surface of the sea. The breath is now being literally forced out of it.

Thursday noon: The sub hunters have held the boat continuously for more than 16 hours.

Below, men and batteries are exhausted.

1350: Over 28 hours after the sub was first sighted, another hunt is over. In wartime the target would have been destroyed. But this target was an American sub assigned to test antisubmarine warfare units. One skill was used to sharpen another in this prearranged antisubmarine warfare exercise.

EYES IN THE SEA

Story and Photos by
JOCS Dick Benjamin

Locate, track and, if necessary, destroy enemy submarines. This is the mission of ASW units such as Helicopter Antisubmarine Squadron Five.

Jane's Fighting Ships, 1973-74, lists over 400 Soviet submarines now in service. These range from nuclear-powered, ballistic-missile to diesel-powered patrol and radar picket subs.

"ASW is the toughest job we could face in the Atlantic . . . ," says Admiral Ralph W. Cousins, Commander in Chief, Atlantic. "In any conflict or confrontation, the Navy and the Nation could face well over 100 Soviet submarines in the Atlantic."

Currently deployed aboard USS *Independence* (CV-62) in the Mediterranean, HS-5 uses SH-3D *Sea Kings* in performing its mission. And because antisubmarine warfare is not an 8 to 5 job, twelve crews are needed to man the helos around the clock. A single crew consists of a pilot, copilot and two aircrewmen, usually aviation ASW operators. As maintenance and ground support are also 24-hour-a-day projects, the squadron has 140 support personnel.

Antisubmarine warfare isn't the only task the squadron has to be concerned with while deployed aboard ship. It also flies considerable hours on search and rescue (plane guard) and utility missions.

When flight operations are held aboard the carrier, day or night, HS-5 aircrews are the first in the air. The helos are also the last to land.

On a typical day of cyclic flight operations, the helicopter crews are in their ready room well over an hour before flight time. Half an hour before launch they are on the flight deck preflighting their aircraft.

Three SH-3Ds will be the first aircraft launched. One will take up its station near the carrier for plane-guard duty, ever watchful while other aircraft of the air group continue launching and landing. The other two helos will head for a preselected area to increase their efficiency in antisubmarine warfare or practice airborne refueling from a destroyer.

The *Sea King* crew on plane guard often takes advantage of breaks between flight cycles to hold NATOPS checks. After so long on station near the carrier, the SH-3D will rotate with one of the other helos to prevent boredom from setting in on the crew. This also gives each crew a chance to participate in ASW and refueling exercises.

If extended flight operations are scheduled aboard the carrier, the SH-3Ds will have to return to the carrier briefly to change crews and refuel. The average on-station time for each crew is four hours. At the end of that time a crew is ready for a rest.

After so many hours the helicopters must also be changed so that proper maintenance procedures can be followed.

At other times, the *Sea Kings* and their aircrews are called upon for utility flights. Mail is always welcome aboard the carrier and accompanying ships, and helicopters are often the best way to make the transfer. The helos are also well suited to transfer people from one ship to another.

HS-5 was commissioned January 3, 1956, at NAS Key West, Fla. In April of that year, the squadron was outfitted with its first helicopters – 14 HSS-1s. Key West's facilities were excellent to train the aircrews in the squadron's primary mission in ASW.

The squadron's first deployment was aboard USS *Siboney* (CVE-112). Since then, it has served aboard a dozen other ships. These include *Antietam* (CVS-36), *Tarawa* (CVS-40), *Valley Forge* (CVS-45), *Wasp* (CVS-18), *Lake Champlain* (CVS-39), *Randolph* (CVS-15), *Forrestal* (CVA-59), *Boxer* (LPH-4), *Guam* (LPH-9), *Essex* (CVS-9), *Intrepid* (CVS-11) and *Independence*.

On September 11, 1959, HS-5 received word that its new home base was NAS Quonset Point, R.I. There, the squadron became a member of CVSG-54 which deployed aboard *Lake Champlain*. It was aboard this carrier that HS-5 was to participate in the recovery of America's first astronaut, Commander Alan B. Shepard. Although a Marine HUS-1 recovered the *Freedom 7* space capsule, HS-5 would have other chances to retrieve American astronauts from ocean landings.

HS-5 turned in its HSS-1s the next January. In return, it received eight HSS-1Ns which the squadron proved to be day-and-night, all-weather ASW weapons. Using the new helicopters, the squadron developed night search and rescue techniques as well as procedures for processing contacts after dark. Later in the year, HS-5 received another eight HSS-1Ns. Later redesignated as SH-34J *Seabats*, these helicopters were flown by HS-5 when the squadron served with the U.S. Quarantine Force in the Caribbean in November and December of 1962.

An SH-3 lowers its sonar to search for an elusive submarine, opposite. Cdr. Allen L. Kruger, former C.O. of HS-5, preflights his Sea King aboard Independence before taking off for plane guard duty, left. A Sea King from HS-5 practices aerial refueling with USS Elmer Montgomery (DE-1082), below.

In the middle of the next year, HS-5 received the SH-3A *Sea King* which was specifically designed to combine the hunter and killer functions of antisubmarine warfare into a single helicopter. The remainder of 1963 was spent undergoing transition training in the new helicopters.

A busy year was slated for HS-5 in 1964 during which the squadron made five separate cruises. The following year began aboard *Lake Champlain* when the squadron participated in the recovery of the unmanned GT-2. This second *Gemini* space capsule, launched from Cape Kennedy in suborbital flight, landed 23 miles from the carrier.

HS-5 was also on the scene aboard *Boxer* to help recover the first unmanned *Apollo* spacecraft, February 26, 1966. The squadron was scheduled to participate in the recovery of *Gemini 8* the following month, but that spacecraft had to make an emergency landing in the Pacific Ocean.

That November, HS-5 set East Coast records for the most flight hours, night sonar dips and total sonar dips in a single month. The next year was just as busy, and that August the squadron flew 1,800.2 flight hours.

Four months later, HS-5 received its first SH-3Ds. This improved model of the *Sea King* featured more powerful T58-GE-10 engines, better performance characteristics and greater fuel capacity. It also featured a variable-position torpedo launcher which allowed torpedoes to enter the water at the proper angle even though the helicopter continued to hover and track a sub with its sonar. Previous launchers forced the helo to launch its torpedoes while in forward flight.

In the spring of 1968, the squadron recovered the camera cassettes for the *Apollo 6* space flight. This reportedly was the first use of the Billy Pugh rescue net.

October 22, 1968, was an historic day for HS-5. Operating from USS *Essex*, squadron helos located and recovered astronauts Walter M. Schirra, Donn F. Eisele and R. Walter Cunningham 285 miles south of Bermuda and delivered them safely to the ship. It was the end of an 11-day mission in space and the first manned

flight of the *Apollo* program.

During that year, HS-5 also received two more SH-3Ds and was instrumental in evaluating new tactics and search plans in antisubmarine warfare. The squadron completed transition to the SH-3D in March 1969.

The following month, while en route to EastLant aboard *Wasp*, HS-5 developed new passive tactics for long-range detection, passive fixing and subsequent tracking of submarines.

In December 1969, the squadron was reduced from 16 aircraft to 8, and a sister squadron, HS-7, was formed. HS-5 experienced a corresponding reduction in personnel with many of these men forming the nucleus of the new squadron.

It was more experimentation for the unit in 1970. HS-5 was instrumental in gathering the initial data on the utilization and effectiveness of the SH-3D as an airborne platform for the multichannel *Jezebel* relay system. The squadron also developed the helicopter portion of new ASW tactics designed to refine the initial detection of a nuclear submarine. This procedure permitted the detection required to successfully convert to active localization and obtain attack criteria.

When Hurricane *Agnes* hit Elmira, N.Y., in June 1972, HS-5 helicopters, aircrews and maintenance personnel worked around the clock for three days in rescue and survey operations.

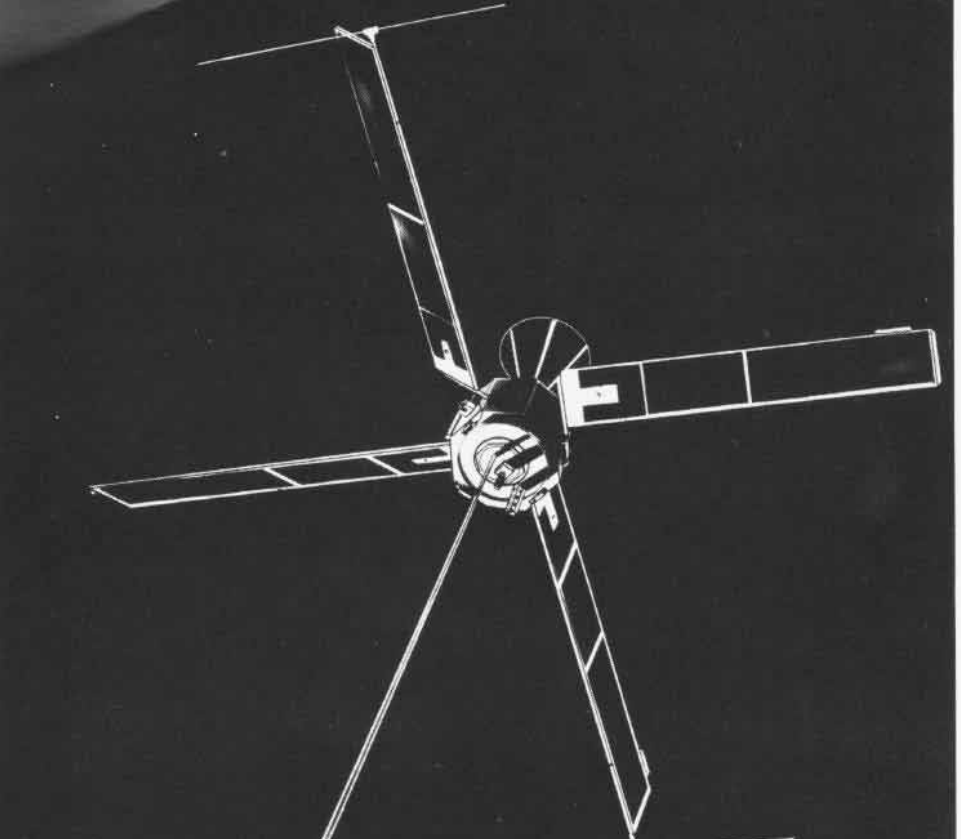
Later, when the CV concept came into being, the squadron was on hand to show that antisubmarine warfare helicopters could work effectively with the other squadrons on a "mixed-deck" carrier to ensure the overall mission requirements were met. This, HS-5 is now doing aboard *Independence.*

Throughout its 18-year existence, the squadron has traveled to many places. Some of these are Bermuda; Halifax, Nova Scotia; Copenhagen, Denmark; Bergen, Norway; Rotterdam, Netherlands; Portsmouth, England; Gourock, Scotland; Rota, Spain; Athens, Greece; Augusta Bay, Sicily; Tunis, Tunisia; Bosporus Straits, Istanbul; and Souda Bay, Crete.

