NAVAL AVIATION NEWS

44th Year of Publication

MAY 1963

NavWeps No. 00-75R-3

SHARE THIS COPY

EAGER YANKEES HEAD SOUTH

Willingness to serve in periods of crisis—that's the proud history of the Naval Air Reserve. Its responses to the Korean, Berlin and Cuba crises are well known. Less well known, perhaps, are its voluntary responses during times of lesser stress, times when the Reserves eagerly join with Fleet forces in operational exercises and in support of Fleet logistics requirements. Such a story is told in pictures on pages 19-21, 'First Jet Reserves in the Caribbean,' in this issue of the News.

■ COVER

An Orion belonging to VP-44, NATC Patuxent River, is being preflighted by Johnson, AX-1 (polishing searchlight), Williams, AD1, and Thomas, AX-1. Photo was taken by Ken Litwiller, PH3. Orions are part of stories on pp. 7-11.

NAVAL AVIATION NEWS

FORTY-FOURTH YEAR OF PUBLICATION MAY 1963

■ IN THIS ISSUE

■ THE STAFF

Issuance of this publication was approved by the Secretary of the Navy on 3 March 1961

Published monthly by Chief of Naval Operations and Bureau of Naval Weapons to disseminate data on aircraft training and operations, space technology, missile, rocket and other aviation ordnance developments, aeronautical safety, aircraft design, power plants, aircraft recognition, technical maintenance and overhaul procedures. Send mail to Naval Aviation News, OP 05A5, Navy Department, Washington 25, D.C. Office located at 2306 Munitions Bldg.; telephone: Oxford 62252 or 62259. Annual subscription rate is $2.50 check or money order ($1.00 additional for foreign mailing) made payable and sent to Superintendent of Documents, Government Printing Office, Washington 25, D.C. Single copy costs $.25

NAVAL AVIATION NEWS

Navy Satellite Turned On

Solar Radiation I's Silence Broken

The Navy-developed *Solar Radiation I* satellite was turned on late in February and is now transmitting after 22 months of silently orbiting the earth.

Launched from Cape Canaveral June 22, 1960, the 42-pound satellite spent eight months providing scientists with detailed information on solar storms.

On August 6, 1960, as an 18-minute solar flare began, the satellite came within range of the NASA tracking station at Blossom Point, Md. Six minutes of clear signal reception telemetered from the satellite traced the history of the development of solar emissions and their effect on ionospheric behavior and radio reception.

The world's first orbiting astronomical observatory was turned off April 18, 1961, when the magnetic drag reduced the satellite's spin to a level too low for useful scanning of the sun.

When NASA trackers turned the satellite's transmitters on, the telemetry readout indicated no signs of deterioration in *Solar Radiation I's* design purpose. The satellite had successfully withstood high radiation bombardments.

Solar Radiation I was designed and developed at the Naval Research Laboratory, Wash., D.C. A Navy *Transit* navigational satellite was launched with *Solar Radiation I* in 1960, marking the first time a "double-header" launch of satellites was successfully done.

Armed Forces 'Open House'

Public Invited from May 11 to 19

The Department of Defense is holding its 14th annual Armed Forces Day observance on May 18.

Local observances throughout the United States and overseas are scheduled during the period May 11-19 to permit increased public and military participation.

"Open House" events are the principal feature of Armed Forces Day at all military posts, camps, stations, bases and defense facilities. Exhibits, exercises, parades, maneuvers, and demonstrations will present to the people of the world an opportunity to see firsthand the strongest U.S. peacetime military organization in history.

"Power for Peace," the Armed Forces Day slogan for the past ten years, will continue to be used for the observance.

Computer Unit Activated

Aircraft Carriers to Use System

The Navy's second computer programming center was commissioned at the Fleet Anti-Air Warfare Training Center, Dam Neck, Va., in March. This center, similar to the one commissioned in San Diego, Calif., last year,

NINE VT-3 AIRCRAFT *from NAAS Whiting Field participated in an aerial salute by Chief of Naval Air Basic Training Command to Commander Second Fleet, VAdm. Alfred G. Ward, and his flagship, USS Newport News (CA-148). Also participating were four T-2A's from Training Squadron Four, Sherman Field. VAdm. Ward returned the CNaBATra salute in a message to RAdm. M. H. Tuttle: "Sincerely appreciate professional air salute by Naval Aviators. . . . Excellent formations and precision flying once again clearly demonstrated that NAS Pensacola turns out the world's best aviators." USS Newport News, flagship of Second Fleet, is a heavy cruiser.*

will increase the Fleet's capacity for producing computer programs for the Naval Tactical Data System (NTDS).

At the Center, basic doctrine, ship's doctrine, and ship's tactical characteristics will be translated into computer language and delivered to the ships for use with the Naval Tactical Data System. The system will then be able to designate priorities and countermoves instantly, recommending to the ship's captain or task force commander which weapon to use in any situation and how it should be used. After the commander has made his decision, NTDS can relay orders to the radar, sonar and fire control systems of the ship or task force. The entire operation can be carried out in a matter of seconds.

Modern guided missile frigates and cruisers and the new aircraft carriers will be the first Atlantic Fleet ships to use the system.

The center at Dam Neck is commanded by Capt. J. B. Balch. It will employ over 150 civilian and Navy people.

MRS. HALL AND THREE WINNERS OF AWARDS

DAR Awards at Corpus

Four Advanced Students Honored

The Texas Society of the Daughters of the American Revolution presented awards to Naval Air Advanced Training Command's four 1962 flight training honor students in ceremonies in March.

Winners of the Texas Society DAR "Armed Services Awards" were Ltjg. Don D. Harden (jet aircraft), Ltjg. Walter C. Fink II (single-engine attack) and Ens. David H. Moran (carrier-based patrol planes), shown above left to right, with Mrs. John E. Hall, Texas Regent. The fourth winner, Ltjg. Thomas R. Case (multi-engine patrol craft), was unable to attend.

Mrs. Hall presented three of the young fliers with gold engraved military wristwatches. Lt. Case received his award at his current station in Norfolk, Virginia.

This is the eighth consecutive year that the Texas DAR has given awards to the outstanding young fliers of NAATC who made the highest scores in their training specialties.

RAdm. Frank A. Brandley, Chief of Naval Air Advanced Training, participated in the ceremonies, congratulating each aviator upon his achievement.

FIRST XH-51A *flight photo shows new Army-Navy rigid rotor helicopter. An advanced concept research vehicle built by Lockheed-California Co., XH-51A is designed for speeds in excess of 150 mph. It features "hands-off" flying capability at all speeds with no form of autopilot or artificial stabilization. It is equipped with retractable landing gear, has free-falling skids operable without hydraulic power, and is stable and controllable with power on or off.*

P-3A's Complete Stiff Tests

Checks Made During 585 Flights

Six P-3A *Orion* anti-submarine warfare patrol planes have completed the U.S. Navy's toughest combat-ready test program in record time.

The Board of Inspection and Survey (BIS) trials began April 15, 1962. Seven months later—after 585 flights and 2521 airborne hours—the BIS trials were completed. Sometimes a new Navy aircraft is checked for 18 months or more.

Even while tests were under way, *Orions* assigned to VP-8 and VP-44 at NAS Patuxent River were summoned for reconnaissance and tracking duty during the Cuban crisis. In addition, one P-3A, assigned to VX-1 for operational evaluation, flew patrols as directed by ComFAirWingsLant.

At NATC Patuxent River, *Orions*, fresh from the Burbank factory, were subjected to every flight and ground condition anticipated in Fleet use.

Three different groups of Navy testers at Patuxent directed the *Orion*'s postgraduate exercise. The Service Test Division made nearly 100 P-3A flights, 75 of them for long-range navigation and systems evaluation. The Weapons Systems Test Division accounted for 122 and Flight Test for 71 missions.

Maintenance, ferry and pilot training flights, plus activity during the initial trials phase, rounded out the program.

Seeking climate extremes, Navy crews flew *Orions* over the North Pole, Puerto Rico, Newfoundland, Hawaii.

'Minibuoy' Contract Let

Test Quantity Will be Produced

The Navy has selected Hazeltine Corporation, Little Neck, New York, as the first company to produce the "minibuoy" for the Navy's anti-submarine warfare (ASW) program.

Initial development of the minibuoy was conducted in-house at Naval Air Development Center, Johnsville, Pa. Hazeltine Corporation will continue the engineering development of the design initiated by NADC and produce a sufficient quantity for operational test and evaluation.

Using miniaturization techniques, this sonobuoy, the AN/SSQ-42, will be three inches in diameter by 21 inches long. Standard sonobuoys are five by 36 inches or larger.

The sensitive electronic device picks up sounds of nearby submarines and transmits the signals to the aircraft which launched it.

Reduced size of the minibuoy will enable ASW aircraft to carry more than twice as many sonobuoys as presently carried. The new design will also enable selection of the depth to which the hydrophone will be dropped.

GRAMPAW PETTIBONE

Real Squeaker

A flight of seven S-2A *Trackers* (S2F-1) were scheduled for a night radar, low-level bombing flight with searchlights to be utilized for final target illumination on the run-in.

All planes were briefed to enter a racetrack pattern with left-hand turns, 1000 feet of altitude on the downwind leg and a slow letdown to 300 feet on the run-in. Pilots were briefed to remain on instruments during the run and on retirement; the copilots, to illuminate the target and coach the pilot into the run.

The pilots of one of the aircraft, the heroes of this year, had spent part of the time while en route to the target eating their box lunch suppers. Both were uncomfortable, for the cabin heaters were putting out 'way too much heat. The rheostat had been disconnected by the pilot himself just prior to take-off and only manual control was available. It seemed to have only one position—HOT.

Just as they arrived in the target area and commenced to orbit at 1500 feet, a strong odor of raw gasoline filled the cockpit. It seemed to come from the nose section, so both pilots figured they had better turn off the heater. With all the problems it had given, the leak must surely be there.

As they circled, visibility was poor because of frequent rain squalls and absolute darkness. The flight leader cleared them into the pattern. They descended to 1000 feet MSL and started their first run on the target, slowly descending to the 300-foot minimum altitude.

Gas fumes were still strong, so they opened the air vents. Tilt control on the radar was reported out by the radar operator at this point, but the pilot announced he would continue the run without it and, if it was unsatisfactory, they'd break it off and go home.

Both pilots were peering ahead, trying to visually acquire the target as a check on the malfunctioning radar

when a loud THUMP was heard and felt! Neither pilot reacted immediately to the situation. Then instinctively both pilots applied back pressure on the yoke and the *Tracker* commenced a very gradual pull-up. They had ricocheted off the water!

The pilots both glanced at the instrument panel—the altimeter read BELOW ZERO! All engine instruments were normal, and they now increased their rate of climb until they read 300 feet on the dial and then levelled off to recheck the situation calmly.

Both pilots were apathetic to their trouble. When in radio contact with their flight leader soon afterward, they responded very slowly to suggestions though they obeyed instructions implicitly.

The flight leader joined up on them as escort, checked the *Tracker* for damage with his searchlight and found the entire belly radome smashed to pieces! No other damage was apparent to him.

An uneventful return to base was accomplished, both pilots getting

plenty of fresh air with the overhead hatch slid wide open.

With some excellent coaching from the ASW duty officer in Operations, a safe hook down landing was effected on the wet runway at their home base.

Grampaw Pettibone says:

Whe—eee! These lads came as close to gettin' a piece of the farm as a man can get! A long working day—they'd been on the go since 0600 with two box lunches for meals and no breaks at all for the entire day. They were all just ripe for a real good carbon monoxide case, gas fumes, or what have you.

Most pilots hesitate to abort a hop for *just* fuel fumes, but they can be a surer *killer* than 'most anything else. They eventually numb your brain, give you a fine feeling of self-satisfaction and well-being, submerge any normal alarm signals, and eventually do you in very neatly.

Best thing to do is—GO HOME! And get *plenty* of fresh air on the way.

Men's Work

Ol' Gramps had an interesting rescue report pass across his desk the other day that needs re-telling. Sheer guts are hard to beat and this submariner has 'em in large quantities.

An SH-3A (HSS-2) was ordered to transfer two packages of electrical equipment from the USS *Wasp* to the USS *Nautilus* while both were operating about 200 miles at sea. It was a bitter cold day with the air temp hanging at 18 degrees and a good sea running in a stiff breeze.

The helo came into a hover over the surfaced nuclear submarine and lowered one package to the deck forward of the sail. As the helo crewman was preparing the second package for delivery, a sub crewman dashed forward on the slippery deck to retrieve the first parcel and was immediately washed overboard, parcel and all.

The helo crew went into action, moved into position over the man and hoisted him up posthaste, cold but in good condition.

No sooner was he safely aboard than

ILLUSTRATED BY Osborn

the man asked to be again lowered into the water to retrieve the floating package of needed parts. The *Nautilus* was queried for a decision and permission granted.

Slipping back into the sling, the submariner was again lowered into the rough and cold sea alongside the package and with it firmly in his grasp, was rehoisted and carried through the air a short distance to *Nautilus*. The mail transfer was completed without further incident. When the *Nautilus* sends a MAN out to do a job, he gets it done!

Whopped

After a normal launch and an uneventful hop, a pair of A-1H *Skyraiders* (AD-6) landed back aboard a big CVA. The first pilot followed the director's signals and taxied forward to be parked with the other *Skyraider* taxiing close behind. They were parked up on the bow, nose to tail, and the No. 1 plane was shut down briskly after being chocked and secured.

The first pilot quickly secured his cockpit, climbed out on the starboard wing but slipped and fell to the deck off the trailing edge! His kneeboard, chartboard and carbon monoxide tester slipped from his hand and blew aft under the tail section in the strong wind which as usual prevailed over the flight deck. The glass tubes of the CO tester rolled freely and the pilot, immediately concerned over the possibility of broken glass on the flight deck, crawled quickly after them on hands and knees.

As he passed the tail wheel of his *Skyraider* and before the horrified eyes of many plane captains nearby, the still-windmilling propeller of the A-1H (AD-6) parked behind struck him squarely on the side of his APH-5 hardhat, knocking the protective helmet off and dropping him unconscious and bleeding to the deck!

The first men to reach his side applied pressure to the artery at the side of his neck to curtail some extensive bleeding, actually just a few seconds ahead of the doctor and corpsmen who came on the run from the island aid station. A full examination later revealed the pilot had suffered a brain concussion, abrasions and a busted left shoulder. He'll be laid up for several months but that hard hat kept him in the livin', breathin' group.

Grampaw Pettibone says:

Sufferin' catfish! That prop tore a ten-inch gash clean through the APH-5 but didn't take out even one centimeter of his hide. Just shows you, even a pilot with 1000 hours in model can forget that those meat-cutters are flailin' on a heel-and-toe basis.

The flight surgeon recommends that pilots *always* wear their hard hats while on the flight deck for protection against such injury as well as protection from flying objects and loss of hearing. Peripheral vision is cut down but a good rotating head and swivel neck can take care of that. Ol' Gramps heartily agrees.

Poor Head

A U-11A *Aztec* (UO-1) arrived at a municipal airport early one frosty winter morning after a short flight from the pilot's East Coast base. The weather had been VFR, with 4000-foot ceilings, visibility unlimited and only some widely scattered snow showers to mar an otherwise fine day. The pilot was alone in the aircraft.

The runways had been plowed and were clear of snow, but there were banks of snow and ice lining the runway and all taxiways. The pilot had been well briefed on this.

The landing and rollout were normal, but as the plane turned off the runway a taxiway, the port wing tip struck a bank of snow and ice, tearing the metal skin back some eight inches from the leading edge, smashing and distorting the wing tip and exposing the wing structure within.

After parking the *Aztec*, the pilot had maintenance and flight test personnel of an aircraft company situated at the field inspect the damaged wing tip. They advised the pilot that it should be safe for the short trip to his home base. He accepted their appraisal and subsequently flew the little plane home, arriving without incident.

After arrival, he was somewhat chagrined to find he was in hot water up to his ears and had been d--n lucky. Neither he nor his erstwhile safety-of-flight inspectors had detected a tear in the outboard wing fuel cell. Fuel had leaked throughout the port wing and was just waiting for a spark to ignite it. In addition, further distortion of the wing tip could have jammed the aileron with disastrous results.

Grampaw Pettibone says:

Jumpin' Jeosophat! This pilot's decision to fly the damaged plane home without a *thorough* inspection, preferably by Navy inspectors who could have been there within an hour, and without effecting some rudimentary repair to the damaged wing, was ridiculous for a man of his experience and reflects seriously on his judgment.

To top it off, he must figure the orders issued in OPNAV instructions are for *everybody else* and he's in a special category. OPNAVINST 3710.7A in section 3, para. 4 a (2) sets forth the minimum crew requirements for light VT and VU dual control aircraft. No waivers for solo flight in the *Aztec* have been granted by CNO, and only CNO can grant them. It behooves a Naval Aviator to fly by the book or he risks being branded a maverick and getting a *thumbs down* from a board. Then he *will* be in a special category!

NORTH AMERICAN T-39D EVALUATED

THE U.S. NAVY's preliminary evaluation of the North American T-39D was completed at NAA's Los Angeles division early this year.

The team from Naval Air Test Center, Patuxent River, evaluated the aircraft to determine suitability for its Navy mission. Team members (below) were Cdr. Nick Smith, LCdr. Jack Winton, Engineer C. C. Parkinson, LCdr. Lee Bansch, LCdr. Glen Kollman, Lt. Walter Smith, Engineer Bill Bailey.

T-39D's have complete fighter type radar and fire control systems for use in training radar intercept officers (RIO's) and pilots in making intercepts. These systems enhance the training syllabus.

Earlier USAF versions of the twin P&W J-60-powered *Sabreliner* have been used in many training and utility roles. Contractor demonstration and limited service suitability trials of the Navy version, underway at NATC this spring, will be followed by service introduction of the aircraft at NAS GLYNCO, Brunswick, Ga., this summer.

NAVY'S TEAM INCLUDED SPECIALISTS, MILITARY AND CIVILIAN, FROM NATC PATUXENT

CVL-48 to AVT-6 to CC-3

Saipan to be Third Command Ship

USS *Saipan,* commissioned CVL-48 on July 14, 1946 and redesignated AVT-6 on May 15, 1959, has not only received a new designation, but is currently undergoing major conversion work and will become the Navy's third command ship, CC-3.

The Bureau of Ships awarded a total fixed price contract of $9,379,173 to Alabama Drydock and Shipbuilding Company, Mobile, Ala., one of five firms competing for the work.

The *Saipan's* first assignment after commissioning was at Pensacola where she qualified cadets and student aviators in carrier landings. The ship was decommissioned and laid up in the Philadelphia Group, Atlantic Reserve Fleet in October 1957. In May 1959 she was redesignated an auxiliary aircraft transport.

