NAVAL AVIATION NEWS

In this Issue: Aerial ASW Today • 7th Fleet SAR

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NAVAL AVIATION NEWS

FIFTY-FOURTH YEAR OF PUBLICATION

THE STAFF

COVERS — *"Sweat gets in your eyes and your helmet weighs twice what it did when you put it on," is how aircrewman Michael "Frenchy" Plamondon, on the front cover, describes the hours he spends in a Big Mother (see page 32). Portrait is the work of JO1 Kirby Harrison. PH2 T. Staley caught the recovery of an F-8 Crusader aboard USS John F. Kennedy, left. Back cover photo of special stations on a P-3 is the work of Lt. James A. Wagner, author of "New Eyes in the Night" (page 24).*

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Letters

Keen Eyes

Grampaw Pettibone would burst a blood vessel if he caught a glimpse of the two sailors you depict on page 17 of the July '72 issue of *NANews*. Those two sailors standing on a pallet elevated by a forklift violate all maintenance safety regulations. Printing a picture like that just doesn't help a squadron safety program.

James J. Knaus, LCdr., USNR
VP-60 Aircraft Maintenance Officer
NAS Glenview, Ill. 60026

Grampaw Pettibone says:

"You got a keen eye, son! However, what really concerned me was that we only got one letter that picked up this non-safe act. Note, lads, that the gent who wrote us is a maintenance type, not an Aviation Safety Officer—hummm!

And Then There Were Two

As chairman of the Enlisted Safety Committee at NAS Lakehurst, N.J., I feel that I should bring to your attention an item that appeared in the July 1972 issue of *Naval Aviation News*.

The item in question is the picture that appears on page 17 of men working on the vertical stabilizer of an aircraft. Listed below are the items that I feel are unsafe.

a. Men working from an unauthorized platform that has no type of guard rail protection.

b. Men working from an extended fork lift.

c. Fork lift being used for maintenance function.

Martin E. Helmick, AMS1
AIMD Safety Petty Officer

Right On

I don't know whether to cry or hide after reading your comment on the lack of Coast Guard aviation news in the Letters section of the August issue.

The ties that we formed with Navy and Marine types at Pensacola and Corpus are not forgotten. We are all avid readers of *Naval Aviation News* and still part of the family. Many of us have operated out of Navy facilities (thank you for finally getting snack bars that are not always closed).

Let's throw the gauntlet down to Coast Guard Aviation, both at headquarters and the field level, and get some news and articles in *Naval Aviation News*.

R. C. Powell, Cdr., USCG
13th Coast Guard District

Home Movies

Many *Naval Aviation News'* readers must have had movie cameras during WW II and must have taken thousands of feet of excellent quality film—some of it in color—which has never been seen except by family and friends.

I would be delighted to hear from anyone with such film with a view to including it in a major series which this network is preparing on the history of the Second World War.

Jerome Kuehl
Thames Television Limited
Teddington Lock
Teddington, Middlesex
England

Chronology

The chronology, *United States Naval Aviation 1910-1970*, certainly is a valuable reference book. I turn to it repeatedly to pin down facts.

Art Schoeni
Vought Aeronautics
P.O. Box 5907
Dallas, Texas 75222

Copies of the 440-page volume still are available for $4.00 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (GPO Catalogue No. D202.2: AV5/2-2-910-70).

While looking through my copy of the excellent *United States Naval Aviation 1910-1970*, I came across a reference to the Curtiss GS-1 and GS-2 *Gnome Speed Scouts* (A-868 and 445-9). This is the first time I ever heard of a Curtiss type of this designation. Could *NANews* publish a photo and perhaps a few facts concerning this rare WW I bird?

Richard J. Beiter
24 Burton Terrace
South Weymouth, Mass.

Here it is. Delivered in early 1918, the *Scouts* attempted to fill the Navy's need for a single-seat seaplane with a speed of 50 to 95 mph, but difficulties in controlling the plane ended with two damaged and the rest stored, stricken or sold within two years. For further details the planes' history cards can be ordered from the Air and Space Museum, Smithsonian Institution, citing the serial numbers.

NAVAL AVIATION NEWS
1911 1972

Aviation Safety Awards Announced

WASHINGTON, D.C. — The Chief of Naval Operations has announced the FY 72 winners of the annual aviation safety awards.

In the command category, Reserve Aviation is the winner, with Commander Naval Air Reserve Force and Commanding General Marine Air Reserve Training Command sharing the honors.

Individual squadron winners are listed below.

AirLant: VF-32, VAs 35, 45, 46, RVAH-11, VP-26, VS-28, VAW-123, HS-7, VR-1.

AirPac: VFs 111, 124, VA-164, VP-9, VAW-116, HS-10, VAQ-135, VC-5.

FMFLant: VMA-324, HML-167, VMFA-333, VMFAT-201.

FMFPac: VMFA-531, HML-267, HMT-301, HMM-163, VMFAT-101.

CNATra: VTs 1, 19, 24, 28, HT-8.

NavAirResFor: VF-301, VA-303, VS-81, VP-68, VR-54, HS-85.

MARTC/4th MAW: VMA-134, HMM-767.

VT-28 counted its third consecutive win; HMM-163 its second.

AF Takes the F-4

WASHINGTON, D.C. — The Naval Air Systems Command has turned over executive management of the *Phantom II* to the U.S. Air Force.

The preliminary design for the F-4 was submitted by McDonnell Aircraft to NavAirSysCom in the summer of 1953 with first flight in 1958. NavAirSysCom has overseen a total procurement of 4,833 planes since the project began. Navy has purchased 1,262 of the fighter aircraft.

The *Phantom II* procurement has been a joint Navy/Air Force project since 1964. The Air Force will now manage the program.

ASO Billets Upgraded

WASHINGTON, D.C. — In a move aimed at maintaining a high level of safety in the aviation community, the Chief of Naval Operations has further upgraded the Naval Aviation Safety Program.

The program, delineated in OpNavInst 3750.14C, encompasses all aspects of safety involved with the design, procurement, operation, training, maintenance and support of aircraft, aviation ships, facilities and associated equipment.

All ships, stations and units concerned with routine operations of aircraft, all aviation command staffs and all operational and training squadrons have been directed to designate one naval aviator or naval flight officer, if available, as the organization aviation safety officer (ASO). One or more assistants may be designated if the size and nature of operations warrant.

Stiffer requirements have been spelled out on the assignment of an ASO. ASO billets are to be assigned to experienced personnel who exhibit exceptional capabilities and career potential. Safety officers will have department head status and participate in command functions at that level in order to promote freedom of action across all lines of functional and administrative responsibilities.

Before being assigned to an ASO billet, the officer must complete a formal aviation safety officers' course. Wherever possible, ASOs assigned to aviation staffs and major commands must have had previous experience in aviation safety at the squadron level and have attended an advanced safety program management course.

To provide continuity in the aviation safety program and make optimum use of training facilities, ASO assignments will remain as stable as possible. Air wing and squadron ASOs, barring unusual or unforeseen circumstances, will occupy the billet for at least a year. Staff level safety officers can normally be expected to remain in the billet for the duration of the assigned tour at the command.

A Lemoore, Calif., minister loaned this trailer to the Rough Raiders of VA-125 who remodeled it and did the special paint job. The Freedom Shop will attempt to inform the public about the men held prisoners or reported missing in action in Vietnam. First appearance was at the California 500 auto race at Ontario, Calif., on September 3.

Whidbey Helicopter Saves Climber

OAK HARBOR, Wash.—In a daring rescue operation, NAS Whidbey Island's search and rescue (SAR) helicopter crew saved the life of a lone mountain climber as he hung helplessly entangled in ropes over 700 feet up the sheer face of 1,500-foot Mt. Index, overlooking Lake Serene in eastern Snohomish County.

Craig Keys had been hanging from his ropes for four days when he was discovered; it was to be another day before he was brought down.

The Navy's involvement in Keys' dramatic five-day, life-and-death struggle began when Snohomish County Deputy Sheriff Bob Fisher called NAS Whidbey Island for help. Two other mountain climbers, also attempting to climb Mt. Index, had found Keys. One man stayed with him while the other went to call for help.

After receiving the request for a SAR mission from Deputy Sheriff Fisher, the station's SAR crew launched its helo and flew to Mt. Index. Lt. Don O'Neill were in the pilot's seat. With him was Lt. Carl Wick, copilot, and a five-man assist crew.

A quick evaluation of the area revealed that Keys was much too far down Mt. Index for the helo cable to reach him from above. To further complicate things, he was hanging from his ropes in midair, in a deep crevice in the mountain, and darkness was closing in.

The assist crew was dropped at the foot of Lake Serene and one man climbed up to Keys while the helo pilot flew to Snohomish Air Field to confer with Fisher.

The climber found Keys mentally alert in spite of his ordeal and the injuries he had sustained: a compound fracture of his left leg, the bone almost protruding, a broken right knee cap and numerous cuts and bruises.

In an effort to make Keys as comfortable as possible, the crewman pulled him from his rope perch, moved him to a small ledge and massaged his legs which had been paralyzed by the tight ropes encircling them.

Now the NAS Whidbey SAR crew returned to Mt. Index with Fisher, the Seattle Mountain Rescue Council team and plenty of cable equipment aboard.

It had been decided that Keys was too inaccessible for a helo pickup and it would be necessary to move him by cable further down the mountain before one could be attempted.

Working with the assist crew already at Lake Serene, six men from the Seattle rescue team started climbing the more accessible back side of Mt. Index, hauling over 600 pounds of cable equipment with them.

Early the next morning, 800 feet of cable was lowered from the top of the mountain to the ledge. Then another 400 went down to be used to lower Keys to another ledge farther down where a pickup could be attempted.

By midmorning, the SAR crew began maneuvering the helo toward the ledge.

With the helo rotor only ten feet from the face of the mountain and with 50 feet of cable out, Lt. O'Neill accomplished the rescue. Lt. Dave Fauver acted as copilot. Additional help was provided by ADR2 Frank Midkiff and ADJ2 Bill Sirrat.

Art Schoeni

LTV's Corsair II[2] prototype made its maiden flight at NAS Dallas on August 29. The stretched version, which will accommodate two pilots or a pilot and passenger, is designed for combat crew or instrument training, or for use in combat. To make room for the second cockpit, the nose section was re-faired to just forward of the wing and stretched 16 inches. An 18-inch insert was added just aft of the wing section and the aft section was tilted up about 1.2 degrees.

VS-28s Clean Record

QUONSET POINT, R.I.—Air Antisubmarine Squadron 28 observed its tenth consecutive year of accident-free flight operations in September.

Rear Admiral Joseph B. Tibbets, Commander, Fleet Air Quonset, paid tribute to the 30 officers and 130 enlisted men whose professionalism and safety consciousness contributed to the 55,000 hours accumulated from September 1962 to September 1972. During the ten-year period, VS-28 logged 12,000 carrier landings and 19,000 sorties.

The squadron, commanded by Commander John P. Smith, has had no aviation injuries since its commissioning on June 1, 1960.

Zero NORS String

SAUFLEY FIELD, Fla.—"In Naval Aviation, operationally ready aircraft is the name of the game—and nothing is second best," says CWO2 Bill Tucker, supply services division officer at the naval air station.

With that in mind, supply and maintenance personnel at Saufley Field worked to ensure that VT-1 did not have a NORS-downed T-34B *Trojan*—a goal they have met for over a year. NORS stands for not operationally ready, supply, and refers to an aircraft in a down status for 24 hours

An A-4M and TA-4J fly over the North Carolina countryside during the first flight of VMAT-203's newest Skyhawk. The MCAS Cherry Point-based squadron took delivery of the first two of ten A-4Ms on August 17.

because repair parts are not available.

Saufley's zero-NORS-string started in August 1971, but no one had the slightest notion at the time that it would reach its present level. Supply requisitions came in daily, and were filled daily.

When it became apparent that Saufley had a streak on its hands, the air station skipper promised a party for all concerned, if and when the string reached 100 days. That milestone was reached and passed, as were several others.

Low Smoke Engine

PATUXENT RIVER, Md.—The Naval Air Test Center is presently conducting a test and evaluation program on a General Electric low smoke J79 turbo-jet engine.

The J79 powers the F-4 and RA-5 series and a low smoke configuration is urgently needed to reduce the tactical disadvantage of highly visible smoke trails.

The new engine configuration consists of a modified main fuel control, modified fuel nozzles, a new combustor design, increased first stage turbine nozzle area and modified main ignitor and ignition lead. Major features of the new combustor design include a machined-ring inner combustion liner, a new outer combustion liner with enlarged inlet opening and a new rear liner with modified louver and thimble pattern.

The flight testing includes a definition of the airstart envelope, utilizing both JP-4 and JP-5 fuels, and an engine stall/flameout investigation at high altitudes, low airspeeds and high angles of attack. In addition, an accelerated service testing program on an F-4J equipped with a low smoke engine is under way to substantiate the 1,200 hours between overhaul and the 3,600-hour ultimate life goal.

If the tests are successful, the J79's will be retrofitted with the new low smoke and improved life hardware.

S-3A Turbofans Complete Tests

WASHINGTON, D.C. — The TF34-GE-2 turbofan engine for the S-3A *Viking* has completed all required model qualification tests and has been approved for quantity production according to a NavAirSysCom release.