HS-5 has also received numerous awards. These have included Battle Efficiency Es, CNO Aviation Safety Awards, the Arnold J. Isbell Trophy for antisubmarine warfare excellence, ComNavAirLant Safety Citation for the four-year period December 6, 1968, to December 5, 1972, the Navy Unit Commendation for its work in developing modern ASW tactics, the Meritorious Unit Commendation for its efforts during Hurricane *Agnes*, and the Sikorsky 25,000-accident-free flight-hour award. In 1970, the squadron was runner-up for the Admiral Jimmy Thach award.

HS-5 is commanded by Commander Edward R. Sands who recently relieved Commander Allen L. Kruger.

Refueling from a destroyer can extend a Sea King's on-station time; opposite bottom. Lt. Joseph W. Haddock gives a NATOPS check to Cdr. Kruger in the SH-3D between carrier launch cycles, opposite top. A Sea King stands watch as an A-6 Intruder prepares to launch from CV-62, above. The carrier continues flight ops in the Atlantic, below.



STEERING BY SATELLITE

By Ltjg. Chris Taylor
and Mr. Cyril J. O'Brien,
Johns Hopkins University

As the Navy's all-weather navigation satellite system marked its tenth anniversary of continuous operation this July, new destroyers, modernized guided missile frigates and P-3 *Orions* were being equipped with navigation sets which would provide them full use of this sophisticated orbital device.

Polaris missile submarines were making extended cruises beneath the seas – able to determine their exact positions without surfacing. The navigation satellite system was giving them the precise fix needed for long-range, missile-aiming calculations.

Six satellites in polar orbits, numerous ground tracking stations and shipboard receivers were enabling Navy ships to pinpoint their positions anywhere on earth. Night or day, private, industrial and foreign civilian ships were obtaining accurate position information in stormy weather.

Aboard a properly equipped ship, a navigation set will activate itself as a satellite comes over the radio-horizon. The set receives position data at the same time that it is correcting refraction errors and measuring Doppler shift. The process is automatic. The ship's navigation set will print an instant fix – latitude, longitude and time – in a matter of seconds.

Originally designed and developed for the Navy by the Johns Hopkins Applied Physics Laboratory in 1964, the system was released for commercial and public use in 1967. The number of civilian and military users has grown continuously.

Richard P. Murphy, civilian information division head of the Navy's Astronautics Group, Point Mugu, Calif., which has operational and managerial control of the system, predicted that "by late 1974, the number of civilian users will jump to more than 500 – from 270 last year. The number of military users is expected to rise from 350 to 375."

Ships from England, Canada, Belgium, Japan, Sweden, France and the Soviet Union also have the system, which represents the first operational use of satellites for navigation. The receiving unit – such as that in *Queen Elizabeth II* – is also being manufactured by several foreign nations.

The underlying concept that led to development of the initial use of satellites for navigation dates back to the first launch of an artificial satellite into orbit – Russia's *Sputnik I* in 1957.

Two Johns Hopkins physicists, Drs. William Guier and George Weiffenbach, discovered that radio signals transmitted from *Sputnik* enabled them to determine the satellite's position when plotted graphically.

While monitoring the signals from *Sputnik*, the scientists noted a change in the frequency of the radio waves – the Doppler shift. An example of this kind of shift is the change in the sound of a passing ambulance siren.

By measuring the shift, the scien-

tists determined the satellite's orbit. Another physicist from Johns Hopkins – which is under a continuing Navy contract to improve the system – Dr. Frank McClure, later determined that if the satellite could be located by listening to the shift as it passed a known station on earth, an unknown earth position could also be fixed. The system was initiated in 1958.

The current satellites orbit at an altitude of 600 miles, broadcasting their positions and a continuous signal for Doppler shift measurement. The position of each satellite is computed in advance by one of four tracking stations. This data is transmitted to the satellite every 12 hours for continuous rebroadcast.

Any spot on earth rotates within range of a polar-orbiting system satellite at least twice a day. To provide more frequent availability, a constellation of satellites is used.

Typically, a system satellite is about the size of a large snare drum and weighs between 110 and 160 pounds. It is sun-powered with electrical energy collected by four solar-cell blades and stored in batteries within the satellite body.

A transmitting "lampshade" antenna is mounted on the satellite base and receiving rod antennas are located at opposite tips of two solar blades. In orbit, the solar blades are extended to form an "X" with the load in the center.

A 100-foot, end-weighted, spring-steel boom is extended upward from the top as a gravity gradient stabilizer to keep the transmitting antenna on its base pointed toward the earth.

The satellite contains receiver equipment which accepts data and operational commands from tracking stations on the ground, a decoder for digitizing the data, and switching "logic" and "memory" banks for sorting and storing the data. It also has control circuits which cause the data to be read out at specific times in the proper format.

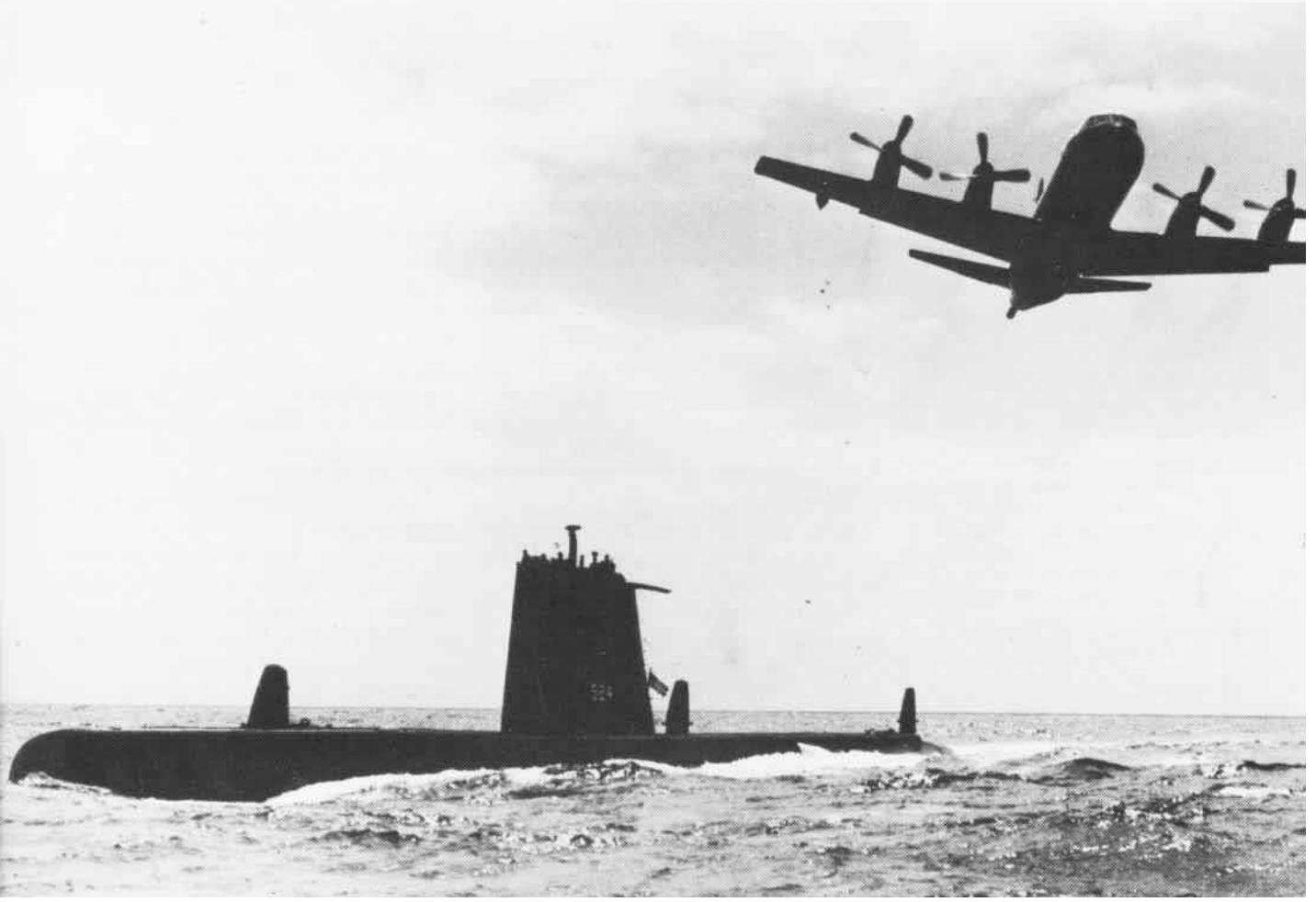
There is an encoder to translate the digital data to phase modulation and ultra-stable 5-mc oscillators and 1.5-watt transmitters to broadcast 150- and 400-mc oscillator-regulated frequencies that carry the data to earth.