The ship has an overall length of 684 feet, five inches, a maximum beam of approximately 109 feet. Upon completion of conversion, she will have a full load displacement of 19,600 tons.

Saipan's primary function after conversion to a command ship will be to serve as an operations communications headquarters ship with the fleet. Conversion at Alabama Drydock is scheduled to be completed in June 1964.

Currently, USS *Northampton* (CC-1) is operating with the Fleet. The USS *Wright,* also an auxiliary aircraft transport and sister ship to the *Saipan,* is undergoing conversion and will become CC-2 upon completion.

Recognition Given VU-2

25 Good Conduct Medals Awarded

Twenty-five personnel of Utility Squadron Two were recently awarded Good Conduct Medals by the Commanding Officer, Cdr. R. J. Mattus. The awards covered a continuous three-year active duty period. A majority of the Good Conduct awards were second or subsequent awards. Three of the men received them for the fifth time.

A highlight of the presentation ceremonies was the double award received by Donald E. Klobe, AE2. Klobe in addition to receiving the Good Conduct Medal, was presented a Commanding Officer's Letter of Commendation for outstanding performance of duty.

MARITIME AIR TASK FORCES ATLANTIC

P-3A ORION, WITH P-5M MARLIN AND SP-2 NEPTUNE, GIVES ASW FORCES POWERFUL POTENTIAL

By Lt. James E. Wise, USN

MARITIME AIR TASK FORCES, U.S. Atlantic Fleet, are a living weapon, in the sense that at whatever time of the day or night these words are read, Maritime airmen will be, at that moment, scanning the oceans and seas of the world, attempting to detect and offset the growing might of the modern day submersible. The fight for the seas is being waged with the true aspects of a hot war; the cat-and-mouse game lacks only the dropping of the final weapon.

There is no question that the submarine has the advantage at present. There has been no clear-cut breakthrough in anti-submarine equipment, but the submarine has enjoyed remarkable progress since the close of the last world war. Modern underseas ships have greater speeds, can go further and stay down longer and at greater depths, and have far greater destructive power. With the advent of nuclear propulsion, submarines can perform an entire operational mission completely submerged. Add the capability of launching missiles from this surfaced or submerged platform and an awesome two-barrelled weapon of enormous striking power emerges.

Today the operational potential of the Soviet submarine is of deep concern to Allied naval commanders. During WW II, Nazi Germany, with less than one half the current number of Russian submarines, sank over 14 million tons of essential Allied shipping. In the Pacific, our own submarines crippled Japanese industry by sinking between 5 and 5½ million tons of vital war materials. Soon the Soviet Navy probably will operationally wed this inherent undersea capability to nuclear power and *Polaris*-type missiles. The resulting instrument of devastating power will present a threat of the most complex and challenging dimensions to the now existing ASW forces of the Free World.

To counter this Soviet menace, the United States Navy has a most vital mission. American ASW forces must at all costs deny enemy access to strategic Atlantic areas. Unidentified "objects" must be found, classified, diligently tracked and then destroyed if at war. This complicated task has become infinitely more difficult owing to the fact that our forces must fight these targets using "yesterday's" equipment. Until a black box arrives which will narrow the existing "ASW gap," the U.S. Navy has made positive advances utilizing the tri-dimensional team concept—surface, sub-surface and air units working as a single tactical force. Each element is an important component of the over-all team capability. No single vehicle can completely do the job, however a member of the air team, the shore-based Maritime patrol plane, with its great mobility and versatility, does provide our ASW forces with a long range "packaged" detection-to-attack capability.

Taking a glance at one segment of this element, Atlantic coast Maritime Air Forces come under the control of Commander Fleet Air Wings, Atlantic, U.S. Atlantic Fleet, located at Norfolk, Va. Consisting of over 200 long-range Maritime aircraft and 6000 officers and men, personnel of this vast organization stand ready to fulfill instantly their role in ASW operations. VP aircraft, such as the SP-2 *Neptune*, the P-5B *Marlin* and the new P-3A *Orion*, give ASW forces swift and powerful air vehicles which can be on target long before surface and sub-surface vessels can be brought to bear.

Aside from their great ASW capability, these aircraft are probably America's best "seeing eye" for locating and tracking merchant shipping. Unique to quarantine operations during the recent Cuban crisis was the role played by Maritime aircraft. Flying over 10,000 hours of ASW and surveillance operations, these units constantly kept tab on Soviet and Soviet bloc vessels as they proceeded to and from Cuban ports. The intelligence gained by their day and night, low-level photography were invaluable to operational commanders who were charged with directing quarantine restrictions.

There is no such thing as "normal working hours" for those who man Maritime patrol aircraft. A routine mission involves a two to three-hour pre-flight briefing, a ten to twelve-hour tactical flight followed by a two-hour post-analysis critique. Adverse weather conditions do not stop VP pilots. Their creed has long been: "If you can see to taxi, you're on your way."

The officer in command of each Maritime aircraft, the Patrol Plane Commander, is a professional airman in every sense of the word. He qualifies for his position by spending laborious hours of study in airborne electronics, ordnance delivery and ASW tactics. When his name is placed on a patrol aircraft as PPC, he must not only be an expert in the above mentioned subjects but also an outstanding leader of men. When the "chocks are pulled" he becomes the commanding officer of a Navy combatant. He, and he alone, is responsible for the successful completion of each operational mission. The morale and performance of his 11-man crew rest squarely on his shoulders. Combine these demand-

ing tasks with long hours of grueling day and night low-altitude flying in all types of weather conditions and one can readily understand why the present day Patrol Plane Commander is considered to be one of our most dedicated and professional naval officers.

In order to exploit every capability of Maritime air and develop and revise new tactics where necessary, Task Group Delta was formed in 1961. Originally planned as a one year project, Delta has proved so successful that the Task Group has now been designated a permanent force. The concentrated effort of this group to do the best air/ASW job with the equipment on hand has brought about important new concepts in crew structure, aircraft maintenance, communications and tactics.

Initial training of Fleet personnel for Maritime ASW operations must be of exceptional and lasting quality. Recognition of this vital aspect brought about the formation of the Maritime Replacement Training Squadron in July of 1960. Pilots and crewmen who are ordered to Atlantic Coast squadrons must now spend four months of intensive training before they report to their parent organization. Upon completion of a six-weeks Fleet Airborne Electronics Course at Norfolk, Va., they travel south to the "Pro's Nest"—VP-30 at NAS JACKSONVILLE, Fla., for actual in-flight aircraft check-out and tactical training. Staffed by Fleet-experienced personnel, VP-30 offers a challenging ten-week syllabus which includes instruction in survival, communications, recognition, weapons delivery, navigation and aircraft systems. For the final six weeks of training, complete crews are formed and each moves through a grueling course in tactics which utilizes the realistic services of friendly submarines.

The man who must determine the needs, policies and, in many respects, the future of Maritime aviation is RAdm. George P. Koch, Commander Maritime Air Task Forces, U.S. Atlantic Fleet. Based at the hub of Naval ASW air operations in Norfolk, Va., Adm. Koch and his staff of seasoned ASW personnel continually seek and improve theories and procedures which will advance the entire ASW picture. Indefatigable and deeply dedicated to the task at hand, Adm. Koch brings to the Maritime Air Command a wealth of operational patrol experience and ASW "know how." During his past 30 years of Naval service, he has participated in almost every facet of the anti-submarine business.

The most exciting news in Maritime Air today is the addition of the new Lockheed-built P-3A *Orion*. Scheduled to replace a valued but tired "old timer," the SP-2 *Neptune*, the *Orion* with its greater range and endurance adds a mighty punch to Maritime Air capability. Aptly named after the constellation, "Orion the Hunter," the P-3A, powered by four Allison turboprop engines, can cruise at speeds well over 400 miles per hour. This new power capability allows a high speed, high altitude "dash" to distant datums plus long on-station time at low speeds and search altitudes. Housing the most effective airborne electronic, sonic and magnetic equipment ever developed, the *Orion* is expected to detect and accurately "pinpoint" submarines earlier and at much greater ranges. Instead of facing the crowded conditions of the *Neptune*, P-3A flight crews work in an efficiently arranged, fatigue-free environment. A spacious tactical deck and well-planned electronic equipment arrangements contribute to crew comfort and operating performance. These improvements, plus many more, have made the *Orion* a bright ray of sunshine in the otherwise colorless drama of ASW operations.

Stillness and boredom characterize this quiet war. This struggle lists no heroes, no spectacular exploits or headlines, only hours of wearisome flying, listening and waiting. Yet this fight for the seas and the decision as to who eventually triumphs may well decide the fate of our country and our way of life. The men of the Maritime Air Forces through knowledge, training and dedication are unselfishly giving of themselves to win this difficult and decisive battle.

RAdm. George P. Koch, USN

Commander Fleet Air Wings Atlantic, Atlantic Fleet

A native of Pennsylvania, RAdm. Koch was graduated with the Naval Academy Class of 1933. He was not commissioned until 1934, owing to legislation limiting the number of commissions in 1933. In the interim, he took flight training at the Army's Randolph and Kelly Fields, Texas.

Upon being designated a Naval Aviator in July 1934, he took further training at NAS Pensacola. Thereafter he was assigned as Personnel and Gunnery Officer on board the cruiser Tuscaloosa; Personnel Officer of VT-7, attached to USS Enterprise and Personnel and Gunnery Officer of VP-3. In July 1940 he joined VPB-74 and was serving with that squadron, operating with the British in Iceland, when the United States entered World War II. He is entitled to wear the Navy Unit Commendation awarded Patrol Bombing Squadron 74.

During 1942 and 1943, he commanded Headquarters Squadron Five. He next served on the staff of Commander in Chief, U.S. Fleet. In 1944 he assumed command of the USS Humboldt and commanded that seaplane tender throughout the remainder of the war.

Transferred to the USS Leyte in September 1945, he served as Navigator and Operations Officer until the summer of 1947. Completing the senior course (Strategy and Tactics) at the Naval War College, in June 1948, he reported as Executive Officer to Naval Air Technical Training Command, Memphis Tenn. On his next tour he was Executive Officer of NS Kodiak, Alaska, and in February 1953, he went to the staff of Commander Fleet Air Wings, Atlantic, first as Operations Officer, then as Chief of Staff.

Between 1953 and 1955, he was head of the War Plans Branch, Office of the Chief of Naval Operations, and immediately thereafter took command of NAS Barber's Point, Oahu, Hawaii. He reported in 1957 as Chief of Staff to the Commander Fleet Air, Quonset. In May 1958, he became Commander Fleet Air Wing Three, and in December 1959 he assumed command of NAS Norfolk.

His selection for the rank of Rear Admiral was approved by the President in July 1960, and in March 1961, he assumed command of Carrier Division Eighteen. A year later, he was ordered to duty as Commander Fleet Air Wings, United States Atlantic Fleet, with additional duty as Commander Fleet Air Wing Five.

TACCO—ASW VP TACTICAL COORDINATOR

TACCO, *Ltjg. James F. Knupp, discusses the exercise plan with Mintaka team leader, LCdr. Richard Moberly (R), Copilot, Lt. Ronald Pyle (L).*

WEATHER BRIEFING, *relayed from NAS Aerology by closed-circuit TV, is studied by Mintaka officers, from left, Pyle, Moberly, Dennis, Knupp.*

Ltjg. Lee Miller, VP-44

PILOT FROM TACCO . . . I have the sub fixed at 350 true, 2100 yards from datum. Prepare for weapons drop." This terse transmission marks the culmination of over two years of intensive training and preparation for Ltjg. James F. Knupp, NAO(N/S), ASW Tactical Coordinator, TACCO—in VP jargon—of Patrol Squadron 44.

Tacco is a key man in the P-3A *Orions* (P3V) flown by the squadron. The *Orion* is the most modern, most costly and most potent ASW aircraft in the Fleet. It is Tacco's job to weave together the information from the various "sensors"—of which more later—into the tactical recommendations needed to coordinate the crew into a deadly, sub-killing team. He does this in the light of his knowledge of submarine and anti-submarine tactics. Tacco is the nerve center of the ASW tactical operation, a human computer, evaluator and coordinator.

Ltjg. Knupp is one of a growing number of Naval Aviation Officers (NAO's) performing vital duties as members of combat flight crews. Other NAO's serve as Bombardier/Navigators in A-3 *Vigilantes*, Mach 2 carrier-based heavy attack planes; as Radar Intercept Officers in the Navy's record-smashing *Phantom II* fighters and in many other first-line planes. Increasingly, NAO's are moving into vital spots in Navy's newest planes.

A relative newcomer to landbased ASW aviation, the Tacco was added to the ASW VP flight crew team in response to the challenge of the complex new detection equipment and potent new weapons developed to cope with high-speed modern submarines.

Less than three short years ago, Tacco Knupp was a carefree undergraduate at Williams College, Williamstown, Mass. Shortly after his graduation in June 1960, Jim Knupp entered the Navy as a Naval Aviation Officer candidate. Sixteen weeks later, on completion of Pre-Flight School at NAS PENSACOLA, he was commissioned Ensign, 1355 designator.

Pre-flight was barely the beginning of the long training process which was to mold the civilian student into a competent, professional submarine hunter. Pre-flight was followed by two months at Basic NAO School where the future Tacco received aviation indoctrination, including many flight hours in naval aircraft.

From Pensacola he was ordered to Training Squadron 29 at NAS CORPUS CHRISTI, Texas, for 12 weeks of training in the theoretical and practical aspects of aerial navigation. Upon successfully completing this course, Ens. Knupp received his Wings of Gold and designation as Naval Aviation Observer (Navigator).

Completion of Navigation School marks a "fork in the road" where the NAO training divides into several different paths. Deciding that for him ASW offered the greatest challenge, Ens. Knupp requested Tacco training. Upon approval of this request, he was slated for many more months of specialized training. Some of his classmates went to other advanced curricula and others went directly to the Fleet.

From Corpus Christi, Knupp was ordered to Combat Information School at NAS GLYNCO, Brunswick, Ga., where he completed both the nine-week CIC "cornerstone" course and the five-week ASW Tactical Coordinator curriculum.

In the latter course, in addition to study of the theory of underwater acoustics, submarine engineering and an introduction to the sophisticated equipment used to detect, classify and destroy submarines, Knupp gained practical flight experience in the EC-121K *Warning Star*. The program also included a field trip to the U.S. Naval Base at Key West and an indoctrination dive in an operating submarine. On that trip, the future Tacco learned of submarine capabilities directly from experienced submariners as they cruised hundreds of feet below the blue surface of the Gulf Stream.

Completion of the ASW Tacco course at Glynco marked a transition in Knupp's training not unlike the transition between undergraduate university studies and graduate-level professional scholing.

For the first increment of his "grad-

BATTLE STATION *for Ltjg. Knupp is here at the ASA-16 tactical display system. This device integrates raw data to provide the information Tacco needs for his recommendations.*

uate" training, Ens. Knupp was ordered to Fleet Airborne Electronics Training Unit Atlantic (FAETULant) at NAS NORFOLK. In an eight-week course at FAETU, the future Tacco got deeper into ASW electronics and received training in nuclear ASW weapons.

From FAETU, Jim Knupp was ordered to VP-30 at NAS JACKSONVILLE, Fla. This squadron is the patrol plane RAG (Replacement Air Group) training squadron for the Atlantic Fleet. While with the VP RAG, the future Tacco received six weeks of realistic training, much of it flying in a P-2 *Neptune* (P2V) practicing ASW tactics with "enemy" U.S. submarines.

From the patrol plane RAG unit, Ens. Knupp was ordered to his squadron, VP-44 at NAS PATUXENT RIVER, where his training continued. Shortly after he reported to the squadron, VP-44 received the new P-3A *Orion*. Knupp's squadron was one of the first to be equipped with this most potent of all U.S. sub-hunters. (See "Lockheed P3V Orion Joins the Fleet," NANEWS, October 1962, pp. 12-13).

At the Patuxent River base of VP-44, under command of Cdr. Andrew Serrell, Knupp began intensive P-3A training conducted by the Naval Air Mobile Training Group (See *School Comes to the Student*, NANEWS, August 1962, pp. 7-11.) Elaborate electronic simulators enabled Knupp to keep his ASW skills sharp with realistic exercises. Through the NAMTraGru detachment, he also received training in the use of all the latest equipment in the P-3A, such as APS-80 radar; inertial navigation system, ASA-16 electronic computer and display console; MAD (Magnetic Anomaly Detector); ECM gear, electronic ears which can detect radar or other electromagnetic emissions from submarines; "sniffer," an ingenious electronic gadget which will detect a snorkling sub's exhaust gasses; EER (Explosive Echo Ranging Device) which "pings" against the hull of a submerged sub; and other devices.

During the indoctrination period, Jim Knupp acquired considerable operational flying experience. After he had logged 100 operational ASW flight hours, he was awarded the designation NAO(S) for Naval Aviation Observer (Anti-Submarine). This event nearly coincided with his promotion to Lieutenant (Junior Grade).

In VP-44, Knupp joined ten other highly trained officer and enlisted specialists to form a sub-killing team capable of operating the multi-million dollar *Orion* with all the mission capability built into her. He was assigned to a crew headed by LCdr. Richard Moberly, a veteran 12-year pilot. Other team members included two officers, the copilot and navigator, and seven enlisted members, including a flight engineer (AD), an ordnance-man (AO), an in-flight maintenance technician and three ASW equipment operators. Most of the ASW operators are in the process of being redesignated Anti-Submarine Warfare Technicians, the AX's, the Navy's newest rating.

Ltjg. Knupp's crew is assigned the aircraft named "Mintaka" after one of the stars in the constellation *Orion*. Since the squadron has an equal number of planes and crews, each crew is permanently associated with its "own" plane. Just as baseball teams take their names from the city they represent, the crews in VP-44 become known by the name of their planes. In fact, most crew members have baseball caps bearing the name of their *Orion*.

Mintaka, like all her sisters, is a complex weapons system, an airborne radar, sonar, weapons and communications platform with an ASW capability comparable to a destroyer. The P-3A's biggest advantage is its ability to fly to mid-ocean at high speed, then conduct ASW operations for hours at low altitude and fuel-saving low speed. The *Orion* is powered by four T-56 Allison turboprop engines delivering over 18,000 hp for takeoff.

The efforts of many skilled men are required to get the maximum benefits from Mintaka's sophisticated equipment. The success or failure of any tactical operation depends upon smooth teamwork. Tacco is the catalyst.

Superb equipment and top-flight talent are only part of the resources

SONOBUOYS *are loaded in launching chutes against background of Orion's spacious cabin.*

Tacco has on his side in the battle against submarines. Another key asset is tactical procedures and information. These ASW tactics combine the best insights from sophisticated mathematical probability of detection, classification and destruction of submarines, with the best knowledge gained from years of Fleet experience.

