Naval Aviation

NEWS

STANDING PROUD IN THE NEW YEAR

'Again, we of the United States Navy can rightfully stand proud in the light of the Navy's response in the recent Cuban crisis. The timely reaction by all concerned was in the truest Naval tradition and served to re-affirm the vital importance of mobile, sea-based striking power. Our country and the rest of the free world can rest assured that the Navy will continue to stand ready to respond wherever and whenever we are needed. Well Done.'—Adm. G. W. Anderson, Jr., CNO

FRONT COVER

With his pen as a weapon, Grampaw Pettibone (dreamed up 20 years ago by Capt. Seth Warner) is depicted by his creator, Robert Osborn. Gramp's recurring expletives are all about him—'Great horned toadies,' 'Balls of fire,' 'Jumpin' Jehosophat,' and 'Great sufferin' catfish'—as Gramps takes up once again his offensive.

NAVAL AVIATION NEWS

FORTY-FOURTH YEAR OF PUBLICATION JANUARY 1963

■ IN THIS ISSUE

■ THE STAFF

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NAVAL AVIATION NEWS

TFX Contractor Selected

Fighter Designed for Navy and AF

Selection of General Dynamics Corp., with Grumman Aircraft Engineering Corp., as an associate, as prime contractor for development of the F-111, a tactical fighter for both the Navy and Air Force, has been announced by the Department of Defense.

The contractor will be required to provide 22 developmental aircraft for testing, the first to be delivered within two and one-half years.

Final selection between proposals submitted by General Dynamics and the Boeing Company was difficult because of the excellence of the two submissions. The decision was made after a thorough evaluation.

The two-man tactical fighter, to be powered by two Pratt & Whitney JTF-10A-20 turbo-fan engines, will be an advanced aircraft that will meet the requirements of both the Air Force tactical fighter mission and the Navy carrier-based fighter mission. Approximately $1 billion will be saved by this approach as compared to the cost of developing separate aircraft for each of the Services.

The fighter will have a variable sweep wing which will extend and retract during different phases of flight. The wing will provide maximum lift throughout the speed range of the fighter.

Other performance characteristics include a top speed of about two and one-half times the speed of sound; capability of supersonic speed at sea level; a design suitable for short take-off from rough airfields in forward areas as well as a short landing capability.

The F-111 will be able to fly anywhere in the world in one day. It will be capable of carrying all conventional and nuclear weapons including the latest air-to-surface and air-to-air tactical weapons.

Full details of the magnitude and cost of the program are subject to negotiation. However, it will be a multi-billion dollar program and will surpass any fighter aircraft program since World War II in both number and dollars.

BuWeps Chief Announced

Adm. Masterson Heads BuWeps

The appointment of RAdm. Kleber S. Masterson to the position of Chief, Bureau of Naval Weapons, was confirmed by President Kennedy in November. Adm. Masterson has been Deputy Chief of the Bureau since September 1961.

Adm. Masterson relieved RAdm. Paul D. Stroop who has reported for duty as Commander, U. S. Naval Air Force, Pacific.

Prior to duty as Deputy Chief of BuWeps, he was Assistant Chief of Naval Operations (Development).

MARINE LCOL. JOHN H. GLENN, JR., *was presented a commemorative medal November 10, 1962 by Mr. Felix de Weldon, famed sculptor of such national monuments as the Marines' War Memorial. The medal honors Col. Glenn as the first American to orbit the earth. Presentation was made at the Birthday Ball held in Washington to observe the Corps' 187th Anniversary. The medal, fashioned in gold by Mr. de Weldon, measures seven inches in diameter. Mr. de Weldon states that he conceived the idea for the medal on February 20, 1962, during Col. Glenn's orbital flight. A bronze replica has also been presented to the Marine Corps for permanent display at Marine Corps Schools, Quantico, Va.*

PLUGGED IN *at 20,000 feet during refueling exercises hundreds of miles north of Guam are two RA-3B Skywarriors (A3D-2P) of Heavy Photographic Squadron 61 from NAS Agana. The KC-130F tanker belongs to VMR-152, based at MCAS Iwakuni, Japan. The air-to-air shot was taken from another Skywarrior, awaiting its turn at the tanker. VAP-61, a Seventh Fleet unit, is skippered by Cdr. Robert E. Morris who relieved Cdr. D. B. Brady last November.*

Development Contract Made

Rocket Launches from Ships at Sea

A $73,129 research and development study contract concerned with launching large rockets from Navy ships at sea has been awarded to Chrysler Corporation Missile Division by BuShips.

The study, already underway, is expected to determine the feasibility of launching both research and development and tactical payloads into space.

Chrysler is carrying out motion studies of hulls, launching dynamics, launching techniques, and arrangements of the shipboard complex.

Launching from ships provides a mobile platform which should enable large rockets to be launched from the equator in a due easterly direction, thus gaining the full impulse of the Earth's rotation. This assist would enable a given booster to launch a greater payload into an equatorial orbit than would be possible from existing shore launching sites.

Another advantage would be the elimination of the significant expense and high precision requirements now involved in "dog-legging" payloads into equatorial orbits from an offset shore launching site.

Green Flight Suits Soon

Color Will Boost E&E Prospects

Marine helicopter crews operating in Southeast Asia recently reported a need for a "low visibility" flight suit. The need was for something less conspicuous than the standard khaki in order to improve the escape and evasion (E&E) odds for crews forced down in a guerrilla-infested country.

To meet the need, some flight suits were dyed olive green with the same coloring used as the base for camouflage material and hurried out to Southeast Asia. The customers reported the olive green suits met their need and requested they be made available as a regular issue item.

Since the coloring doesn't reduce the usefulness of the flight suit in any way, approval has been given to replace khaki with olive green as soon as current stocks of khaki-colored flight coveralls are exhausted.

When the green-dyed suits are generally available, crews will have a choice of the high-visibility indian orange or the low-visibility olive green depending upon conditions for a particular flight.

BuWeps is also investigating the possibility of developing a two-ply fully reversible coverall, Indian orange on one side, olive green on the other.

Re-enlistment is Sky High

Unusual Ceremony is 10,000 Ft. Up

Carl Schmoock, AMH2, of Fleet Tactical Support Squadron One, NAS Patuxent River, requested and received permission to re-enlist in squadron aircraft 10,000 feet up in the air. The plane used was a C-131 (R4Y).

Cdr. Ralph Hein, representing the squadron C.O., held the ceremony.