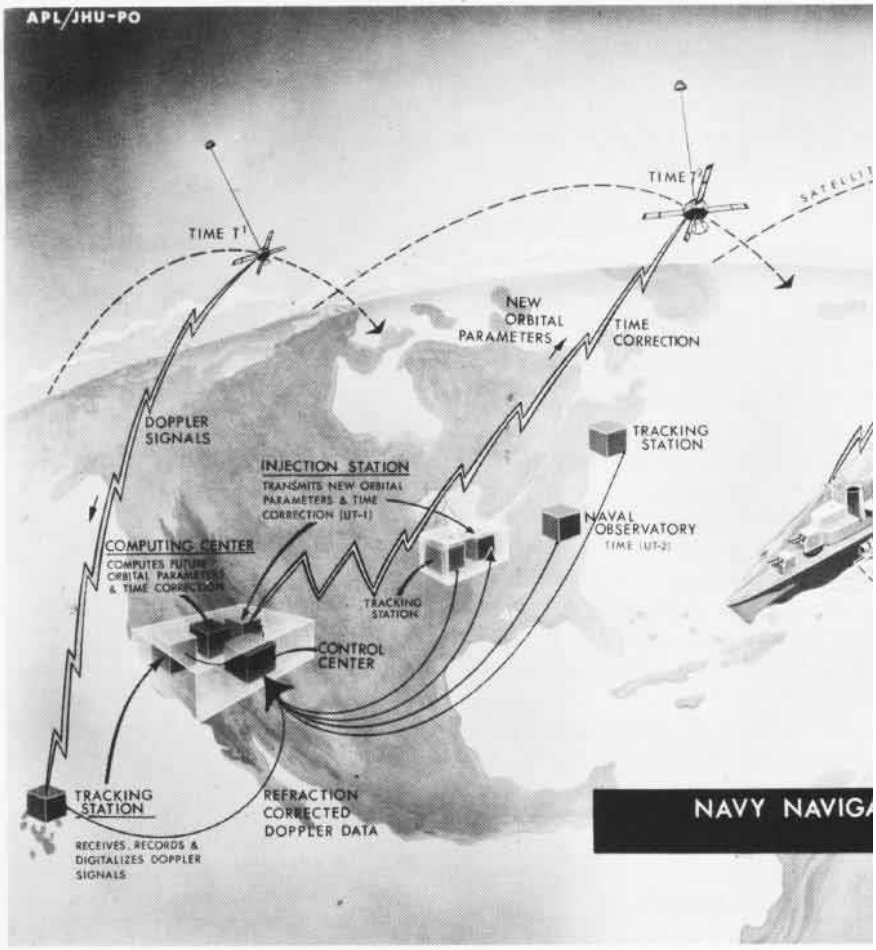
Other system equipment includes a "backpack set" used in pairs for determining relative positions over any terrain or water and a Geoceiver for surveying. The Geoceiver recently fixed the position of the South Pole and measured the drift of ice over it.

The satellites, tracking stations and ship receivers have guided Navy ships circumnavigating the earth and recovery ships to the areas of *Skylab* and *Apollo* splashdowns.

Before USS *Hornet* arrived at the *Apollo 12* splashdown point, she had to leave the area to launch aircraft into the wind and then steam through a

Guided by a system satellite, a P-3 Orion pinpoints its prey at exact latitude and longitude as the submarine surfaces to breathe and charge its battery.





Dr. Weiffenbach, top (left), and Dr. Guier are on the Johns Hopkins satellite team with Robert L. Hickerson, above (foreground), who adjusts Omega navigation and display panels and controls for automated geomagnetic airborne survey system aboard the RP-3D.

point five nautical miles north at the exact time the command module parachutes opened.

Loran and bottom contour navigation were not available. Stormy seas, high winds, and overcast skies limited the last celestial fix to the prior morning – over 180 nautical miles from the recovery point. But with the navigation satellite set, *Hornet* reached a point only 6,400 yards from the module.

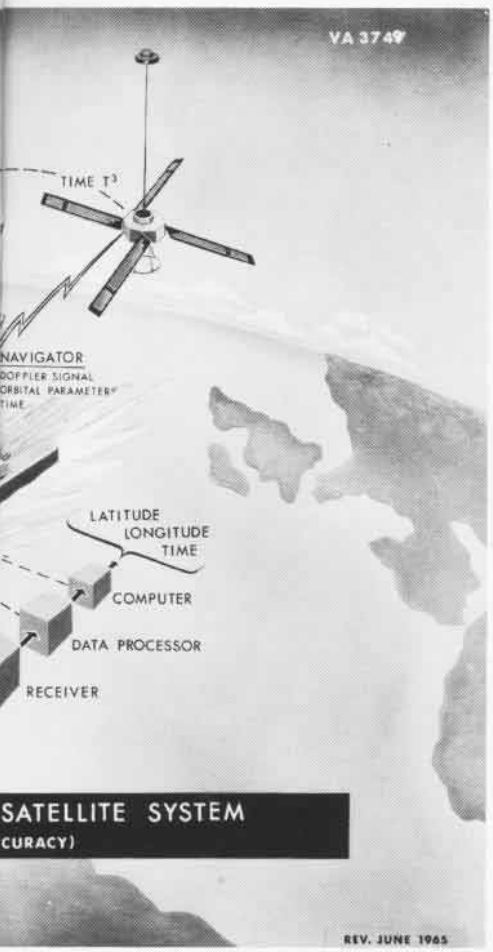
The most recent development is the 1972 launching of an experimental disturbance compensation unit (DisCos) with an improved navigation satellite. DisCos permits the orbiting satellite to counter external forces of solar radiation pressure and atmospheric drag by means of "thrusters." DisCos will make it possible to predict satellite orbits for 12 days instead of 12 hours.

Dr. R. B. Kershner, head of the space department at Johns Hopkins, sees the DisCos unit as a promise of satellites with such predictable orbits that position charts and almanacs can be printed, eliminating costly shipboard computers for receiving units.

NavSat with DisCos has many other promises for the future. "Backpack" receiver units can utilize satellite signals to pinpoint amphibious troops in advanced positions and enable them to direct air cover and artillery support.

The advantage of establishing a pinpoint of latitude and longitude is obvious for minelaying and antisubmarine warfare. Operational satellites are naturals for universal time dissemination. They are already used as references to synchronize widely scattered clocks around the earth.

The navigation satellite system is ready to help control the landing of supersonic airliners. Under automatic



control, these giant aircraft can be aimed from great distances to "home" on selected air terminals.

Air traffic control requires little more than a narrow-band communications repeater to provide pilots with necessary information, since one of the satellites is usually within continental radio range.

The Navy's all-weather navigation satellite system may also be adapted to measure ocean currents to speed ships along by their own environment. Precise position determination is opening new doors in oceanography, as well as cartography.

We can now grid the ocean floor and systematically plot its contours by establishing an exact position and returning to it unerringly instead of relying on soundings from changing positions.

In ten years, the age-old dreams of navigators are coming true.

System satellites, tracking stations and ship receivers put USS Hornet on target to recover Apollo 12 command module. With the navigation satellite set, Hornet was only 3 1/2 miles from the splashdown point.

PH1 Harold Phillips

Attention!

Looks like "Fat Albert," the Marine-operated C-130 flown in support of the *Blue Angels,* has issued a command to the line of *Angel Skyhawks* at a recent air show.

Illusion

Although it seems so, the Royal Air Force Canberra from 85 Squadron isn't carrying a miniature version of itself. Cameraman caught bombers in echelon formation.

Now Crow!

Romeo III, VA-22's "Fighting Redcock" is eyed by the C.O. of the Lemoore A-7 squadron, Commander G. A. Scoffield. Rooster and predecessors have been with unit since 1966.

Family Portrait

Three generations of *Corsairs* got together at a Corpus Christi air show. Bent-wing F4U-7 *Corsair* joined today's A-7E and experimental YA-7H two-seater.

NAVAL AIRCRAFT

Ford

One of the many prized displays at the Naval Aviation Museum in Pensacola is a Ford Tri-Motor transport which has seen long commercial service. From 1928 to 1938, Ford Tri-Motors were among the few transport aircraft operated by the Navy, which bought nine. Like the McDonnell-Douglas C-9Bs they were purchased directly from civilian production.

Following the Stout single-engine all-metal transports of the mid-twenties, after Ford took over, a three-engine version was built in 1926, using Wright *Whirlwind* radial engines. This proved unsuccessful and a new design was created which was to prove the most popular transport design in the country until the advent of the Douglas DC-2. Nearly 200 Ford Tri-Motors were built.

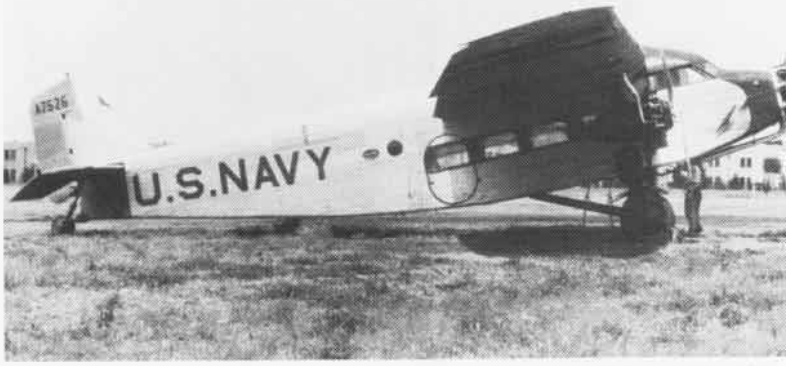
The Navy obtained one of the first models, a 4-AT, in 1927, designated the XJR-1. Originally powered with three 220-hp Wright *Whirlwinds*, the center engine was later changed to a 410-hp P&W *Wasp* when the airplane was extensively modified. Its usefulness led to procurement in 1929 of two JR-2s, which were improved 4-ATs with three 300-hp *Whirlwinds*.

Subsequently, three newer 5-ATs, slightly larger, with three *Wasp* engines, were purchased as JR-3s, for Navy and Marine units. Before Tri-Motors were purchased, the new transport designation, R, was assigned; remaining JRs in service became RRs. The last three 5-ATs purchased were one RR-4 and two RR-5s. The two -5s were among the last Tri-Motors built and were purchased from inventory when Ford closed down production.