These tactical procedures and information enable Tacco to play the odds to his advantage. He knows the capabilities and limitations of submarines almost as well as he knows his own equipment. The tactics available to Tacco give him the odds on such things as the best altitude to fly for maximum radar effectiveness, the most advantageous sonobuoy pattern.

TACCO CONFIRMS *authentication of a message which is about to be transmitted to base by Radioman R. L. Fleeman, ATN3, as exercise ends.*

MISSION COMPLETED, *post-flight evaluation and intelligence debriefing behind them, Ltjg. Knupp, Lt. Pyle, look back on the day's operations.*

Let's follow the Mintaka crew through a recent ASW exercise mission. The day began with a briefing by the squadron Intelligence Officer. The Navigator, Ltjg. Dennis, and Tacco then planned Mintaka's course to the assigned exercise area far out in the Atlantic. On this day, the Mintakas were scheduled to exercise with a friendly U.S. submarine.

Following the weather briefing, crew members turned to pre-flighting the electronics and navigation equipment. After a final briefing by LCdr. Moberly, the Mintakas boarded the big plane and taxied to the duty runway. A short time later—the *Orion's* turbine engines require no warm-up—Mintaka was winging her way high over the Atlantic. Even though the outside air at their cruising altitude was too thin to support human life, the crew inside the spacious air-conditioned, pressurized and sound-proofed cabin worked in comfort.

En route, Tacco set Battle Condition Three and proceeded with preparations for the day's mission. As AX's checked the electronics equipment, Dunlop, AO2, loaded sonobuoys in the ejection equipment and rechecked the ordnance load. Wilcox, AT2, the in-flight maintenance technician, peaked up the detection equipment.

On arrival at the exercise area, Fisher, AT2, picked up a barely discernible contact on the APS-80 radar. Suspecting the target was a submarine's snorkel, Fisher vectored the pilot to the target.

Tacco immediately set Battle Condition Two—all sensors and look-out stations manned—and prepared to relay exercise instructions to the sub via his own UHF radio. As the target submerged, the Mintakas went to Battle Condition One—all stations manned, weapons armed and ready for drop—and the big plane began its systematic search.

Ltjg. Knupp ordered sonobuoys dropped in order to radio underwater sounds back to the aircraft. Friedlander, AS2, on the Jezebel, reported a possible submarine contact.

The Mintaka team initiated localizing tactics. More sonobuoys were dropped and the Julie operator, Rajcevich, AE3, provided a fast stream of information which was displayed on Tacco's tactical information display console, thus enabling Knupp to calculate the target's course and speed.

After fixing the target's position, Ltjg. Knupp recommended a heading to put Mintaka over the contact. As the big plane passed over the spot, the MAD operator, Wilcox, AT2, confirmed the magnetic character of the submerged target.

The big *Orion* then began the attack phase of the exercise. Intricate maneuvers put Mintaka into the best position for launching her weapons. At the precise spot, practice depth charges were dropped, simulating either a homing torpedo or depth charges.

Plane Commander Moberly then heeled Mintaka sharply and stood by awaiting the submarine's analysis of the attack. Shortly, the submarine made its evaluation: Had the attack been "real," it would have been a "kill."

The exercise completed, LCdr. Moberly climbed Mintaka sharply to cruising altitude and took up the course recommended by the navigator, Ltjg. Dennis, NAO(N), for the long journey home. Tacco collected and readied charts, logs and reports needed for the post-flight evaluation of the flight and intelligence debriefing.

After the detailed reconstruction of the flight and evaluation of the results, Ltjg. Knupp glanced at the clock; 14 hours had passed since the initial briefing. Mintaka's crew and her Tacco had successfully completed the mission. They were tired, but satisfied in the conviction that the long months of training had given them the ability to carry out their sub-killing mission, whenever and wherever on the world's seas the need might arise.

WHY USAF CHOSE THE PHANTOM

The statement by LGen. Gabriel P. Disosway, USAF, Deputy Chief of Staff, Programs and Requirements, regarding the U.S. Air Force's choice of the *Phantom* follows:

USAF VERSION PHANTOM II CARRIES COPILOT INSTEAD OF RADAR INTERCEPT OFFICER

ON FEBRUARY 4, the Air Force took delivery of the first 29 F-4B *Phamtom II* jet fighters on loan to us from the U.S. Navy. These jets will be used during the spring and summer months to train instructor pilots and maintenance crews for the McDonnell F-4C aircraft we will begin receiving this fall. . . .

The *Phantom II* has probably had more official designations than any jet in the Armed Forces. It has been known as the F4H, F-110, F-4B and F-4C. From now on you can think of the "B" model being Navy and the "C" as Air Force. . . .

The *Phantom* is a Navy aircraft, born and bred. It was designed to be carrier-operated and is the best in the world. The Air Force found it to be very adaptable to the tactical fighter mission.

The mission of a tactical fighter is very exacting as we see it in the Air Force. We require more of these jets and their pilots than any other weapon system in the Air Force. We expect the pilot to be gunner, bombardier, navigator, radio operator and perform a half-dozen other tasks. We expect his airplane to be an air superiority fighter, (day or night), a dive bomber, a low altitude attack aircraft. We let it range over the entire tactical field—that of close air support, interdiction and air superiority.

There is a very good reason for all this. Based on our experience in several wars we realize it is impossible to purchase an airplane and train a pilot for each of these missions. Not only would that be prohibitive financially but it would be a waste of national resources for these missions are not always carried out simultaneously. If we used different aircraft for each, it is possible part of the Air Force would be standing down while the air superiority portion needed help to win the air battle and make it possible for the close air support team to fly over the battlefield.

What we needed was one airplane and pilot who could accomplish all three jobs. This is where we get the title of "tactical fighter." It comes from the melding of the functions of the day and night fighter and the fighter-bomber in one airplane.

A year ago we were searching for another tactical fighter to add to the USAF inventory to modernize Tactical Air Command as fast as possible. We needed a second production source to augment the F-105 *Thunderchief*, which, I would like to point out, was the first aircraft ever designed for the multiple role of tactical fighter.

It did not take long for us to decide on the *Phantom*. For one thing it had most of the records in the book. While that may seem colorful to some, to the tactical fighter pilot performance equals survival. He needs an aircraft capable of meeting the enemy on his own terms, at the enemy's speed or better and at his altitude. For the interdiction role he needs an aircraft with a great weight-carrying capability. For the close support role he needs a steady gun platform, one he can slow enough to acquire his target and then have the rapid acceleration necessary to escape return ground fire, both from hand-held and radar-controlled weapons.

This amounts to a pretty difficult problem for the designer, the manufacturer and the services. We have to give a little and take a little down the line, remembering all the while the most important thing is survivability of the weapon and pilot for tomorrow's mission.

These were some of the reasons leading up to the announcement in January of last year that we would purchase both reconnaissance and tactical fighter versions of the *Phantom*. Only a few days after that announcement, the Navy loaned two of its fighters to the Air Force, complete with USAF insigne for our test purposes. Although we had a very good idea how they operated, we wanted to try them with USAF air and ground crews. We conducted tests on our gunnery ranges and built up a backlog of experience with the aircraft. We found it capable of performing all tactical roles although its primary mission had been air superiority.

We are modifying the radar operator's seat to that of co-pilot as a bonus feature for the *Phantom*. One of the cardinal advantages of tactical airpower is its mobility. A squadron in the U.S. today can operate in Southeast Asia or the Middle East tomorrow. In fact, it must be able to. Otherwise we would find ourselves in the position of purchasing more and more weapons that can perform fewer and fewer functions.

We made minor and major modifications to allow a more practical wheel and tire for operations in rough landing areas requiring a wider tread than needed for carriers.

We did retain the carrier tail-hook and catapult gear to give us more flexibility in a variety of conditions.

The role the Navy has played in getting this aircraft into the USAF inven-

EVERYTHING ABOUT PHANTOM II *is of interest to the U.S. Air Force. Cdr. G. L. Tarleton, Commanding Officer of Fighter Squadron 121, briefs Col. George A. Simeral, USAF weapons systems manager, Air Force Logistics Center, Hill AF Base, on preflight procedures of the F-4B Phantom jet prior to takeoff from Naval Air Station, Miramar, California. Col. Simeral and other AF officers and personnel are awaiting arrival of AF Phantom version to be called the F-4C.*

tory deserves further mention. This winter we sent a number of ground personnel and instructor pilots to their schools at NAS OCEANA. These are the people who will now form the initial group of personnel in the Combat Crew Training Squadron at MacDill AFB. Throughout the entire program the Navy has been extremely helpful.

It can be stated that the combined efforts of the Air Force and Navy in this program will give Tactical Air Command one of the most versatile tactical fighters in existence for the next few years.

Moreover, the utilization of this multi-service flexible fighter by the Navy, Marines, and Air Force will result in considerable savings to the taxpayers, something we are interested in.

Sen. Goldwater Flies in F-4

Lauds Phantom and Naval Aviation

Sen. Barry Goldwater of Arizona flew from the deck of USS *Enterprise* (CVAN-65) as she cruised off the coast of North Carolina.

The aircraft in which the Senator rode was an F-4B *Phantom II* jet aircraft piloted by Cdr. Gerald G. O'Rourke, C.O. of VF-102. The Senator sat in the RIO's seat.

This was Senator Goldwater's first taste of carrier aviation, but not of flying. As a major general, USAF Reserve, he has flown in the *Phantom II* before.

A few days after the flight off *Enterprise*, Senator Tower of Texas asked Senator Goldwater, "Was the Senator from Arizona sufficiently impressed by the technical competence of Naval Aviation as a result of his recent launch from a carrier and his landing on it?"

Senator Goldwater said, "I hold Naval Aviators in the highest esteem. That regard has now gone into orbit. I believe they are highly competent as witnessed by the fact that the pilot with whom I flew, with my very poor radar-operating in the back seat, was able to hit three targets, one 48 miles away, and theoretically shoot down all three.

"The Navy flies an excellent airplane, their F-4, which the Air Force, in taking over, is redesignating as the F-4C. I have flown it from land bases at speeds in excess of Mach 2, which is twice the speed of sound. It has fine characteristics. In fact, it is one of the finest new aircraft that I have flown in many a year. To give credit to the Navy for its development gives me great pleasure."

Asked if Naval Aviation was superior to USAF, Sen. Goldwater said, "I would not go so far as to call it superior, because I do have a little feeling for the boys who fly in the Air Force."

MAG-24 Comes of Age

Proudly Recalls 21-Year Record

In March, Marine Aircraft Group 24 marked its 21st anniversary.

According to Col. James A. Feeley, Jr., Commanding Officer, MAG-24 was assigned during WW II for the most part, to First Marine Aircraft Wing. It was formed at Ewa, Hawaii, three months after the December 7, 1941 attack on Pearl Harbor.

In the Pacific, units of MAG-24 served on the islands of Midway, Palmyra, Johnston, Russell and Bougainville.

MAG-24 and MAG-32, designated as Marine Aircraft Group Dagupan, earned praise of Army group commanders for providing outstanding close air support when Gen. Douglas MacArthur recaptured the Philippines.

Later, MAG-24 served in China on occupation duty, and when the Korean conflict erupted, units of MAG-24 served with MAW-1.

The Group, now based at Cherry Point consists of VMF(AW)-115 and 531, VMA-533, MABS-24, and H&MS-24.

Decorations earned by MAG-24 include Navy Unit Commendation with one star, the Asiatic-Pacific Campaign Medal with four stars, the WW II Victory Medal, and China Service Medal.

Zock Takes a Long Haul

Hong Kong to D.C. Keeps Record

Some men will go to any length in order to preserve a perfect drill attendance in the Selected Reserves. Among them all, Cdr. James L. Zock of Tactical Air Support Squadron 662 is undisputed record-holder of going the longest distance for attendance.

Cdr. Zock was at Hong Kong on a round-the-world vacation trip when he remembered the date of the next drill at NAF ANDREWS, 11,000 miles away. With just 48 hours to make it, he flew to Japan where he hopped a commercial jet to Friendship International Airport some 35 miles from his base. He rented a car at the airport and made it to the drill with 15 minutes to spare. This was his last drill in a 15-year perfect attendance record and the final one of 20 year's service.

CNAResTra lauded Cdr. Zock's spirit, determination and loyalty and wished him continued success in future years.

VT-6 Sets Safety Record

Flies 24,880 Accident-Free Hours

Advanced Training Squadron Six based at NAAS WHITING FIELD completed one year of accident-free flight operations while training student Naval Aviators in all phases of flight in the Navy's TC-45J Twin Beech aircraft. In 24,880 flight hours, instructors and students flew approximately 3,234,000 nautical miles in the 12-month period, ending January 16. This distance is equal to more than 13 round trips to the moon.

Cdr. Hector C. Cyr, commanding VT-6, noted that the accomplishment was even more noteworthy in that the squadron's aircraft logged over 41,000 landings during both day and night operations in this period.

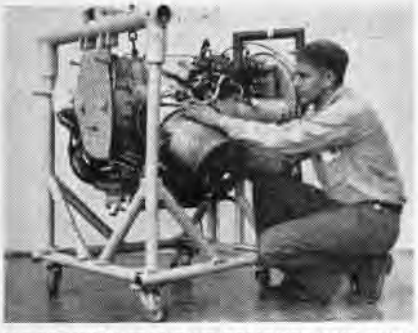
VT-6 trains student Naval and Marine Aviators in the techniques of precision instrument flight and multi-engine aircraft operation prior to their further advanced training in helicopters. Since commissioning in May 1960, VT-6 has trained 881 Navy, Marine and Allied students.

Copter Engine Stand Made

Expedites Maintenance Handling

George J. Moore, AD1, a member of VU-3's anti-submarine drone helicopter training team, has developed an improved method of handling helicopter engines. Recognizing the need to make them more accessible for inspection and repair, he designed and constructed an engine stand from salvage materials.

He was assisted by L. L. Kline, AMH-2, also of VU-3. LCdr. J. Brennan, Officer-in-Charge of the training site at San Clemente, says the stand will substantially reduce the time required to inspect engines since it provides increased ease of access.



MOORE WITH STAND HE DESIGNED AND BUILT

WITHIN TWO WEEKS *of reporting to NAS Lemoore, Ltjg. Joel Fabel of VA-155 scored 3-for-3 bullseyes while firing 2.75 FFAR rockets during exercises at NAAS Fallon. Shown with Fabel is his Plane Captain, C E. Breeden.*

LCol. Glenn Honored Again

Receives the 1963 Goddard Trophy

LCol. John H. Glenn, Jr., the first U.S. astronaut to orbit the earth, is the recipient of the 1963 Robert H. Goddard trophy.

The highly-coveted award of the National Rocket Club is given annually at the Robert H. Goddard Memorial Dinner in commemoration of the "greatest achievement during the preceding year to advance missile, rocket and space flight programs."

Vice President of the United States, Lyndon B. Johnson, was the speaker at the annual dinner held March 22 at the Sheraton-Park Hotel, Washington.

Former winners are Dr. R. R. Gilruth, Director of the Manned Spacecraft Center, and Dr. Wernher von Braun.

USS Guadalcanal Launched

LPH-7 Was Built at Philadelphia

The amphibious assault ship *Guadalcanal* (LPH-7) was launched March 16, at the Philadelphia Naval Shipyard.

Gen. David M. Shoup, Commandant, U.S. Marine Corps, was the principal speaker at the launching. Mrs. Shoup sponsored *Guadalcanal.*

Guadalcanal is designed to transport and land Marine assault troops and supplies by means of transport helicopters. It will carry 2000 Marine assault troops and 24 large Marine amphibious transport helicopters in addition to her regular Navy crew of 50 officers and 475 enlisted men. She is 592 feet long, has an 84-foot beam, displaces 18,000 tons fully loaded. Four twin 3-inch-50-caliber gun mounts will be her armament.

The Navy has six amphibious assault ships in commission. The USS *Iwo Jima* (LPH-2) and USS *Okinawa* (LPH-3) were constructed as LPH's from the keel up and the USS *Boxer* (LPH-4), USS *Princeton* (LPH-5), USS *Thetis Bay* (LPH-6) and USS *Valley Forge* (LPH-8) are converted carriers. In addition to *Guadalcanal, Guam* (LPH-9) is being built at the Philadelphia Naval Shipyard. LPH-10 has been assigned to the Ingalls Shipbuilding Corporation, Pascagoula, Mississippi.

Capt. Dale K. Peterson, USN, is scheduled to command *Guadalcanal.*

F-4 Logistic Problem Solved

VA-113 Gives 'Suitcase' to VF-114

The prowess of the *Phantom II* is almost legendary. But this most potent of modern fighters has a built-in logistic deficiency for its two most important components—the pilot and the RIO. So "solid" is the bird that there is hardly room for a toothbrush when it moves from carrier to the beach.

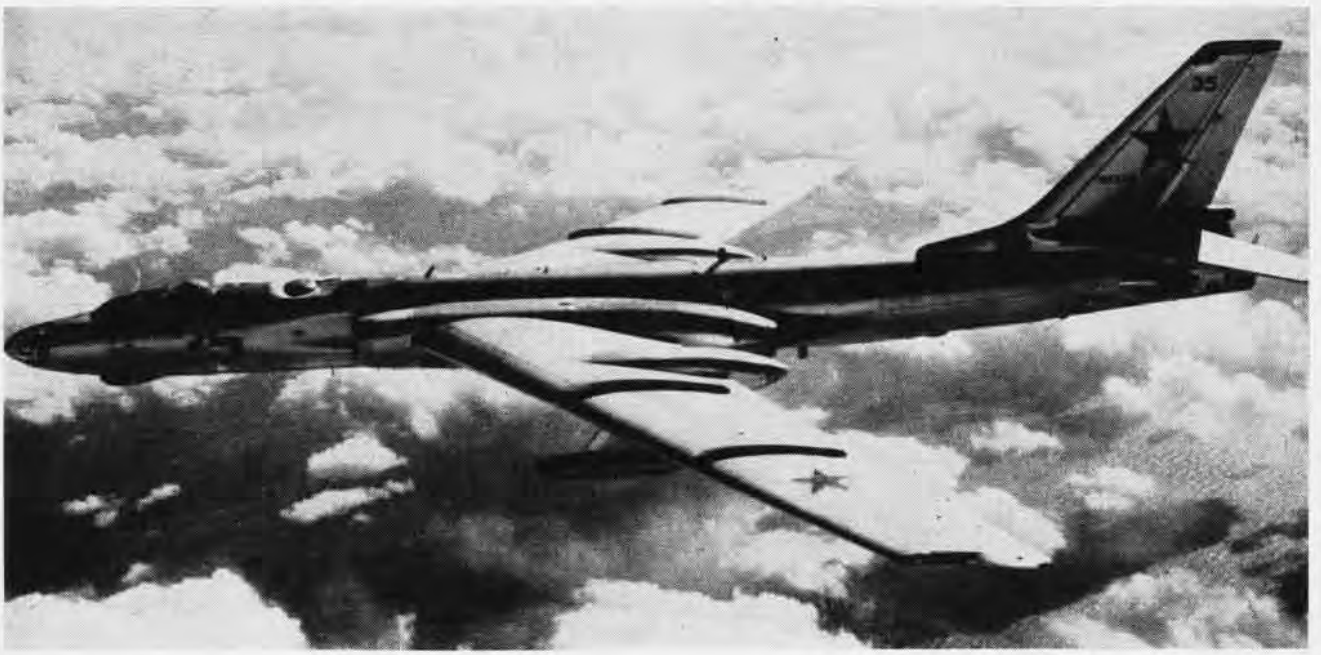
The *Stingers* of VA-113, "the friendly squadron," have solved this logistic problem for their CVG-11 mates, the *Aardvarks* of VF-114. The *Stingers* took a surveyed, repeat *surveyed,* 300-gallon droppable fuel tank and, enlisting the ingenuity and artistic talents of R. L. Mahan, AD3, developed the personalized "suitcase." Mahan decorated the custom-tailored bingo kit with a "Supersonic Mach Two Aardvark," mascot of VF-114.