New FUR/EFR Form Ready

F-4 and A-5 to Use New System

The BuWeps Malfunction Reporting Program, popularly known as the FUR/EFR system, is scheduled to move into a new phase in February 1963.

After extensive preparation and tests, a new consolidated report—replacing both the FUR and EFR form—will be issued for use with the F-4B (F4H) and A-5 (A3J) weapon systems. The new form is designated NavWeps 13070/3. BuWeps Instruction 13070.1 of October 10, 1962, contains detailed information.

Naval Air Technical Services Facility (NATSF), which developed the form and controls the malfunction reporting program, claims several advantages for the use of the new report. One problem it eliminates completely is that of choosing the right form—FUR or EFR—for reporting failures in those hybrid components which are electronic and mechanical.

NATSF has already developed computer programs for processing the new forms. These data processing programs will help to pinpoint troublesome components and systems faster. Also, for the first time, flight hour data collected by the Office of the Chief of Naval Operations will be fed to the computer to correlate with failure data.

The new forms were previously tested for a month by all activities at NAS Key West. NATSF reports users recommended going to the new forms, even though the more extensive information gathered requires more time and care at the squadron level.

Fifteen minutes is the time NATSF estimates to complete one of the new reports. Reference to component or aircraft log books is often required.

AN A-4 'ZOOMS' *high after JATO launch from a short airfield. The maneuver was demonstrated at MCAS Quantico, Va., as part of air show staged for members of the First Marine Aviation Force Veterans Association.*

AS ADMIRAL *George W. Anderson pointed out, persistent surveillance by United States ships and aircraft brought some lurking submarines to the surface in the Caribbean area during the Cuban crisis. Here a U.S. Navy helicopter hovers over a submarine running on surface.*

NAVY-MARINE ROLE IN THE CUBAN AFFAIR

MORE THAN 85,000 Navy men manning 183 ships were in the "front lines" that ringed Cuba during the October-November quarantine.

In a post-quarantine recapitulation released by the Department of Defense on November 29, it was revealed that eight aircraft carriers and their associated air units were important cogs in the U.S. force that witnessed the withdrawal of Soviet missiles, aircraft and manpower from Cuban sites.

In addition to participating in the reconnaissance flights which photographed the missile bases, Naval and Marine aircraft flew almost 9000 flights and expended 5,000,000 gallons of aviation fuel during 30,000 flight hours in support of the U.S. quarantine maneuver.

The Defense Department recap also revealed that 100,000 Army personnel were in an alert status during the critical period and that more than 140,000 Air Force personnel were involved in SAC alerts, MATS flights, reconnaissance, and air defense readiness status for most of the period.

In the last week of November, following the discontinuance of the quarantine, only the Navy remained on duty to check the departure of Russian bombers on ships departing the Caribbean island, as had been agreed in the diplomatic correspondence between President Kennedy and Premier Nikita Khrushchev.

Included among those headed homeward were Navy ships carrying Marine forces back to their Pacific Coast bases via the Panama Canal.

The Quarantine was announced on October 22 by the President during a nation-wide television address and was imposed on October 24. Only one ship was boarded during the surveillance period, but hundreds of ships were "observed" by Naval forces. The Quarantine was lifted on November 20 and all forces, except the Navy's bomber-check force, were dissolved.

To show the magnitude and scope of the Cuban operation, the following is a chronological outline of events.

ON OCTOBER 1, 1962, forces of Commander-in-Chief, Atlantic Fleet, were engaged in normal training and upkeep throughout the western Atlantic and Caribbean areas. VAdm. John McNay Taylor, Commander, Second Fleet, embarked in USS *Newport News* (CA-148), was at sea off Nova Scotia, *Wasp* (CVS-18), *Essex* (CVS-9) and *Lake Champlain* (CVS-39) were in the Boston-Newport area. *Intrepid* (CVS-11) was at sea off New York, and *Randolph* (CVS-15) was in Norfolk. Cruisers and destroyers were engaged in local operations stretching from Newport to Guantanamo.

In the Caribbean, the guided missile cruiser USS *Canberra* (CAG-2), six destroyers and one amphibious ship were in Guantanamo. USS *Shangri-La* (CVS-38) and seven destroyers were in Mayport, Fla.

Attack aircraft carriers were located as follows: *Enterprise* was en route to Norfolk, Va., from the Med; *Independence* and *Saratoga* were in the Norfolk, Virginia, area.

Destroyers and submarines were in Key West. Normal air patrols and training were being carried out in Key West, Roosevelt Roads (Puerto Rico) and Guantanamo.

The Atlantic Fleet Operations for October 18-26 called for the execution of four exercises: Amphibious Training Landing Exercise 3-62; *Unitas III*, the third annual ASW training exercises in cooperation with South American countries, which, starting in August, would not be concluded until December; Amphibious Brigade Landing Exercise (PHIBRIGLEX 62), involving both Navy carriers, other surface ships and a Marine Expeditionary Brigade; and *Sweep Clear III*, a joint Canadian and U.S. minesweeping exercise off Nova Scotia.

Beginning on October 15, PHIBRIGLEX 62 was undertaken. Surveillance of the shipping lanes was being carried out throughout the Carribean area. The influx of an average of 30 ships per month, Soviet and Soviet-chartered, loaded with military equipment and Soviet personnel, made it mandatory that surveillance flights be made over suspected missile installation sites in Cuba. Navy and Marine Corps air units were ordered into Southern Florida and Caribbean air stations to bolster air defense capability. All air and surface units of the Atlantic Fleet were placed in a state of increased readiness, and many were ordered to sea. Marine air and ground units were alerted.

Orders to increase the aerial surveillance of Cuba to confirm the presence of missile sites were first filled by F-8 *Crusader* (F8U) photographic planes flown by pilots of Navy Light Photographic Squadron 62 and Marine Corps Composite Reconnaissance Squadron Two, operating from bases in Florida. More than 80 sorties composed of from two to 10 aircraft totalled more than 100 hours of surveillance.

Maritime surveillance was performed by P-2 *Neptunes* (P2V), P-5 *Marlins* (P5M), S-2 *Trackers* (S2F), EC-121K *Warning Stars* (WV), and helicopters flying a total of more than 20,000 hours during the crisis. Approximately one-half of this total was flown by carrier-based aircraft (s-2's and helicopters).