Normal attrition took its toll, and with the appearance of the new, modern twin-engine, retractable gear transports in the mid-thirties, the Fords gradually faded from the scene. Interestingly, the Ford Tri-Motor was the first all-metal, cantilever-wing monoplane to see Navy and Marine operational service.

RR-5

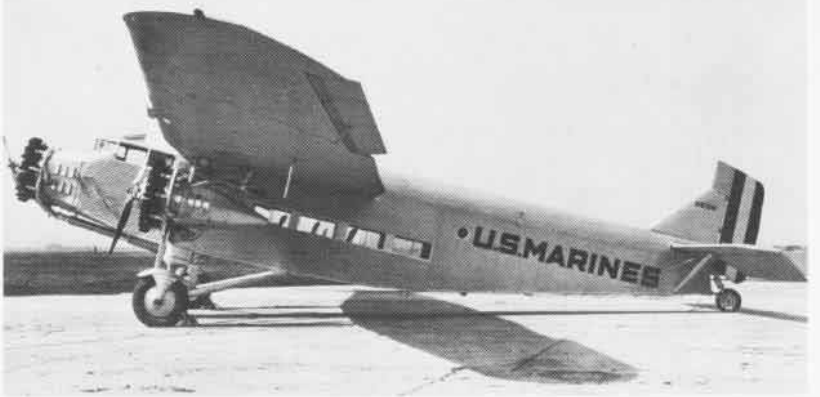
XJR-1



RR-4

Tri-Motor

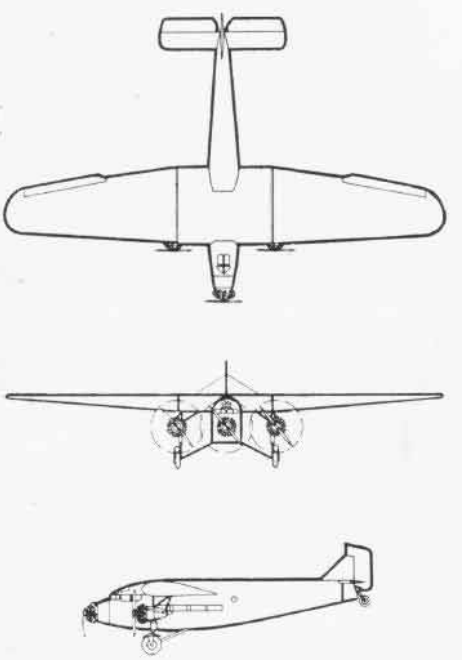
RR-3



RR-2

5-AT-CS

Wing span		
-1, -2		74′
-3, -4, -5		77′10″
Length		
-1, -2		49′10″
-3, -4, -5		50′3″
Height		
-1, -2		11′9″
-3, -4		12′
-5		12′8″
Power plant		
-1	1 P&W R-1340B	450 hp
	2 Wright R-790A	220 hp
-2	3 Wright R-975A	300 hp
-3, -4	3 P&W R-1340C	450 hp
-5	3 P&W R-1340D	450 hp
Maximum speed		
-1		116 mph
-2		130 mph
-3		135 mph
-4		152 mph
-5		147 mph
Service ceiling		
-1		14,500′
-2		17,000′
-3		18,600′
-4		18,000′
-5		16,200′
Range		
-1		591 miles
-2		514 miles
-3		505 miles
-4		641 miles
-5		365 miles
Capacity		
-1, -2		2 crew and 11 passengers
-3, -4, -5		2 crew and 14 passengers



BALSA WOOD AND THERMALS

Story and Photos by JOCS Dick Benjamin

Planes were everywhere. Some streaking skyward, their noses pointed at the noonday sun. Others lazily soaring in their circular patterns above the runways. Still others, a scant 25 feet above the ground, banking hard around tight corners in four-plane races.

It wasn't mania at an overcrowded airport. It wasn't disregard for NATOPS at a naval air station.

It was the 1974 AerOlympics of Miniature Aviation held at NAS Lakehurst, N.J., the first week in July.

Sponsored by the Academy of Model Aeronautics, the AerOlympics had an international flavor with participants from 15 countries. At stake were world championships for indoor, radio control (RC) scale and control line scale models. These were won by Poland, the United States and Russia, respectively. Limited international contests in RC pylon racing and RC thermal soaring were won by the United States and South Africa, respectively.

Also on the agenda were the Society of Antique Modelers (SAM) national championships for old-timer models.

Although only a portion of the AerOlympics, the SAM national championships were as exciting as any of the contests. The models seldom bear a resemblance to full-scale airplanes, but their designs must be documented as coming from prior to December 31, 1942. For some events the design must predate the end of 1938.

One participant made sure that Naval Aviation was well represented in the SAM nationals. He is Commander John M. Bolton, aircraft maintenance officer at Lakehurst. A Navy helo pilot since 1957, he also enjoys building and flying old-time model aircraft. And he ended in the money in four old-timer events.

Flying a 1939-design Playboy 80 with a Super Tiger .29 engine, Cdr. Bolton took second place in Class B competition. Changing to a Super Tiger .46 engine in the Playboy 80, he then latched onto second place in the Class D event. His 1940-design Scientific Coronet won him third place in Class A, and he placed third in the RC .020 Old-Timer Replica competition.

Events are judged by flight duration, timed from when the model is launched until it lands. The longer the flight — in most cases — the better the score.

Engine-powered, old-timer free flight models are flown in several classes, depending upon the size of the power plant. They climb rapidly, sometimes straight up, with the engine running from 10 to 25 seconds. The exact maximum time of the run depends upon whether the engine is present-day or truly antique, and whether the plane is launched by hand or rises from the ground. The longest engine run is permitted for models with antique spark ignition engines which rise off the ground.

A model may gain several hundred feet of altitude while under power. When the engine stops, the model continues in gliding flight. Pure free flight models are preset to circle during the glide. If they are properly adjusted, they will descend smoothly and slowly while drifting with the wind. They are usually equipped with a timing device which is rigged to actuate a flying surface, most often the stabilizer, which causes the model to descend rapidly and stay within the bounds of the airfield.

The flight of RC old-timers is similar except that the pilot can steer the model with a hand-held transmitter on the ground. The best flight of an RC old-timer is exactly ten minutes, landing in a 75-foot circle near the launching point. Flights over ten minutes are penalized, while a 50-second flight-time bonus is awarded for landing in the circle.

Cdr. Bolton puts the finishing touches on his Scientific Coronet, left, and heads for the flight line, above. During radio-controlled free flight, a deft hand on the transmitter is a must, below.

A last-minute adjustment to the Super Tiger engine . . . and the Playboy 80 is ready for a practice flight.

Powered by a K&B .15 engine, the Scientific Coronet climbs skyward for a timed flight.

Rubber-powered models are also scored on flight duration. They are powered by many long strands of rubber thread which are twisted to provide energy to drive a large propeller. There is no limit on the length of a rubber-powered run. Some flyers opt for a fast climbing power phase of 30 to 45 seconds. Others prefer a slower, longer climb with the motor running a minute or more. Once the power is exhausted, the propeller free-wheels to reduce air resistance and the model slowly descends in a circling glide.

Flyers of old-timer free flight models look for and try to launch into rising air currents, or thermals. The good flying qualities of the model and the success — or luck — in finding thermals are the biggest factors in determining the winners.

There is an inherent problem in free flight flying, especially for those models which are not remotely controlled.

Prevailing winds may take the model a long way from its starting point. This could easily lead to a long trek through a brush-covered field in search of the object that was so lovingly put together — or worse yet into the midst of a heavily wooded area with a prayer that the model made it safely through the trees to a safe touchdown. Sturdy legs and strong feet, or ingenuity in the form of a motor scooter, are often required.

Radio control models are by no

means exempt from this hazard. During the early part of the AerOlympics, gusts of wind up to 20 mph often blew RC planes so far off course they got beyond the signaling capability of the control transmitters. One RC modeler had his plane blown across the airstrip where its flight was stopped by the side of a hangar about 500 yards from the contest area.

Conversely, it's frustrating to a modeler when he can't find a current that will keep his plane in the air.

A limited number of launches are allowed for each event. There is also a cutoff time after which no official launches are permitted. A flyer cannot wait forever for the right current, but his chances of placing high in the standings are lessened each time he sends his model aloft only to have it return immediately after the power run.

Yet modelers would have it no other way. It's all a part of the sport and the bad is accepted with the good. Besides, one good run more than makes up for several that are not so good.

A highly competitive spirit and pride in their models are common among these flyers of miniature aircraft. And when you get a bunch of them together, there are planes everywhere.

A rubber-powered model takes off for an endurance flight across an NAS Lakehurst field.

A modeler hides from the New Jersey sun to work on his plane.