In the picture, VF-114 C.O., Cdr. J. J. Konzen, congratulates Mahan of VA-113 as Cdr. G. A. White, Commanding Officer of VA-113, looks on.

AARDVARK 'BINGO KIT,' GIFT OF VA-113

NEW PHOTOGRAPHS OF BEAR AND BADGER

USSR LONG-RANGE BOMBERS paid several unexplained "calls" over U.S. Navy aircraft carriers in February and March. In each case, the rendezvous took place at sea in international waters with U.S. fighter aircraft "escorting" the bombers on the final portion of their journeys. Overflights of the carriers were announced by the Department of Defense. At least three encounters were connected with the arrival or departure of a carrier near known, well-publicized locations. Intercepted by *Forrestal* aircraft was the *Bear*, above; by *Kitty Hawk*, the *Badger*, below.



Shipboard Drills Pay Off

Surgeon General Lauds CVA-64

"In an emergency, the response of each man must be automatic. The fact that he knows what to do in case of attack or fire is not sufficient. He must be able to perform his particular role without pausing to question his actions."

This principle, enunciated in "Realistic Drills on Carriers" in the September 1962 issue of *Naval Aviation News*, p. 6, was fully demonstrated recently when an arresting cable snapped in whiplash rhythm, injuring several men aboard the USS *Constellation*.

In that terrible moment, drills paid off. So impressed was RAdm. Edward C. Kenney, Surgeon General of the Navy, that he wrote the following letter to LCdr. Arthur J. Grote, M.C., Medical Officer of the USS *Constellation*, commenting on the efficiency with which emergency first-aid measures were at once instituted.

"I have followed with high interest the reports concerning the recent flight deck accident which occurred aboard the USS *Constellation* and I have been extremely gratified by the prompt and efficient manner in which life-saving emergency first-aid measures were rendered to the injured. I know of no instance in which the importance of thorough indoctrination and training of all hands in emergency first-aid procedures has been more clearly demonstrated. . . .

"I am sure that long hours and much effort have been expended by your Medical Department in bringing to the ship's crew the degree of competence in first-aid procedures which was demonstrated so ably during this tragic accident. I can conceive of no time better spent by any Medical Department than that which results in the saving of lives as undoubtedly was the case in this accident. The gratitude of the families and friends of the injured to all concerned will be everlasting.

"As Surgeon General of the United States Navy, I wish not only to tender my highest praise but also to express my pride in the Medical Department aboard the USS *Constellation* for the outstanding performance which exemplifies the aim of this Bureau in support of the Fleet. Well done."

MATS has New Insigne

Stars and Stripes Decal Okayed

The flag of the United States has become an official marking on all aircraft of the Military Air Transport Service (MATS) global airlift force. This applies to more than 500 aircraft.

Carried high on the tailfins, the flags are additional markings and do not replace any of the standard markings already carried. The only military aircraft previously authorized to carry the flag insignia were those of MATS 1254th Air Transport Wing in Washington, D.C., which carry top government officials around the world.

The stars and stripes decals are made in four sizes, proportioned to the six different types of aircraft in the airlift force. They range from 31 by 60 inches down to 19 by 36.

Sonobuoy Test Range Open

First and Only of its Kind in U.S.

The Sonobuoy Test Facility on Rutherford Island, South Bristol, Maine, was dedicated on March 29. It is the first and only facility of its kind in the country, designed to test accurately air-dropped submarine detecting devices.

BuWeps awarded a contract to the Vocaline Company of America, Old Saybrook, Conn., and Waldoboro, Maine, for the installation and operation of the facility in a move to provide better quality control on the production of these devices.

In October 1960, after six months of instrumentation and training of personnel, the first official drop of sonobuoys took place. Since then, many of these air-dropped electronic devices have been tested. Ocean and monitoring installations were designed by Bell Telephone Laboratories, and built and installed by the Western Electric Company of Winston Salem, N.C.

South Bristol was selected as the site of the permanent Naval Weapons Industrial Reserve Plant in 1961 by BuWeps after an extensive survey of the U.S. west and east coasts. The survey of the ocean area surrounding Pemaquid Point, Maine, proved that this area would be an excellent location because of its deep water, open ocean conditions, and its proximity to NAS Brunswick. Seventeen acres of land were acquired for construction of the facility.

Plans and specifications for the Facility were prepared under the direction of Capt. E. J. Quinn, CEC, USN, Officer in Charge of Construction, First Naval District.

The completed facility was turned over by Capt. Quinn to Capt. L. F. Robinson, USN, BuWeps representative, Waltham, Massachusetts.

THE MARINE CORPS' *new assault support helicopter (ASH) is being manufactured by Textron's Bell Helicopter Company. The turbine-powered model, to be known as the UH-1E, is basically the same as the Army's famed UH-1B Iroquois. Helicopters of the Army series hold six world flight records. The Marine version will vary from the Army's helicopter in three ways: It will have a personnel hoist, rotor brake and special navigational/communication equipment.*

FISCAL 1964 SHIP/AIRCRAFT PROGRAM

Naval Aviation News presents excerpts from the statement of the Chief of Naval Operations, Adm. George W. Anderson, before the Senate Armed Services Committee regarding the military posture of the United States Navy:

THE UNITED STATES Navy is a formidable, versatile, and flexible instrument of national policy, undertaking a wide range of commitments around the world, while at the same time maintaining its readiness for action of any type or scale at any time. To fulfill simultaneously these many responsibilities keeps the active force of the Navy strained close to their elastic limits and poses problems which always are difficult to solve.

At the end of fiscal year 1963, the Navy will have 859 ships in its active Fleet, approximately 7200 operating aircraft, and about 665,000 officers and men. Our goal at the conclusion of this next fiscal year is 873 ships, approximately the same number of operating aircraft, and 670,000 personnel.

As the Chief of Naval Operations, it is my considered judgment that the size and composition of the Navy is appropriate to the conditions we anticipate for 1964, although admittedly I would wish that the forces in being would include more new ships and aircraft and some additional people, particularly those possessed of technical skills. I render this opinion in the light of my knowledge, as a member of the Joint Chiefs of Staff, of the capabilities and limitations of the other services. I believe the Navy complements and enhances the strength of the Army and the Air Force.

* * * * * *

Now, let us turn to the problems which we have long had and which were emphasized by the Cuban operation. These essentially are the same that I presented to you last year. They include: the need for new ships and new aircraft; the need for a high level of procurement of both nuclear and modern conventional weapons; improvement in ASW forces; enough personnel to do each job well, without, for instance, stripping other units to man our ships and aircraft when we go to "general quarters;" a better means of keeping in the Navy the skilled personnel who tend to leave us for jobs in industry and more comfortable lives ashore; and finally, since we must look not only to tomorrow, but to the day after tomorrow, the continuation of an active program of research and development. . . .

In the past year we saw 17 new ships join the active Fleet. These were augmented by 27 other ships which had been either converted or modernized and two taken from our Reserve Fleet. Of these ships, five were nuclear-propelled submarines, of which three were *Polaris*. This year's request for authorization and appropriations provides for 41 new ships and 36 conversions. Of the new ships, emphasis is placed on nuclear-propelled submarines, on other ASW ships, and on amphibious ships. The conversion program emphasizes ASW ships and auxiliaries. I heartily endorse every ship in the 1964 shipbuilding and conversion program as necessary for the modernization of our Navy.

Of the 859 ships scheduled to be in the active Fleet at the end of fiscal year 1963, 584, or 68%, will be 16 years of age or older, and only 275, 15 years of age or less. As of 30 June 1963, 106 ships will be under construction. This means that in the years ahead we will have to have very substantial shipbuilding programs if we are to prevent a disproportionate number of the ships in the active Fleet from becoming obsolescent or completely obsolete by the end of the decade.

We are endeavoring to make maximum use of available ships by modernization and conversion to keep our Fleet effective. However, there are practical limits to the extent to which this procedure can meet our needs.

* * * * * *

Included in the proposed fiscal year 1964 legislation are 681 new aircraft for the Navy and Marine Corps. Of these, over 70% are categorized as combat types. These planes are urgently required if our Fleets are to fulfill their missions of controlling the seas for our purposes, denying them to an enemy, and projecting and supporting our Army, Marines, and Air Forces overseas. For naval purposes, the manned aircraft is indispensable for the foreseeable future in offensive, defensive, and supporting roles and has not decreased in importance.

Together with the surface-to-air missiles provided for increasing numbers of the missile ships coming to active service, the aircraft of the Navy, operating from carriers and shore bases, provide the means of carrying out the wide range of tactical operations necessary to protect our naval ships and the merchant fleets of the free world from attacks by the submarines, aircraft, surface ships, motor torpedo boats, and mines possessed in abundant quantities by potential enemies. Our attack aircraft enable us to project our naval power deep inland or attack an enemy's shores from far out at sea.

The new naval aircraft now being procured and proposed for procurement are among the finest in the world. They exceed in performance those they will replace. But I must emphasize that their increased capabilities do not necessarily compensate for the numbers which, from experience, we know are required if we are to fulfill our assigned responsibilities. We must have sufficient numbers of modern aircraft in our inventory to permit sustained operations in the initial phases of hostilities when heavy attrition of combatant types must be expected. . . .

We note with satisfaction continuing improvement in the levels of conventional weapons, guided missiles, and related equipment necessary to enhance our fighting capability.

Anti-submarine warfare continues to be, and most certainly will be in the years to come, our most crucial problem. The operations in Cuban waters provided us with a unique opportunity to test our skills, our equipment, and our personnel. The results were highly gratifying. During this time of crisis, more than 20 submarine contacts were reported in the area of Fleet operations or adjacent to the Cuban quarantine area. Some of these probably were false contacts, and quite a number were repeat contacts with the same target. We were able to identify six by photographs as Soviet submarines. If weapons instead of camera films were employed, these submarines would surely have been "killed."

Anti-submarine warfare must be a team effort. Without

question, this was. These most recent experiences, and others as well, have attested dramatically to the capabilities of our air, surface, and undersea forces and our fixed installations to work together with maximum effectiveness. You will recognize, of course, that our task during this time was made even more difficult by the fact that once we were able to detect and identify a submarine, we could not take positive action to dispose of it and thereby permit our forces to search for others.

However, even though we enjoyed a marked degree of success in these operations, we also must remember that our forces were directed against a limited number of submarines of the conventional type. If two, three, or perhaps ten times as many submarines were to come into our waters prepared for hostile action, this would pose greater problems. The Russians have improved in the quality of their ships, their techniques, and the abilities of their personnel to operate submarines. They are greatly expanding their scope of operations. Therefore, our efforts cannot be slackened.

We, of course, are striving continuously toward any type of major breakthrough which will provide us with infallible means of detection, location, identification, and destruction of enemy submarines. However, such a breakthrough is not now in sight. We are continuing to take fullest advantage of the contributions of science and industry, and have made substantial progress in increasing the ranges of our sonar and radar, in improving the team concept so well shown recently, and in making better use of our fixed detection devices. We are prepared to make whatever expenditure of funds should be considered advisable if it appears any breakthrough, or part thereof, is likely. In the interim, we recognize that the job is long, tough, tedious, painstaking. There are no easy solutions.

* * * * * * *

The Cuban operation was an example of the *present* inability of the Russians to sustain an overseas venture when challenged by our overwhelming sea power in a particular area, as well as of their apparent present *unwillingness* to attempt it. Conversely, what we did was what we had been doing for many, many years: making the most of what the seas have to offer. The obvious lesson re-learned from this most recent encounter is that we always must have adequate sea power in order to forestall any attempt by the Russians, or anybody else, to embark on ventures which could result in a threat to our own security. If we permit our sea power to diminish, whether from motives of economy or from lack of understanding of its importance, a vacuum would be left which the Russians obviously would seek to fill, and which they could succeed in filling.

This is the statement of VAdm. William A. Schoech, Deputy Chief of Naval Operations (Air), before the Committee on Armed Services, United States Senate:

I AM PLEASED to appear before this Committee to present the Navy's annual budget for Procurement of Aircraft and Missiles for Fiscal Year 1964.

For Fiscal Year 1964, the Navy's program will cost $3,111,000,000. . . . This appropriation will finance procurement of 681 new aircraft, missiles (including *Polaris*), and provide for related support programs. Related programs include modernization of existing aircraft, procurement of aeronautical spare parts, procurement of targets and drones used in training exercises, drone anti-submarine warfare helicopters, hardware for the navigational satellite program (*Transit*), and in addition provide for funding required at industrial facilities.

Twelve of the aircraft models programmed for FY 1964 are in quantity production under prior year plans. These include the light and medium jet attack Douglas A-4E *Skyhawk* (A4D-5) and Grumman A-6A *Intruder* (A2F-1). Procurement of the North American built A-5C *Vigilante* (A3J-3) aircraft will enhance the Navy's heavy attack and reconnaissance mission.

Anti-Air Warfare requirements provide follow-on procurement of the supersonic F-4B *Phantom* (F4H-1). These Navy-developed aircraft are in quantity production for the Air Force as part of a joint service fighter procurement program. A reconnaissance version of the *Phantom* for the Marine Corps is also included. Procurement of the E-2A *Hawkeye* (W2F-1) carrier-based early warning aircraft and the electronic countermeasures version of the *Intruder*, the EA-6A, for assignment to the Marine Corps, completes the Anti-Air Warfare program for Fiscal 1964. The *Hawkeye* provides a new order of performance in airborne early warning and control. The *Intruder* countermeasure version is designed to suppress enemy electronic activity in support of strike aircraft.

The Marine division-wing teams will be further equipped for assault operations by a follow-on buy of the Vertol CH-46A *Sea Knight* (HRB-1) and the light assault support helicopter UH-1E *Iroquois* (HU-1E).

The Anti-Submarine Warfare program is being supported by follow-on procurement of the carrier-based Grumman S-2E *Tracker* (S2F-3S); land-based turbo-prop patrol bomber, P-3A *Orion* (P3V-1); and the Sikorsky SH-3A *Sea King* (HSS-2) helicopter.

For search and rescue, a follow-on procurement of the all-weather UH-2B *Seasprite* (HU2K-1U) helicopter is planned.

Provisions are also made in this appropriation for initial buy of a heavy troop-cargo carrying Marine helicopter, the CH-53A. Procurement of a special purpose turbo-prop transport type, designated the C-130E *Hercules* is also planned.

Procurement of three training aircraft, the TC-4B (G-159), a turbo-prop transport type aircraft, the U-8F light propeller-driven aircraft and the basic jet trainer, T-2B (T2J-2) complete the aircraft program for FY 1964. . . .

The next major part of this appropriation provides funds for the Fleet Ballistic Missile program, other Navy and Marine guided missiles, the aerial target program, drone helicopters for delivery of anti-submarine ordnance, and the *Transit* navigational satellite system.

The Fiscal Year 1964 program provides for continued procurement of air-to-air *Sidewinder* and *Sparrow* missiles, air-to-surface *Bullpup* and associated training missiles, and Fleet introduction of air-to-surface *Shrike* missiles. It continues integration of ship-launched *Terrier*, *Tartar* and *Talos* missiles into the active Fleet in consonance with construction and conversion of vessels having guided missile capability. Procurement of the *Subroc* anti-submarine weapon, *Polaris* missiles for Fleet Ballistic missile submarines, powered and towed targets, and anti-submarine drones, as well as procurement of items associated with the *Transit* Navigational System, complete the missile and related equipment portion of the appropriation.

JET AIR RESERVISTS FLY DURING 'SPRINGBOARD'

VF-725 FURIES, SYMBOLIC OF NEW DEFENSE, FLY PAST OLD DEFENSE, FORTRESS AT SAN JUAN

NAVAL RESERVE Jet Fighter Squadron 725, commanded by Cdr. Charles C. Leary, made history in February as the first jet reserve squadron to deploy outside the continental United States for annual training duty.

On February 11, VF-725 began duty at NS ROOSEVELT ROADS (approximately 50 miles from San Juan, Puerto Rico) where the outfit conducted operations with 14 fast AF-1E *Fury* (FJ-4B) jet fighters. With Cdr. Leary were 37 pilots and line officers plus 65 enlisted men, most of whom are civilians 50 weeks out of each year with the exception of two drill days each month at NAS GLENVIEW, Ill.

Earlier the squadron had been scheduled for deployment to NAS CECIL FIELD in February. During December, the effect of the Cuban emergency upon active duty squadrons became apparent. Many of the squadrons from Guantanamo and other Caribbean bases needed to go back to their home bases for much-needed rest and re-outfitting.

LT. HERDA (L) WITH COPTER PILOT RESCUER

At CNARESTRA headquarters at Glenview, RAdm. W. I. Martin's staff recognized the incipient problem in the Caribbean: Fleet units participating in Operation *Springboard* would be short of their required number of jet fighters during the month of February. Since two reserve jet fighter squadrons were scheduled to be operating in the Florida area at that time, the immediate decision was made to send one of the reserve squadrons further south to NS ROOSEVELT ROADS, instead of NAS CECIL FIELD.

The squadron commander and executive officer were apprised of the change of plans. It proved to be a real shot in the arm for squadron morale. Not only would the flying weather be more dependable, but the operating conditions and the weather itself would be a welcome change from the icy blasts usually encountered during a midwestern winter. Then, too, it was a distinct honor to be a member of the first jet fighter squadron slated for two weeks active duty outside the continental United States. Officers and enlisted men looked forward eagerly to operating in the sunny Puerto Rican climate. It was a welcome change from Illinois' stormy weather.

During their stay at Roosevelt Roads, VF-725 found all departments and personnel ready to cooperate. VU-8 acted as host squadron to VF-725 with Lt. Holt of VU-8, assigned as liaison officer. Lt. Holt and other members of VU-8 had information readily available on all phases of operations at Roosevelt Roads. They acted as liaison between VF-725 Weekend Warriors and the ships participating in *Springboard*.