As aerial photo reconnaissance confirmed that Soviet offensive missile installations were in place and under construction in Cuba, the full mobile capabilities of the Navy-Marine Corps team were brought into play. Troops were loaded swiftly and units moved to attain a posture which would make possible any action ordered with a minimum reaction time.

On Sunday afternoon, October 21, President Kennedy received a final definitive report that MRBM and IRBM missile facilities were being installed, and that IL-28 1000-mile range bombers were being assembled in Cuba.

October 22 marked the evacuation of dependents from Guantanamo. Three hundred and ninety were brought to Norfolk by air and approximately 2800 were loaded aboard the USNS *Upshur*, USS *Duxbury Bay*, USS *Hyades* and USS *DeSoto County*.

The ready Marine Battalion Landing Team, embarked in ships of Amphibious Squadron Eight, was landed in Guantanamo. A Marine Force was airlifted from California to Guantanamo Bay by MATS and other Marines moved by surface craft. One Marine Infantry Battalion from Camp Lejeune, N.C., arrived in Guantanamo by air.

Battalion Landing Teams from Camp Lejeune were ordered to load-out in available amphibious lift of PhibRons 6 and 8 at Norfolk, Va., and Morehead City, N.C., and to proceed to sea as soon as they were ready.

President Kennedy spoke to the nation on television and radio the evening of October 22. Secretary of Defense Robert S. McNamara later announced that Adm. George W. Anderson, Chief of Naval Operations, had been designated Quarantine Representative for the Joint Chiefs of Staff and that Adm. Robert L. Dennison, Commander-in-Chief, Atlantic, would be responsible for carrying out duties assigned by the Joint Chiefs of Staff.

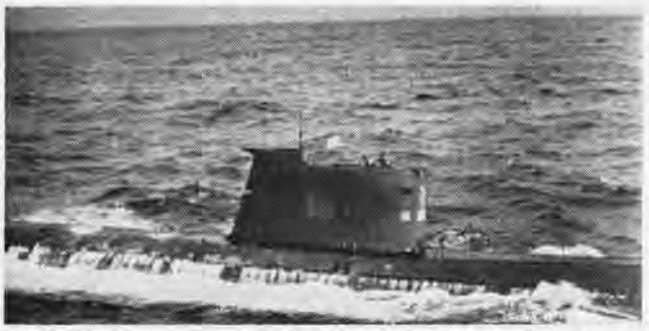
The force prepared to implement the quarantine was commanded by VAdm. Alfred G. Ward, Commander Second Fleet, who was in the cruiser *Newport News*, having relieved VAdm. Taylor on October 20. Supporting his flagship was the cruiser *Canberra*, the support carrier *Essex*, several squadrons of destroyers, and the requisite oilers, ammunition ships, etc. Adm. Ward's force was Task Force 136.

Task Force 135, commanded by RAdm. John T. Hayward, ComCarDiv Two, stood by ready to come to the defense of Guantanamo if needed. His flagship was the carrier *Enterprise* with more than 100 Navy and Marine aircraft on board. Aircraft types included F-8 (F8U), F-4 (F4H), A-4 (A4D), A-5 (A3J) and A-1H (AD-6).

Additional support was available in the carrier *Independence* and supporting ships of Carrier Division Six, com-

SIX NAVY FLIERS, *who flew some of the initial low-level photographic flights over Cuba, were awarded the Distinguished Flying Cross for "extraordinary achievement in aerial flight." The presentation of the DFC's was made in the name of the President by RAdm. Joseph M. Carson, Commander Fleet Air, Jacksonville. Here the fliers re-enact their last moments before taking off. The Naval Aviators, members of VFP-62, stationed at Cecil Field near Jacksonville, are left to right: LCdr. James A. Kauflin; LCdr. T. T. Riley; Cdr. W. B. Eckert; Lt. G. L. Coffee; Lt. C. B. Wilhelmy and Ltjg. J. J. Hewitt.*

A P-3A ORION, *belonging to Patrol Squadron 44 and ordinarily based at Patuxent River, flies over USSR freighter near north coast of Cuba.*



CLOSE-UP *of Soviet submarine, flying its "red star" ensign, reveals crew members in conning tower observing plane which photographed sub.*

manded by RAdm. Robert J. Stroh. The *Independence* also carried over 100 aircraft, including F-8's (F8U's) F-3's (F3H's) and E-1B's (WF2's).

All Atlantic Fleet mobile logistic forces were loaded and ordered to sea in support of fleet forces deployed. Protection of shipping was undertaken in Florida Straits, Windward Passage and Yucatan Channel by naval patrol aircraft and destroyers.

On October 23, the Organization of American States approved the United States plan of action, including participation in quarantine actions where feasible, in the establishment of a quarantine and in actions to require that Soviet offensive weapons be withdrawn from Cuba.

Unitas III was cancelled and the U.S. Navy forces were ordered to the Atlantic.

The same day President Kennedy issued the Quarantine Proclamation and on October 24, at 1000 (EDT), the quarantine of Cuba was established and carried out by the air and surface units of the United States Atlantic Fleet. No significant events occurred during the first 24 hours. The aerial photographic reconnaissance flights continued.

Air and surface units of the quarantine forces began to intensify their search for Cuba-bound merchant shipping that might carry prohibited material. This material included surface-to-surface missiles, bomber aircraft, bombs, air-to-surface rockets and guided missiles, warheads for any of the above weapons, mechanical or electronic equipment to support or operate those items, and any other classes of material designated by the Secretary of Defense.

The Marine Corps build-up afloat was completed by October 28, with officers and men embarked in amphibious ships of the Atlantic Fleet and additional forces en route to the Atlantic from the Pacific in amphibious ships of the Pacific Fleet.

Shortly after 0800 (EDT), October 25, the first Soviet ship, the tanker *Bucharest*, was intercepted and her cargo checked visually by a U.S. Navy destroyer without boarding. It was determined that she was carrying oil, and she was cleared to proceed.

At 0750 (EDT), October 26, Soviet-chartered freighter *Marucla* flying the Lebanese flag, was intercepted and boarded by a party from the destroyers USS *Joseph P. Kennedy, Jr.* and *Pierce*. The boarding party returned to their respective ships at 1020 (EDT) and reported as follows: "No incidents. No prohibited material in evidence. All papers in order. Obtained copy of manifest. Cargo 12 trucks deck loaded. All holds loaded to capacity. No passengers. *Marucla* cleared to proceed course 260, speed 9 knots to Havana via Providence Channel. Maintaining surveillance."