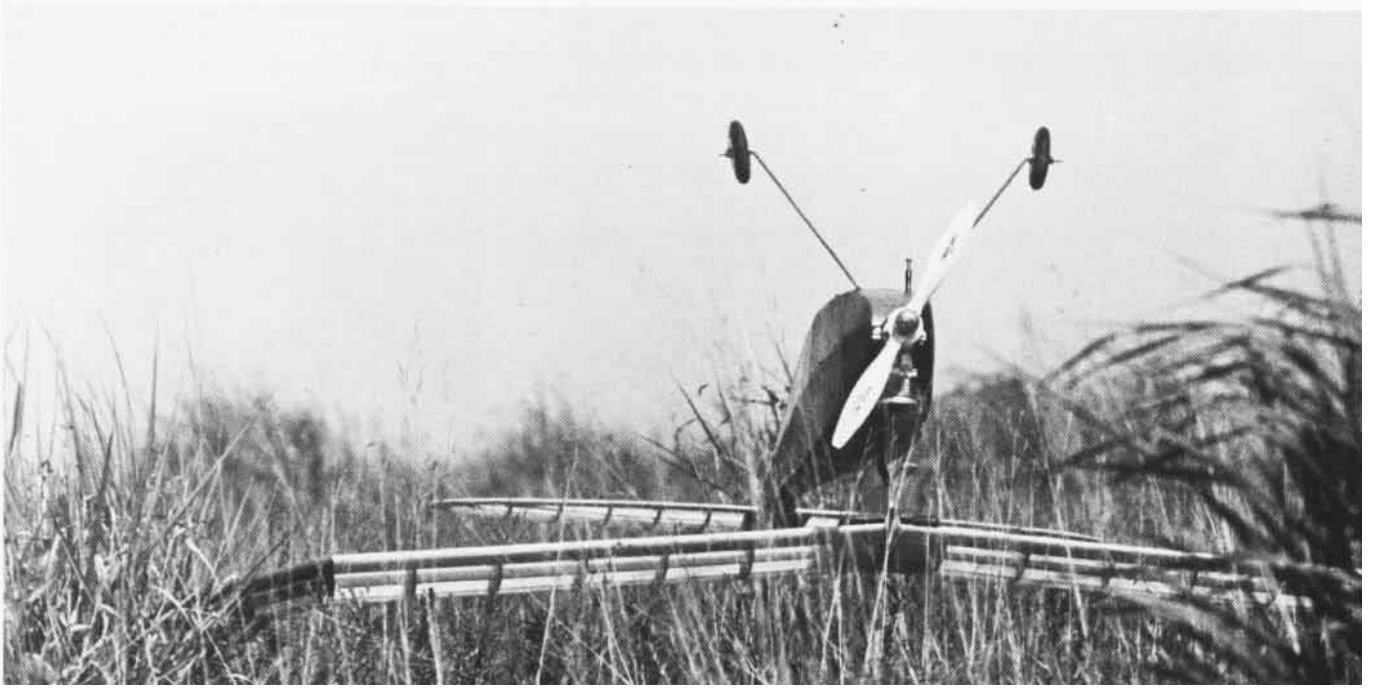
A little imagination saves shoe leather when retrieving models.

Modelers escape sun and wind to work on their model airplanes.

A fast and easy way to wind the rubber strands of a model plane.

Separating fuselage and wings makes larger planes easier to handle.

Strong winds can do more than take a model a long way off its intended course. They can also cause an unwanted, inverted landing.



PEOPLE PLANES AND

In a Navy-Marine Corps joint effort, Task Force 61 evacuated U.S. citizens from war-torn **Cyprus**.

While helos of HMM-162 launched from the flight deck of USS *Inchon* (LPH-12), aboard *Coronado* (LPD-11) and *Trenton* (LPD-14) plans were completed for receiving the evacuees. CH-53s and CH-46s quickly moved the anxious men, women and children to the waiting Navy ships. One of the evacuees said that "The Marine helicopters with the U.S. flag painted on the side were the most beautiful sight in the world," and expressed appreciation for the help given them by the sailors once they were aboard the ships.

The first rescues in **HSL-33's** short history were made by the squadron's Det 7 while on a WestPac deployment. Its crewmen retrieved two downed pilots who ejected over Subic Bay and, in another incident, a parachutist caught in tall trees inaccessible from the ground.

In addition to its SAR missions, Det 7 engaged in ASW/anti-ship missile defense exercises with P-3 units and Seventh Fleet surface ships. It also participated in extensive logistics, personnel transfer and naval gunfire support.

The *Snakes*, led by LCdr. J. R. Woods, have since returned home to Imperial Beach.

Its second consecutive accident-free year has earned **VT-2** the Chief of Naval Air Training Safety Award. During the year which ended in July, VT-2 flew 32,008 hours and trained 250 student aviators, making a total accident-free flight hour count of over 61,087. The training squadron accomplished this record in T-28 *Trojans*, 20-year-old single-engine aircraft.

July 20 marked a milestone in the career of Commander Charles G. Andres, C.O. of VA-56. Cdr. Andres, piloting a *Corsair II*, recorded his **800th** arrested landing aboard *Midway* during operations off Japan.

After four years of F-8 flying, **VF-301**, under Commander J. P. Thompson, has transitioned to the F-4 *Phantom*. During the *Crusader* period, the NAS Miramar-based reserve squadron flew 14,289 accident-free flight hours, for which it won three safety and performance awards.

It was with considerable excitement that personnel of USS *Midway*, anchored at Yokosuka, Japan, hosted **Frank Sinatra**. The event filled the ship's hangar bay with *Midway* sailors, their dependents and guests. Sinatra, taking time out from a tour in Japan, sang old favorites and current hits.

PLACES

Blackbeard One, an HH-2D, is assigned to USS *Oklahoma City*, flagship of the Seventh Fleet. In addition to its pilots, *Blackbeard One* boasts the helicopter support crew of Support Detachment 32, a unit of HSL-31. The crew, which maintains the aircraft and

directs launch and recovery operations, is divided into the onboard crew and the landing and support team.

The latter guides the aircraft safely aboard and off the ship and makes sure the helo is always in ready flying condition. This includes everything from washing the aircraft daily with fresh water and vacuuming the interior to replacing engines, transmissions and rotors. In speaking about his job, Roy South says, "We do about the same job as other men in our rating who work at naval air stations. Only, on a ship there's a lot less room."

The work of the onboard crew, men who are trained primarily as survival experts, depends on the purpose of each mission. Duties range from having one to three men jumping into the water to help retrieve a flyer to making sure seatbelts are fastened on VIP missions.

Four C-130 **Hercules** of Fleet Tactical Support Squadron 24 Det took part in clearing the Suez Canal after the Mid-East ceasefire, flying support missions for *Nimbus* operations. VR-24 is also providing support for operation *Nimrod Spar*, the salvage operations in the Canal conducted by a civilian contractor under Navy supervision.

To aid in the consolidation of maintenance for East Coast-based AV-8A *Harriers*, VMA-542, under Lieutenant Colonel W. G. Price, has moved from Beaufort, S.C., to Cherry Point, N.C. The relocation adds 20 *Harriers* and 200 Marines to Cherry Point's strength.

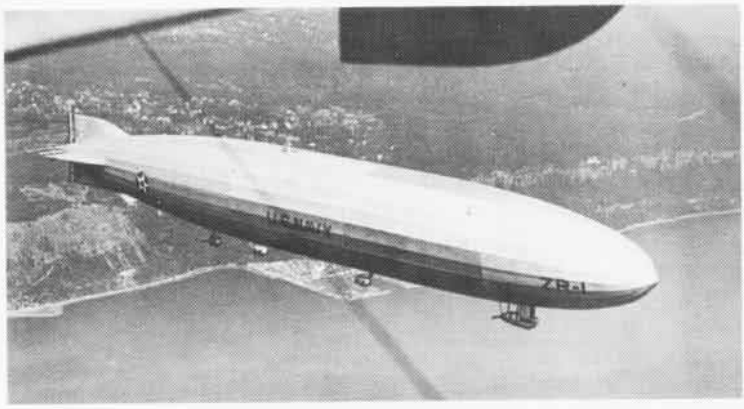
"Save that man! Come on, hurry up – he's drowning!" BM1 John W. Chambers shouted at his class in the Water Survival Pilot Rescue School in **Yokosuka**, Japan, where he is senior instructor. The class started with 36 swimmers selected from various ships stationed in Yokosuka to learn the art of rescuing pilots downed at sea. Twenty-nine graduated. They had become far better swimmers than they were when they started. As one student put it, "If I had to enter the water to save a downed pilot, I could do it with little or no trouble at all."

Command of NAS **Norfolk** passed from Captain Charles A. L. Swanson to Captain William S. Thompson on July 18. Capt. Thompson came from the post of Executive Assistant and Naval Aide to the Assistant Secretary of the Navy for Manpower and Reserve Affairs. Capt. Swanson is now on the staff of Commander Operational Test and Evaluation Forces, Norfolk.

Hosting 53 tenant commands, NAS Norfolk handles about 80,000 aircraft operations, nearly 40 million pounds of air cargo and some 72,000 passengers annually.

It might be a **bird bath** of sorts but the average pigeon would be very lost in this one built by Seabees at NAS Cubi Point, R.P. The wash rack was designed to rinse the accumulation of salt spray from aircraft such as P-3 *Orions* which frequently fly low over the water during ASW exercises.

The first coast-to-coast dirigible flight by USS **Shenandoah** occurred 50 years ago when the 680-foot, five-engined Navy airship made a record trip from Lakehurst, N.J., to San Diego, Calif., with Rear Admiral William A. Moffett, Chief of the Bureau of Aeronautics, 11 officers and 27 enlisted men aboard. The *Shenandoah* (ZR-1) launched



from Lakehurst on October 7, arrived at San Diego on October 11, and continued on to Seattle, Wash. She then retraced her flight for a voyage of 9,000 miles back to her home port and safe anchor on October 25. According to *Shenandoah's* skipper, LCdr. Zachary Lansdowne, the long flight pioneered air navigation for commercial enterprise.

About 1,200 **NROTC** midshipmen, in three separate groups, reported aboard NAS Corpus Christi, Texas, for three-week Naval Aviation indoctrination cruises last summer. They came from the colleges and universities participating in the NROTC program under which they receive scholarships and monthly subsistence, and are commissioned in the Navy or Marine Corps upon graduation and successful completion of the program requirements.

Three periods of summer training — between the freshman and sophomore, sophomore and junior, and junior and senior years — prepare the prospective officers for their fleet duties and the broad spectrum of naval operations. The Corpus Christi NROTC aviation training detachment introduces the midshipmen to Naval Aviation through actual flying. Each student receives approximately five hours' flight time in the T-34 *Mentor*, TS-2 *Tracker*, TA-4 *Skyhawk* or T-2 *Buckeye*. The classroom program teaches the students aviation-related subjects such as aviation physiology, aerodynamics, flight safety, aircraft recognition, squadron organization, pilot and NFO training pipelines and aviation career patterns.

The program is directed by CNATra. The 1974 summer training period was supervised by Captain H. C. Abelein, Jr., Professor of Naval Science at Tulane University, New Orleans, La., with the assistance of approximately 40 officers and enlisted personnel from NROTC units throughout the country.

Few outside the intelligence community noticed the passing of the Fleet Intelligence Center Pacific Facility, **FICPacFac**, at Cubi Point when it closed its doors on June 30, victim of the budgetary axe. It was the type of command that no one speaks about.