During *Springboard*, VF-725 actually flew twice the number of missions originally scheduled with Fleet units. Cdr. Leary and his pilots considered their Fleet operations as their number one duty and worked in syllabus training around the *Springboard* flights as it proved convenient.

On a *Sidewinder* flight, Lt. Charles Herda acted quickly when the missile fired, but failed to leave the launching rail mounted considerably outboard near his right wing tip. With more than 4500 pounds of thrust suddenly in action with the long leverage arm, the plane immediately went into unusual maneuvers around two axes. Lt. Herda, knowing at once that the plane was not controllable, ejected through the canopy and made a successful water landing. Prompt reaction, sound training and emergency procedures in which he was thoroughly versed saved his life.

VF-725 FLEW IN OPERATION 'SPRINGBOARD'

FIRST RESERVE JETS IN CARIBBEAN

VF-725 AF-1E FURIES FLY IN OPERATION

FURIES OF VF-725 SOAK IN UNACCUSTOMED CARIBBEAN SUNSHINE AFTER FLIGHTS FROM ILLINOIS TO START TRAI

R. E. SCHMIDT READIES A FURY FOR FLIGHT

SAINT LOUISIAN, G. BREEDING, REFUELS AF-1E

ORDNANCE CREW ADJUSTS RACK FOR A

EXPERIENCED CREW SUPERVISES OPERATIONS

INTAKE 'SWALLOWS' CREWMAN MAKING CHECK

LINE CREW CHECKS WITH PILOT BEFORE

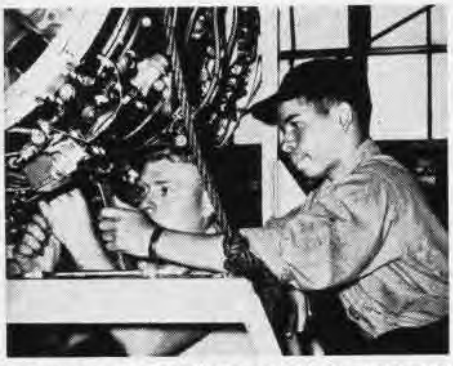
SPRINGBOARD

AT ROOSEVELT ROADS

SAN JUAN LANDMARK BECKONS VF-725 MEN

'I WONDER IF IT'S SNOWING IN CHICAGO'

Weekend Warriors of VF-725, home-based at Glenview, Ill., traded zero temperatures for trade winds as they set up squadron HQ for two weeks of training at NS Roosevelt Roads near San Juan, Puerto Rico. Utility Squadron Eight acted as host and liaison for Fury squadron which flew sorties in 'Springboard.'



TEAMWORK IS PRACTICED BY CHECK CREW MEN

PILOT WAITS FOR HIS ENGINE START SIGNALS

GLENVIEW RESERVES PAY CALL ON FORMER CNARESTRA, RADM. ALLEN SMITH, COMTEN

VMA-225 SPENDS MONTH IN CARIBBEAN

GYSGT. CHARLES *E. Brown checks tail section on one of VMA-225's Skyhawk jets.*

MARK 76 BOMBS *are loaded by ordnance man prior to training hop during Caribbean cruise.*

TWO LINE CREWMEN *prepare a Skyhawk for training flight from NS Roosevelt Roads.*

VMA-225 PILOTS *(l to r), Lt. F. A. Buethe, Lt. M. C. Brush, Lt. P. E. Aubrey and Maj. W. D. Smart are mapping out plans during a pre-flight briefing at Roosevelt Roads, Puerto Rico.*

IN MARCH, Marine Attack Squadron 225 (VMA-225) returned to MCAS CHERRY POINT after a month's training in the Caribbean.

Called the Vagabonds of the 2nd Marine Aircraft Wing because of their many deployments, VMA-225 operated out of Roosevelt Roads, Puerto Rico, as a part of the 30th Marine Expeditionary Unit. They also participated in the Navy's Operation *Springboard*, and conducted extensive conventional ordnance training with bombs, rockets and napalm.

Even with the squadron's tight training schedule, it wasn't all work and no play. Liberty at the Caribbean island was described as excellent.

Following a SATS operation, VMA-225 expects to participate in carquals.

LCol. E. A. Harper is squadron C.O.

'WHERE'S MY DAD?' *Seven-year-old Roy L. Hawkins waits at flight line for SSgt. Richard G. Hawkins, home from a month's training.*

HOME AT LAST. *Troops disembark from a Hercules aerial refueler/transport plane after their return flight from a Caribbean deployment.*

WELCOME SIGN IS FOR REAL AT SIGONELLA

FACILITY AT SIGONELLA, SICILY, IS MAINTAINED WITH PERMISSION OF ITALIAN GOVERNMENT

EVER HAVE this kind of a daydream? The night is dark and stormy. You're tired and the gas gauge goes down to the "gotta make a decision" level and you're just too far out even to consider a dash to "home plate." You're not quite near the "May-Day" point, but you're not averse to touching down on a strange field, either.

Then a smooth-talking GCA unit takes up your call and really backs up its claim, "All you have to do is come close enough for us to talk to you and we will take it from there."

A cheerful, smiling Duty Officer (there are some) puts you into a shiny, yellow pickup and whisks you away to a line shack where all you have to do is request any repair or fuel you may need—and it's done and given while you hop in a limousine and visit the Operations building and sip good coffee while an arrival message is sent to your ship.

Then another limousine takes you to nice—very nice—sleeping quarters where, if you weren't farsighted enough to carry a full uniform on this trip, a temporary outfit is available.

Then, the next morning you are picked up by another limousine to take you to your plane. You are provided every service to launch you successfully and safely on your way.

This isn't a daydream. It isn't a Walter Mitty world. It is NAF SIGONELLA, a small U.S. Navy-manned facility at the foot of Mount Etna, Europe's highest volcano, on the Mediterranean island of Sicily.

Actually, the establishment is two bases, separated by about ten miles of scenic Sicilian countryside. The administrative area has all the comforts of home for transient-type aviators, as well as more permanent facilities for those spending an entire tour there.

Transients are made to feel comfortable. A Navy Exchange is stocked with necessities and some luxury items. A snack bar provides all the ice cream, milk shakes and hamburgers you can eat. A modern BOQ has an intimate little club in which worldly cares may temporarily be forgotten. A theater presents movies of late vintage twice a day, a different one each time. If there's time for a little liberty, why there is a bachelor's paradise not far away. Weather permitting, you can go beaching, golfing or skiing, if the mood hits you.

The airfield has all the facilities needed to handle any of the Navy's newest aircraft. Cdr. E. E. Schnell, Maintenance Officer, runs a well stocked and staffed shop, capable of handling almost any problem.

Departing, you are cleared with the Italian flight service. Plane captains, mechanics, radiomen and technicians are all at your service if there is any discrepancy missed the night before. Where parts are needed—though this is not too often the case, for the supply department is well stocked—a C-117D can get it. This same "gooney bird" makes regular VR runs every week around the Med. There is also a VP squadron deployed at the facility.

NAF SIGONELLA is headed by Capt. V. V. Utgoff, who is happy to lead an outfit that helps keep Sixth Fleet aircraft in the air. The facility extends a standing invitation to "drop down and see us some time. . . . Call any time, we're waiting to welcome you."

NAVY-MANNED STATION AT FOOT OF MOUNT ETNA OFFERS VISITING AIRMEN HOSPITALITY, IS HOME BASE FOR A NAVY PATROL SQUADRON

AT SEA WITH THE CARRIERS

PACIFIC FLEET

Ticonderoga (CVA-14)

En route to join the Seventh Fleet for her fifth Far Eastern tour, USS *Ticonderoga* made several stops and many friends. While at Cubi Point, Subic Bay, Philippines, crewmen demonstrated an outstanding people-to-people program by donating blood to the citizens of Olongapo, Zambales. The donations were accepted by the Philippine National Red Cross.

On the following day, *Ti* entertained a group of 70 Korean midshipmen and 25 students of a local college. The midshipmen were then on a training cruise aboard Korean destroyer escorts. The students—13 girls and 12 boys—toured the *Ti* from stem to stern, from pri-fly to the mess decks.

A week later, *Ti* got down to business in a joint operation between U.S. and Taiwan forces, code-named Operation *Blue Sky*. This was a test of the air defense systems of both participants. While conducting simulated strike missions against Taiwan, the *Ticonderoga* was "target" for the Nationalist Chinese forces in a hunt-and-hit operation. Taiwan-based aircraft attempted to locate the carrier "somewhere in the South China Sea." At the conclusion of *Blue Sky*, *Ticonderoga* proceeded to Hong Kong.

Ranger (CVA-61)

Two years ago, *Ranger* personnel joined the Sasebo Rotary Club in a joint program designed to aid deserving Japanese students further their education. An initial donation of $3000 helped 11 students. *Ranger* crewmen and the Rotary Club recently donated $250 each for the second consecutive year, continuing the original program.

AT YOKOSUKA, *a Phantom II leaves CVA-61 in what may be first in-port launch of an F-4B.*

THERE IS *scarcely a pier in sight as dependents flock to gangway of the Bonnie Dick.*

The 53,000th landing on board CVA-61 was made by LCdr. William F. Frazier of VF-96, in an F-4B *Phantom II*.

Three units serving in the *Ranger* acquired new commanding officers during a triple change-of-command ceremony. Cdr. William R. Eason became CAG-9 while Cdr. Lynn W. Adams assumed command of VAH-6 and Cdr. W. A. Gortney became C.O. of VA-93.

Oriskany (CVA-34)

An A-1H *Skyraider* (AD-6) piloted by Cdr. G. H. Edmondson became the 64,000th aircraft to make an arrested landing on board the *Oriskany*.

Letters of commendation were presented to fireman James H. Linn and seaman John L. Lotz, crewmen of *Oriskany's* utility boat, for rescuing two girls in San Diego harbor. The girls were attempting to operate a ten-foot kayak when it overturned. VAdm. Paul D. Stroop, Commander Naval Air Force, Pacific Fleet, made the official presentations.

Bennington (CVS-20)

Now out of Puget Sound Naval Shipyard, USS *Bennington* headed for her new home port, Long Beach, Calif., and then commenced refresher training.

"Before the summer is over," wrote Ens. Brian Deans in the carrier's newspaper, "the man with the five-cent grease pencil will be 'phased out' of *Bennington's* CIC by a multi-thousand-dollar Tactical Navigational Display

SIDE BY SIDE, *two Seventh Fleet aircraft carriers rendezvous off the coast of southern Japan. In the foreground is USS Ranger. With her is USS Kitty Hawk. Both are Forrestal-class carriers.*

System. A most up-to-date addition to intelligence gathering equipment systems, TNDS will display the ship's track and those of all sub-surface, surface and air contacts.

"This complex of flashing lights, switches and dials will do almost anything—including change its own light bulbs. It cannot think, however—it has no computer or memory circuits."

Midway (CVA-41)

The USS *Midway* completed her second major overhaul since being recommissioned in 1957 and left the San Francisco Naval Ship Yard for refresher training. In addition to routine work, *Midway* received some major innovations. A new and extended bridge—resembling that of the *Coral Sea*—was installed to provide increased visibility in coming into the pier.

To allow for more room and reduce the over-all weight of the carrier, six of her ten gun mounts and a Mark 37 director were removed. While *Midway* was still in the yards, Capt. L. E. Harris assumed command.

Constellation (CVA-64)

After completing Operational Readiness Inspection in Hawaii, USS *Constellation* headed for Hong Kong, Sasebo, Yokosuka, Kobe, Subic Bay, and her first tour in the Far East. Aboard is her first permanent air group —Carrier Air Group 14—consisting of six squadrons, a photographic squadron detachment, and an early warning squadron detachment.

Yorktown (CVS-10)

Air Anti-submarine Squadron 25, based aboard *Yorktown*, logged in its 13,000th hour of accident-free flying. The record began in September 1960 when the squadron was formed. More than a year of flying was carrier-based aboard the big anti-submarine carrier.

PREPARING *to launch an S-2, Yorktown crewmen display their discipline and efficiency.*

Several boxes of needed medical supplies were donated by *Yorktown* to Project *Concern*, a clinic established last January in Hong Kong by an ex-Navy enlisted man. Dr. James Turpin of Coronado, Calif., left his medical practice to provide medical care for Chinese refugees. He has since set up a clinic in the Walled City in Kowloon and is now converting a Chinese junk into a floating medical clinic.

Bon Homme Richard (CVA-31)

Air Intercept Controllers of VAW-11 Detachment Echo, deployed aboard the *Bonnie Dick* while in the Western Pacific, recorded their 1000th successful live intercept. This, they believe, is an all-Navy record among carrier airborne early warning detachments on a single deployment.

FOR LANDING *the first A-4E on a carrier, Cdr. Mathews is congratulated by CVS C.O.*

Returning to San Diego from a seven-month deployment with the Seventh Fleet, *Bon Homme Richard* proceeded to Bremerton for a four-month overhaul.

Major repair projects include overhauling the ship's boilers and main engines, overhauling the catapults and arresting gear and renewing approximately 80 per cent of the flight deck surface.

Other work includes repairing fire main valves, gunfire control system, five-inch mounts and repair of other machinery. The *Bonnie Dick* will also receive a third oxygen-nitrogen producing plant, a nose wheel launching mechanism, a new communications antenna array, new electronics countermeasures, and new radar equipment.

Kitty Hawk (CVA-63)

The American Consul General to Kobe, Japan, Mr. Robert P. Chalker, paid a formal visit to USS *Kitty Hawk*. After inspecting the carrier's Marine Guard, he was guest of ComCarDiv Seven at lunch and then was given an extensive tour of the world's first guided missile carrier.

RAdm. Ralph L. Shifley was relieved by RAdm. L. J. Kirn as ComCarDiv Seven, during ceremonies at sea aboard USS *Kitty Hawk*.

Shortly after he became the first jet Centurion in USS *Kitty Hawk*, Ltjg. R. G. Barnes accepted congratulations from the carrier's Air Officer, Cdr. Lloyd Cooper. Barnes piloted an A-4C *Skyhawk* (A4D-2N). He is serving in Attack Squadron 113.

IT'S SINCERE, *this greeting given by men aboard the Bon Homme Richard as they return to their home port. They deployed to Far East in mid-July 1962. Capt. R. P. Kline commands the carrier.*

Hancock (CVA-19)

The 53,000th landing aboard USS *Hancock*—since recommissioning in 1954—was made by Lt. G. A. Johnson who, at the same time, qualified as a *Hanna* Centurion.

Kearsarge (CVS-33)

The 1963 Dependents' Cruise in USS *Kearsarge* was a memorable one for most. The carrier hosted 1040 dependents and headed for sea in what was described as "inclement" weather. The overcast apparently did not cloud the enjoyment of those aboard for the carrier reports the visitors "appeared to thoroughly enjoy being part of the Navy 'at sea.'"

A highlight of the cruise was the traditional cake cutting ceremony, marking the 83,000th landing aboard the *Mighty Kay*. The landing was made by LCdr. Gerald H. Helland, Operations Officer in CVSG-53 embarked in *Kearsarge*. LCdr. Helland piloted an S-2C *Tracker* (S2F-2), with Ltjg. R. A. Miller of VS-29 co-piloting. The landing was made earlier while the carrier was participating in anti-submarine warfare exercises.

ATLANTIC FLEET

Forrestal (CVA-59)

Air Force Capt. William S. Dursteler has made an Air Force "first." On exchange duty with the Navy's Heavy Attack Squadron Five based at NAS SANFORD, he brought an A-3B *Skywarrior* (A3D-2) aboard USS *Forrestal* and became the first Air Force pilot to make 100 carrier landings in an A-3B. He is permanently assigned to the 9th Tactical Reconnaissance Squadron at Shaw AFB, Sumter, S.C.

Lt. William S. Speaker, Jr., became the 79,000th pilot to make an arrested landing aboard USS *Forrestal*. He made the landing in an EA-1F *Skyraider* (AD-5Q). Capt. L. R. Geis, commanding, discovered it was also Lt. Speaker's 300th carrier landing. Had it been one landing later, the lieutenant would have won a triple crown, by becoming a Double Centurion on the *Forrestal*.

In mid-March, USS *Forrestal* completed her tour in the Mediterranean.

HANGAR DECK *crewman gets latest word on spotting of aircraft in order to mark mock-up.*

Franklin D. Roosevelt (CVA-42)

Hangar Bay One aboard the *FDR* saw a ceremony similar to one performed in USS *Ranger* (see above). A triple turnover was completed when Carrier Air Group One received a new commander, and Fighter Squadron 14 and Attack Squadron 172 received new C.O.'s. Cdr. Richard E. Fowler, Jr., relieved Cdr. G. C. Talley, Jr., as CAG-1; Cdr. M. Blaylock became VA-172 skipper and Cdr. C. C. Buck became C.O. of VF-14.

Maurice Bellonte, French aviation pioneer of international fame, was the guest of Cdr. Mabry Blaylock, C.O. of VA-172, aboard the *Roosevelt* at Cannes, France. Bellonte was the navigator of the first Europe-to-America transatlantic flight which terminated September 9, 1930 at White Plains, N.Y. He is now a flight safety expert in France. He began the visit aboard the carrier giving a presentation on flight safety devices. After lunch with Capt. W. E. Clarke, commanding CVA-42, he concluded the visit with a tour of the ship.

The 117,000th arrested landing aboard the *FDR* was made in January. Within a month, the 119,000th landing was made. At the time, the carrier was serving with the Sixth Fleet.

DURING OFFICIAL *call, C.O. of CVA-42 reviews honor guard at Italian Naval Academy.*

Intrepid (CVS-11)

Cdr. Max R. Rush, Commander Carrier Air Group 56, made the 75,000th landing aboard the *Intrepid* while the ship was operating in the Caribbean with Task Group Alfa under command of RAdm. J. R. Lee. The landing was made in an S-2 *Tracker* (S2F).

Essex (CVS-9)

A couple of cakes were cut aboard the *Essex* recently, celebrating the 10,000th helicopter landing aboard, and the 21,000th launch off the starboard cat. Cdr. Hubert Glenger, commanding HS-9, made the record helo landing. The cat shot was made in the launching of a VAW-12 aircraft piloted by Lt. Kenneth C. Petroske.

The *Essex* later tied up at Pier 11 in the Boston Naval Shipyard, Charlestown, Mass., for a ten-day availability for repairs to her boilers and generators.