From October 24 until 1845 (EST), November 20, 55 merchant ships passed through the quarantine after their cargoes had been determined to contain no prohibited material. No ships were diverted or found to carry any of the prohibited material.

The USS *Enterprise* had returned to Norfolk, Va., from the Med on October 12 and got underway on October 18. Destroyer Squadron 16 (seven destroyers) had returned from the Mediterranean on October 3 and got underway on October 19. Amphibious Squadron Six (5 ships) had returned from a five-month deployment on October 19 and got underway on October 21. The Marine Battalion Landing Team on normal rotation from deployment in the Mediterranean was ashore one day and then backloaded into units of Amphibious Squadron Six to deploy to the Caribbean.

In addition to the eight aircraft carriers, 90 ships of the Cruiser-Destroyer Force, Atlantic Fleet, steamed more than 780,000 miles in maintaining the quarantine barrier. Each one of the eight carriers steamed more than 10,000 miles.

Commander, Service Force, Atlantic Fleet, provided logistic support to an afloat population of more than 85,000 in 183 ships deployed over a 2100-mile front.

Adm. George W. Anderson, CNO, stated November 9 that "the presence of many Russian submarines in Caribbean and Atlantic waters provided perhaps the finest opportunity since WW II for the U.S. naval anti-submarine warfare forces to exercise at their trade, to perfect their skills and manifest their capability to detect and follow submarines of another nation."

ALTHOUGH NOT recalled by the President for the Cuban crisis, the civilian-sailors of the Naval Air Reserve provided an enthusiastic volunteer back-up force for the Fleet, both in logistic support and in actual sea surveillance along the eastern seaboard and Gulf of Mexico.

Inspired by the President's message of October 22, Reservists from Naval Air activities at South Weymouth, Mass.; New York; Lakehurst, N.J.; Willow Grove, Penn.; Andrews AF Base, Washington, D.C.; Norfolk, Va.; Jacksonville, Fla.; New Orleans, La.; and Glenview, Ill., have manned their *Neptune* patrol bombers, Grumman *Trackers* and Douglas transports for voluntary operations. In so doing, they have logged more than 775 hours in logistic flights and some 350 hours of surveillance. More than 620,000

THREE FUSELAGES *of bombers on deck of Soviet ship Okhotsk are visible proof that IL-28 aircraft are being removed from Cuba. Photo was taken December 1 as the ship proceeded along the north coast of Cuba. Navy forces under VAdm. E. B. Taylor observed the departure.*

pounds of valuable cargo, and more than 1000 passengers have been transported more than 122,000 miles.

These voluntary operations by the Naval Air Reservists included their sighting and reporting of 190 different foreign surface and underwater craft, including merchant ships, Russian trawlers and fishing factories, Russian merchant ships, a Russian electronic ship, and an "unfriendly" submarine.

Added to the airborne support, some 50 Weekend Warriors from across the land volunteered for special assignments in Atlantic Fleet Operational Control Centers where they served in an active duty training status, perfecting their skills as Operational Control Watch Officers.

Under the command of RAdm. John A. Tyree, CINCLANT established the inter-American Combined Quarantine Force. This force included two Argentine destroyers, the *Ara-Rosales* and the *Ara-Espora;* two patrol frigates from the Dominican Republic, *Gregoria Luperon* and *Capitan Pedro Santana;* and two destroyers from Venezuela, the *Zulia* and the *Nueva Esparta.* Arrangements for these combined operations were made in conformity with the further resolution adopted on November 5 by the Council of the Organization of American States acting provisionally as arranged in consultation.

President Kennedy announced during his press conference November 20 that the agreement of the Soviet Russians to remove the IL-28's from Cuba had enabled the United States to withdraw the quarantine imposed on October 24.

About 1845 (EST), November 20, the Commander-in-Chief, U.S. Atlantic Fleet, was directed to discontinue operations and to return units to normal tasks.

The Atlantic Fleet Commander also directed Commander Anti-submarine Force, Atlantic Fleet, VAdm. E.B. Taylor, to be prepared to locate and photograph Soviet ships leaving Cuban ports with IL-28 aircraft aboard. The Soviet Union announced that the aircraft would be out within 30 days.

At the same time, Commander-in-Chief Atlantic, Adm. Robert L. Dennison, directed Adm. Tyree to discontinue quarantine operations of the inter-American Combined Quarantine Force and to make recommendations for training exercises and/or port visits for the Argentine, Venezuelan and Dominican Republic forces involved.

As the orders went out to dissolve the quarantine forces, more than 63 ships of the mighty force which had clearly demonstrated its capability to respond quickly to their country's needs had an opportunity to be home for Thanksgiving. Other ships followed, many arriving during the following weekend.

On November 28, 1962, 26 Navy, Marine and Air Force pilots were named for Distinguished Flying Crosses in recognition of "their outstanding skill" in low level photographic missions over Cuba. Those named were in addition to the six Naval Aviators (page 5) who were given their DFC's for low level flights over Cuba a week earlier by RAdm. Joseph Carson.

Adm. Dennison presented the decorations to the six Navy and four Marine pilots at NAS CECIL FIELD.

The Navy pilots, Light Photographic Squadron 62, so honored are: Ltjg. Robert W. Chance, Lt. Arthur R. Day, Lt. Edmond M. Feeks, Ltjg. Terry V. Hallcom, Lt. William N. Kelt, and Ltjg. William L. Taylor.

The Marine pilots, Marine Composite Reconnaissance Squadron Two, MCAS CHERRY POINT, are: Capt. John I. Hudson, Capt. Edgar J. Love, Capt. Frederick A. Carolan, and Capt. Richard C. Conway.

Adm. Anderson pointed out that "the entire operation has been a magnificent testimonial not only to the senior leaders of our Government, but also to those commanders and commanding officers at lower levels who were so quickly able to move their troops—large numbers of troops—their ships—many ships—and their aircraft of many types in position to carry out lengthy, tedious and often very sensitive operations with a high degree of leadership, professional competence, courage and diplomatic skill."

Unretiring Grampaw Logs 20 Years

How to pay tribute to Grampaw Pettibone on the 20th anniversary of his "birth"—this was the question that gnawed at the Editor as January 1963 crept nearer. How can Naval Aviation News do justice to its crusty, cantankerous counselor on aviation safety, for 20 years this publication's best read feature?