The approval marks the culmination of a Navy-sponsored effort, begun in 1965, to develop a high-bypass turbofan engine in the 9,000-pound thrust category for the VS(X) aircraft by 1972 within a budget of $96 million.

One of the major performance goals was decreasing the specific fuel consumption to a figure 25 to 30 percent lower than that of comparable jet engines.

The contract to develop the TF34 was awarded to General Electric in March 1968 and the first engine was tested in May 1969. Since that date over 11,000 hours of operation have been accumulated, including 400 in a B-47 test aircraft and 450 in the altitude and climatic test chambers at the Naval Air Propulsion Test Center.

Solar Flare Watch

ARLINGTON, Va.—For the first time, a Navy satellite experiment has closely monitored and recorded the effects in the earth's ionosphere of a major solar flare that lasted several days. The early August flare bathed the polar regions in the exotic light of aurora borealis and interrupted worldwide radio communications for a time.

The *Agena* satellite, which was placed in a 400-mile circular polar orbit by a *Thor/Agena* rocket, was launched from Vandenburg AFB in October 1971. It contains four experimental packages as part of the DOD space test program. The instrument package, designed to measure ionospheric changes including those caused by solar flares, was built by Lockheed's Palo Alto Research Laboratory under an Office of Naval Research contract, with funds provided by the Defense Nuclear Agency.

A preliminary look at the data sent by the satellite shows that the giant solar flare bombarded the earth with showers of electrons and protons. The solar storm began on August 3 and the high-energy particles hit the earth's atmosphere within a few hours, with the slower moving particles arriving in about four days.

The valuable data collected from the perspective of space will enable Navy scientists to increase our understanding of the effects of solar storms on polar radio communications, auroral and polar cap phenomena.

Mike the Manikin, an instrumented, portable head developed by the Acoustical Sciences Division of the Naval Aerospace Medical Research Laboratory, is used to obtain flight helmet performance data in respect to noise attenuation and speech intelligibility during actual aircraft operations.

GRAMPAW PETTIBONE

All Wet Decision

Two reserve lieutenants were scheduled for a FAM flight from NAS Coast in an E-1B. The aircraft commander, with approximately 250 hours in type, was to supervise the other pilot, who had over 1,200 hours in the *Tracer*, but only ten hours in the last two years.

Since this was a FAM flight, the preflight, prestart and start procedures were performed with unusual thoroughness. The aircraft commander occupied the right seat; the FAM pilot, the left. No discrepancies were noted and the aircraft left NAS Coast using an instrument departure. The aircraft broke out in the clear during its climb, and the pilot cancelled the instrument flight plan and commenced the high work, which included stalls in various configurations and single-engine procedures.

Following the high work, the aircraft entered the traffic pattern for practice landings at an island airfield approximately 65 miles from NAS Coast. Since the field was below VFR minimums, the pilots were to conduct IFR approaches with touch-and-go landings. The E-1B completed a TACAN to a landing. During the next approach, a GCA, the port engine "popped" several times and there was a port swerve from the power loss.

The plane commander elected to return to NAS Coast; the copilot concurred. Following proper voice communications, the E-1B turned toward NAS Coast. The port engine commenced backfiring and popping again. While the plane commander reached for the secure checklist, the copilot secured the port engine. (At this time they were eight to ten miles from the island airfield.)

The plane commander completed the engine checklist. With power set, the *Tracer* maintained 1,200 feet, 105 KIAS with one-third flaps. At this

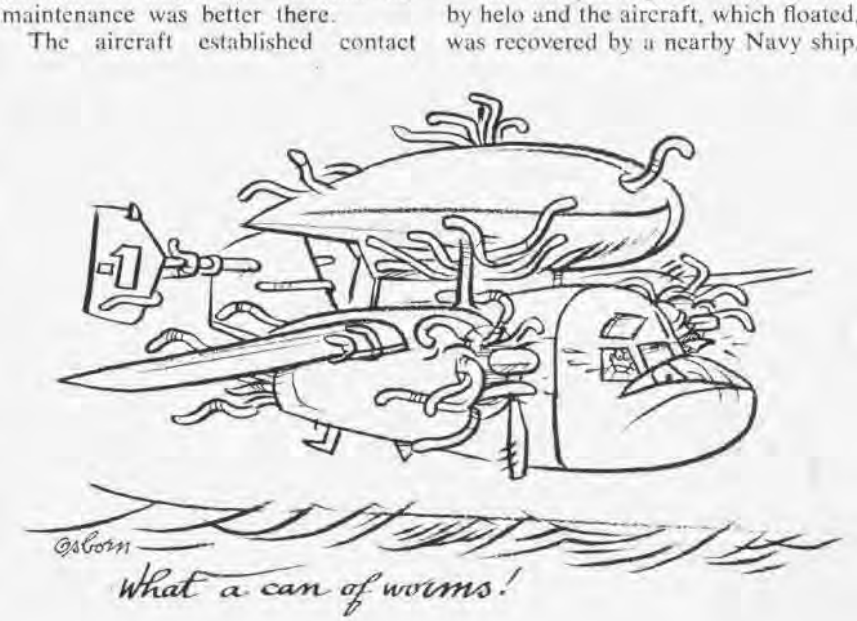
point, the plane commander told the copilot that they should return to the island airfield. The copilot, however, persuaded the plane commander to continue to home field—because the maintenance was better there.

The aircraft established contact with approach control and the pilots decided to dump some fuel since they were approaching an overcast. During dump, no movement of the fuel gauge needles was noted, although dumping was visually evident. The dump switch was then secured. Immediately thereafter, the starboard low fuel warning light came on and stayed on. They were now 43 miles from NAS Coast.

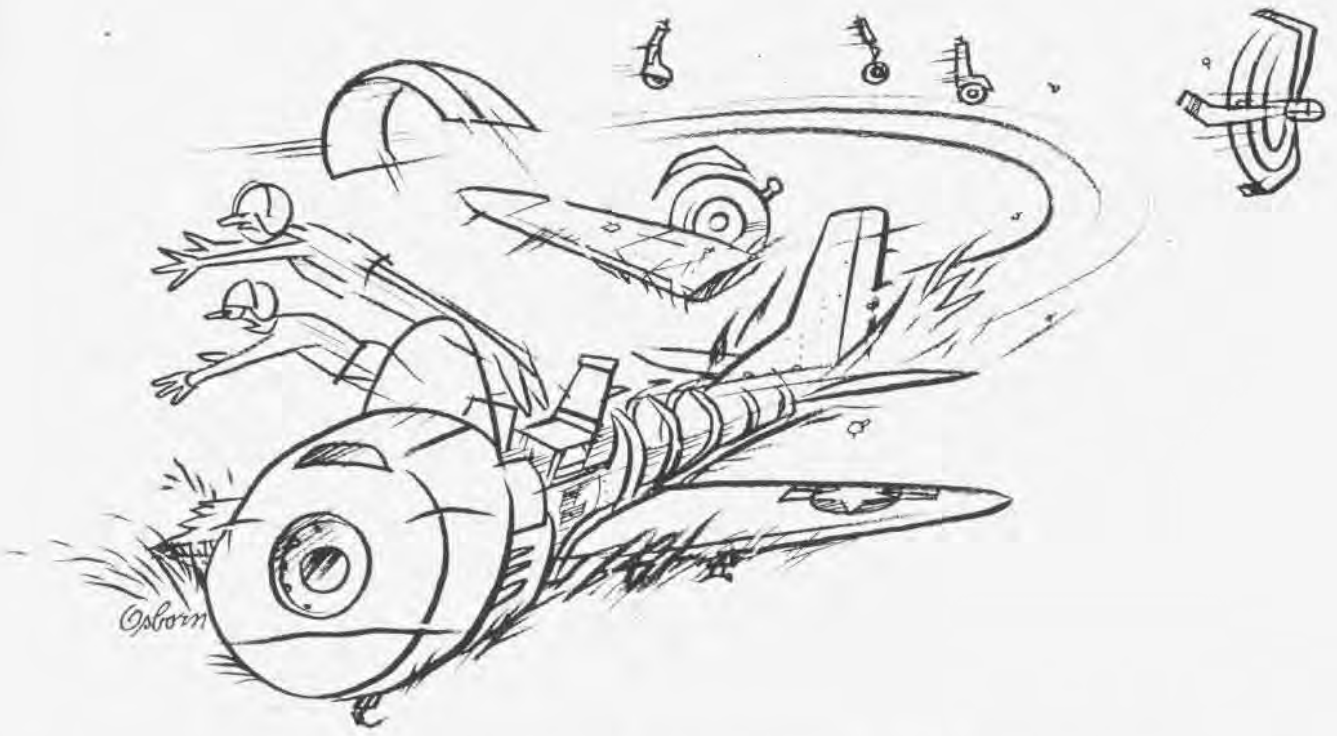
Minutes later, they noted a low reading on their hydraulic pressure and advised approach of a partial hydraulic failure. Very shortly, the starboard engine started missing. The plane commander tried various movements of the mixture control, prop and throttle; but the engine continued to miss. The copilot restarted the port engine which ran "roughly and intermittently."

The E-1B descended through the cloud cover and stabilized at 300 feet with intermittent power on both engines. At approximately 30 miles from home field, the plane commander reported they were "going into the water." Power was gone on both engines and the aircraft ditched.

The uninjured pilots were rescued by helo and the aircraft, which floated, was recovered by a nearby Navy ship.



ILLUSTRATED BY Osborn



Grampaw Pettibone says:

Leapin' lizards! I don't believe it! It's purty darn hard to believe that two "supposedly" experienced Naval Aviators would leave one landing field for another when they had a problem of this kind! Son, after you made a correct decision—to return to that island airfield—you let the copilot talk you out of it. Why?

No matter what happened after the aircraft left the original field, that decision eventually led to your flyin' machine goin' into the water. There's no excuse for this type of accident, which, if handled properly would have been an incident which reads, "Aircraft had rough running engine in GCA pattern; landed uneventfully following GCA." It's that simple!

In the Rough

A lieutenant junior grade instructor and his ensign student were cleared for a day transition flight in their T-28 *Trojan*. Engine run-up, takeoff and departure were normal. After the high work was completed, the instructor gave simulated high and low altitude emergencies to the student, who performed well.

The *Trojan* proceeded into the landing pattern to perform a series of full flap and no flap touch-and-go landings. On the first approach, in the full flap configuration, the ensign touched down in a slightly nose low, or "flat," attitude, so the instructor demonstrated the next landing. The student then performed two more full flap landings and, on both approaches, he adjusted his power and attitude to touch down in the normal landing area.

On the fourth approach, the ensign was instructed to perform a no flap landing. He completed his approach and rolled out on final with approximately 1,200 feet of straight-away and continued his descent toward the runway. The T-28's main landing gear unexpectedly contacted the ground almost 20 feet prior to the approach end of the runway, with the nose gear touching down at the same time about 12 feet in front of the runway surface.

The aircraft continued onto the runway and the starboard main gear collapsed. The nose gear folded next, and the aircraft began a swerve to the right. The propeller began to strike the runway, then separated from the engine and continued down the runway. The port landing gear collapsed as the aircraft continued to veer right, toward the crash truck. Fire appeared under the starboard side of the *Trojan* as it slid on down the runway.

The starboard wing struck the left front wheel of the crash truck. The wing separated from the aircraft and came to rest approximately 50 feet beyond the runway, stopping approximately 150 feet beyond the crash truck, perpendicular to the runway. The instructor blew open the canopy and both pilots exited the aircraft without serious injury. The student suffered minor burns. The aircraft was a total loss.

Grampaw Pettibone says:

Holy Hannah! A fella once said, "There is nothing more useless than runway behind you." Well, in most cases the fella was correct. However, there ain't nothing more useless than runway in front of you—*if you don't land on it!*

The fellas investigatin' the accident couldn't find a darn thing wrong with the machine—not surprising, I'm sure. When a student can't recognize a dangerous situation, it's time for the instructor to immediately take action. I can't help but believe that some people are in the wrong occupation. Being a flight instructor is a mighty tough and demandin' business which requires 100 percent of your attention, 100 percent of the time—believe it!

aerial ASW today

By LCdr. Paul N. Mullane

Although the United States spans a continental land mass, it has always been a maritime nation, with almost the entire bulk of its export and import commerce moving across the world's oceans. Until the early years of this century, a nation's merchant vessels were endangered in wartime only by other surface ships. The introduction of the submarine during World War I, working in stealth from beneath the oceans' surface, added a new dimension to the problem of moving vital materials. Previously a strong naval power could sweep the seas clear of hostile warships so that its merchant fleet could deliver needed cargoes in relative safety.

Though the German High Seas Fleet never challenged the Allies' merchant commerce during WW I, its U-boats at one point nearly choked off the flow of war supplies to Great Britain and France. Beginning that war with barely 30 *Unterseebooten*, the German navy systematically destroyed hundreds of thousands of tons of Allied shipping. The appearance of this new menace was countered by another new weapon of war — the aeroplane. Fragile seaplanes of wood, canvas and wire were introduced as a means of attacking the elusive but nearly equally fragile early submarines (*NANews*, March 1970).