Established in 1964 as a photo processing facility, it evolved into a full-fledged intelligence outfit, providing time-sensitive tactical intelligence to the fleet. It processed and interpreted raw intelligence photography, turning it into usable targeting material which it then placed into a computer intelligence data bank. The information was available for expeditious use by fleet units.

During the Vietnam conflict, FICPacFac operated 24 hours a day, seven days a week to provide the Seventh Fleet with intelligence needed to evade enemy guns, missiles and MiGs, thereby saving many lives. It also supplied Seventh Fleet ships with a complete

listing of targets. Dozens of photo interpreters labored over light tables scanning miles of intelligence film to discover enemy movements and to penetrate North Vietnamese camouflage.

With film as their only weapon, these analysts had the challenging task of hunting down and outguessing the enemy. Commander Blake E. Field said, "We had to go on a three-shift workday. The incoming PIs had to drag the off-going PIs from the light tables. They were an intense bunch of men . . . . Nowhere else in the intelligence community could a man spot a target, have it verified, have a strike called on it and then, in a day or so, see the strike results. That's job satisfaction . . . . One hundred percent of our finished product went directly to the operating fleet . . . . Although we've closed our doors, the men who manned this place are still in the fleet and will be back again if needed."

Command of the Pacific Fleet's **Light Attack Wing**, based at NAS Lemoore, passed to a flag officer for the first time when Rear Admiral William P. Lawrence relieved Captain Jack F. O'Hara. During the past year, RAdm. Lawrence, former fighter pilot and Vietnam POW, attended the National War College and did graduate work at George Washington University, both in the nation's capital. Capt. O'Hara, who had been wearing two hats, retained command of NAS Lemoore.

The steaming jungles of Guadalcanal in the Solomons have yielded a Grumman-built WW II-era F4F-4 **Wildcat**, which was a lucky find in the eyes of a non-profit organization in Long Island, N.Y. – the Friends of the Nassau County Museum. The organization was seeking a Long Island-built aircraft for the proposed aerospace exhibit at a local bicentennial center when it learned of the aircraft's discovery.

An English aviation enthusiast, Barry Coran, heard of the plane on Guadalcanal and managed, with the help of natives, to reach the site about 35 miles from Henderson Field. They pulled the *Wildcat* through the jungle to the coast over three miles away. To do so, they cut a path, by hand, 40 feet wide to accommodate the plane's wingspan, only to find out later that the aircraft's movable wings were still in working

order and could be folded! The *Wildcat* was still in very good condition.

Negotiations began as soon as the organization heard the news. A trustee of the Friends and an aviation buff, George Dade, also president of the Long Island Early Fliers Club, plans to fly to Guadalcanal at his own expense to oversee shipment of the fighter plane. It will soon be in its permanent home in Long Island where Dade hopes it will be the cornerstone for future aerospace museum development.

The Navy has awarded an 18-month contract for design, development and testing of subsystems and components for its proposed 2,000-ton, high-speed, ocean-going surface effect ship. The air-supported, all-aluminum **SES**, designed by Textron Bell, has a length of 242 feet, a beam of 106 feet and speeds of 80 knots.

BATTLE of LEYTE GULF

By Clarke Van Vleet, Aviation Historian

It was 30 years ago this month that the greatest battle in naval history was fought – the Battle of Leyte Gulf. It erupted as one of Japan's last-ditch attempts in WW II to stem the U.S. advance across the Pacific. It was a seaborne equivalent to a banzai attack – a full commitment to throw the Americans back at the Philippines or suffer near-complete naval defeat. It became the latter.

Most of Japan's fleet was committed to this endeavor and, after the battle, the Japanese sea forces ceased to exist as a navy. Other interesting highlights are:

- There were 280 American and Japanese ships involved. (250 British and German ships fought it out at Jutland in 1916.)
- Over 143,600 U.S. Navy personnel participated, more than the combined strength of the Navy and Marine Corps in 1938.
- Among the major ships participating, Japan lost four carriers, three battleships and nine cruisers. We lost one light carrier and two escort carriers.
- The first Japanese kamikaze suicide planes entered the war as a deliberate and organized force.
- The night action in Surigao Strait was, in all likelihood, to be the last line battle engagement in naval history.
- The U.S. Navy's top ace of WW II, Commander David McCampbell, shot down nine enemy planes in a 95-minute aerial duel.
- The world's largest fighting ship, Japan's battleship *Musashi*, was hit by 19 torpedoes and 17 bombs before she rolled over and sank.

In an attempt to stop Gen. MacArthur's "return" to the Philippines,* the Japanese dispatched three separate fleets to attack the U.S. naval and amphibious forces which began landing General Walter Krueger's Sixth Army on the beaches of Leyte, October 20, 1944. A decoy force including four carriers with a depleted plane complement under Admiral Ozawa, approached from the north in an attempt to divert the U.S. Navy's main strength. Meanwhile, two other Japanese flotillas – Admiral Kurita's Central Force and Admiral Nishimura's Southern Force – laced their way through the Philippine Islands chain intending to execute a pincer movement that would smash American support shipping off the Leyte beaches. The plan was known as Sho-Go (to conquer) No. 1. The lineup on the American side included Admiral Bull Halsey's Third Fleet of fast carriers located off Luzon and, to the south, Admiral Thomas Kinkaid's Seventh Fleet, including Admiral Thomas Sprague's Escort Carrier Group off Leyte, supporting MacArthur's landings.

The opening bell of the battle's first round sounded early in the morning of October 23. U.S. submarines *Darter* and *Dace* reported sighting Kurita's Central Force off Palawan Passage. It consisted of five battleships, 12 cruisers and a screen of destroyers. Each sub torpedoed and sank a heavy cruiser. A third cruiser was severely damaged. The contact report was one of the most significant of the Pacific war.

The American Navy made ready and waited. On the morning of the 24th, groups of Japanese planes headed in the direction of the U.S. Third Fleet. One formation was met by *Hellcats* scrambled from *Essex*. Cdr. McCampbell led the flight. His seven F6Fs encountered some 60 enemy aircraft and worked them over, knocking out at least 25. McCampbell accounted for nine in the 95-minute duel (*NANews*, September 1974). A lone enemy *Judy* bomber from one formation got through to hit *Princeton* with a 550-pounder which went through three decks and exploded, causing eventual loss of the ship.

Meanwhile, Kurita's Central Force was attacked by 259 sorties from other Third Fleet planes as the Japanese flotilla, already diminished by three cruisers, made its way into the Sibuyan Sea. After a pounding from 19 torpedoes and 17 bomb hits, the big battleship *Musashi* finally rolled over and sank. The cruiser *Myoko* was badly damaged. This left Kurita with only four battlewagons and eight cruisers. Adm. Halsey then turned his carriers north to face Ozawa's carrier force which was heading south. Despite his depleted fleet, Kurita continued with Sho-Go No. 1, still hoping to rendezvous with Nishimura for an attack on the American landing support forces in Leyte Gulf.

*Gen. MacArthur returned aboard USS *Nashville*, in which then Lt. William Houser presently DCNO(Air Warfare), was serving as a gunnery officer.

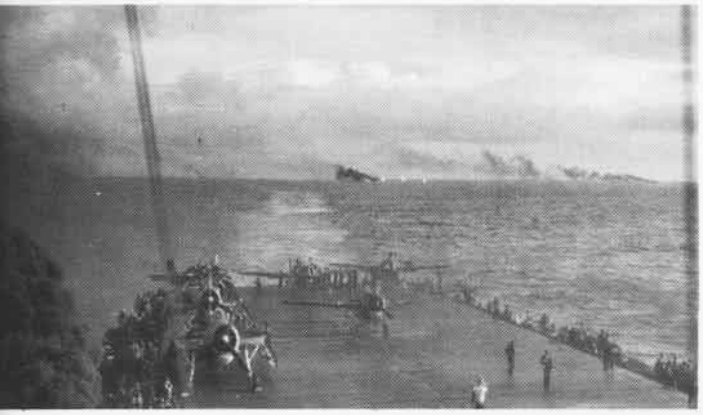
That same afternoon, the 24th, after search aircraft from *Enterprise* and *Franklin* spotted Nishimura's Southern Force, Adm. Kinkaid estimated that the enemy would try a night penetration of Leyte Gulf via the 12-mile-wide channel of Surigao Strait. He deployed a trap with 39 PT boats, a screen of destroyers, eight cruisers and six battleships. The scene was set for what probably was to be history's last line engagement of battleship against battleship. And it was to be a nocturnal fight. The fierce night-surface, torpedo-gun duel resulted in enemy battleships *Yamashiro* capsizing and sinking and *Fuso* left burning. The battered force turned and retreated and, on the morning of the 25th, *Avenger* aircraft from the jeep flattops caught up with the wounded cruiser *Mogami*, and finished her off.

Two other major engagements were to occur on the 25th. One was Task Force 38's fight with Adm. Ozawa's flattop force. The first of the four Japanese carriers lost in that conflict was *Chitose* which received a number of bomb hits, including three which exploded below the waterline. She sank at 0937. The big carrier *Zuikaku* was crippled by a torpedo and further wounded in follow-up attacks. She finally rolled over and went down at 1414. *Zuiho* was also difficult to knock out. About 40 U.S. carrier planes attacked her at 1310 and more at 1330. Later, another 25 aircraft struck and she finally sank at 1526. The light carrier *Chiyoda*, which had been damaged early in the engagement, was sunk that afternoon by U.S. cruisers. About 12 of Ozawa's 17 ships were still afloat. Because of heavy antiaircraft fire and excellent maneuvering, the battleship-converted-carrier *Ise* and another of her class, *Hyuga*, got away, but Adm. Ozawa's force was beaten.

That same morning, the Japanese Central Force completed its night passage through San Bernardino Strait, between the islands of Luzon and Samar, north of Leyte Gulf. The three groups of U.S. escort carriers were spread out east of the Gulf and, after sighting six of the "jeeps" in the northern group, Kurita's force began its salvos, including those from the 18.1-inch guns of *Yamato*, another of the world's largest fighting ships, a sister of *Musashi*.