To begin with, Grampaw started as an IDEA—an intangible piece of fiction in the mind of a man. We asked the Idea Man, Capt. Spencer Hubert (Seth) Warner, USN (Ret.), to tell us the "Why and How" of Grampaw Pettibone, and this is his story:

"Grampaw Pettibone was conceived in desperation, the offspring of frustration out of despair.

"Some six months after Pearl Harbor, I found myself holding down the Flight Statistics desk in the Bureau of Aeronautics. In addition to flight time records, all accident reports were routed to this desk to be charged against the aviators concerned. Daily review of these reports soon produced a feeling of nausea and anger. Why were so many of the stupid accidents alike, and why were so many of them so stupid, 100 per cent pilot error?

"Actually, with some 20 years varied flight experience, I was a natural for this review job. You see, I had had many similar experiences myself and most of them, I now confess, were largely due to pilot error. They could have been prevented by more thorough preparation before takeoff and less daredevil attitude after. Fortunately for me, planes were much slower in those days, allowing more time for corrective action; and they didn't flatten out so much when they hit.

"But now I was sitting on the other side of the problem, analyzing the accidents instead of causing them. How could we really get through to aviation personnel with vital safety advice? Yes, we had Technical Orders, Technical Notes, Engineering Notes and *Naval Aviation News;* the warnings were there, but all too often ignored. For years we squadron officers had to 'read and initial' these various safety instructions, and from personal experience I knew this was often done with but casual perusal. One could see that a great many of these current accidents were caused by pilots and others who *initialed* but did not carefully *read* and take appropriate action. Hence the frustration!

FOR TWO DECADES, *Grampaw Pettibone has been keeping his eye on Naval Aviation trends. His blood pressure has a low boiling point as he views chart (top). . . . He takes action with a real dressing down for Dilbert (C) . . . and smiles at the very happy results (bottom).*

"All this later led to the establishment of the Flight Safety section, but not yet. Something spectacular had to be done immediately to attract attention and make these safety warnings stick. We couldn't convert them into jingles and croon them to pilots over the radio as the advertising agencies do. What else? What would you have done? Naturally, you would have invented a cantankerous old codger with a low boiling point, uninhibited with official language, and turned him loose, hoping that his pithy remarks and sardonic humor would hold your attention long enough to stab you with a vital safety factor—make you *Safety Conscious.* And what would you have named this choleric old curmudgeon? *Grampaw Pettibone,* what else?

"So we've got Gramp's characteristics, but how to depict and launch him? Easy! Just toss the problem to my good friend and yours, Robert Osborn, creator of that human accident, Dilbert. Bob grasped and endorsed the idea immediately. In an hour, he had the first crotchety Grampaw thumping his cane on my desk. And mark my word, the immediate and *lasting* success of Grampaw P. was, and is, in large measure due to Robert Osborn's inimitable ability to portray so strikingly the vital point of any and all safety articles.

"While I have your attention, may I leave you with a startling bit of advice: *Don't be like Grampaw Pettibone!* Listen to him, yes, carefully, for his is the composite voice of experience dating way back to the period you study as *aviation history,* but which to him was a series of *current events.* But don't imitate him. His irascible disposition will lead you to become an accident-prone aviator.

"Another thing, don't depend on Luck to pull you through. You can't say there is no such thing; after all, look at me! But—I kid you not—Lady Luck most often bestows her

CAPT. SETH WARNER, AS GRAMPS; AS MRS. WARNER SEES HIM, GENTLY ROCKING; AND AS HE SEES HIMSELF, A DEBONAIR SPORTSMAN

favors upon the forehanded, the guy who is not only calm, cool, and collected, but completely competent. And you get that way only through constant preparation, eternal vigilance and intelligent action."

At the end of WW II, Capt. Warner moved his base of operations to Carmel, Calif., where, in moments off from various civilian pursuits, he makes good use of a rocking chair. His original collaborator, Robert Osborn, has stayed with Gramps through 20 years and sends in his drawings from Salisbury, Conn.

Says Capt. Warner, "I finished with Gramp 17 years ago, but Osborn is still in there pitching and merits as much or more recognition than I do for the idea."

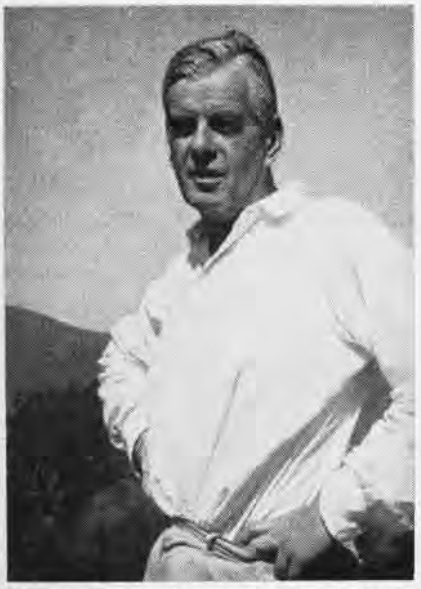
Says Osborn, "Be sure that equal or larger play be given to Warner. He conceived Grampaw. . . . I wasn't too convinced by his idea. I feared it was too old-fashioned in feeling. Obviously, I was wrong."

Osborn, working from his Connecticut home on a monthly mailing arrangement with *Naval Aviation News,* has continued to draw Grampaw in all his varying moods as visual accompaniment to the Naval officers who followed Capt. Warner as writers.

Capt. Warner and Mr. Osborn received the Legion of Merit Award from SecNav James V. Forrestal at the end of World War II for their Pettibone contributions. Since Capt. Warner's retirement, the artist has worked with five other writers to keep up the spirit and crustiness of Gramps.

Says Osborn, "Gramps wouldn't have happened and wouldn't have worked except for Seth Warner. Subsequent writers have kept Gramp full of old mustard—no mean accomplishment. Praise them all!"