Once again during WW II, the German U-boat nearly brought England to desperate straits by sinking large numbers of ships carrying badly needed supplies of food and war material to her ports. The WW II submarine was a greatly improved version of its WW I predecessor. The threat it presented was met by devoting 20 percent of the entire Allied war effort to ASW and with an aviation force much superior to that of the previous conflict. In the end, this subsurface threat was rendered relatively ineffective, due largely to new tactics and improved equipment of Naval Aviation (*NANews*, May 1970).

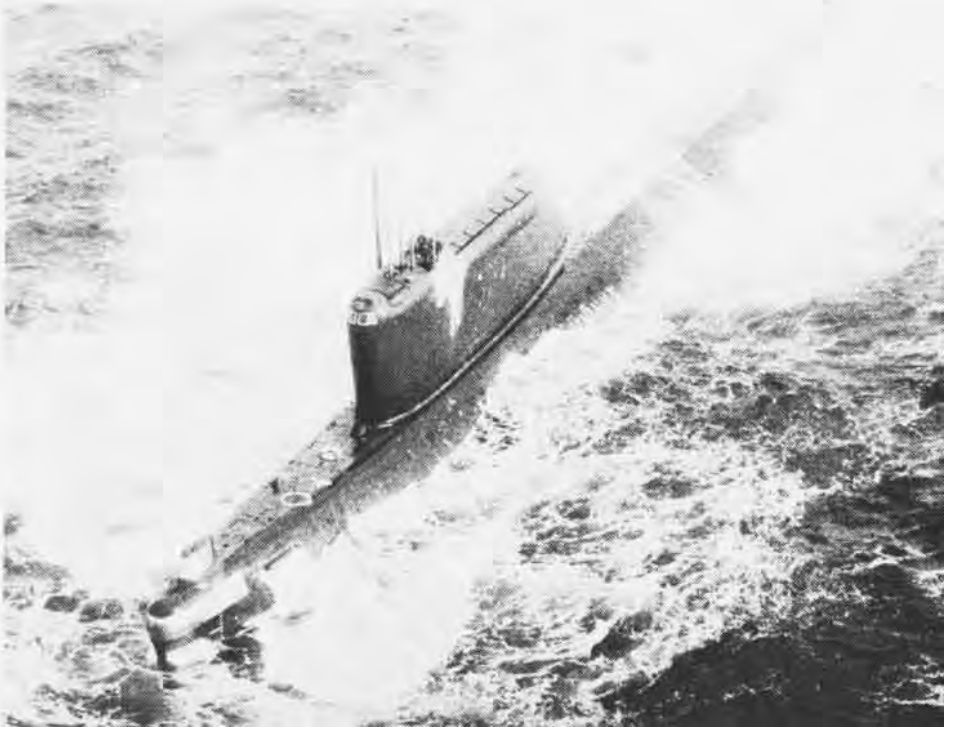
On the other hand, the American submarine force almost totally destroyed Japan's merchant marine, the world's third largest, protected by the world's third largest navy. Japan realized its deficiency in ASW forces too late to counter the cutting of the flow of essential war materials which she depended on to continue the war.

Today, the United States faces the possibility of a similar threat. We are no longer self-sufficient in the raw materials required to feed our factories. Almost half the free world's mineral production is channeled to the needs of our industries. Over 90 percent of our supply of cobalt, asbestos, manganese, tin, nickel, chromite, industrial diamonds, rubber and bauxite are imported by sea.

Although modern ASW aircraft are packed with a great variety of sensing devices, the crewman's eyes and, through employment of sonobuoys, his ears still play an important role in detecting submarines. Below, Soviet H-class, long-range, nuclear-powered attack submarine is found surfaced in North Atlantic.

The Soviet Union's navy, our nearest rival in size and strength, has nearly 350 submarines of modern design. Of these about 215 are attack-class boats while the remainder present an even more deadly threat with the capability of firing cruise or ballistic missiles. About 100 of the total force are nuclear powered.

As modern submarines, they are deeper diving, quieter running, higher speed vessels than the WW II type. They are armed with torpedoes or cruise missiles which allow them to launch an attack from much greater distances than in past wars. To meet this threat, U.S. Naval Aviation has consistently labored to increase its capability to cope with improved submarine technology. New aircraft designs, better sensors, weapons and communications, and the use of computers have all assisted in upgrading our current aerial ASW force.

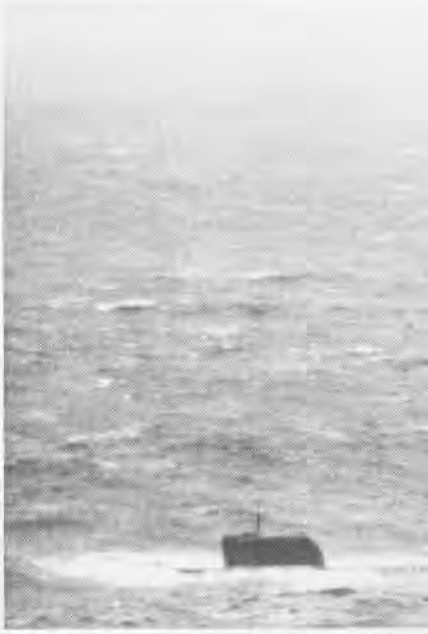


P-3C TACCO, aided by a computer, analyzes sensor data. Below, sensor operators, navigator and TACCO of a P-3A work together to solve an antisubmarine warfare problem.

Our air antisubmarine program is designed to provide a balanced force of both sea-based and land-based ASW forces. Each possesses its own advantages under differing tactical conditions. Since no single system can cope with the submarine in all its tactical and environmental variations, naval aircraft will continue to join ASW ships and attack submarines in antisubmarine warfare for the foreseeable future. To oversee our ASW efforts, special organizations have been established to control operations in the two oceans washing the American shores — Commander Antisubmarine Warfare Force Atlantic and Commander Antisubmarine Warfare Force Pacific.

Taking ComASWForLant as an example, we find it charged with exercising control over all ASW forces in its assigned area in conducting antisubmarine warfare, with protection of shipping and with surveillance of the Atlantic Ocean. It is also responsible for developing strategic and tactical ASW doctrine. ComASWForPac has similar functions in the Pacific area.

Under these force commanders, land-based patrol squadrons are or-



aerial ASW today

ganized into ComFAirWingsLant and ComFAirWingsPac and further broken down into seven numbered fleet air wings located at NAS Jacksonville, Fla.; NAS Brunswick, Maine; NAS Barbers Point, Hawaii; NAS Moffett Field, Calif.; MCAS Iwakuni, Japan; and NAF Naha, Okinawa.

The 24 VPs, all equipped with P-3 *Orions*, regularly deploy to overseas bases at Sigonella, Italy; Lages, Azores; Rota, Spain; Keflavik, Iceland; and Bermuda in the Atlantic. Pacific units operate from Adak, Alaska; Cubi Point, R.P.; Iwakuni, Japan; Naha, Okinawa; and Agana, Guam. Iwakuni and Naha are soon to be replaced as deployment bases by Misawa AFB, Japan, and MCAS Futema, Okinawa.

Backing these regular Navy squadrons are 12 VPs of the Naval Air Reserve, equipped with SP-2H *Neptunes* and P-3A *Orions*, which assist regular forces in ASW exercises and carry out assigned missions during active duty deployments to such bases as NS Rota.

The aircraft employed by the regular Navy's patrol squadrons are P-3As, P-3Bs and significantly improved P-3Cs. Current plans call for about one squadron a year to exchange P-3As for P-3Cs. The P-3As in turn will be assigned to reserve VPs, replacing aging SP-2Hs.

The *Orion* first entered naval service in August 1962 and has proven to be an excellent ASW aircraft. P-3Bs and later model P-3As feature the Deltic system of antisubmarine detection devices and improved tactical display equipment. The P-3Bs appeared with more powerful engines and were modified to launch the *Bullpup* missile.

The P-3C now being procured incorporates a digital computer as the heart of an integrated ASW weapons system. The ASQ-114 computer can handle more than four million bits of data per minute, relating to communications, navigation, ASW sensors, ordnance and maintenance. The computer aids communications by coding, storing or transmitting message data. Navigation is assisted through calculating and maintaining a continuous real-time, dead-reckoning position and the position of as many as 30 annotated positions of sonobuoys, targets and fly-to points. The ASQ-114 plays a part in target detection by selecting sonobuoy receivers, computing hyperbolic ranges and fixes while displaying sensor-received information. As the TACCO's best friend, the computer also keeps an inventory of acoustical and weapons stores, provides ordnance status information to displays, computes optimum weapon drop points and probability of target acquisition. Both in flight and on the ground, the computer can be used to check the P-3C avionics system and diagnose and isolate a fault.

Among the sensors available to an *Orion's* ten-man crew are active and passive sonobuoys, magnetic anomaly detector, ECM signal analyzer and direction finder, and radar. Searchlight and low light level TV are also incorporated in certain models. The P-3C, in addition to its general purpose computer, has data processing equipment, an inertial navigation system, data link communications and a bathythermograph recorder.

Weapons available to the VP crew include various mines, depth bombs, homing torpedoes and *Bullpup*. Up to eight homing torpedoes, the Mk 46 being the principal ASW weapon, can be carried in the bomb bay. Ten underwing weapons stores pylons give the *Orion* additional striking power.

aerial ASW today

Sonobuoys, above, with radar and MAD indication being read, below, allow trackers to detect and track their subsurface foe.

Carrier-based ASW squadrons are organized into Carrier Antisubmarine Air Groups (CVSGs) at NAS Quonset Point, R.I., and NAS North Island, Calif. These air groups are each composed of three fixed-wing VS squadrons flying S-2E and S-2G *Trackers* and two helicopter-equipped HS units operating SH-3D *Sea Kings*. One squadron, HS-15 at NAS Lakehurst, equipped with SH-3Hs, is assigned the mission of assisting in the evaluation of the sea control ship concept. SH-3Hs have an increased ASW capability.

The VSs, though now operating *Trackers*, may look forward to the introduction of the S-3A *Viking* in 1974. This will mark a quantum jump in the capability of our sea-based aerial ASW forces. The S-2 is equipped with radar, MAD, ECM, and sonobuoy receivers. It utilizes both passive and active sonobuoys which are dropped from nacelle storage racks and has an 85-million-candlepower searchlight mounted on its starboard wing for night ASW operations.

The newer S-2E has improved ASW electronic equipment and provisions for the nuclear depth bomb in addition to those weapons carried on earlier models.

In comparison to the *Tracker*, the S-3A features a Univac digital computer, a forward-looking infrared system for night surveillance, high-resolution x-band radar and improved MAD gear. The four-man crew of two pilots, a TACCO and a sensor operator will have cathode ray tube displays for acoustic sensors. An inertial navigation system and sonobuoy reference system will assist in solving ASW problems. The *Viking* will be able to carry a full range of antisubmarine weapons in its internal weapons bay and on underwing pylons.

The SH-3Ds assigned to HS squadrons depend primarily on variable depth dipping sonar to locate a subsurface target. When sonar is mounted aboard a helicopter, its advantages are combined with the greater speed of the aircraft. The variable depth characteristic allows sonar to be used in passive listening or active pinging at a more suitable depth according to temperature layer conditions. Doppler radar, coupled to an automatic navigation system and navigation computer group, assists the *Sea King* in

carrying out its mission. A variable position launcher allows the torpedo dropped by the SH-3D to enter the water at an optimum angle.

The SH-3H, now being evaluated, is fitted with a new lightweight sonar, having a 180-degree search beam width. In addition, it has been provided with a greater range of sensors, MAD, radar, and active and passive sonobuoys. Homing torpedoes and depth bombs are carried to give it the ability to follow up on its detection capabilities.

The four carried-based ASW air groups of the regular Navy are similarly backed by reserve forces formed under CVSGR-70 at NAS Norfolk and CVSGR-80 at NAS North Island. The six VS and four HS squadrons composing these units are located throughout the country and are equipped with *Trackers* and *Sea Kings*.

Sea-based ASW squadrons have in the past operated from smaller carriers, such as CVEs during WW II and *Essex*-class CVSs in more recent times. At present, only two antisubmarine aircraft carriers remain in service: *Intrepid* in the Atlantic and *Ticonderoga* in the Pacific.

S-3, top, and SH-3H, above and right, will replace current carrier-based ASW aircraft. SH-3H adds sonobuoys, MAD and antimissile defenses. Computer-equipped S-3 will improve sea-based, fixed-wing ASW capabilities.

In addition to these traditional modes of aerial ASW, a number of new approaches to the problem are now in various stages of development. The LAMPS program which weds an ASW-configured SH-2D *Seasprite* to an escort vessel is being rapidly introduced to fleet operations. Two LAMPS squadrons, HSL-30 at NAS Lakehurst and HSL-31 at NAS Imperial Beach, are now deploying crews and helos to some 20 destroyers and destroyer escorts on both coasts. The SH-2D carries a high power search radar, active and passive sonobuoys, passive ECM, and MAD gear to aid its crew in detecting subsurface targets. An Mk 46 homing torpedo gives it a lethal punch if needed. This ship/helicopter combination greatly extends the capabilities of either component and, at the same time, provides increased flexibility to our afloat ASW forces. The SH-2D is designated the Mark I type within the continually progressing LAMPS program. More than 100 Mk I-configured *Seasprites* are expected to be produced within the next few years. A Mark III program based on development and operational experience gained during the Mark I program will develop an integrated ship/helo system including radar, data link, electronic threat receiver, MAD, computer and associated ship and helicopter tactical displays.