The U.S. command sent out an urgent call for assistance and the other two escort groups began readying planes for launch. The ensuing fight off Samar damaged the escorts *White Plains* and *Kalinin Bay*, but both kept going. *Fanshaw Bay* was also hit and *Gambier Bay* was set afire, capsized and sank. All available planes from the escort carriers were attacking and their screen of destroyers was racing in, often at point-blank range, to strike at the heavily armored battlewagons and cruisers. Some of the carriers' planes roared in for a second fake run, ammunition already expended, to help divert enemy gunfire from other aircraft coming in loaded with ammo. At one point, pilots were ordered to

U.S. jeep carriers beat back superior force.



Yamato got away but her sister ship, Musashi, was sunk.

Kamikazes entered the war for the first time.

inflict as much damage on as many ships as possible and not concentrate on sinking any particular ship. The heroic efforts of the destroyermen and the escort pilots turned the tide against the overwhelming superior Japanese force.

The enemy lost a heavy cruiser and several ships were damaged before the force turned back.

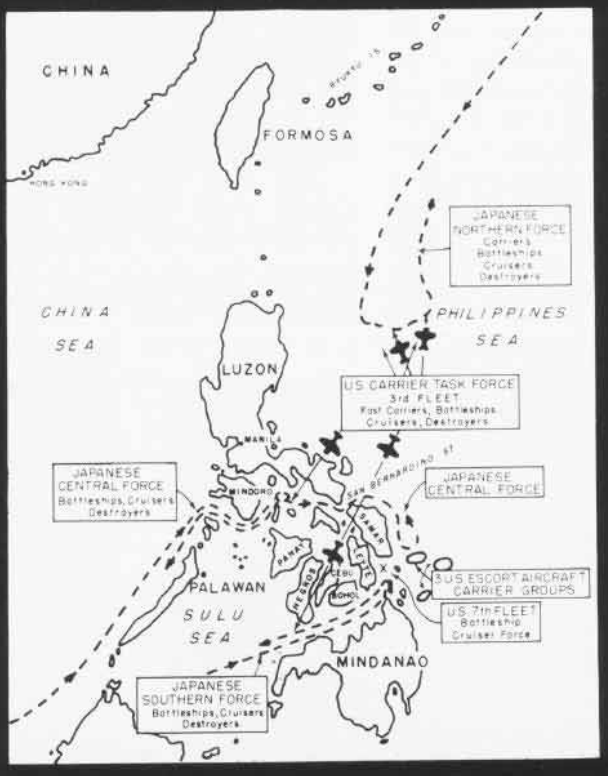
At the same time, the escort carrier group farthest south was about to experience another kind of battle – the first of the kamikazes. This escort group had been concentrating on the fleeing Japanese ships of the Southern Force, following the night action of October 24-25 in Surigao Strait. The group had received the call for help from the northern escorts and was moving to assist. Out of the morning clouds, a diving *Zero* made a beeline for the deck of *Santee*, setting the ship on fire. The conflagration was eventually brought under control. *Sangamon* was the second escort carrier to become a target of the new kamikaze corps, but this enemy fell short, a victim of AA fire from nearby *Suwannee*. Later in the morning, the northern escort carriers, which were recovering from their running battle with Kurita's force, also came under attack by kamikazes. The escort carrier *St. Lo* was lost, smashed by a *Zeke* which set fires that blazed from stem to stern.

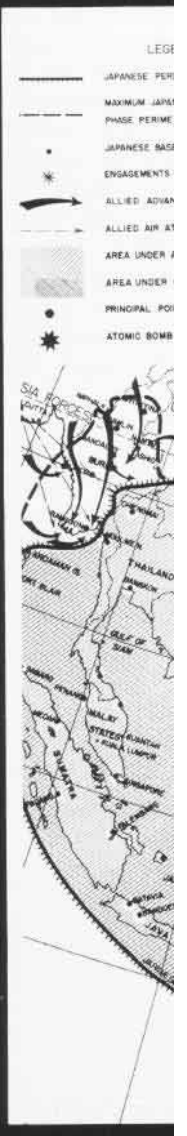
Air actions in the Battle of Leyte Gulf occurred midday on the 26th when several *Zeros* and *Judys* made another kamikaze attack on the U.S. escorts. *Suwannee*, damaged the day before, was hit again by a suicide plane and suffered more damage and casualties. As a result of the engagements on the 25th and 26th, the U.S. lost *Gambier Bay* and *St. Lo* and suffered major damage to six other escort carriers. But the three Japanese fleets which had followed Sho-Go 1 had been turned back and virtually decimated. The battle ushered in a future problem for air defense.

The kamikaze was the beginning of new tactics which had to be confronted by the Allies during the remainder of the war. However, the Allied victory at the Battle of Leyte Gulf signaled the end of the war in the Pacific.

ACTION MAP

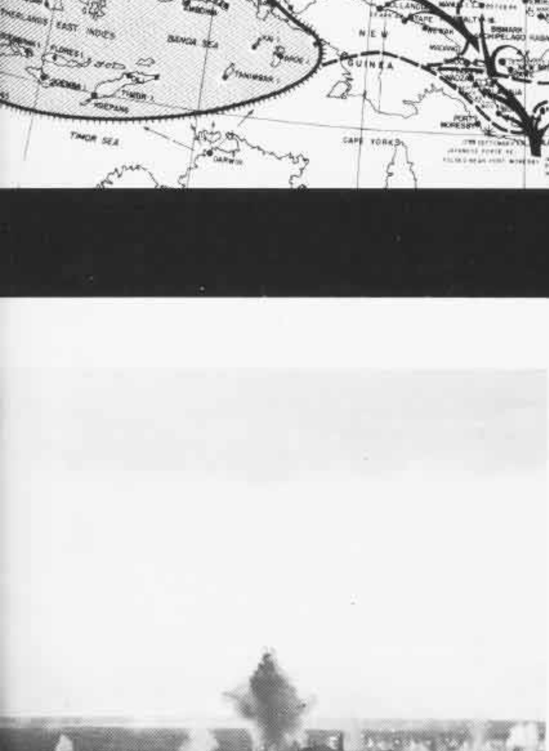
On October 24, Third Fleet carrier planes crippled but did not stop the Central Force in the Sibuyan Sea north of Panay. That night the Seventh Fleet routed the Southern Force in the epic Battle of Surigao Strait, channel entrance to Leyte Gulf. The next day, Third Fleet planes sank four carriers and turned back the Northern Force off Luzon in action known as the Battle off Cape Engano. The escort jeep carriers, surprised by the Central Force in the Battle off Samar, doggedly beat back this superior force to assure the U.S. landing and the liberation of the Philippine Islands.





In the U.S. advance across the Pacific, air and surface action at Leyte finally broke the back of the Japanese Navy. "Our defeat at Leyte," said Japan's Navy Minister, "was the end of our resources."


THE WAR AGAINST JAPAN
THE ADVANCE ACROSS THE PACIFIC
AND THE
SITUATION ON 14 AUGUST 1945
SCALE 1:30,000,000
LAMBERT CONFORMAL CONIC PROJECTION
STANDARD PARALLELS 0° AND 45°
SOVIET UNION
SOVIET FORCES
MONGOLIA
SEA OF OKHOTSK
BERING SEA
NORTH PACIFIC FORCES
ALEUTIAN ISLANDS
KURILE ISLANDS
SEA OF JAPAN
KOREA
HONSHU
SHIKOKU
KYUSHU
JAPAN
EAST CHINA SEA
20TH AIR FORCE
BONIN ISLANDS
PACIFIC OCEAN
MARIANAS
PHILIPPINE ISLANDS
SOUTH CHINA SEA
SULU SEA
CAROLINE ISLANDS
MARSHALL ISLANDS
HAWAIIAN ISLANDS
PACIFIC OCEAN AREA FORCES
GILBERT ISLANDS
PHOENIX ISLANDS
ELLICE ISLANDS
SOLOMON ISLANDS
NEW GUINEA
NETHERLANDS EAST INDIES
BANDA SEA
TIMOR SEA
SOUTH PACIFIC FORCES



NEWS LOOKS BACK

QUONSET POINT

By Lt. Kathleen S. Beam

Over the years it has been called and recalled.

The Indians called it *Seconiqueonset*. Engineers called it a miracle. Most of the world called it the "home of the hut."

And on June 28, Rear Admiral G. L. Cassell recalled that it was a major cog in the defense of the Atlantic Coast. The admiral, former Commander, Fleet Air, Quonset, made his remarks as NAS Quonset Point, R.I., was deleted from the active-duty rolls of the Navy.

Located about two miles north of Wickford, R.I., the site itself has a long military history.

In 1892, the land comprising Quonset Point was bought by the State of Rhode Island and a large portion of the parcel was donated to the federal government. A recruiting station was opened at Quonset during the Spanish-American War, and the First Rhode Island Regiment, U.S. Volunteer Infantry, was quartered there on the "Camp Grounds."

In WW I, Quonset played a major part in the mobilization and training of men for combat. Later, during the twenties and thirties, the Rhode Island National Guard established its headquarters at "Camp Green." Charles Lindbergh landed there on a barnstorming tour of the U.S. in 1927.

Many Rhode Islanders found Quonset's land to their liking and a thriving summer colony soon dotted the shoreline. The area survived the devastating hurricane of 1938 but there was considerable damage and several lives were lost.

On June 7, 1938, Claude Swanson,

then Secretary of the Navy, appointed a naval board headed by Rear Admiral Arthur J. Hepburn, to study the need for new naval bases authorized by Congress. In January of the next year, the board recommended to Congress that construction begin on a major air base at Quonset because it was the "most favorable site in the Northeast."

Engineers also liked the location. They found it relatively free of flight-grounding fog. In addition, it was favored with a deep channel to the sea.