While Capt. Warner received public recognition for the origination, the men who followed him have all remained behind the cloak of anonymity. They do not seek personal



OSBORN TODAY, GRAYER BUT ENTHUSIASTIC

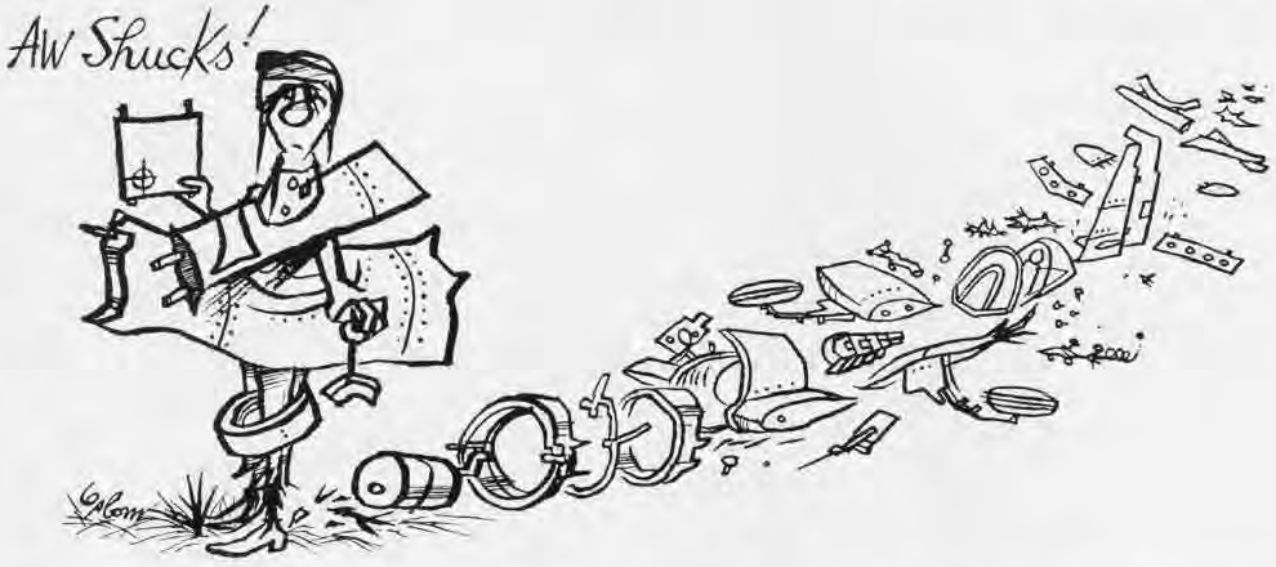
SECNAV GATES PINS 1959 DISTINGUISHED SERVICE MEDAL ON ARTIST ROBERT OSBORN

aggrandizement or try to ride to glory on Pettibone's coat tails.

Remaining anonymous has its virtues, as all will admit, especially the one writer who was well known enough to be caught making a downwind landing at a naval air station several years ago. Gramp really had a fit about that one!

A warm friendship still prevails between Warner and Osborn although 3000 miles separate them physically. From California, Warner writes, "We worked together nine years and have yet to have our first argument!"

Of Warner, Osborn writes, "This splendid man . . . did the hard thing . . . he conceived Pettibone. All of the rest is easy after some one has the IDEA."



Warner, who survived flight training with Class #13 at Pensacola in 1921 and was designated as Naval Aviator #2974, reluctantly admits he had many personal experiences which "it may be better not to publish. . . . The troops might lose all respect for him and pay less attention to his sage advice."

But having done "all the wrong things" may have been the flash of inner fire that has kept Gramp and his image "glowing" all these 20 years.

As Osborn puts it, "Gramp succeeded because he is *humanly* correct."

What were some of the experiences which gave Warner his background?

Warner tells this one on himself: "Once on a cross country in an open cockpit plane, I lost my map over Pittsburgh. Instead of landing to replenish, I figured I had enough gas and a good idea of the course to Altoona some 70 miles away. I hit the general area of Altoona, but had no map to show me where the airport was. By the time I located it (it was a small grass field) and landed, my gas tank was almost plumb empty. And, boy, that's rough country! By the time I reached Roosevelt Field on Long Island, I had been lost twice more. Once I landed at a small field in Connecticut and bought five gallons of gas with my own money. This entire flight was 'ridiculous.' "

Because he had been lost, Gramp wanted to save others from similar frequently harrowing experiences.

In the very first issue of the Grampaw Pettibone column, a "lost aviator" story appeared. To the Bureau of Aeronautics *Newsletter* readers, Gramp wrote:

"Reminds me of the time I got lost. Landed, out of gas, in a cow pasture about sundown. When the farmer came out, he said, 'Well, son, we only got two beds—' but maybe I better not tell that story—might only lead to more young flyers getting lost. Better tell the one about Lindbergh. Seems like Lindy got lost the time he flew non-stop from Washington to Mexico City. Ran into considerable weather and was blown way off his course; off his map, in fact. He knew he must be somewhere near Mexico City, but he had no idea even in which direction it was. He finally spotted a

small, stone church and immediately knew where he was. The reason was (and here's the nub) that he knew all the landmarks within 50 miles of his course. Mark my word, it's hard to lose a chap like that, or like Edison says, 'Genius is 99.44 percent perspiration.'"

There was another "lost aviator" story (1945) telling of a fighter pilot who was forced to land at sea when his radio failed. While Warner does not admit his answer resulted from personal experience, Gramp wrote:

"Talked to the C.O. of a fighter squadron the other day whose pilots all had the reputation of being expert navigators. Asked him how come. He allowed as how his 'boys' probably were the best fighting pilot navigators . . . and then he made the following ambiguous remark: 'They don't like to eat chamois skin.' Seems the C.O. himself was once forced down at sea because his navigation was a bit careless. He claims the only thing that kept him from starving to death before rescue was eating the inside of his helmet. Right then and there he decided that nobody in his squadron would ever have to eat chamois because of not knowing how to navigate. . . ."

Warner infused Gramp with certain violent hatreds in the then-still-new business of military flying. Among his most violent subjective incantations are those against flathatting and against the attitude "I must go, come hell or high water."

The latter attitude, perhaps, was fostered early in Warner's career when he set out for Paterson, N. J., from a Long Island field.

"Not a very long flight," Warner recalls, "but it was over New York City, and it had begun to snow. Not bad, but it rapidly got worse. Boy, that stuff was just like fog, only more so. I was not qualified to fly instruments, but I was smart enough to know I couldn't fly low contact over the canyons of New York City. By this time I had no idea where my take-off field was. I headed for the beach and flew low along the water side of the shore line. Ever try to follow a jagged coast line in almost zero visibility? That Lady was riding with me again! It wasn't long before I caught a glimpse of green pasture (not yet snowed in). A tight turn and a quick set-down ended that episode, but I still remember wiping the sweat off my face and feeling how utterly stupid and unnecessary the whole thing was."