LAMPS aircraft in escort vessels will, in time, accompany another new ASW platform, the sea control ship (SCS) (*NANews*, March 1972). This small, extremely austere ship will, in many respects, resemble the LPH, one of which, USS *Guam*, is currently serving as evaluation vessel for the program. The SCS is not a replacement for the aircraft carrier, but will provide an aircraft base for missions that do not require the capabilities of a CV or CVS. The sea control ship will provide both antisubmarine and limited air defense in low air threat areas for convoys, underway replenishment groups, small task groups and amphibious groups.

The SCS's primary role, however, is ASW and its primary weapon will be the helicopter. Currently, NAS Lakehurst-based HS-15 is flying SH-3D *Sea Kings* from *Guam* to evaluate this combination and to develop operational doctrines. The SCS, in company with LAMPS-equipped escort vessels, will be able to extend the defense perimeter around naval or mercantile formations against the threat of long-range Soviet submarines and antiship cruise missiles. In line with this cooperation between SCS and LAMPS aircraft, Sea Control Group One was established on September 29, 1972, at Lakehurst to act as a functional wing responsible for on-the-scene management for HS-15, HSL-30 and HC-2.

Another new development toward meeting the submarine threat is the modification of our attack carriers to include ASW capability. The first CVA to be so altered, USS *Saratoga*, is now at sea with the Seventh Fleet. *Saratoga's* modifications included the installation of an antisubmarine classification and analysis center (ASCAC) and changes in weapons handling, command and control systems, aviation fuel system, aviation maintenance, NTDS software and ready rooms. The primary change being the addition of ASCAC to allow the CV to read out data relayed from the sensors installed in or deployed by ASW aircraft.

Saratoga will soon be joined by *Independence* and *Kitty Hawk* which are due to emerge from yard periods as CVs in the spring of 1973. These three will be configured to support S-2 squadrons.

Eventually, all carriers, including these, beginning with *Forrestal* and

aerial ASW today

newer, will be altered to enable them to operate the S-3A *Viking*. Though no changes to the ships' aviation fuel systems will be necessary to support the S-3A, modifications will feature installation of a tactical support center to accommodate the advanced avionics and computer system of this new ASW aircraft. The CV concept (*NANews*, March 1972) will, in time, allow all carriers to conduct the full spectrum of air warfare from a single deck by adjusting their individual air wing mix. In a high-threat antisubmarine operation, fixed-wing and helicopter ASW planes will replace attack and photo reconnaissance aircraft on the carrier's deck.

This mix of land-based patrol planes and sea-based fixed and rotary wing aircraft aboard CVs, sea control ships and escort vessels allows Naval Aviation to attack the ASW problem on a broad front. At the same time, there is a general across-the-board attempt under way to update and improve airborne sensors and avionics equipment. Though submarines have made tremendous advances since WW II, aerial ASW today is dedicated to staying on top of the situation and being prepared to deal with the submarine in its own realm — at sea.

Hunter-killer group, left above, still the principal ASW sea-based force, is being joined by new concepts. Sea King of HS-15, above, participates in SCS evaluation while CVAs add ASW role with conversion to CVs. Below, LAMPS helicopter with ASW capability is expanding role of escort ship.

YEAR OF THE CARRIER

Supplies are brought aboard Saratoga via a conveyor belt as the carrier hurries to meet her 60-hour deadline, above. Deflected exhaust clouds the view as a VF-103 Phantom II readies for launch against North Vietnamese targets after CV-60's 13,000-mile trip.

SIXTY

By JO3 M. Raymond Demarest

She drove her bow into the Pacific the first week in May. Her destination, Vietnamese waters. Her assignment, provide additional air power against North Vietnamese units that had invaded the South.

The carrier's 37-foot draft and 267-foot extreme breadth were too large to fit through the Panama Canal, so she took the next shortest route to the Western Pacific from her home port in Mayport, Fla.—over 13,000 miles around the southern tip of Africa.

By May 18, USS *Saratoga* (CV-60) was on station in the Gulf of Tonkin,

HOURS AND COUNTING

providing the needed support.

Saratoga had barely completed the last of her sea trials in preparation for a scheduled May 1 deployment to the Mediterranean when her destination was changed. Only hours after she returned to Mayport on April 8, from her five-day final shakedown cruise, *Sara* received orders to set sail within 60 hours—for duty with the Seventh Fleet. She carried out those orders the morning of April 11.

A carrier is normally given up to a month to make the necessary preparations for deployment. Any final maintenance and repair work left over from the ship's restricted availability period are usually completed during that time. Spare parts, materials and machinery that have been previously requisitioned are brought aboard, and necessary provisions are stored.

Saratoga, however, had only 2½ days to get ready for her unscheduled, 13,000-mile trip.

Command-level reaction to *Sara's* change in orders was immediate. Captain James R. Sanderson, C.O., met with executive officer Commander Clifford E. Thompson and department heads to formulate plans and coordinate the work that lay ahead.

Crew members had been looking forward to being at home after three months of carrier qualifications, sea trials and training. Plans had been made and schedules set based on a May 1 deployment date. Those plans and schedules had to be changed.

Recall went out to over 500 *Saratoga* crew members who had gone on leave to homes across the United States.

The squadrons of CVW-3 had to get their men and material on board. Word went out to naval air stations as far away as Albany, N.Y., and as near as Jacksonville, Fla. The squadrons came—by plane, truck, bus and private car. Included were VAW-123, with its E-2B *Hawkeyes*; HS-7, with its SH-3D *Sea Kings*; RVAH-1, with its RA-5C *Vigilantes*; VAs 37 and 105, with their A-7A *Corsair IIs*; VFs 31

A weary ordnanceman waits with his charge of bombs for the beginning of the next launch cycle. Aircraft launches averaged one every 13 minutes for 38 straight days during Saratoga's first line period. At right, pierside cranes onload part of the necessary 2.5 million pounds of supplies.

Photos by
PH3s Rucker and Murdock

and 103, with their F-4J *Phantom IIs*; and VA-75 with its A-6A, A-6B and KA-6D *Intruders*.

A ship has to have enough food on board to feed her crew for up to two weeks before she can deploy. There are few opportunities to resupply when crossing an ocean; and *Sara's* cooks serve over 15,000 meals every 24 hours, rapidly using up provisions.

Therefore, 2.5 million pounds of supplies were taken aboard and stowed away in *Saratoga's* refrigeration and cargo storage areas. Some supplies came from as far away as New Orleans, La.

Volunteers accompanying provisions from the Jacksonville-area naval facilities joined shipyard workers and *Saratoga* crewmen already laboring around the clock to prepare CV-60 for her deployment. The carrier pier at Mayport became a maze of cranes, crates and cargo trucks. At night, the scene assumed eerie proportions under the light of truck and tractor headlights and portable floodlights.

Saratoga can carry over two million gallons of distillate fuel, using it at a rate of over four tons an hour while cruising at normal operating speeds. In those short 60 hours, her fuel tanks and aviation gasoline storage spaces were filled to capacity with the liquids that propel her 80,000-ton mass and keep her aircraft in the air.

Chief of Naval Operations Admiral Elmo R. Zumwalt, Jr., paid a surprise visit to *Saratoga* less than 24 hours before her departure. Over 2,000 crew members gathered on the two-acre hangar deck to hear the popular CNO speak. Amid the noise and commotion of loading supplies, Adm. Zumwalt stressed the teamwork that had placed *Sara* in a fully alert, manned and ready-to-fight status in the space of a weekend.

The admiral also expressed appreciation for the sacrifices that had been made, and he thanked the wives and families of *Sara's* crew for their support and contributions.

On that Tuesday morning, April 11, the huge carrier left families, friends and plans behind, and set her course for the Western Pacific.

This is not the first time *Sara* has been called to apply the precisely measured degree of power required by the situation. She was called to Lebanon in 1957; to the Caribbean during the 1962 Cuban missile crisis; and to the Middle East in 1967 and again in 1970.

In early 1972, when North Vietnam sent her troops, tanks and artillery across the DMZ, more air power was needed to check the advance. Deploying *Saratoga* from the Atlantic was a logical choice.

She responded, quickly, while quietly accomplishing the logistic support necessary for such a deployment, once again proving that the Navy's carriers are highly mobile airfields capable of moving, in a span of hours, within striking distance of any conflict anywhere in the world.

Once on station, that mobility gives the carriers an added edge, making them hard to locate and harder to eliminate.

With her 1972 deployment, CV-60's response to national requirements have covered every hemisphere, epitomizing the adaptability and mobility of modern Naval Aviation.

CNO Adm. Elmo R. Zumwalt, Jr., greets Saratoga crew members prior to the ship's departure.

NAVAL AIRCRAFT

Guar

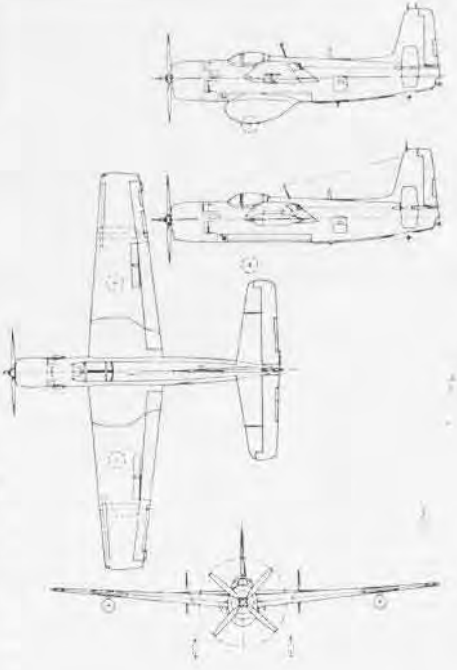
The Grumman-built *Guardian* was originally conceived as a torpedo bomber to replace the famous TBF *Avenger*. The prototype was ordered in early 1945 as the XTB3F-1, but shortly after its first flight, the following December, it was decided to revise the basic design and assign the aircraft an antisubmarine role.

Production models were ordered in two configurations: the AF-2W search version and the AF-2S attack plane. Operating together, they formed a hunter-killer team, a system which had been developed in the late '40s using the TBM-3W and TBM-3S. The AF-2W, with search as its primary mission, was fitted with radar and ECM detection equipment. After detecting a hostile submarine, it directed an accompanying AF-2S onto the target. The AF-2S *Guardian* would then lay a sonobuoy pattern, if the submarine had submerged, in order to localize the target for attack with torpedoes or depth bombs. In the event an enemy submarine remained on the surface, the S version was equipped with a radar and searchlight for guiding its attack, in which 5" HVAR rockets could be utilized in addition to the other stores.

The first flight of the *Guardian* in production form took place in November 1949 with the first deliveries beginning in October 1950 to VS-25. The last *Guardians* were delivered in 1953 and the plane was soon superseded by the S2F-1 *Tracker* which combined the functions of both versions of the *Guardian* in one aircraft. Squadrons began exchanging their AFs for *Trackers* in 1954. During production, 156 AF-2Ws, 190 AF-2Ss and 40 AF-3Ss were built. In its day, the *Guardian* was the largest, single-engined carrier aircraft operating.

dian

Length	43'5"
Height	16'7"
Wing span	60'0"
Power plant	P&W R-2800-48
Horsepower	2,300 hp at S.L.
Maximum speed	238 kts.
Service ceiling	
AF-2W	21,200'
AF-2S	22,900'
Combat radius with two 150-gal. auxiliary tanks	
AF-2W	525 nm
AF-2S	525 nm
Detection equipment	
AF-2W	APS-20, APA-70, APR-9
AF-2S	APS-31, searchlight, 16 sonobuoys
AF-3S	Same as 2S, plus MAD
Ordnance	
AF-2W	None
AF-2S	Maximum capacity 3,700 lbs., one torpedo or mine in the bomb bay, four 500-lb. bombs or depth bombs and six HVAR rockets on wing stations.
Crew	
AF-2W	Pilot, copilot, two radar operators
AF-2S	Pilot, navigator/bomb aimer, radar operator



A Stitch in

By Al Frascella

Experience has shown that a concept for a weapons system may perform without fault in a controlled environment but malfunction under actual operating conditions. A new system must survive rough handling by crews, transfers at sea, repeated catapult launchings and arrested landings, adverse weather and other less-than-ideal conditions.

Responsibility for testing and evaluating air-launched weapons systems before they are integrated into the fleet falls on the three branches of the Serviceability Division at the Naval Missile Center, Point Mugu, Calif.

The Quality Assurance Branch is assigned quality assurance responsibility for every missile and target system produced for the Navy. A sample from each production lot is thoroughly tested: if a lot is defective, the contractor is responsible for correcting the problem.

If a fleet unit has any difficulty with a weapons system, it compares its problem with recorded information on the system's performance in a lab environment. Usually the difficulty can be pinpointed and solved. The comprehensive testing corrects most malfunctions before the system is delivered to the fleet.