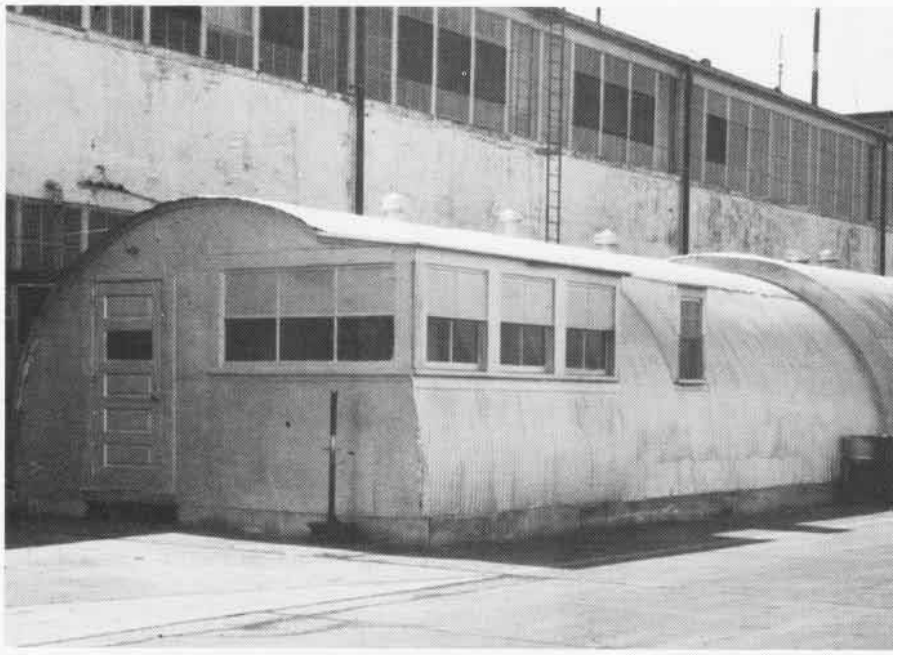
On May 25, 1939, President Franklin D. Roosevelt signed a bill appropriating $1 million for the land, and the Navy sought bids for the construction of the first hangar in November. Construction began on July 16, 1940. Day and night, fair weather or foul, the work went on. Tons of sand and mud were dredged from Narragansett Bay to form foundations for aircraft runways.

Scouting Squadron Two, the first squadron aboard, was commissioned on October 1, 1940. A seaplane hangar had been built and the first plane landed at Quonset on December 17, 1940. A proposed three-year job was completed in a year.

It was at the air station that the famous Quonset huts were designed and fabricated. They served as station housing and 32,000 others were shipped all over the world.

During WW II, Quonset Point served as a major training site for pilots as well as administrative and technical officers for Naval Aviation. The Naval Training School was the Navy's answer to the urgent need for quickly trained reserve officers to meet increased manpower requirements. Through a three-month general course, "90-day wonders" like Henry Fonda and Dana Andrews were converted from civilians to naval officers.

One of the few schools in the



Camp Green, above, in July 1927, was headquarters for the Rhode Island State Militia and the landing field for Charles Lindbergh's barnstorming tour of the U.S. The Quonset hut, right, was designed by Quonset engineers after a suggestion by Adm. Ben Moreell, founder of the Seabees.

country for Naval Aviation intelligence officers was also located at Quonset. Also, when the training school at Newport became overcrowded, an enlisted boot camp was built. When the U.S. gave the British numerous fighter planes, the British pilots received training at Quonset.

Antisubmarine patrols flew constantly from the Rhode Island base and the overhaul and repair department's massive workshop reconditioned these battle-weary planes on two nine-hour shifts, seven days a week.

Quonset's military commands included Commander Fleet Air, Quonset – charged with the jurisdiction and operational control of all naval aircraft in the Atlantic Fleet between Cape May, N.J., and Argentia, Newfoundland – and the First Naval District Naval Air Base Command.

Throughout its 33 years, Quonset was home for: 15 aircraft carriers, 8 helicopter squadrons, 12 air ASW

squadrons, 17 fighter squadrons, 11 attack squadrons, 7 scouting/patrol squadrons, 2 air development squadrons, 3 airborne early warning squadrons, 5 service squadrons, 6 composite/utility squadrons, 10 carrier air groups, 23 staff commands and 16 units and detachments.

Many of the air facilities and schools were discontinued after the war. The station observed a relatively routine peacetime period until 1947, when the overhaul and repair department began working on FH-1 *Phantom* jets.

A $5-million fire destroyed the O&R shop on October 15, 1948. But O&R, which became a separate com-

The OS2U Kingfisher, left, was flown by Quonset's early patrol squadrons. The first neutrality patrol squadrons flew the PBY-1 Catalina, lower left. The C-130 Hercules, upper right, was flown by VXE-6, the Antarctic development squadron stationed at NAS Quonset Point. Quonset's six helicopter squadrons flew the Sikorsky SH-3A Sea King ASW helicopter, right. The S-2F Tracker, lower right, was flown by Quonset's air antisubmarine squadrons.

mand called the Naval Air Rework Facility in 1967, continued to account for a large part of the activity at Quonset Point.

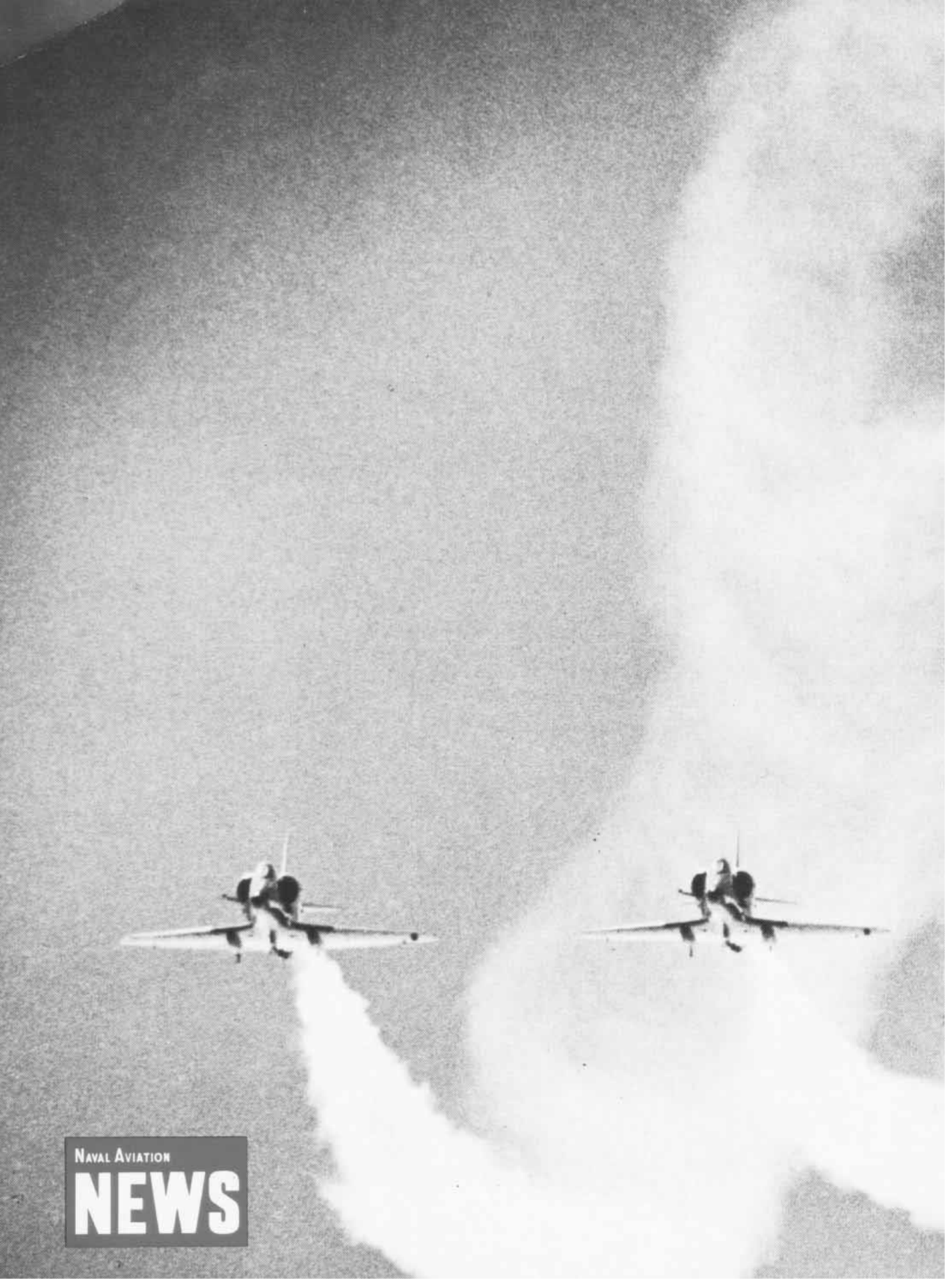
The Quonset Point Naval Hospital was established as a separate command in July 1968, and ComFAir Quonset assumed the responsibilities of Commander Hunter-Killer Force, Atlantic Fleet in August 1969.

Two specialized training squadrons moved to NAS Quonset Point from NAS Key West, Fla., in 1970. HS-1 trained pilots and aircrewmen in the H-3 *Sea King* while VS-30 did the same in the S-2 *Tracker.*

HS-1 also conducted a special four-week search and rescue school for helicopter aircrewmen. Basic rescue techniques were taught in the station indoor swimming pool. At the end of the course, students were able to display their skills in a simulated rescue in Narragansett Bay, the deep water bordering *Seconiqueonset.*

It was further out in the Atlantic during WW II that an enlisted man flying on a combat mission issued a statement which has become a legend. Donald Francis Mason, whose family awaited his return in their Quonset hut quarters, reported his airplane scoring a bull's-eye on a sub and declared: "Sighted sub, sank same!"

Fleet Air Reconnaissance Squadron 4 flies EC-130s from NAS Patuxent River, Md., while Attack Squadron 94 operates out of NAS Lemoore, Calif., flying A-7Es. NAS Norfolk, Va., is the base for both Carrier Airborne Early Warning Squadron 125, which flies E-2Cs, and Helicopter Mine Countermeasures Squadron 12 flying CH-53A/Ds and RH-53Ds.



Naval Aviation
NEWS