Some of that feeling was sputtered by Gramp in a 1944 cross-country incident in which the pilot, flying visual flight rules, wound up making a forced landing in a field 40 miles north of Washington, D. C., on a trip from Richmond, Va., 100 land miles away. Said Gramp:

"Wasn't that a beautiful exhibition for an experienced pilot! That's just what you can expect, however, if you're barging around the country without keeping track of your position on the chart. . . . It hardly seems possible to fly from Richmond to 40 miles north of Washington without being able to locate something to give you a fix. Evidently he didn't even recognize the Potomac River."

Gramp has always been an advocate of "When in doubt, make a 180 degree turn." This, too, was evident in his early days. Like the time two planes out of a 15-plane formation cross country flight failed to return, because the flight leader "delayed too long" in making his decision to return to base. Said Grampaw: "The flight leader was chiefly responsible for these crashes. He should have returned to his point of departure as soon as it became evident that the flight could not proceed under contact rules. The delay in deciding to turn back was particularly bad in this case because of the special circumstances involved: (a) the route was over rugged terrain, (b) the flight consisted of a large number of planes, (c) some of the pilots had very little experience in this type of airplane and were very rusty on instrument flying."

While Capt. Warner was Grampaw

in the beginning and set the pace for his breezy and head-cutting style, the actual writing (transcribing may be a better word) has been spread among five associates of Pettibone's who succeeded him since 1946.

These "associates" are all alive today, proof that they learned well the safety practices that Grampaw taught them. Their assignment to the volatile and sometimes violent Pettibone came after they had been occupied with varied fleet duties. At least two "associates" were Patrol Plane Commanders in the four-engined PB4Y. One had flown the little-known Ryan *Fireball*, a combination prop and jet aircraft of the 1945 era. One had been a TBM pilot during the sinking of a submarine during WW II. One was an early jet pilot on a carrier during the Korean crisis. Two had intelligence training; one associate held simultaneously (in a Hunter-Killer exercise) jobs as CIC officer, material officer, electronics/ECM officer, assistant air operations, assistant plans and intelligence officer, all while serving on a carrier division staff.

One of Gramp's helpers admits privately that he learned to "always fasten the safety belt" on his second training flight in the Navy. During the flight he fell from the plane, pulled the parachute ripcord and landed safely. "My concern with safety started early," he said.

It is likely that without his ever-present associate's assistance, Grampaw's purple prose would never get into print. The principal job of the associate is to conduct research into accidents and keep Gramp informed of trends and types of accidents. But a good part of his time is spent in "editing" Pettibone's words into prose that is "fit to print."

While there is no measurable way of pinpointing how effectively Grampaw has been combatting accidents, he is among the first to point with pride to a downward trend on the accident graphs over the 20 years.

In the January 1943 issue of the BUAER *Newsletter*, for example, the following statistic was revealed: "In the first half of calendar year 1942, more Navy pilots were killed in aircraft accidents which occurred as the result of pilot error than were killed as the result of enemy action."

In the next issue of the *Newsletter*,

P. S. Pettibone (P. S. for Post Script) was born. He was introduced to readers as ". . . an old timer . . . who 'started flying back in the days when airplanes were built out of cigar boxes and baling wire' . . . when an airplane was considered a success if the pilot could coax it 50 feet in the air . . . and a successful landing was anything you could walk away from. . . .

"He is still very able and eager to take care of himself, but because of his high blood pressure and his rheumatic back and out of respect for his venerable age and long grey beard, we now defer to his desire to be called 'Grampaw.' Accordingly, Grampaw Pettibone it is—respectfully."

Although he tried to talk his way back to active duty as a flier, he was turned down by the flight surgeons for physical and age reasons.

"He argued that because he had flown all types of airplanes and had had every kind of accident, he knew how to avoid them. The longer he talked, the clearer it became that it would be a shame to isolate him at any one station and not give all aviators the benefit of his vast experience."

The result was, of course, Gramp's assignment to the Bureau of Aeronautics as Aviation Safety Counselor, a title he accepted grudgingly. In an interview after his assignment, he said, "Aviators are too hard-headed to take advice."

Thus was Grampaw shown for the first time on January 15, 1943.

Since then, Naval Aviation has passed through a period of rapid growth to meet wartime needs; it has been cut back to a peacetime force and established a permanent Weekend Warrior aviation program; it has gone through a rapid buildup for the Korean fighting and has been at the fore in a number of flareups around the world.

Throughout his 20 years as official observer, Pettibone has seen a gradual improvement in safety. But even one infraction of the rules is too much for him. That's why he feels that he will "never retire."

In 1945, Grampaw set down a bit of his philosophy:

"Let's get reasonable. Aircraft accidents not only can happen, but in the present stage of development we know that many of them are bound to happen. Not to face this fact squarely, and do everything we can to prevent accidents and to lessen the damage of those that do occur, just isn't intelligent. We've come a long way in aviation, but it hasn't been through hiding from the facts. Our advancement has been achieved through the untiring efforts of a bunch of two-fisted guys who were quick to recognize deficiencies but who could never accept them as final. They stuck with it until the defects were either whipped or counteracted by operating procedures or safety equipment.

"A lot has been learned about flying technique and much safety equipment has been developed. Neither technique nor equipment is worth a damn, however, unless personnel are properly indoctrinated. That's what this blast is all about—trying to get aviators to know their stuff."

Pettibone's Pearls Over 20 Years

SOME FOLKS would be better off in bed—all the time. When you see a line of thunderstorms ahead and find that you can't go OVER, UNDER or AROUND, then ask yourself: "Is this trip necessary *now*?"

For long life, happiness and retirement benefits, pilots should place self-preservation above pride, for it is well known that pride goeth before a fault.

If you want to go sightseeing in the mountains, take a bus instead of a Navy airplane.

Many a life has been cut short by shortcuts.

We have enough bird accidents without chasing them around at 50 feet.

If a pilot buries his head in the cockpit, sooner or later someone else will have to dispose of the rest of him.

If I had a nickel for every accident caused by memory failure, I could buy that farm and retire.

In aviation maintenance, a job that's only half-done is worse than one that isn't done at all.

I have never known of a prop losing an argument with an opponent.

If you want a close shave, go to a barber; when working around the world's fastest blades, give them a wide berth.

A high-G pullout is like trying to make second base on a single or wearing an undersized girdle—it all depends on what happens in the stretch.

The fellow who takes the plane up, after you've worked on it, is counting on you for a perfect job—anything less might cost him his life.