The Systems Availability Branch evaluates all test and support equipment for weapons and weapons control systems; provides technical direction to contractors in designing production line maintenance equipment for naval rework facilities; evaluates the installation of test equipment at naval weapons stations; and develops requirements for test equipment for fleet units.

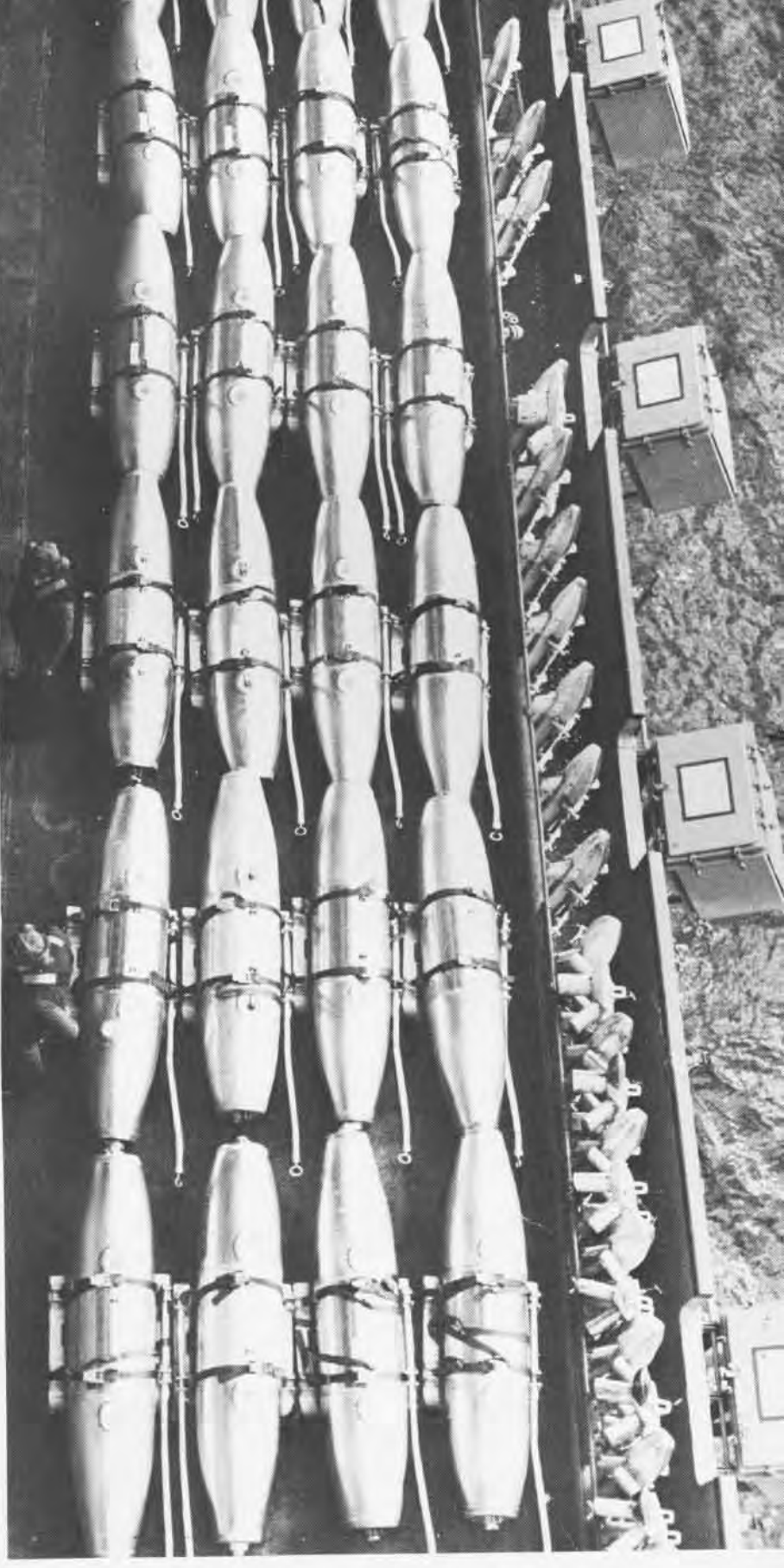
The Logistics Branch evaluates the compatibility of the weapon/ship in-

Time

terfaces and all ground support equipment, including shipping containers, handling and loading equipment, mechanical support equipment—and the ships themselves.

It also evaluates the ship suitability trials, the final exams for the new weapons system, as Navy personnel

A rugged environment requires rugged equipment. The missile cart at left transports three missiles at a time from assembly area to aircraft. The Bullpup is the only Navy missile packaged in cardboard crates, below, which are rugged enough for even not-so-gentle bos'n hands. Bomb farm aboard Ranger, right, holds ready ordnance, with boxes hanging over the side reserved as lockers for ready flares.



Proper container design and handling ensure safe at-sea transfer of Navy weapons. Here, four Shrike missiles are transferred from an ammunition ship to the attack carrier Midway.

subject the weapon and its handling equipment to all the rigors of shipboard life. Normally, the system is loaded aboard an ammunition ship and then transferred at sea to an aircraft carrier. The weapon is then removed from its shipping container and stowed below decks. Later, it is removed from the ship's magazine, readied for service, placed on the aircraft and armed. The aircraft is then launched.

This entire evolution is carefully screened for simplicity, safety, and compatibility with the crewmen who must perform the job. This real-life test answers the question, "Can the system be operated as adequately in the fleet as it was in the controlled environment?"

Once the weapon is introduced into the fleet, the services of the logistics branch continue. Each time the carrier undergoes major modification or refurbishment, the logistics branch runs a complete and thorough evaluation with mock weapons to ensure that all changes to the ship are compatible with the weapons systems.

Although some systems which go to the fleet will never be fired under actual combat conditions, while they are in the fleet, they must be continually tested, maintained and repaired. This is the responsibility of the 50 civilians of the Serviceability Division.

New Eyes in the Night

By Lt. James A. Wagner,
Project Officer
Weapons System Test Division
NATC Patuxent River, Md.

Since joining the fleet in 1962, the P-3 *Orion* has proven a highly versatile weapons system. However, there remains one area in which significant advances could be realized. Night surveillance capability, the ability to visually detect, classify and identify targets at night (either surface or submarine), was practically nonexistent until recent years. Of course, the P-3A/B searchlight gave some capability at night, but it opened the door for valid complaints from friendly targets and for charges of harassment from those less friendly.

The P-3C was the first real step forward. Although we recognize its shortcomings, the AN/AXR-13 low light level television (LLLTV) provided a previously unheard of capability. Its major shortcomings include limited resolution, extremely limited gimbal angles and the "blossom" or halo effect with lights in the field of view. The state of the art in night sensors continually advanced, but the P-3A/B continued to utilize the outdated searchlight it had been equipped with.

The Naval Air Test Center was recently tasked to take a new look at this type of equipment. It has long been recognized that we literally "lost our vision" at night and now something was to be done to give us a new set of eyes.

The program was called Project PASS, for Patrol Advanced Surveillance System. Its purpose was to conduct a side-by-side evaluation of cur-

GE ALLLTV pod is 46 inches in diameter, allowing increased gimbal angles for the camera.

rent state-of-the-art sensors. Three sensors were evaluated: a Forward Looking Infrared (FLIR) system built by Hughes Aircraft Company, a FLIR system built by Texas Instruments and an Active Low Light Level Television (ALLLTV) built by General Electric. All three systems were pod-mounted and the operator controls and monitors were mounted side by side for inflight comparison.

Although the project goal was a night capability for the P-3A/B, an application to the C model was also considered. Because of aircraft availability, the systems were installed on a Weapons System Test Division P-3C.

The pods were not aerodynamically optimized, and no two were alike. The Hughes' FLIR was installed in a modified 300-gallon external fuel tank mounted at Wing Station XI. The Texas Instruments' FLIR utilized a modified P-3A/B searchlight pod and was mounted at Wing Station XVI. An external fuel tank from a B-47 was modified to house the General Electric ALLLTV and it was mounted at Wing Station XV. Because of the aerodynamic problems anticipated, the Lockheed facilities at Burbank were used to conduct wind tunnel tests on a 1/16 scale model of the P-3C with the three pods installed. The results of these tests provided the initial pod configurations.

The airplane and pods were instrumented for inflight monitor and analysis of air load and vibration forces on the pods. The idea was to verify that the pods were aerodynamically suitable throughout the P-3 flight envelope. Several flights were dedicated to this purpose alone, and much useful aerodynamic data was also gathered during systems evaluation flights. The airplane was flown up to 330 KIAS with all pods installed, and no unacceptable loads or vibrations were observed. Higher airspeeds were not checked because of the problems related to having three pods installed, vice one.

The evaluation of the sensor systems was conducted against resolution targets at NATC. Flights were also conducted against shipping targets to determine detection and recognition ranges, and two flights were made with submarine targets for the same purpose.

Detailed test results are classified and cannot be disclosed here, but several interesting results were noted. Against a lighted target, the ALLLTV had the longest detection ranges; however, the halo effect of the lights prevented viewing of target details. The two FLIRs, on the other hand, were able to detect the target at slightly shorter ranges, but gave better detail. When within range of the gallium arsenide "laser" illuminator (hence the term "active" TV), the ALLLTV provided greater detail; in some cases the ship's name could be read. Against unlighted targets, the FLIRs detected the target long before the ALLLTV and the TV provided no information until within range of the illuminator.

The project has been completed and we should soon see a new P-3 weapons system capability—one that has been a long time coming.

Fairing behind the turret on Hughes' FLIR was later replaced by a fin.

Narrow fin on Texas Instruments' FLIR increased azimuth coverage.

THE SELECTED AIR RESERVE

With a massive 41-plane fly-in at NAS Quonset Point, Carrier Antisubmarine Air Group Reserve Seventy commenced its annual two-week training period in August. Led by CVSGR-70 Commander, Commander Thomas W. Speelman, six of the group's seven squadrons joined up at Quonset Point to continue the ASW training begun last year aboard USS *Wasp* (CVS-18). The group is comprised of VS 71 and 73 and HS 74 and 75 from NAS Lakehurst, N.J., and VS-72 and VAW-78 from NAS Norfolk, Va. The seventh squadron, VSF-76, drilled near its home base at NAS New Orleans, La.

Flying and maintaining S-2Es, E-1Bs and SH-3s, the 849 officers and men of the group demonstrated the readiness of the Naval Air Reserves to merge with fleet units in case of emergency and without a break in step. As integral members of a squadron rather than as a subunit or detachment, the Air Reservists share a common air station with the same equipment and facilities available to the fleet squadrons. Partial testimony to the training received during the year were the 400-plus accident-free hours flown by CVSGR-70 during the two-week period.

The squadrons operated over 70 hours with the submarine USS *Bang* (SS-385) outside Narragansett Bay as hunter-killer crews searched out, localized and "destroyed" the equivalent of 29 enemy submarines.

At the end of the training period, Cdr. Speelman congratulated the men and squadrons as they prepared to return to their respective air stations and their civilian occupations. "The performance of our personnel and the training accomplished on this active duty cruise have been beyond all expectations. The resultant increase in readiness projects us one step closer to the total force concept."

These were the scenes as member squadrons of CVSGR-70 worked as one unit. VS-71 aircraft all in a row, left; on a search mission, top; AO2 R. E. Weston, VS-71, loads sonobuoy aboard a Tracker, above; and Lt. Ernie Ross, HS-74, checks his SH-3A.

at Sea with the Carriers

Hancock (CVA–19)

Jets flying from *Hancock*, like jets from other WestPac carriers, have had numerous surface-to-air missiles fired at them during strikes in recent months. As Commander Fred Gosebrink tells it, "We saw enough of them today. They shot at us all the way in and all the way out."

An A-4 *Skyhawk* was downed by AAA fire 11 miles southeast of Thanh Hoa. The aircraft caught fire immediately upon being hit and the pilot, jettisoning the exterior fuel tanks and bomb racks, headed for the Gulf of Tonkin where he ejected three miles off the coast. As a SAR helo maneuvered to rescue him, both the helo and the pilot were fired on by the Tien Trang coastal defense site. Five *Hancock* jets moved in on the coastal site and kept it under a constant rain of fire until the helicopter had rescued the pilot and beat a hasty retreat seaward.

Commander Stanley Arthur, commanding officer of VA-164, commented on completing his 500th combat mission, "The first time I crossed the beach I expected to see all sorts of things happening. I was very apprehensive. But now I have a good feel for where their stuff (AAA-SAMs) will be coming from because I know the enemy better than I did at first."

Midway (CVA–41)

Admiral Elmo R. Zumwalt, Jr., Chief of Naval Operations, visited *Midway* at NS Subic Bay for a face-to-face rap session with the minority affairs committee and the senior enlisted advisors on the problems of communications between age and racial groups and on the drug problem.

Adm. Zumwalt also participated in a televised interview with Vice Admiral James L. Holloway III, Commander, Seventh Fleet, Master Chief Petty Officer of the Navy John D. Whittet and Captain S. R. Foley, commanding officer of *Midway*. The topics included the Navy's increased concern for alcohol and drug abusers and the disparity between salaries of bachelors and married men. The admiral also addressed the ship's officers on U.S. relations with China and the Soviet Union.