Lake Champlain (CVS-39)

In heavy North Atlantic seas, *Champ* launched an SH-34J *Seahorse* (HSS-1N) helicopter of the carrier-based Helicopter Squadron Five. Battling 65-knot winds laced with snow, Ltjgs. Thomas Gillen and James McRee flew on instruments, answering a call for help from the British destroyer HMS *Lowenstoft*. A young sailor aboard suffered an acute attack of appendicitis. The pilots located the ship some 30 miles from the carrier and dropped a rescue hoist. The patient was hauled aboard and flown to an emergency operation in the carrier.

The *Lake Champlain* retreated from the inhospitable North Atlantic after a week's abuse and found refuge in the Hudson River as she moved to a berth at New York City's Pier 86. HS-5 launched helos and men arranged themselves on the carrier's flight deck to spell out SEA POWER. After a three-day stay, the carrier returned to sea.

Lt. Stewart F. Walker completed the 55,000th carrier landing aboard the *Champ* during a day of refresher landings. His landing brought VS-22's total accident-free carrier landings to 5000. Walker is a *Champ* Centurion.

Air Anti-submarine Squadron 22, embarked in the carrier for ASW op-

BRITISH SEAMAN, *helo-lifted from a British destroyer in the North Atlantic, safely reaches deck of Lake Champlain for appendectomy.*

CARRIER TRAINING *flights are routine, but men aboard the Lexington thought this a little unusual, the launching of a T-34 landplane.*

erations off the Atlantic Coast, boasts an accident-free total of 16,841 flight hours, over 9000 of which are hard-earned carrier hours.

Lexington (CVS-16)

The 76,000th arrested landing on the *Lex* was made by Lt. W. S. Colohan, a flight instructor in VT-24 while operating near Corpus Christi, Texas. The landing also marked the carrier's 46,000th arrested landing since its recommissioning in August 1955.

Saratoga (CVA-60)

The *Saratoga* has had some interested and interesting visitors aboard recently. The series of guests started with the Commandant, Staff and students of the National War College. As with all visitors, they were briefed by RAdm. Robert J. Stroh, ComCarDiv Six, and *Sara's* C.O., Capt. Frederick T. Moore, Jr. They witnessed a firepower demonstration performed by CVG-3, including loft-bombing techniques, *Sidewinder* firing, and spar bombing.

The presentation was repeated a few days later when members of the Congressional Army Reserve boarded the carrier. In the group were five members of the House of Representatives. Still later, Under Secretary of the Navy, the Honorable Paul B. Fay, Jr., and his party arrived aboard by helicopter from USS *Albany*.

Highlighting the week of important visitors was the arrival of Capt. Albrecht Schnarke, Head of the Federal German Navy Weapons Command. Capt. Schnarke, with two of his assistants, boarded *Sara* during a four-day visit of various Naval Commands in the Norfolk area. Their visit was part of a national tour as guests of the Chief of Naval Operations.

First Lt. R. S. Coats, USMC, of VMA-324 maneuvered his A-4B *Skyhawk* (A4D-2) onto *Saratoga's* flight deck and successfully completed the carrier's 65,000th landing. The 66,000th arrested landing was made by Lt. Edward R. Kaiser of VAW-12 in an E-1B *Tracer* (WF-2). One week later, Ltjg. Ralph H. Johnson of VA-34 landed an A-4C *Skyhawk* (A4D-2N) during night refresher landings to log in the 67,000th.

The green-sweatered *Saratoga* sailors who scramble around catapult number one had cause recently to celebrate and cut cake. They launched their 23,000th aircraft.

Lt. Charles B. Lapp of *Sara's* Air Department has logged in more than 1800 hours in F-8 (F8U) series aircraft.

AMONG THE MANY VIP'S *to visit the Saratoga recently was Capt. Albrecht Schnarke, Head of the Federal German Navy (R) and his party.*

OBVIOUSLY THIS WAS *a busy day for Saratoga as a group of Congressional Army Reserves boarded for a visit on an attack carrier.*

WITH THE AID OF A JERRY-BUILT AND JURY-RIGGED 'A' FRAME, THE ENGINE IS PULLED OUT

A DOWNED POLAR HELO, EGGS, ICE AND ENGINE

By John Coleman, JOC

THE WORK was miserably cold but only routinely miserably cold. What made it intolerable for Howard E. Humphrey, ADRC, of VX-6, was frozen raw whole eggs you had to shell like the hardboiled ones and mash in a frying pan with a fork. He tried to solve the problem of sunnysides by thawing an egg in his armpit. It nearly worked. But as the egg reached that tender stage, somebody called him; he turned suddenly and had the instant, sticky knowledge that the egg was no longer good, even to scramble.

This was just one of the irritating incidents that resulted from an engine change requirement on a downed helo perched on Ferrar Glacier some 60 miles from McMurdo Station.

It began when a VX-6 pilot, picking up a two-man New Zealand trail party in the Royal Society Range, Antarctica, noticed the amber light of the sump warning system. He shut down

SHEPARD L. DARNELL, ADC, SOLVES LOGISTICS PROBLEM BY MANUFACTURING A NEEDED TOOL

TIME OUT. VX-6 MECHANICS GATHER AT TWO-MAN PUP TENTS AND OUTDOOR GALLEY

WILLIAMS, ADJ3, IN WINDBREAK 'GALLEY'

'A' FRAME HOLDS THE NEW HELO ENGINE

HOWARD E. HUMPHREY, ADRC, CONNECTS THE EXHAUST SYSTEM OF THE NEW ENGINE

and radioed McMurdo. Many hours later, another helo air evacuated the group. Next day, two ADC's, Humphrey and Shepard L. Darnell, inspected the helo and determined an engine change was necessary. The crevasses forbade the landing of wheel or ski planes; a helo was used to bring in a new engine and the necessary tools.

The "A" frames on hand at McMurdo were too bulky for the helos, so a 400-pound rig was designed and built. The original plan called for two three-man crews, each to work in 12-hour shifts. Photographer Regina rounded out the party.

There were delays. A torque wrench, tossed to the party from a U-1B *Otter* (UC-1) from an altitude of 100 feet, was immediately lost in the surface snow and never found. Another had to be flown in. The equipment proved too heavy for three men and the two-shifts system was abandoned. The sled holding the defective engine froze to the surface. Preheaters were used to loosen it, but they created a new hazard. The melt they caused formed a good-size hole under the helo's forward wheels and the 15,000-plus-pound helo had to be moved a few yards by the seven men.

The four days of actual work on the engine change passed quickly, but not quickly enough for the gourmets in the group. Said Darnell of sometimes duty cook, Nick L. Stratos, ADJ2: "He even burned the frozen stuff."

Photos by Thomas J. Regina, PH2

PROTECTED FROM THE ICE SURFACE BY BANANA SLEDS, HUMPHREY AND WILLIAMS WORK

ENGINE CHANGE COMPLETED, THE VX-6 HELICOPTER FLIES FROM FERRAR GLACIER HOME

HMS ARK ROYAL, *a 22,000-tonner, had large hangars on two decks, three elevators. She boasted the largest wardroom in the Royal Navy. In war, her fighters downed or damaged more than 100 enemy aircraft, her bombers wrecked Sardinian airfields, hit Italian Navy*

Evolution of Aircraft Carriers

THE WARTIME EUROPEAN CARRIERS

'Experience with regard to the suitability of the present type of aircraft carrier must still be evaluated. Examination of enemy naval strategy in ocean warfare leads, however, to the clear recognition of the fact that aircraft carriers or cruisers with flight decks for use in warfare in the Atlantic definitely cannot be dispensed with.'—Grossadmiral Erich Raeder, Commander in Chief *Kriegsmarine*, during a mid-1940 conference with the Fuehrer on matters dealing with the German Navy

By Scot MacDonald

DURING WORLD WAR II, four European nations designed, constructed and/or operated aircraft carriers, or attempted conversions of other type ships to carrier characteristics: Great Britain, France, Germany, and Italy. Great Britain met with extraordinary success, especially in the design of carriers. Among the advances made were the prototype of the WW II-produced CVE (structurally, USS *Langley* qualifies as the first unintended CVE) and experiments that eventually led to the perfection of the "steam slingshot" catapult. Her experiments have a continuing effect on the design of modern carriers. France operated a converted battleship, the *Béarne*, and was building two carriers, *Joffre* and *Painlève*, when war started. These two carriers were never completed and France fell to the Axis too early in the war for her Navy to make any advancements in carrier aviation. At the same time, Germany's efforts were fitful, frustrated and fated to failure. And Italy, tardily entering carrier-conversion efforts, found the war ended with her ships unfinished.

A starting point in the catalogue of incredible events that launched the nations of the world into global war was the assumption as Chancellor of Germany by Adolph Hitler on January 30, 1933. In the following October he withdrew his country from the disarmament conference and from the League of Nations. Nearly five years later, Germany invaded and annexed Austria. Next on his list was Czechoslovakia in September 1938 which, by skilled "brinkmanship" on the part of the Fuehrer, ended in the Munich agreement. Overconfident now, Hitler zeroed in on Poland. This was too much for both England and France and, on September 3, 1939, they declared war on Germany, and World War II began.

When war began, Britain had six aircraft carriers in commission and six more under construction. Of those operating, the 22,000-ton *Ark Royal* (most recent addition to the Fleet, 1938) and the converted large light cruiser *Courageous* operated with the Home Fleet. The *Furious*, stationed at the Firth of Forth, was used for carrier deck training (but immediately took up convoy duty in the North Atlantic). *Glorious*, sistership to *Courageous*, was assigned to the Mediterranean, while the *Eagle*, laid down as the dreadnought battleship *Almirante Cochrane* for Chile in 1913, converted and commissioned an aircraft carrier in 1924, covered the China Station. *Hermes*, the first ship in the world designed from the keel up as an aircraft carrier, also completed in 1924 (the Japanese *Hosho* was completed December 1922), was conducting anti-submarine warfare in home waters.

In addition to the tactical carriers,

Britain had one other carrier of lesser, but still significant, capabilities: the *Argus*, worked on between 1916 and 1918 from the Italian liner *Conte Rosso*, was employed on convoy escort duty.

As the political climate changed in Europe and war clouds gathered, Britain made a substantial effort to reinforce her modest and generally venerable carrier fleet. She ordered six new carriers. When the storm broke, these six were in various stages of construction: *Formidable, Illustrious, Implacable, Indefatigable, Indomitable,* and *Victorious*. In addition, the 14,500-ton aircraft depot ship, *Unicorn,* under construction in 1939, was to be completed as a CVE.

The first years of World War II were expensive ones for Britain's small carrier fleet. *Courageous* was the first carrier casualty of the war. Tracking down a reported U-boat on September 17, 1939, she turned to receive her returning planes when the U-29 submarine plowed torpedoes into her. The carrier sank with more than half her crew still aboard.

Loss of the *Glorious* was particularly heartbreaking. In June 1940, she participated in the British withdrawal from Norway. Land-based RAF *Gladiators* and *Hurricanes* were embarked at Narvik. This was a particularly hairy operation, for none of the planes was configured for carrier landing and the Air Force pilots were not carqualled; all landed safely. Presumed low on fuel, she was ordered to proceed home independently. En route, the carrier was spotted by the German battleships *Gneisenau* and *Scharnhorst* on June 8, and attacked. "Chocked" with RAF

FAIREY FIREFLY *was World War II two-place carrier fighter used by the British Navy.*

aircraft, she was in no condition to launch defending planes. Pounded mercilessly by enemy guns, the ship developed a list and within an hour went down.

These losses were balanced in 1940 by the introduction of the *Illustrious* (first of her class) and *Formidable*. They displaced 23,000 tons each, had a length of 753 feet and a beam of 95 feet. They were soon joined by *Victorious,* of the same class, and *Indomitable,* a carrier in a class by herself. The latter had two hangar decks.

An early contribution to carrier operations by *Illustrious* came when she had installed a search radar system for the tracking of enemy aircraft. She was also the first carrier to have a fighter-direction officer aboard. With this effective teaming of men and electronics, *Illustrious*-based planes claimed 75 enemy aircraft in a little over six months of operation.

HMS *Eagle* was the first aircraft carrier to launch planes against enemy surface warships in WW II. On July 9, 1940, carrier-based *Swordfish* torpedo bombers attacked the Italian fleet in the Med. Defective torpedoes permitted only limited success: only one of the Italian destroyers was sunk.

The first successful wartime carrier strike in history occurred on the night of November 11, 1940 when two striking forces from the carrier *Illustrious* attacked the important Italian Naval base at Taranto. Winston Churchill said of this successful raid:

"By this single stroke the balance of naval power in the Mediterranean was decisively altered. The air photographs showed that three battleships, one of them a new *Littorio,* had been torpedoed, and in addition one cruiser was reported hit and much damage inflicted on the dockyard. Half the Italian Fleet was disabled for at least six months, and the Fleet Air Arm could rejoice at having seized by their gallant exploit one of the rare opportunities presented to them."

The defeats at Taranto and Cape Matapan (March 30, 1941) finally gave the Italian admirals, who had been pleading for an aircraft carrier since 1925, an effective argument in their dealings with the Italian Air Force which controlled military aircraft. Several plans were actually drawn up but the progress of war did not permit the laying down of keels. Material and manpower shortages forced the Italians to abandon the idea of building carriers from the keel up; instead, they attempted to convert merchant liners.

Early in the war, September 1939, Dr. Joseph Goebbels' Ministry of Propaganda jubilantly reported the sinking of *Ark Royal* by a German bomber. This widely publicized error caused the Third Reich considerable embarrassment, for the carrier escaped undamaged and operated effectively until November 11, 1941, when she finally fell victim to U-boat torpedoes.

GRAF ZEPPELIN, *the only one of four aircraft carriers planned by the German navy to be launched, is shown as she appeared in 1939. Never completed, she fell to the Soviets at the end of the war. Seacocks opened, she rested on the bottom of a shallow channel near Steffin.*

A month later, HMS *Audacity* met a similar fate. This ship, converted from the German prize *Hannover*, became Britain's first escort carrier upon her completion in June 1941. She was sunk during a battle between U-boats and a Gibraltar-U.K. convoy. Her planes and surface escort destroyed five enemy subs and the decision was made to press for the building of more escort carriers.

Of the losses sustained by the British, *Hermes* was the only aircraft carrier sunk by the Japanese. Fleeing from Trincomalee just ahead of the expected Japanese carrier strike, on April 8, 1942, she was spotted by enemy carrier-based planes. *Hermes*, hit by some 40 bombs, sank in 20 minutes.

Five carriers of the *Majestic* class and seven of the *Colossus* were laid down, but only the first five of the *Colossus* were completed before V-J day; each displaced 14,000 tons. Four of eight of the new 18,300-ton *Hermes* were produced. They were appreciably longer and faster than the *Colossus* class, comparable to the U.S. Navy's first carrier named *Enterprise*. The remaining *Hermes* class was canceled.

Two of the four ships of the new 33,000-ton *Ark Royal* class were laid down but none was completed until well after the end of hostilities.

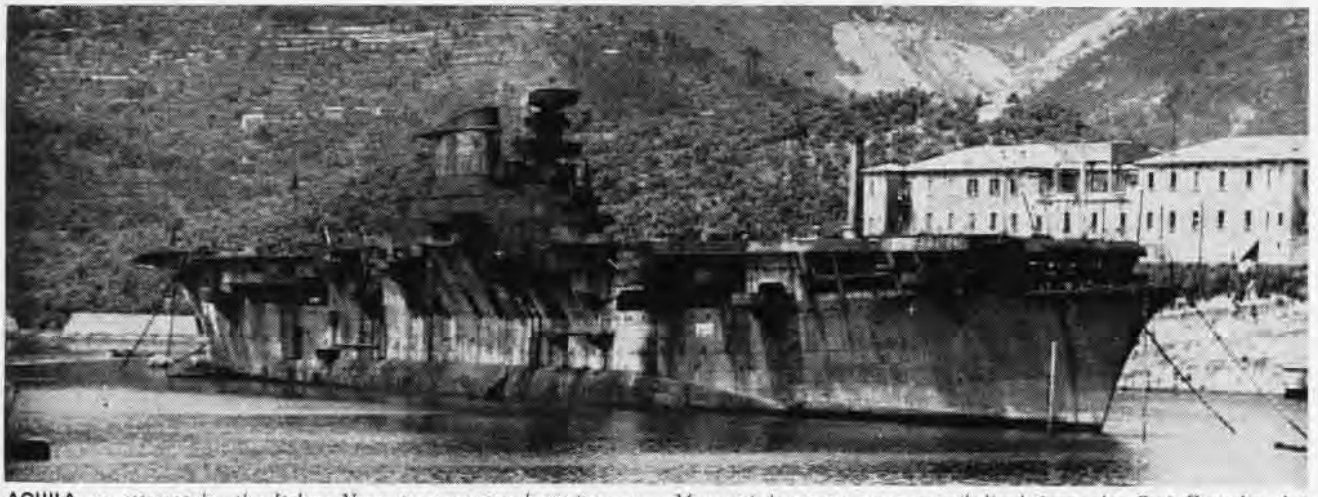
In addition, the British planned three 45,000-ton *Gibraltar* class carriers (others: *New Zealand* and *Malta*), but the project was canceled at the end of the war. These were to be the British equivalent of the U.S. *Midway* class.

During the war, the U.K. operated five light fleet aircraft carriers (the *Colossus* class, in 1945), six fleet carriers of various tonnages, and three escort carriers—all built in British yards—in addition to the ten carriers sunk and the CVE's lend-leased from the U.S. Her carrier-based planes played a vital role in defeating the U-boat offensive. In the Pacific, Adm. Sir Bruce Fraser, RN, commanded the newly established British Pacific Fleet. The 1st Carrier Squadron, comprising the *Indomitable*, *Victorious*, *Illustrious* and *Indefatigable*, was a unit of this fleet. Both *Indomitable* and *Victorious* had seen prior action in the Pacific. *Formidable* joined the squadron later. The British group acted as a flying buffer between U.S. amphibious forces and enemy air fields at Sakishima Gunto during the invasion of Okinawa.

OTHER European powers with carrier aspirations were less successful. France started the war with one converted carrier. The efforts of both Germany and Italy to become carrier powers were foredoomed to failure.

The French carrier *Béarn* was laid down in January 1914 as a battleship of the *Normandie* class. She was finally launched as a battleship in 1920, but three years later entered the yards for conversion to a *Bâtiment Porte-Avions* and was completed in May 1927.

Béarn displaced 25,000 tons, fully loaded, had an over-all length of 599 feet. She had a complement of 875 and carried 36 to 42 aircraft, including torpedo, reconnaissance and fighter planes. She was held in semi-internment at Martinique from the fall of France in 1940 until 1943. In early 1944 she was taken to the U.S. for rework and emerged as a *transport d'aviation*, operated by the French.