After his visit to *Midway*, Adm. Zumwalt continued his tour of Western Pacific activities.

Ashore, there is MacDonald's. At sea, there is *Midway Magic*, open 21 hours out of every 24 on the mess decks — serving hamburgers and french fries, ice cream, sodas, doughnuts and hot canned food. Between launch and recovery, *Midway Magic* sets up shop in the middle of the flight deck and the flight deck crew enjoys its goodies.

Midway's launches send her jets aloft on strikes that have continued to hammer away at the enemy. After one sweep over railroad rolling stock northeast of Vinh, *Phantom* pilot Lt. Jerry Hodge and RIO John Mochtak told of destroying a diesel locomotive. They dropped two bombs on target and "when we rolled in again, we could see a fire where the locomotive had been. The track ran between two

VAdm. James L. Holloway III emphasizes a point during televised interview on board Midway with Admiral Elmo R. Zumwalt, Jr., MCPON John D. Whittet and Captain S. R. Foley.

ridges, which is a good way to hide a train." On the second sweep, they dropped the rest of their bombs on the remainder of the train. The third sweep revealed that there was nothing left of the train.

Intrepid (CVS–11)

Intrepid celebrated her 29th birthday as she steamed beyond the Arctic Circle on an ASW training cruise in the North Atlantic under the command of Captain Charles S. Williams, Jr. After appropriate ceremonies, most of the 2,700 crewmen enjoyed cake and coffee while watching a boxing smoker and listening to a ComNavAirLant band concert under the direction of Chief Musician Earl Benge.

Members of Carrier Antisubmarine Air Group 56 claim one record in the land of the midnight sun — what they believe to be the earliest (midnight plus several minutes) and the latest (midnight minus several minutes) visual flight rule (daytime) recoveries on record.

Kitty Hawk (CVA–63)

As Navy pilots pursue their appointed rounds day after day, they learn more and more about the enemy they are fighting, how he ticks and what to expect from him. LCdr. Larry Picket and Lt. Richard Deremer described how they spotted their targets while flying their *Corsair II* several thousand feet under a broken cloud cover — and how they just drifted over the targets. "They didn't even bother to fire on us, probably thinking we were not headed their way. Then we made a fast turn, pulled back and rolled in, right on them this time, and just walked our bombs through the target area."

Phantom pilot LCdr. Andrew L. Burgess and RIO Lt. Ronald L. Laib also described their experience 12 miles southwest of Vinh after collapsing a bridge with a direct hit. "We still had more ordnance and so we moved to the north. The weather was clear and we saw a group of trucks parked on the bank of the Song Ca River. The enemy normally park camouflaged trucks along the western side of the river and supplies on the east bank. Then at nightfall they float the trucks across the river and move them south. Although the trucks were protected by triple A, we didn't let this bother us because the F-4 is a fast aircraft. With our maneuvers, the gunners didn't have much of a chance."

North of the Arctic Circle, the midnight sun had been visible for more than 36 hours when this photo was taken from the carrier USS Intrepid's flight deck.

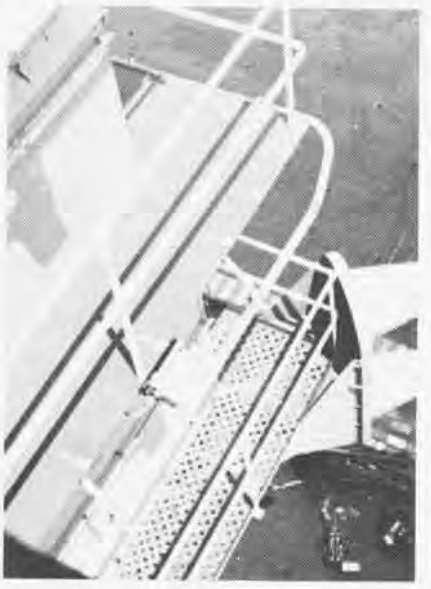
Kitty Hawk enjoyed a port leave before beginning the sixth line period of her sixth combat cruise with the Seventh Fleet.

Ranger (CVA–61)

A B-25 divebombing a Navy aircraft carrier? Sound like something right out of the movies? It was! While Alameda-based *Ranger* was on a training mission off the southern coast of California, the ship was spotlighted in a movie to be shown on the ABC network as a movie of the week, "Family Flight." It centers on a family of amateur flyers who are rescued by *Ranger* somewhere in the Pacific after their plane crashes. The filming involved no special activity for the ship which continued on its scheduled operations.

About 135 crew members received Navy awards, presented by their commanding officer, Captain Henry P. Glindeman, Jr., for their work during the recent year-long overhaul at Hunters Point Naval Shipyard.

Anchoring is a tricky operation, and an accurate measure of speed is needed for precision anchorage within a 20-yard radius. To achieve this on board Kennedy, a "chip chucker" chucks wood chips far enough out into the water to be seen from the navigational bridge — nearly 50 chips in a normal anchorage. On the navigator's window ledge is a scale for computing ship's speed. "Chip checker" starts stop watch as chip floats by first mark and stops watch as chip hits last mark. Then he computes speed on a chart. Photos by JOSN P. Michael Reidy



John F. Kennedy (CVA–67)

Exercise *Strong Express* held in mid-September was the largest NATO exercise in more than four years, with over 150 ships involved, including three carriers, USS *John F. Kennedy*, USS *Intrepid* and HMS *Ark Royal*.

Carrier squadrons participated in the maneuvers, flying above the Arctic Circle, providing tactical air support, search and surveillance, and utilizing several NATO targets.

The purpose of *Strong Express* was to test defensive military measures in realistic circumstances.

Saratoga (CV–60)

An F-4 pilot reported hearing "three thumps" after rolling in on a supply convoy north of Vinh and dropping his bomb load. When he found he did not have good rudder control and saw fire spurting from his port engine, he knew the plane had been hit by triple A. The pilot and his RIO attempted to nurse the burning *Phantom* back to *Sara*, but realized they could not slow the jet down to a speed which would allow either an arrested or a barricade landing. The two men punched out a few miles ahead of *Sara* and were picked up from the Gulf of Tonkin by one of the carrier's helos.

In the midst of directing inflight refueling of two F-4s from *Saratoga*, RD1 Antonio St. James, one of USS *Dewey's* air controllers, received information of MiG activity inland. James broke off refueling operations and directed the *Phantoms* to an intercept position. During the chase that followed, the MiGs used every evasive trick in the book, but the Navy jets were kept on target and brought into range for an air-to-air missile shot which brought down one of the MiGs.

An A-7 *Corsair* pilot was hit by AAA fire during a strike on a truck park near Dong Hoi. The pilot's wingman told him that sparks were trailing from the engine and advised him to climb. He was unable to do so and headed his crippled craft toward the Gulf of Tonkin. Bridge personnel aboard USS *Wiltsie* (DD-716) observed the flaming plane streaking down soon after 3:30 a.m. The destroyer's radar and sonar picked up the splashdown and in less than 20 minutes the wet but safe pilot was brought aboard.

Ticonderoga (CVS–14)

When Rear Admiral Carl J. Seiberlich, Commander, Antisubmarine Warfare Group Three, extended an invitation for male relatives of officers and crew to sail in his flagship, 55 relatives ranging in age from 10 to 70 sailed aboard *Tico* from San Diego to Pearl Harbor. The carrier was en route to participate in *RIMPac* '72, an exercise joining forces of the United States, Australia, New Zealand and Canada in ASW warfare tactics.

Beginning with shipboard safety, the guests quickly learned the daily routine and when C.O. Captain Frank T. Hemler ordered general quarters sounded the second day out of port, the new sailors mustered with time to spare. During flight operations there were 55 more supervisors than usual and the weapons department had 55 more observers when the five-inch guns were fired. For many, the highlight of the cruise was underway replenishment when the USS *David* (DE-1050) came alongside for a three-hour refueling.

The sixth day brought the carrier to Hawaii, and a few days later she said goodbye to her new sailors and sailed for *RIMPac*.

America (CVA–66)

Thanks to the generosity of *America's* crew, 200 Philippine junior and senior high school students will be able to continue their education this year. The crew donated $5,100 in response to a plea for financial help for Operation *Schoolhouse*, an education tuition assistance program sponsored by the Naval Communication Station at San Miguel. Free public education stops at the sixth grade in the Philippines and the $25 annual fee for those who wish to continue their education is often prohibitive and keeps many promising students from further studies.

Admiral Elmo R. Zumwalt, Jr., spent an afternoon and evening aboard *America* ". . . to see for myself how

things are going." A televised question and answer session with the crew covered everything from *America's* deployment schedule to the Navy's overall state of preparedness. Adm. Zumwalt's visit included a tour of the medical ward, a briefing of the officers and a get-together with the chief petty officers.

As the carrier's jets continued to pound enemy targets, Lt. Garry Tabbert told of one strike. He was flying an F-4 *Phantom*, protecting A-6s and A-7s which hit the Thai Gien storage area northeast of Hanoi. There was a huge secondary explosion with a large orange fireball, followed by an extended series of explosions of such force that he could feel them in the *Phantom* at more than 20,000 feet.

A Marine Corps F-4, carrying pilot Maj. Lee T. Lasseter and his radar intercept officer, Capt. John D. Cummings, engaged two MiGs three miles north of Hanoi and downed one of them. The second quickly left the fight and disappeared, but came back when the Navy jets headed toward the Gulf of Tonkin. According to Lasseter, "The other MiG came back and made a run on my wingman." A missile fired by the jet hit the second MiG but the extent of the damage was not observed. Soon after, the *Phantom* was hit by an enemy surface-to-air missile and the crewmen had to eject 37 miles southeast of Haiphong. They were picked up, uninjured, by a SAR helo.

USS *Dewey* (DLG-14) was plane guard for *America* during night aircraft recovery operations when a telltale ejector charge flash indicated a pilot in trouble. The frigate's motor whaleboat was launched and headed toward the most likely position of the downed pilot, Ltjg. Richard E. Kummer. The crew quickly located him, cut him loose from his parachute and fished him out. From ejection to "feet dry" on *Dewey* took about 25 minutes, a short time for a night rescue when visual guidance is unavailable.

Naval air is waging such an unremitting air war against the enemy that space limitations do not permit the blow-by-blow account which alone could give the full picture. And so *NANews* can only touch on a few of the events which typify the extraordinary things being done by our fighting forces on a daily basis.

Ears for the Air Boss

The sounds of "Killer Joe" throb through several hundred radios around *Oriskany* as disc jockey AN Christopher Whitman begins his Jazz Spotlight, a progressive jazz show programmed to meet the varied tastes of 3,500 men. For a little while he relaxes from the pressures of his "other" job where he perches some four stories above the three-acre flight deck.

In Whitman's other job, he responds to the voice coming from the intercom, "Primary. . . . Bridge. . . . Ship is turning port into the wind" — with a "Roger, Bridge." Then he contacts the air officer — the boss. The 46,000-ton ship begins a lumbering turn, pushing 30-plus knots of wind across her flight deck in preparation for another cycle of air operations.

PriFly is the nerve center for an attack carrier during these delicate operations when a million things happen from launch to recovery, all of them monitored by the air boss and his assistants. They scrutinize each launch as jets speed off, airborne in just two seconds, two planes each minute, until the launch is complete. Then, the recovery as the planes come home and the LSO directs them down. The air boss sweats out each one. Whitman works for the boss.

In PriFly, or the tower, as they call it, Whitman's job is to act as ears for the air boss. The earphones of his headset are linked to 12 to 14 circuits at any one time into which pour all kinds of messages. "I just filter out what the boss needs," explains Whitman.

He also maintains a status board, or plot, showing which planes are where at any given moment so that the boss can grasp the total situation at a glance. Whitman listens to the pilots and if a plane is in trouble, notifies the boss.

Someone has to be in the tower 24 hours a day in case of emergency. Either the air boss or an assistant is always there and Whitman or one of the other two tower assistants winds up sleeping there every night.

After hours of PriFly, Whitman is glad to get away from the many pressures and relax as he sorts out the records for the next Jazz Spotlight. The sounds of the thundering jet engines disappear and are replaced by Mongo Santamaria, Quincy Jones, Miles Davis, Isaac Hayes. . . .

Big Mothers

Waiting for Mayday

Story and Photos

by JO1 Kirby Harrison

Big Mothers are the haze gray angels of the Navy's only armed helicopter squadron now operating in Vietnam—angels that have rescued more than 120 American pilots since 1967, half of them under combat conditions.

The five *Sea Kings* of Det. 110, Helicopter Combat Support Squadron Seven, operate as search and rescue aircraft from carriers 80 miles off the coast of North Vietnam; crossdecking from one to another as the ships arrive and depart the line.

These lumbering Sikorsky helicopters are not fast—about 130 miles per hour—and *Big Mother* is an accurate visual description, but the men who fly them are pleased. The pilots say they are safe, highly dependable, maneuverable and easy to fly. They are also very stable, thanks to a sophisticated autopilot system.

Each *Mother* carries a ton of armor plating, protecting the pilots, crew and vital engine parts. From the main door hangs a minigun designed by General Electric. More accurately, it's an electric Gatling gun that fires 4,000 rounds a minute. At the two windows on the other side of the ship are two M-60 machine guns.

Every morning in the gray overcast of early summer in Tonkin Gulf, two *Big Mothers* lift off the carrier en route to search and rescue picket ships

A lot of time on SAR is spent waiting. Filling the time aboard USS Mahan are, left to right, pilot Lt. Tim Dewhurst, aircrewman Gary Tremel, copilot Ltjg. Pat Liles and aircrewman Mark Hoover. Sometimes the boredom is the worst of all. Below, Gary Tremel tries to beat it.

stationed off the Vietnamese coast. From these ships, the *Sea Kings* are pre-positioned, flying a fixed pattern near the entry and exit points as the strike aircraft go in on their runs.

On the picket ships, the crews usually stay on a five-minute alert near the helicopters. At nightfall, they walk through the *Mother*, checking systems, laying out flight gear and making sure they know where everything is, even in the dark. A night takeoff from the deck of a rolling destroyer is hazardous at best and a downed helicopter is of no use to a pilot floating off the coast of North Vietnam while shore batteries hold target practice on him. Some of the crew will spend the night in the helicopter, sleeping on the troop seat or stretched out on flak jackets.

On pre-position, the hours are long. Heat from the jet exhaust blows in the open windows. Sweat runs down and mixes with grease and hydraulic fluid, and the only sounds are the disembodied voices over the radio circuit and the muffled roar of the two big engines. Flight helmets and survival gear that weighed ten pounds at 6 a.m. seem to weigh twenty by 8.

Weapons are broken down and cleaned, put back together and test fired. The pilots practice hovering and flaring; they make high speed runs to climb and jink. A check is made of the hoist, all three circuits; if necessary, it must lift three men from the water at 200 feet a minute.

But there probably won't be a rescue this day. There probably won't be a rescue tomorrow either. Crews have

spent 60 days in Tonkin and not seen a rescue. Other crews get their first rescue only a week after they begin flying. Sometimes the worst enemy of all is boredom.

The men who fly the *Big Mothers* are like the ships they handle. Jet mechanic John "Moon" Wilson had planned to join the Air Force. The Air Force recruiter didn't show up. The Navy recruiter did. (The 31-year-old crewman was a member of the U.S. Parachute Team that won two bronze medals at the 1971 Asian Olympic Games in Singapore.) On June 7, he made his first rescue, just a mile off the beach at the mouth of Haiphong harbor.

Big Mothers 66 and *67* were pre-

At left, crewman Gary Paul performs a small portion of the maintenance necessary to keep a Big Mother flying. Above, looking like a figure from Ellyson's era, a crewman's eyes reflect the daily tension and fatigue. At right, Big Mother awaits a call.

positioned near the North Vietnamese coast when a *Vigilante* from *Saratoga* was hit by a surface-to-air missile near Hanoi. The pilot, Commander Chuck Smith, and his navigator, Lt. Larry Kunz, decided to stay with the aircraft and head for the water. (Since the air war in the north recommenced in March with the North Vietnamese offensive, it has become standard practice to head for the water to "get your feet wet" when hit by ground fire. Going down inland is an almost certain ticket to the "Hanoi Hilton." It's best to get out of range of the shore batteries before ejecting.)

Big Mothers 66 and *67* were directed to a point near where the damaged *Vigilante* would pass over the beach. Moments after crossing the shoreline, the pilot and navigator punched out. Less than three minutes later, *Big Mother 67* sighted the pilot. Moon Wilson was getting into his swim gear in *66* and sitting in the door.

"The other ship (*67*) got in first and got the pilot," recalls Wilson. "Then they dropped a smoke flare to mark the wind. We came in on their smoke and about that time I spotted the navigator. I kept hitting Mac (aircrewman Tim McCarthy). I guess he saw him because the pilot went into a flare and, when we passed over the survivor, Mac tapped me out." (The swimmer is normally dropped at ten feet when the helicopter reaches a speed of about ten mph.)

Wilson left the aircraft early and the slipstream caught the big swim fins, pulling him sideways. "I knew I was going to hit wrong, but it was too late," says Wilson with a grimace.

He hit the water from about 15 feet up at about 25 mph. It left him with a half-inch gash above his eye, a broken rib and a collapsed left lung.

"When I came to the top," Wilson continues, "I turned around and saw the navigator just ten feet or so away. I swam over to him and asked him if he had any injuries. The only thing he could say was 'How the hell did you get here so fast?' He didn't know about the pre-positions for search and rescue."

By this time, both *Big Mothers* were drawing fire from radar-controlled shore batteries and a North Vietnamese patrol boat was headed out from the beach.

"We could see the flashes from the beach and see the spouts as the rounds landed," relates Wilson. "If we had gotten there five minutes later, those guys would have been POWs. We all felt good about it. Especially those pilots."

In less than an hour, both pilot and navigator were back aboard *Saratoga* and Wilson was in the ship's sickbay being stitched and taped.

In a moment taken for a group picture on *Saratoga*, the relief was obvious as Lt. Kunz grabbed McCarthy in a bear hug and kissed him through a two-day beard.

"We'll see you in Subic Bay," laughed Mac.

"And we'll buy the drinks," replied Kunz.

The hours are long and the days seem to drag in Tonkin Gulf. The *Big Mothers* will be up for every strike, and they'll work and sweat every day over their gray ships. And when someone goes down, *Big Mother* will be there to pick him up.

They're very good at what they do. Ask any pilot.

Aircrewman Mark Hoover cleans his helo's Gatling-type machine gun which is capable of firing 4,000 rounds of ammo per minute.

INSIDE STORY

By JOC Warren Grass

He was pretty weak and only made it about halfway in. So I just grabbed the back of his life vest, helped him in and we took off."

That's the way rescue helicopter crewman Douglas Ankney, Jr., of HC-7 summed up his role during a daring nighttime pickup of a Navy jet pilot 21 miles inside North Vietnam in August (*NANews*, October 1972, p. 24).

AT3 Ankney was first crewman on the flight that hauled Lt. Jim Lloyd out of a rice field moments ahead of North Vietnamese troops.

Ankney and the helicopter's second crewman, AMAN Matthew Szymanski, describe the incident. "We had previous information that the rescue zone would be a clear area," says Ankney. "He was down there in the rice paddies."

Both crewmen recall that when they got into the pickup area, it was too dark to see clearly. The aircraft's floodlights were turned on, creating a bright target for North Vietnamese gunners.

"We passed him one time," recalls Ankney, "and had to turn around and go back. Then we decided to land." Meanwhile Lt. Lloyd had attached himself to the rescue hook at the end of the helicopter hoist cable.

AMAN Matthew Szymanski

"He was ready to come up on the jungle penetrator and didn't realize we had landed right next to him," Ankney relates. "He looked up and hesitated—he couldn't believe the bird had landed. Then he made a mad dash. He didn't even unhook himself from the penetrator. He just slid his snap link right up the wire to the door."

That's when the six-foot-three Ankney hauled Lloyd into the helicopter and they made their getaway.

While all this was going on, Szymanski was at his gunner's post, forward on the helicopter's left side, keeping the North Vietnamese away from the helo.

"I shot maybe 200 rounds the whole time," Szymanski recalls. "I'd shoot 10 or 20 rounds, then stop."

He estimated return fire from as close as 50 to 70 feet. The helicopter took six hits, one of them in the armor plating directly below the spot where Ankney was working. Rifle fire was moderate to heavy and came in volleys. (The next day the crew learned that an antiaircraft battery had also been firing—and missing—from point-blank range.)

As they flew in to land, it looked as though the North Vietnamese were coming in a wave. "They were fanned out along a line and were making a sweep of the area. We'd come across a place and get a whole volley of fire. Then it would stop," Szymanski remembers.

The rescue effort was made more difficult because the North Vietnamese used strobe signal lights which gave off the same beam as the emergency light used by the downed pilot.

Just before the helicopter landed, Szymanski recalls that Lloyd flashed his strobe. It was followed by three false lights in quick succession.

"One was really close to Lloyd," according to Szymanski. "They would have had him if we hadn't gotten him out when we did."

The helicopter landed between Lloyd and the nearest false strobe light, enabling Szymanski to fire and force the North Vietnamese to keep their distance while Ankney was getting Lloyd into the helo.

With the pilot safely inside, the helicopter sped off. Ankney turned to his minigun but held his fire, remembering that the steady stream of tracers from the gun makes "the bird a beautiful target."

"I figured that if we got a heavy barrage I'd start firing," adds the lanky sailor. "The minigun will fire 4,000 rounds a minute and you have a ball of fire about a foot and a half in diameter at the muzzle."

The rescue of Lt. Lloyd was Ankney's fifth as a hoist-operating first crewman with HC-7. All but the one foray into North Vietnam have been over the Tonkin Gulf.

Along with those five, the Navy aircrewman has made one swimming rescue, jumping from the airborne helicopter.

According to Lt. Harry Zinser, pilot of the helicopter, HC-7 crewmen have rescued 32 pilots since last April.

AT3 Douglas Ankney

EDITOR'S CORNER

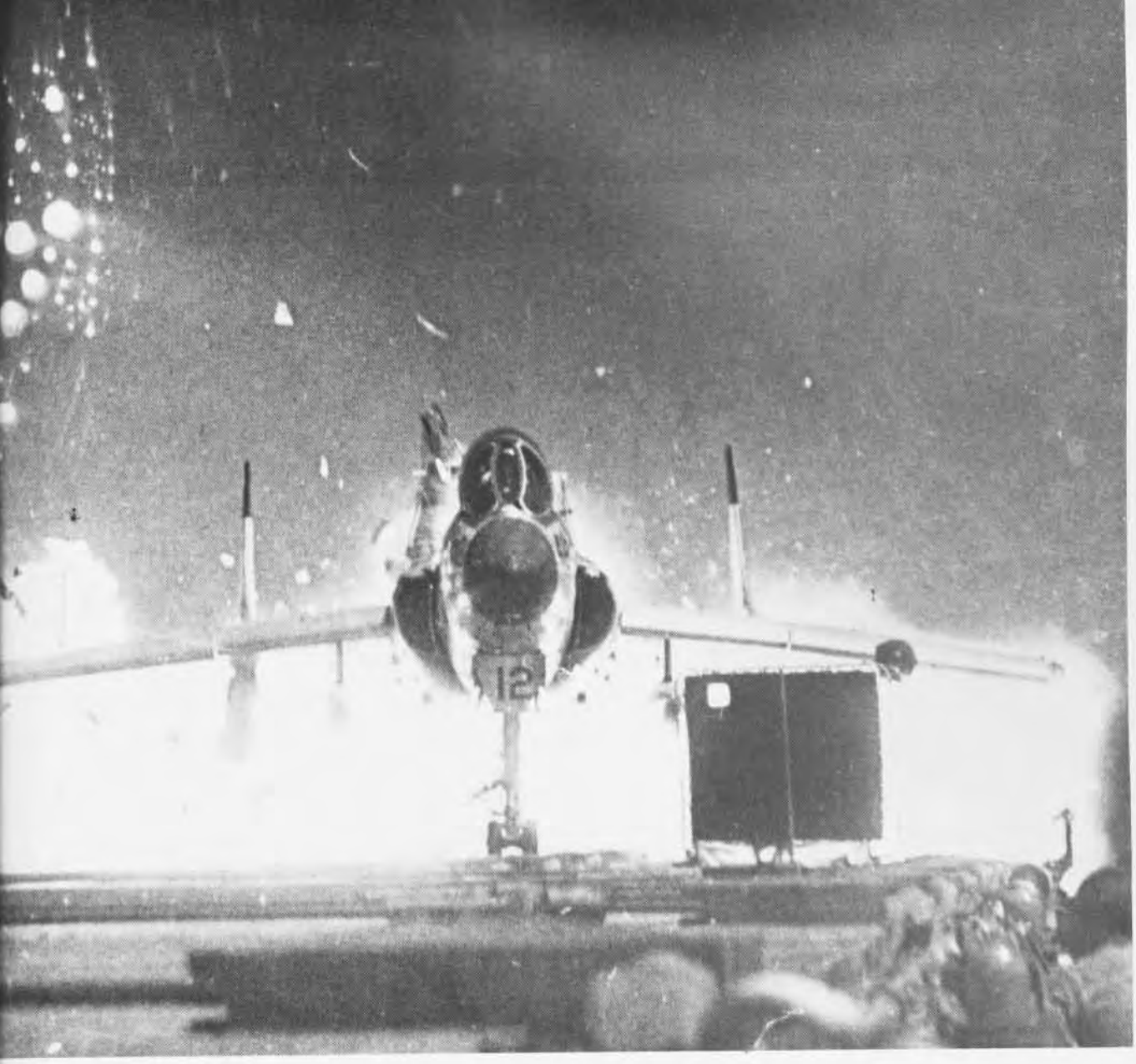
Now that you've been kept on the edge of your chair for a few months, we feel it's time to let you relax in the knowledge that our fast-sprinting LSO made it—just ahead of the wayward *Cutlass*. Among those miscellaneous pictures from which we selected the assortment displayed in the August issue, there was also the photo shown on the right. Taken by a deck-edge camera, the film is apparently suffering somewhat from a subsequent encounter with its subject.