AQUILA, *an attempt by the Italian Navy to convert a liner into an aircraft carrier, is shown as she appeared at La Spezia in June 1951. Many of her parts were cannibalized from the Graf Zeppelin, but repeated bombings by Allied aircraft never permitted her completion.*

Other losses sustained by the Royal Navy included the *Avenger* (November 1942) and the *Dasher* (March 1943), both *Archer* (U.S. *Long Island*) class escort carriers, *Nabob* was irreparably damaged by torpedo in August 1944 and *Thane* suffered the same fate in January 1945; both were of the *Smiter* (U.S. *Bogue*) class escorts.

Carrier construction of all types was not pushed in the United Kingdom during WW II in any way comparable to U.S. efforts. Anti-submarine warfare craft had the highest priority and the U.K. depended upon U.S.-built Lend-Lease CVE's (in all, 37) for most of its build-up. Completion of two of the 23,000-ton *Implacable* class was delayed until 1944. Her sister ship was the *Indefatigable*.

IN 1935, Adolph Hitler announced that his country would construct aircraft carriers to strengthen the *Kriegsmarine*, the German Navy. The keels of two were laid down in 1936. Two years later, Grand Admiral Raeder presented an ambitious shipbuilding program called the Z *Plan*, in which four carriers were to be built by 1945. In 1939, he revised the plan, reducing the number to be built to two.

The German Navy has always maintained a policy of not assigning a name to a ship until she is launched. The first German carrier, laid down as Carrier "A", was named *Graf Zeppelin* when launched in 1939. The second carrier bore only the title Carrier "B", since she was never launched. Various names, including *Peter Strasser* and *Deutschland*, were rumored, but no official decision was ever made.

A review of the Fuehrer's conferences on matters dealing with the German Navy, the minutes of which were captured after the fall of the Third Reich, reveals Hitler's vascillating interest in the carriers. Marshall Hermann Goering, Commander in Chief of the *Luftwaffe*, was resentful of any incursion on his authority as head of the country's air power and he frustrated Raeder at every opportunity. Within his own service, Raeder found opposition in Adm. Karl Doenitz, a submarine man.

By May 1941, the strain on manpower and raw materials was being felt in Germany. Raeder was still optimistic, however, and informed Hitler that the *Graf Zeppelin*, then about 85 per cent complete, would be completed in about a year and that another year would be required for sea trials and flight training.

Though Hitler continued to assure Raeder that the carriers would be built, the Admiral's war with Goering had no truce and became increasingly bitter. Goering showed his contempt for the naval air arm by informing Hitler and Raeder that the aircraft ordered for the *Graf Zeppelin* could not be available until the end of 1944. Goering's tactic was a delaying one—and it worked.

Construction on the carriers had been fitful from the start. Carrier "B" was abandoned in 1940 and broken up. Manpower and material shortages plagued the *Graf Zeppelin*.

Prodded by Raeder, Hitler ordered Goering to produce aircraft for the carrier and under this pressure, the air marshall offered redesigned versions of the JU 87B and the ME 109E-3 which were at that time being phased out of the *Luftwaffe* first line squadrons. Raeder was unhappy, but he had to accept them or none at all. This forced another delay in the construction of the carrier: the flight deck installations had to be changed.

By 1943, Hitler had become disenchanted with his Navy. Raeder was relieved at his own request and Doenitz, the submarine admiral, took the top naval post. This effectively ended the *Graf Zeppelin* and work on her stopped.

Had the carrier been completed, she would have displaced 23,000 tons, had a length of 920 feet and a beam of 88 feet. Powered by geared turbines, she was to have a speed of 33.8 knots. Her aircraft complement was to have been 42, consisting of ME 109T fighters and JU 87C dive bombers (new designations for the redesigned aircraft). She was to have four screws—unusual for the triple-screw-minded Germany.

The fate of the *Graf Zeppelin* was as stormy as her conception and berth pangs. Scuttled by the Germans, she was raised from the back-water channel near Steffin, by the Soviets in 1946-47. Loaded down with loot, she was towed into the Baltic in 1947, headed for Leningrad. East of Rügen, the ship sank.

With Germany's abandonment of aircraft carriers came Italy's growing interest in them. The liner *Roma* was earmarked for conversion and many parts of the *Graf Zeppelin* were transported to Italy for use in the conversion. Of particular interest, according to eminent naval historian S. A. Smiley, were the new engines in the ship. Four independent sets of geared turbines from the light cruisers *Cornelio Silla* and *Paolo Emilio* were installed, giving her a designed speed of 30-31 knots. This, says Smiley, was "a unique marine-engineering pearl." The ship's name was changed to *Aquila* and was nearly ready for trials when Italy surrendered. *Aquila* was sabotaged to prevent the Germans from operating her. She was repaired later, but was damaged in two air raids, one in 1944 and the other in 1945. Finally, in 1949, she was towed to La Spezia and scrapped.

Another Italian effort to produce an aircraft carrier by conversion was made when the liner *Augustus*, a running-mate to the *Roma*, was put in hand for conversion in March 1944. She was first named *Falco* and then *Sparviero*, but was never completed. Her half-finished hull was bombed and sunk at Trieste at the close of the war.

A condition of the peace treaty signed in 1947 after a five-week meeting of the Big Four Foreign Ministers in New York specified that no battleship, aircraft carrier, submarine or specialized assault craft could be constructed, acquired, employed or experimented with by Italy, blocking her efforts to be an aircraft carrier nation.

BEARN WAS *the only carrier France had completed before the start of WW II. Converted to aircraft carrier characteristics between 1923 and 1927, she had a speed of 21.5 knots, or a radius of 6000 miles at 10 knots. She spent most of the war years at Martinique.*

MAINTENANCE MUSTANG SHOVES OFF

'THE THUD, SWISH AND BANG OF THOUSANDS OF CATAPULT SHOTS WILL RING BACK IN HIS EARS. . . .'

When Cdr. Earl Yates took command of Carrier Air Group Eight in November 1961, he began to write a daily news sheet which covered all phases of ship/group operations. In farewell to Lt. Virgil Lemmon, Maintenance Officer of CVG-8 on the USS *Forrestal* upon his retirement, Cdr. Yates wrote a beautiful vignette of carrier aviation and published it in what he called, "The CAG Rag." Capt. James Ferris, on the staff of Commander, Naval Air Force Atlantic, forwarded it, and Naval Aviation News decided to publish it as a salute to all white hats, chiefs, warrants and LDO's who have spent the major portion of their professional lives answering 'the call of the flight deck.'—Editor.

TODAY Lt. Lemmon will hang up his green jersey and Mickey Mouse helmet in his locker; he will step to the quarterdeck of the ship that he and hundreds like him have made the finest ship in the fleet; he will salute the officer of the deck, face aft and salute the Flag of the United States of America, and with the pride that can only come from the knowledge that he has given the best of himself and that he has succeeded beyond his wildest dreams, he will leave behind him the soul of a way of life, the heart of modern sea power, and the culmination of the American spirit of dynamic strength, teamwork, progress and freedom.

As he starts off for shore, feeling the roll and pitch beneath him as only the sensitive sea legs of a true sailor can feel, I'm quite sure he will look back, and many thoughts will fill his mind.

He will look back 23 years and will feel the prop blast from the old F2A-2 Brewster *Buffalo,* as he pulled her chocks and sent her forward off the bow. He will feel his trousers whipping against his legs with the rhythm of the rotating propeller, the wind tugging him dangerously backward toward the prop of the old BT-1 behind, churning the air with all the fury the R-1515 could muster.

He will rub his hand and recall the painful blister that was molded there by his thoughtless grasp of a hot exhaust stack. He will run his fingers over his knuckles, scarred and marked from snagging safety wire, slipping wrenches, dropping parts, flying chocks, lurching engine stands, snapping holdbacks, twisting cables, miscellaneous debris and moving parts from all the infernal machines that drive the wheels and wings of flight deck operations.

He will smell the acrid smoke from the stacks of 50 *Hellcats* turning up, engines all in full rich, popping and spitting on mag checks and belching black smoke as they roll forward on the launch. He'll hear the steady roar of the *Corsair* engine beating frequency with the shock waves generated from the supersonic prop tips as the old bent-wing fighter lunged forward into the equatorial heat of a late afternoon strike in the South Pacific. He'll see again the helix formed by the vapors condensing off the props of the old SBD's and SB2C's, settling off the bow, weighted down with a full load of bombs, struggling for flying speed as each sweep of the prop bites deeper into the cool moist air of a predawn launch.

He will hear the spine-tingling clang to general quarters that sent into action

hundreds of thousands of sleeping souls, and he'll remember the looks of awe, amazement, and often terror in the eyes of those suddenly startled from a sound sleep and hurled into battle. He'll remember wondering whether he would be able to rise to the occasion, whether he could do his part, whether he could be the man he knew he must be, should the time come for him to give his life to get one more fighter off the cat when the bullets of a Jap strafing attack were splattering and splintering the wooden deck planks.

He will remember being afraid and praying to God for the help all men need from above themselves to face the dangers of battle.

The thud, swish, and bang of thousands of catapult shots will ring back roll of the deck as the helm is placed full over to come into the wind; the bullhorn blasting orders on deck; the pitch black darkness of the flight deck on a rainy night; the choking, irritating smoke from the ship's stack while steaming downwind during respot; the billowing steam from the track of the catapult after a cat shot; the dull thud of a big wave striking the bow; the rattle of the anchor chain; the indescribable taste of the first cool beer after a long stay at sea.

. . . The sound of wind rustling through the hawse pipe during the saying of Mass on the focsle; the rumble of engine turn-ups in the early hours of morning; the stale taste of old dried-out sandwiches in the battle feeding stations; the salt spray cascading over the bow during heavy weather launches; the thundering roar of jet engines; the blast of soaring heat from the tailpipe of a jet tensioned up on No. 1 cat; the clang and rattle of tie-down chains; the grating sounds of voices over the squawk box; the shrill ring of the director's whistle.

. . . The loud shouts and yells of talkers dimmed to inaudibility by the din of flight deck fury, wind, engines and props; the icy blast of wind in the face on a cold winter launch; the numb joints and frozen fingers of a winter midwatch; the smell of the dirty sweaty bodies of directors gathered in Flight Deck Control for the final midnight briefing after a day full of air operations in the depressing heat of the Caribbean; the slick, sticky, clammy, sickening feel of blood rubbed between the fingertips—the blood of some unfortunate shipmate helped gently into a stretcher; the peace and quiet of a warm spring night on deck.

. . . A brilliant autumn sunset off the shores of Cape Henry—these are some of the things, the sights, the sounds, the smells, the thrills, the touches, the tastes, the pains, the glories, the emotions that will be burning in his memory—and when all mixed up with Joe, Jack, Frank, Dick, Tom, Mark, Harry, Lloyd, Moose, Sholsey, Hank, Butch, Jonnie, Lenny, Ben, Duke, Paul, Larry, Red, Keith, Roy, Don, Jim, Terry and all the rest of the human beings—the men who have stood beside him, above him, below him, and around him from seaman recruit to seaman apprentice, from seaman to third class, to second class and first class, from chief to Ensign, to J.G. to Lieutenant—these are the memories that this grand old mustang sailor will be carrying with him, along with the profound respect, and admiration of all who have had the privilege of being his shipmate.

HE WILL REMEMBER 'THE MEN WHO HAVE STOOD BESIDE HIM' AND THE SIGHT OF A PLANE COMING IN.

in his ears, the whine and clash of the arresting engines will break around him.

The hours of painful fatigue when only the will of determination, the drive of some vague force called devotion to duty, and a strong cup of coffee could make him put one foot ahead of the other—these hours written in the wrinkles of his face and in the depth of his faded blue eyes—these hours will be there with him mixed in with all the memories of 23 years of living in the turmoil of carrier aviation:

The taste of a fresh load of tobacco after secure from flight quarters; the whine and steady sound of blowers, generators, and motors; the tremble of the deck underfoot as the old ship gathers speed for launch; the sharp

Naval Aviation will not forget him either, for the pebble of example that he has dropped into this ocean of humanity will make rings of inspiration that will spread out forever—growing as he has grown, from seaman apprentice to Lieutenant, from boy to man, from stranger to friend, from Mr. Lemmon to "Shipmate" in the hearts of all.

Well done, Shipmate, and thanks from all of us. We will not forget nor betray the faith. Godspeed, good luck!

NAVAL WEAPONS OF THE SEVENTIES

By RAdm. Frederick L. Ashworth

PREDICTION OF THINGS TO COME has been a favorite human pastime, probably since the dawn of the race. A recent popular subject for such prophesy has been the future of naval weapons. I, too, engage in this activity.

While for most of the prognosticators, looking to the future of naval weapons is an amusement, as Assistant Chief of the Bureau of Naval Weapons for Development, it was the heart of my duties. Perhaps that difference in vantage point accounts for the difference in view. While some prophets see the future of naval weapons as "science fiction converted into hardware," I see potent forces at work driving in the opposite direction.

I see the weapons of the Seventies as representative of a turning away from science fiction, a turning toward a "real world" of important, but usually unglamorous, work and people of flesh and blood.

Here are some of the forces and ideas I see shaping the weapons of the Seventies:

- **Mission capability orientation.**
- **Systems thinking.** The realization is fast spreading that *mission capability* is the product of a total system. Weapons hardware is only one element of that total system. Other elements are *people* to maintain and operate the hardware and *logistic backup*—spare parts, handbooks, technical schools, support equipment, etc.
- **People feasibility.** If a weapon system isn't people feasible, it isn't militarily feasible.
- **Reliability and maintainability.** It is now generally realized that *reliability* and *maintainability* are characteristics of naval weapons as important to mission capability as traditional measures of performance, such as range, firepower, top speed, etc.
- **Economic reasoning.** Though economic considerations have always played some part in weapons decisions, the economic aspects of the process are now receiving more systematic attention than ever before.

Years will pass before weapons fully reflecting the impact of these ideas are in the Fleet. These ideas, however, are now doctrine and are shaping the thousands upon thousands of decisions being made, decisions which are determining the characteristics of the naval weapons of the Seventies.

MAINTENANCE MEN *learn the A-5 Vigilante. Future naval weapons will be engineered to be compatible with the capabilities of the people who must maintain and operate them.*

By knowing the forces influencing decisions in the weapons development process, one can predict important characteristics of future weapons, even without knowing the specific tasks each weapon will be designed to achieve. Needless to say, we will develop the weapons needed to carry out the Navy's mission.

Let us take a closer look at some of those ideas and their implications.

Mission Capability Orientation

The idea that the Navy exists to do a job—carry out its mission—and not merely to carry on a lot of miscellaneous activities, is so self-evident that no responsible person would deny it. This highly logical idea is, however, in direct conflict with an almost universal tendency of organizations and people, the tendency to view their own activities as if they were "ends in themselves."

Few of us can claim to have been free of this peculiar astigmatism. Most people involved in weapons development have tended to be *input-oriented*. People thought of weapons programs in terms of their own particular contributions, rather than the ultimate purpose of the system, combat capability in support of the Navy's mission. The hardware people were *hardware-oriented*. The supply people were *supply-oriented*. The technical information, test and evaluation, personnel training and other participants each had their own variety of input orientation.

Under the impact of the forces now dominant, the characteristic input orientation is giving way to an *output* orientation. The output in this case is the *total capability of carrying out a task in support of the Navy's mission.*

"Output orientation," in the sense it is used here, should not be confused with that particularly dangerous form of hardware orientation which tends to require that R&D work be related to a specific hardware system if it is to compete successfully for budget support. Basic research and exploratory development are extremely important to the Navy's ability to carry out its mission several years in the future, yet these activities cannot be related to any specific hardware system.

The major events in the weapons development process are vastly different when viewed from the output orientation than when viewed from the characteristic input orientation. For instance, when viewed from the input-oriented hardware point of view, the important events in the development

of a new aircraft are such things as "first flight," "first unit delivered to a Fleet unit," etc.

When viewed from the output or mission-capability orientation, the significant event is the achievement in the Fleet of the target goals for availability and general mission readiness. The delivery of hardware to Fleet units is meaningless from a standpoint of mission capability, unless the people sub-system and the logistic sub-system have been sufficiently developed to maintain the system in the Fleet.

This change in orientation is modifying our definition of production leadtime. In the past we used to think of it as "Time from the start of the program to delivery of hardware to the Fleet." The output-oriented definition of production leadtime is "The time from start of the program to achievement, by a Fleet operational unit, of target objectives for readiness *without direct contractor support of any kind.*"

Systems Thinking

Mission capability results from a balanced and effective *system.* The heart of systems thinking is the attempt to deal with all the elements which contribute to the end result and to bring these elements into effective balance and harmony. While the terms "weapon system," are widely used, "system," "systems approach," and "weapon system" are widely used, agreed-upon definitions of these terms are virtually impossible to come by.

Some people think of a weapons system entirely in terms of the hardware. Their systems thinking might embrace the idea that the aircraft, its electronics, and armament system should be balanced and integrated into an effectively functioning system. Such a degree of systems thinking is certainly a gratifying advance over an approach which produces a collection of miscellaneous components which can never be made to work together with any degree of effectiveness.

Our systems thinking has now expanded the definition of the "system" to include all supporting elements—operator abilities, maintenance capability and logistic support—which must join with the hardware to produce a mission capability. In addition to the weapons hardware, the other most important sub-systems are *people* and *logistic support.*

The total mission capability of a weapon system is no better than the weakest of its sub-systems. The people sub-system and the logistic sub-system are fully as important to mission capability as the hardware sub-system. Furthermore, these other sub-systems often take as long to develop as the hardware sub-system and require research, development, test and evaluation concurrent with the parent hardware.

Present studies indicate that the job of designing the logistic sub-system is an endeavor no less time consuming or technically intricate than designing the weapon itself.

Though full equality with hardware is yet to be achieved, the people and logistic support sub-systems are gaining more intensive and systematic attention in the early stages of the development of naval weapons.

People Feasibility

The growing trend toward viewing weapons as man-machine systems, rather than as mere hardware, has far-reaching implications for weapons design. In the past, it often appeared—at least, to maintenance people—that engineers made design decisions without seriously considering the problems of maintaining the equipment.

Systematic weighing of people and logistic considerations are now influencing the basic design decisions of the engineers. Just as engineers have always attempted to design within the limitations of the qualities of available materials, they are now giving due consideration to the Mark I Mod Zero *homo sapiens* who must maintain and operate the hardware. Future weapons must be maintainable with no more than their "fair share" of the Navy's highly-skilled technical talent.

We have come to recognize that the problem of developing and building naval weapons compatible with Navy people as one of our most critical development problems. If a weapon isn't *people feasible,* it isn't *militarily feasible.*

Reliability and Maintainability

The amount of thought and effort going into improving weapon reliability and maintainability is on the increase. In addition to the effect of reliability and maintainability on military readiness, these characteristics of weapons directly affect the cost of the people and the logistic components of the total weapon system. If we could build weapon systems which were perfectly reliable—never failed or required preventive maintenance—we wouldn't even need maintenance people and maintenance logistic support.

The decisions made by weapon systems designers greatly influence the maintainability and reliability of the hardware going to the Fleet. We now recognize that, for mission capability, reliability and maintainability are equally as important as the traditional indexes of performance, such as range and top speed.

Economic Reasoning

Mission capability and systems thinking and the emphasis on people feasibility, reliability and maintainability have been developing trends for many years. They have received their greatest push, however, from a development hardly two years old, the Department of Defense Programming System.

Under the programming system, the costs of supporting and operating a weapon system are lumped together with the cost of the hardware for purposes of selecting programs and dividing the defense budget among competing programs and uses. Programs compete with each other on the basis of their relative effectiveness in the tasks required to carry out national military missions, and their total costs. These costs include the cost of the people and logistic sub-systems. The administrative mechanics of accomplishing the accounting involved are rather complicated because of the versatility of Navy weapons. With the exception of *Polaris,* most Navy weapons are effective for a variety of purposes and thus do not fit neatly into a single program package. Notwithstanding the difficulties of the accounting involved, substantial benefits can come from clearly relating cost inputs to the military effectiveness outputs they are designed to achieve.

This new way of looking at military problems, known popularly as the "Program Packages," requires us to "sell" our programs in terms of mission capability and cost. (See "Naval Aviation and the Program Packages," NANEWS, Dec. 1961, pp. 14-15.)

Under the programming system, a proposed weapon system which is so

complicated that it will be "down" most of the time, and will require such large numbers of technicians and extensive logistic support that it will be super-costly, probably won't show up well enough in cost-effectiveness comparisons even to get approval for initial development.

The programming system provides all participants in the weapons development process—services, bureaus and contractors—with the most powerful kind of incentives to build weapons systems with maximum mission capability in relation to costs.

Favorable cost-effectiveness is not something which can be added to a weapon system after it has been designed and developed, but must be built in from the ground up. Favorable cost-effectiveness is the result of carefully weighing the economic element in *all* the thousands upon thousands of decisions which go into a weapon system.

Due consideration for cost-effectiveness is particularly important in the decisions which establish design specifications and requirements. If a weapon is to survive in the new environment, additional features and more exacting specifications can be added only if they add at least as much to a weapon system's mission capability as to its cost.

The programming system will also provide a powerful stimulus toward the modular concept. The modular concept involves building a number of different weapons from a limited number of common standard components. This is common practice in such commercial products as automobiles, home appliances and farm machinery and was applied by Boeing in the KC-135 tanker program with marked success. Of course, like any other good thing, modularization can be pushed beyond the point of diminishing returns.

In the new environment, the designer who can make maximum use of parts and components which are already developed and in the Navy supply system, and for which the necessary logistic support is already developed and operating, will enjoy a great cost advantage over the designer who indulges his inclinations to "invent" the entire system. Any designer who indulges his desires to "re-invent the wheel" will cease to be in the weapons development business. His designs just won't be approved for service use.

TRAINING *devices add to system cost. Cost and effectiveness both shape weapon decisions.*

Economic reasoning is also helping to break down the formidable barriers against "rational trade-offs." The making of trade-offs is an essential process in the development of balanced systems. In hardware design we have always made trade-offs. The aircraft designer may sacrifice fuel capacity, and thus range, in order to achieve a higher rate of climb.

In the past it may have been fairly clear to all concerned that, for each additional dollar spent in reliability improvement, $10 could be saved in support. However, since the development money and the support money were in different "pockets," it was often difficult to make the rational trade-off and spend support money on reliability.

The programming approach, by bringing into clear focus the cost and effectiveness advantages to be gained through trade-offs, is a powerful force tending to break down the barriers against rational trade-offs.

At the present time, probably more economic analysis is being systematically applied at the Office of the Secretary of Defense level than any other. It is not a new process to the Bureau of Naval Weapons, nor to its predecessors before it, BuAer and BuOrd. The degree to which it is being used in the decision-making process is probably the most significant innovation. This is a natural development in the light of the continuously increasing costs of weapon system development and production. We need to remember, however, that the "effectiveness" part of the phrase is just as important as the "cost" part. After all, our job is to provide weapons that will be decisively effective when we need to use them in support of the national policy.

PHANTOM II, *shown above, is but one element of "total system" required for readiness.*

Since the programming system is based on the careful weighing of relative cost and effectiveness, it is necessary to have a reasonably accurate idea of the costs of a system before a decision is made to go ahead with it. The need for reliable cost projections on proposed developments has led to the recent emphasis on "program definition." Through program definition, the "plan for use" of the weapon system and a tighter analysis of the design will be more carefully and precisely spelled out. The plan for use is the foundation for the design of the people and logistic support sub-systems.

While the careful development of program definition will lengthen development time for the hardware component of the weapon system, it will help reduce development leadtime when measured in terms of mission readiness and probably total development time.

The current effort going into program definition will permit us to "look before we leap" and to make decisions while concepts are still on paper. By doing more thinking and deciding before we start "bending metal," we can eliminate the necessity for many expensive changes made after ideas have been frozen into hardware.

Under the impact of the new forces now shaping the development of naval weapons, these weapons will be developed with greater coherence and integration than ever before. No longer will the hardware design engineers be the "elite corps." In their place we will find a "team" where the hardware design engineers, military requirements experts, economists and logistic system developers join forces to produce weapons sensitive to the hard requirements of the "real world."

Through this process we can develop weapons which not only have superb technical qualities, but which also have superb combat readiness stature.

Editor's Corner

MYSTERY AT SEA, PART TWO. As we left VF-14 last month, the squadron's symbolic conch shell—used to call meetings to order—was still missing. The "mad horn blower" (an undisclosed thief) had taken to calling the squadron on the ship's telephone and "sounding the horn" at odd moments. This month, the mystery at sea is over. A second shell (a gift) arrived while the squadron and the *FDR* were still in the Med. When the horn-blowing culprit pulled the telephone trick again, his wail was met by an answering blast. Shortly afterward, the squadron reported, the original shell "showed up" at the squadron office very quietly. (The mad horn blower must have thought he was going mad.)

Riding the Ranger in Cowboy Boots. Aboard *Ranger*, John Milbert, GMT2, a six-foot-five native of Idaho, recently drove the Master-at-Arms personnel into a tizzy. While awaiting receipt of a size 13½ pair of regulation shoes (not standard size in any Navy), he walked the decks in a non-regulation pair of cowboy boots—and waved an "official sanction" paper at all MAA's who stopped to question him.

A AS IN ABLE. Because there still seems to be some doubt about the pronunciation of the words AVIATION, AVIATOR etc., the Chief of Naval Air Training, VAdm. Fitzhugh Lee, has announced that all flight students at Pensacola will receive a short indoctrination sentence explaining the proper way to pronounce the words. The sentence is, "You are here to become Naval Āviators or Naval Āviation officers—not ăviators or ăviation officers." (The proper way is with a long A, as in ABLE. Not *aah*, as in APT.)

". . . for duty beyond the call of shore leave." The Heavy Attack Squadron Five paint and corrosion crew was given a citation recently for outstanding performance of duty. The five men cited gave up four days of liberty and leisure time to scrape and repaint more than 50 squadron helmets. Big deal? Yes! The squadron and *Forrestal* were then in Cannes, France.

THERE IS NO TAVERN ON THE SEA. The USS *Randolph* crew's reception lounge has a tavern table and (according to rumor) the crew is now waiting for someone to send a tavern. The table arrived aboard the carrier as a gift of the town of Randolph, Vt., "in commemoration of the part played by the USS *Randolph* in the epic orbital flight of LCol. John Glenn, USMC, on February 20, 1962." The hand-crafted table will occupy a place of honor at all future ceremonies.

Add to your Acronym File: CRAG—Combat Readiness Air Group. (This replaces the word RAG, Replacement Air Group.)

SOMETHING NEW IN CELEBRATIONS. A new zenith (or nadir) was hit the other day in the matter of cakes and milestones. The editor is accustomed to X000th landing cakes, radar intercept celebration cakes and cakes which are baked to honor the cake-baker who baked his X00th cake. But on the *Constellation*, the R Division celebrated a new milestone with a cake decorated with the outline of a common, ordinary bathroom plunger. It was given to the division upon the completion of its "3000th Commode Cleaned." (Editor's note: The division, which is responsible for maintenance and general repair of the ship, including damage control and fire-fighting equipment, was being given recognition for its vital work in a special article in the ship's newspaper—the cake added "local color" to the story).

Physical Fitness and the No-mile Walk. While the rest of the U.S. was trying to walk itself into a mass case of blisters, personnel at Point Mugu were having none of the 50-mile hikes prompted by the resurgent Physical Fitness program. Just lazy? No. The public affairs office at Point Mugu sent out a release titled "No 50-milers." The release explained that the station has an excellent "built-in" PT program, didn't need the shot in the arm that sent Pierre Salinger (and thousands of others) out on the road. Mugu did have one group of men who set out on a hike and made it only as far as the station gate. Sentries turned the back . . . they were out of uniform.

NAVAL AVIATION MOTHER OF THE YEAR? If there were such a title, a certain candidate would be Mrs. Paul Ramsey, wife of RAdm. Paul Ramsey, C.O. of NATC, Patuxent River. She is the mother of LCdr. William E. Ramsey, a test pilot on the E-2A Hawkeye program, and of Ltjg. James B. Ramsey of VS-31 aboard USS Wasp.

SecNav Names New Ship

Escort Ship to be Called Ramsey

Secretary of the Navy Fred Korth approved the name *Ramsey* for the new guided missile escort ship DEG-2 under construction at Puget Sound, Seattle, Wash.

Named for the late Adm. DeWitt Clinton Ramsey, the ship will be 414½ feet long, have a 44-foot beam and displace approximately 3400 tons. She will have a complement of 248 officers and men.

During WW II, Adm. Ramsey received the Navy Cross for extraordinary heroism and distinctive leadership of his task force during the Battle of the Solomons. He was Vice Chief of Naval Operations from 1946 to 1948. He also served as Commander in Chief, Pacific, and U.S. Pacific Fleet, and High Commissioner of the Trust Territory of the Pacific Islands.

Designed primarily for ASW, *Ramsey* will carry a drone anti-submarine helicopter, anti-submarine rocket (ASROC) and torpedo launchers. She will have a 5", 38 cal. gun mount forward, and *Tartar* missile mount aft.

Two SATS Loaders Ready

VMA-121 Gets First from Factory

Marine Attack Squadron 121, operating out of the SATS site at 29 Palms, Calif., became the first Marine squadron to use a new weapons loader on a fully operational basis. The vehicle was specially designed for use at SATS air fields. The squadron received the first two factory models.

The "SATS Loader" can load any plane now in use in the Navy and Marine Corps SATS program. It can also handle all current aviation ordnance used by the naval service.

According to a factory representative at the site, an efficient crew can load a plane in about one and a half minutes with the new loader. Without it, it takes an efficient crew eight to ten minutes for the same loading job.

In addition to saving time, the loader eliminates the need for one man on the loading team, resulting in further man-hour savings. A man can be trained to operate the machine correctly in about half a day.

VMA-121 is a unit of MAG-15 and recently participated in Operation *Steel Gate* in the 29 Palms site area.

LETTERS

SIRS:

With reference to Capt. Walter E. Clarke's article, "Overseasmanship Spells Diplomacy," in *Naval Aviation News*, April 1963 (pp. 12-13,) readers may be interested in knowing that USS *Enterprise* (CVAN-65) had training sessions made available by BUPERS' Cdr. J. P. Dickson and Mr. Dave Rosenberg.

Although they were aboard *Enterprise* for only a day and a half, much was accomplished. Mr. Rosenberg appeared three times on the ship's TV while making his presentation to a group of 25 to 40 sailors who were his "live" audience. These showings were from 1400 to 1600 and 1800 to 2000 on one day and from 0900 to 1100 the following morning. . . .

Enterprise's only regret is that Cdr. Dickson and Mr. Rosenberg were not able to stay longer. . . . No greater testimonial to the effectiveness of Mr. Rosenberg's presentation and technique can be given than this comment from an *Enterprise* sailor: "It's the first time I can remember being informed and entertained at the same time."

F. E. LEWIS, LT.
TRAINING OFFICER

SIRS:

I thoroughly enjoyed your one-page article in the February 1963 NANEWS on the outstanding job done by VF-41 while based at NAS KEY WEST during the Cuban crisis. BUT let us give credit where credit is due—VF(AW)-3.

All Weather Fighter Squadron Three is the only Navy fighter squadron assigned directly to the U.S. Air Force (CONAD/NORAD) Air Defense mission. The squadron stands 24-hour Air Defense Alert at two widely separated bases, NAS NORTH ISLAND, their home base, and NAS KEY WEST which is manned by an eight-plane detachment called Echo in a TAD status.

VF(AW)-3 was standing the five-minute alert when I arrived at the USAF CONAD Control Center at NAS KEY WEST on September 11, 1961, and their pilots and men were still standing the "5" when I departed for my present overseas duty station, January 30, 1963.

When called on, they could always be counted on to get the job done in an OUTSTANDING manner, whether it was a turbojet airliner at 35,000 feet and 500 knots or a private plane on the deck doing 80 knots. Yes, they even got a flock of geese headed north at 75 knots and 13,000 feet with their fabulous "Fords."

I would just like to say that in six years in the Air Defense radar field, I have never worked with a finer, harder working bunch of people than the officers and enlisted men of VF(AW)-3.

AND . . . whatever VF-41 did, VF(AW)-3 did it with half the planes, half the people, in half the time and twice as well.

WILLIAM M. O'ROURKE, AIC
USAF AND PRO-VF(AW)-3

THE APRIL ISSUE *had just rolled when word came that VAdm. Wm. E. Gentner, Jr., had assumed command of the Sixth Fleet. He relieved Adm. D. L. McDonald who is now Commander in Chief, U.S. Naval Forces, Europe.*

SIRS:

On page 2, *Naval Aviation News*, February 1963, there are the following errors:

1. The USS *Pine Island* won the "E" for Engineering, not the USS *Currituck* (AV-7).
2. The USS *Pine Island* tied the USS *Salisbury Sound* (AV-13) for the Communications Award.
3. The USS *Pine Island* won the yellow "E" for Air Department Excellence.

COMMANDING OFFICER
USS PINE ISLAND

* Source of the listing was a U.S. Navy Department release announcing NavAirPac "E" winners. We regret the errors.

SIRS:

It was with keen interest that I read "VF-114 and Scheduled Maintenance" in your February 1963 issue (pp. 16-18) . . . . Having spent a total of 22 years in aircraft maintenance, as both an enlisted mechanic and a commissioned maintenance officer, I feel that I can speak on the subject with a little authority. . . .

Maintenance, if it is to be accomplished on one aircraft after another, as in the case of calendar inspections with VF-114, can only be done efficiently if the work is planned. This does not mean just planning the sequence of wrench turning, but also the sequencing of specialists, supplies, parts and support.

Pilots will scarcely ever admit the fact that aircraft maintenance is probably the most important aspect of managing an air fleet. It is . . . paramount that this maintenance be managed with science and skill.

GEORGE E. HOLLISTER
PERFORMANCE REVIEW DIVISION
NAF LITCHFIELD PARK

ABOUT THE AUTHORS

RAdm. Frederick L. Ashworth (*Naval Weapons of the Seventies*, pp. 30-38) a graduate of the U.S. Naval Academy, was designated a Naval Aviator on June 12, 1936. He thereafter served on the USS *Saratoga*, and later with Utility Squadron One. After completing the Ordnance Engineering (Aviation) course at the Postgraduate School, Annapolis, he served from May 1941 to June 1942 in the Production Division of BUORD.

For duty as C.O. of Torpedo Squadron 11, Henderson Field, Guadalcanal, he was awarded the DFC. After tours with the Pacific amphibious force and at the Dahlgren Proving Ground, he served at Santa Fe, N. M., in connection with development of the atomic bomb. He personally participated in the delivery of the second atomic bomb at Nagasaki on August 9, 1945. For this flight, he was given the Legion of Merit.

For work in the CNO's Air Applications Division, Atomic Defense, he was awarded a second Legion of Merit (Gold Star). After a tour as Executive Secretary of the Military Liaison Committee to the Atomic Energy Commission, he returned to the Fleet with Composite Squadrons Five and Six.

His service from 1949 to 1958 included an assignment as X.O. of USS *Midway*, captaincy of the USS *Corson* (AVP-37), appointment as C.O. of NOTS *Inyokern*, command of USS *Franklin D. Roosevelt* and a tour as Commandant of Midshipmen at the Naval Academy.

In September 1958, he was appointed Director of the Atomic Energy Division, CNO, with additional duty from November 1, 1958 as Commander Task Group 7.3 and Deputy Commander for the Navy, Joint Task Force 7. He was ComCarDiv 18 from June 1960 until January 1961, when he was ordered to duty as Assistant Chief of the Bureau of Naval Weapons for Research, Development, Test and Evaluation.

Ltjg. Leon "Lee" R. Miller, NAO (N/S) (*Tacco—ASW Tactical Coordinator*, pp. 9-11), has impressive qualifications for writing on his subject. He is a VP-44 ASW Tactical Coordinator.

Ltjg. Miller's association with the Navy goes back almost 11 years and covers three different "modes." He first joined the Navy as a Seaman Recruit in July 1952, became an Aviation Machinist's Mate and a flight crew member with VR-8.

Released from active duty in 1956, Miller enrolled in Wisconsin State College and became active with the "Weekend Warriors" at NAS MINNEAPOLIS.

On receiving his B.S. in Mathematics and Chemistry in 1960, Miller returned to the Navy, entering Officer Candidate School at Newport, R. I. He immediately applied for the NAO program, where his training paralleled that of the Tacco of his story.

DEPLOYING TO THE SEVENTH FLEET IN USS RANGER (CVA-61), VA-93'S MASTERY OF THE A-4C IS ATTESTED TO BY 'E' FOR 1961-1962

Current holders of the Battle Efficiency Excellence Award as outstanding AirPac light jet attack squadron for the 1961-62 competitive year, the 'Blue Blazers' of Attack Squadron 93 have flown Skyhawks since 1956, the first AirPac squadron so equipped. Cdr. R. F. Schoultz is C.O.

C.O. SCHOULTZ, FORMER CAG-9 MACKEY AND 'E'

NAVAL AVIATION NEWS

ARMED FORCES DAY 1963

'I believe that the facts of life of the past twenty years have convinced us as a nation that we do need strong and balanced Armed Forces which are progressive and adaptable to all of the missions which international and technological circumstances may require them to undertake. Our national security depends on our adhering to this conviction.'

—Adm. G. W. Anderson, Jr., Chief of Naval Operations

POWER FOR PEACE

ARMY
NAVY
AIR FORCE
MARINE CORPS
COAST GUARD

ARMED FORCES DAY

THIRD WEEK IN MAY