While our LSO may not have made it to the Olympics and no record remains of his time for the cross-deck-dash, there can be little doubt that he was wasting no time. The *Cutlass*, moving almost as fast as the quick stepping paddle-waver, was not as selective in its direction of travel and was soon immersed in salt water.

Your response to our invitation to supply captions for the assorted miscellany found in the bottom of little used desk drawers is herewith presented for our readers' enlightenment. Lt. Col. Ivan K. Kropotkin in photo **a** is quoted as stating, "But Gramps—*this is my flight suit.*" And **b** was identified by listening in on guard channel as, "Roger tower, wind 180 at 20, variable to 360 at 15 and cleared for landing."

Photo **c** brought forth varied responses, there being some conflict of opinion as to whether the assembled aviators were trying to tell us that "attack pilots have fewer cavities" or, as some suggest, they were only signaling "send more girls."

The earnest looking lad in **d** has been identified by the rhetorical question, "Guess who missed the liberty boat." Though **e** has been frequently misidentified as the cartoon nemesis of the Red Baron, we discovered his real identity through his exclamation—"Good Lord, Mr. Spock—reverse warp!"



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NAVAL AVIATION NEWS

Scientists Probe High-Altitude Clouds

WASHINGTON, D.C. — Scientists are probing high-altitude cloud formations from a NASA Convair 990 in an attempt to solve a meteorological problem applicable to short-term weather forecasting and to transfer the technology, if successful, to weather satellites.

Sunlight-scattering cloud particles are being observed at altitudes up to 45,000 feet to see if ice and water particles can be identified and if the size and number of water droplets in a cloud can be measured with remote sensing instruments.

These measurements will be correlated aboard the aircraft with measurements made directly within the clouds to give a precise picture of cloud composition and particle sizes. Such information relates to the intensity of weather fronts, storms and the nature of severe weather processes. Up to now, remote sensing techniques have not provided this information.

This data, when obtained globally from satellites, would be invaluable to pilots, aviation meteorologists and weather forecasters.

A team of scientists from NASA, the University of Arizona, and the Arthur D. Little Co., headed by Dr. Warren Hovis of the NASA-Goddard Space Flight Center, uses three basic experiments for the project. The first uses a filter wedge spectrometer and a near-infrared Ebert spectrometer to measure solar energy reflected from clouds. The reflective properties of clouds vary and can be analyzed to determine their physical characteristics and altitude. The second experiment uses an infrared polarimeter to study how clouds reflect polarized light and the extent to which reflectivity shows the cloud's composition and height. The third experiment is a nephelometer which uses a laser beam to make direct measurements of cloud particle size, concentration and distribution while the aircraft flies through a cloud.

The airborne scientific expedition over the northwestern United States and the Caribbean is being conducted by NASA's Ames Research Center.

Deep Freeze 73

DAVISVILLE, R.I.—Operation *Deep Freeze 73*, the U.S. Navy's 19th consecutive year of support for America's scientists in Antarctica, began August 25 when 87 scientists and sailors, bound for Christchurch and thence to McMurdo Station, boarded a USAF C-141 *Starlifter* at NAS Quonset Point.

On the same day, three Navy C-130 ski-equipped *Hercules* of Antarctic Development Squadron Six—the air arm of Navy's Antarctic task force—left Quonset for a 24,000-mile round-trip winter flight to the isolated continent. The winter fly-in was made September 1, giving scientists an early start on several programs sponsored by the National Science Foundation.

In the next few months, VXE-6 will fly 500 short tons of supplies, urgently needed spare parts and about 100 tons of fresh provisions and mail to the ice from New Zealand.

Only 204 American Navy men and civilian scientists wintered over at three isolated U.S. stations, but by mid-November, there will be 1,000 Americans on the continent.

All supplies for the inland stations are flown there by Navy aircraft.

Tailhookers Meet Again in Las Vegas

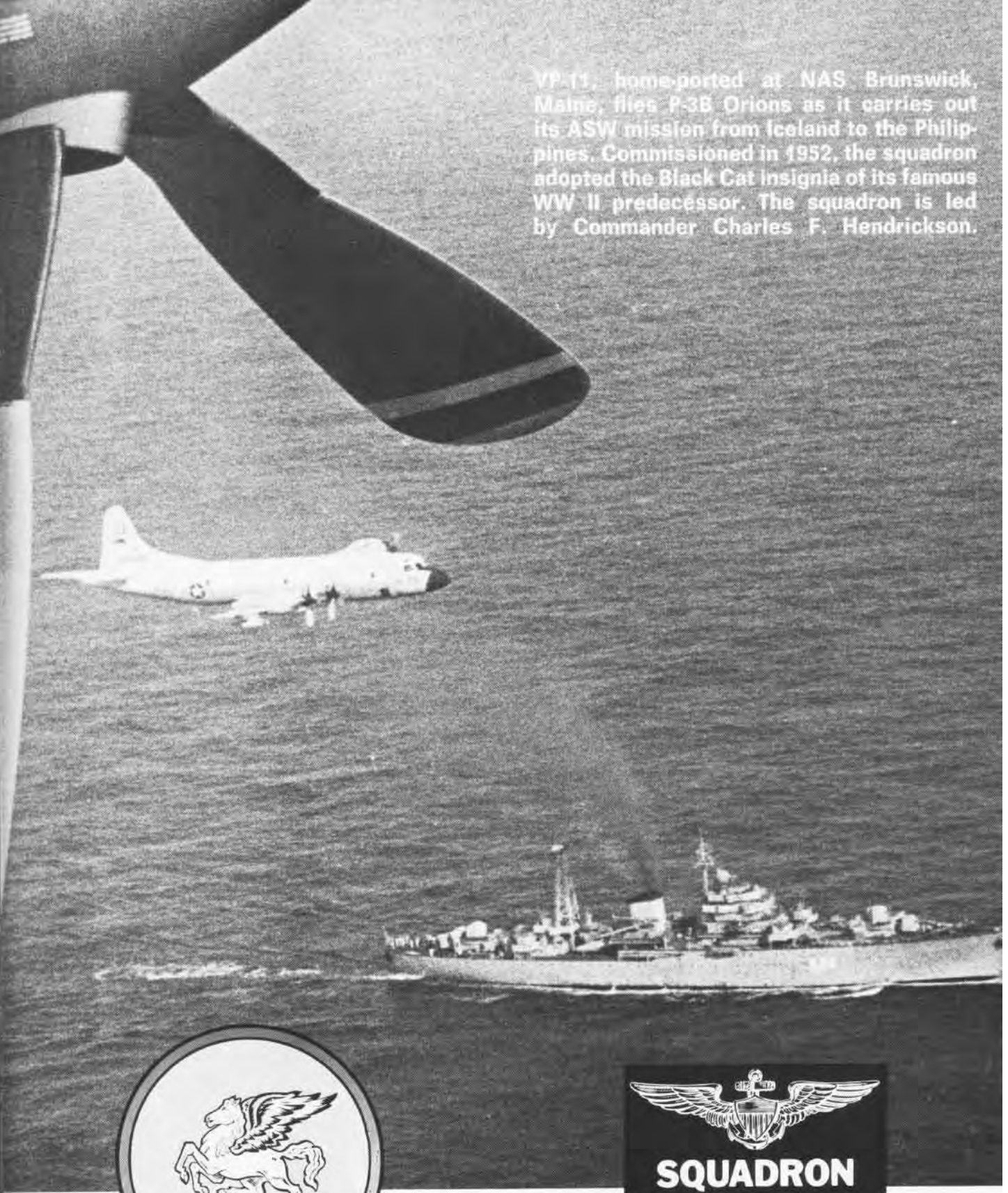
Lt. Randy Cunningham (left) accepts plaque and model MiG-21 honoring him as the first pilot ace of the Vietnam war, above; Joe Gavin, president of Grumman Aerospace Corp., made the presentation. Cdr. Chuck Klusmann (far right) conducts POW/MIA question and answer session with Tailhook members, right.

LAS VEGAS, NEV. — The Tailhook Association held its 16th annual reunion here September 8-10. The reunion was dedicated to Navy POWs and MIAs in Southeast Asia.

Three aviation symposiums were held emphasizing Vietnam combat tactics, weapons systems concept and development, and hardware development. A fourth symposium concerned POWs and MIAs, and was followed by a discussion/question and answer session held by Commander Chuck Klusmann, a former POW.

VF-96's *Fighting Falcons* were presented the top fighter squadron trophy for the second year in a row, and VA-27 and HS-7 were honored as the outstanding squadrons in their fields.

The 1972 Tailhooker of the Year and the awards banquet keynote speaker was Vice Admiral William D. Houser, Deputy Chief of Naval Operations (Air Warfare).



VP-11, home-ported at NAS Brunswick, Maine, flies P-3B Orions as it carries out its ASW mission from Iceland to the Philippines. Commissioned in 1952, the squadron adopted the Black Cat insignia of its famous WW II predecessor. The squadron is led by Commander Charles F. Hendrickson.

PATRON 11

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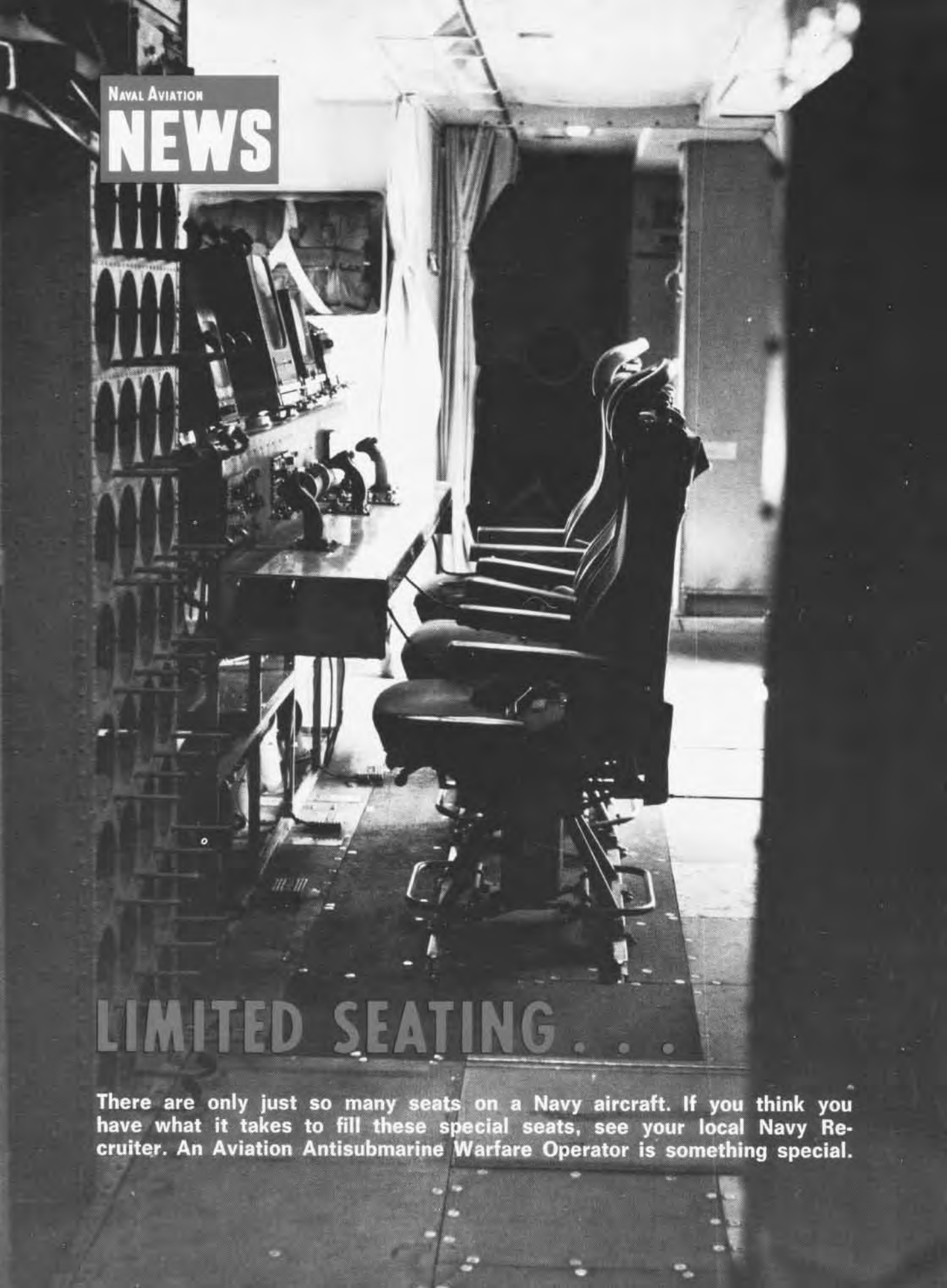
NAVAL AVIATION
NEWS



LIMITED SEATING . . .

There are only just so many seats on a Navy aircraft. If you think you have what it takes to fill these special seats, see your local Navy Recruiter. An Aviation Antisubmarine Warfare Operator is something special.