Next time you're tempted to buzz the old homestead, just remember that you may be plowing your own furrow.

Good mechs get their reward every day—it's real satisfaction to see the plane you've worked on come humming back from each flight.

Every landing is a separate evolution warranting special attention.

If a pilot had his druthers, he'd druther have a break than a broken back.

Simple ignorance is not knowing; compound ignorance is not knowing that you don't know.

It is not how little you know that gets you in trouble. It's believing that what little you know is enough to keep you out of trouble that puts you behind the eight ball.

Squeezing the margin for error is like squeezing the grapefruit. If you squeeze too hard, you get it . . . right in the eye.

Appreciated be they who abideth by these words. It is not enough that wisdom be set before us, it must be made use of, for broad is the way that leadeth to destruction.

No pilot is any better than his last landing.

The pilot still has to remember that his hops are flops when his thinking stops.

The pilot paid with his life for participation in an unscheduled air show—that's too high an entry fee.

Quotes from a note found in a transferred aircraft:
"This here is the Oklahomer Rose. She dun flew 70 missions this cruze and she ain't missed a beat. Pleze take good care of her like I dun."
Gramp's Comment: The grammar may not be up to snuff but this plane captain and his Oklahomer Rose represent the spirit and performance we need among maintenance crews.

Any pilot tempted to go IFR while on a VFR clearance should remind himself that under these circumstances IFR means "I'm Flying Recklessly."

Definition: *Scooter pilot*—one who flys marginal weather by getting down close to the ground and dodging the hills right under the overcast. Results are usually fatal. (Term applies to pilots who still have urge to drag one foot).

Any time there is any doubt, don't.

Don't worry about what may happen to you—worry about what you're going to do when it happens.

Going into a spin is like stepping out on your wife. You might get away with it, but if you don't, bub, you're in hot water.

This disastrous accident was the product of misguided initiative, inexperienced personnel, violation of a squadron order and disregard of squadron instructions, all combined with uncanny perfection.

When you assume that your thousands of hours in the air make you immune to accidents, you are a candidate for the Deep Six or the wrong end of the long green table.

Statistics show that if you make contact with the ground or water in a normal landing attitude and have your shoulder harness locked, you'll probably be able to walk away from your forced landing.

A red face is a darn sight healthier than none at all.

An airplane is like a woman. Let it get the upper hand and you'll find yourself in a situation that may affect your entire future, not to mention your present.

The decision to execute a 180-degree turn has saved many a pilot and airplane, but it was made before reaching the point of no return.

Aviation safety is an all-hands job that requires teamwork and attention to detail and the conviction that "I AM my brother's keeper."

A little more KNOW and a little less HOPE will save us a lot of airplanes and pilots, not to mention a higher state of morale for the next-of-kin.

The plane captain is the pilot's right hand man. It's a good idea for the left hand to know what the right hand's doing—and vice versa—if only to keep things safe.

I suffer from "accidentitis," the symptoms of which are high temperatures and extreme chills at the same time.

From here on in I'd say you better be pretty careful, as there's little doubt that you've forced your guardian angel to take a "rest cure."

A hot landing is like trying to beat a train to an intersection. If you are able to wonder what would have happened if you didn't make it, you must have made it, but it was mighty close.

Pilots who know all the loopholes in the rules generally end up digging their own graves.

A wise man learns by his mistakes; a wiser man learns by observing the mistakes of others.

When getting your pre-flight briefing, don't be like a blotter, soaking it all in and getting it backwards.

When a fellow decides to disobey regulations, the least he should do is start figuring on alternatives in case things don't go so well.

A good surgeon counts his tools right carefully before he stitches the patient up; it's a good idea for mechanics to keep accurate check on tools.

Get familiar with safety precautions and you'll grow whiskers like ol' Grampaw's.

Perseverance certainly is a desired trait in a Naval Aviator, but only when it is tempered with inquisitiveness, caution and just plain good common sense.

Famous last words—"It'll be all right by the time I get there."

Aviation maintenance is one line of work where perfection pays—the pilot's life depends upon your work.

If you skip the checkoff list and save 40 seconds in this world, you may arrive 40 years too early in the next world.

Confidence coupled with haste in this flying racket is a combination that adds up to a high score—for the Reaper.

A little foresight, lots of planning,
Everything set, both pilots scanning;
That cloud may pack a jolt or pitch,
But you won't need the panic switch.

The only thing you can stretch in this flying racket, and get away with it, is a sea story.

When you're short on fuel, altitude is like money in the bank.

A pilot who gives a good snow job in the Ready Room sometimes gets caught in his own blizzard.

He who turns around and lands at base will live to fly to some other place.

A "little" pilot error is like a little smell of garlic—there ain't no such thing.

There's no vision like supervision.

The quickest way to get there is by the Great Circle Route—except when it runs through mountains or thunderstorms.

It's a well known fact that a mid-air collision can ruin your whole day.

Anticipating a "cut" has caused many pilots a peck of trouble. In many instances the anticipation is almost as great as the realization—but not when you're making carrier landings.

Your head may be shaped like a hub cap, but that's no sign you're a "wheel."

Sometimes I'm convinced that pilots schedule an accident in advance of a flight.

Haste makes waste. But for survival by ejection, well planned, rehearsed, fast, coordinated action can save your life. Here, he who hesitates is lost.

There are two dangerous periods in a pilot's life: ONE, when he's a young cub just learning to become a tiger, and TWO, when he's a battle-scarred tiger with plenty of time-in-model and maybe gettin' a few too many automatic reactions and becoming too relaxed.

Life is brief sans briefing.

That five extra knots for the wife and kids is more appreciated than you realize. If you don't have a wife and kids, five knots will get you a ticket for the beer muster at quitting time.

Two make a crowd on a runway at night.

If you are looking for trouble, just glance over your shoulder—it's probably right on your back.

NIGHT PHOTOGRAPHIC TECHNIQUE PROVED

TIME EXPOSURE SHOWS CRUSADER, LIGHTED BY FLARES, IN 5 SPOTS

SHUTTERS IN CRUSADER CAMERA CLOSE WHEN FLARES ARE DETECTED

VFP-62, NAS CECIL FIELD, is perfecting a technique called night forward photography. Although the RF-8A *Crusader* (F8U-1P) is basically configured to do vertical night photography, VFP-62 has modified it in such a way as to get also a pilot's eye view of the target—a forward oblique photograph.

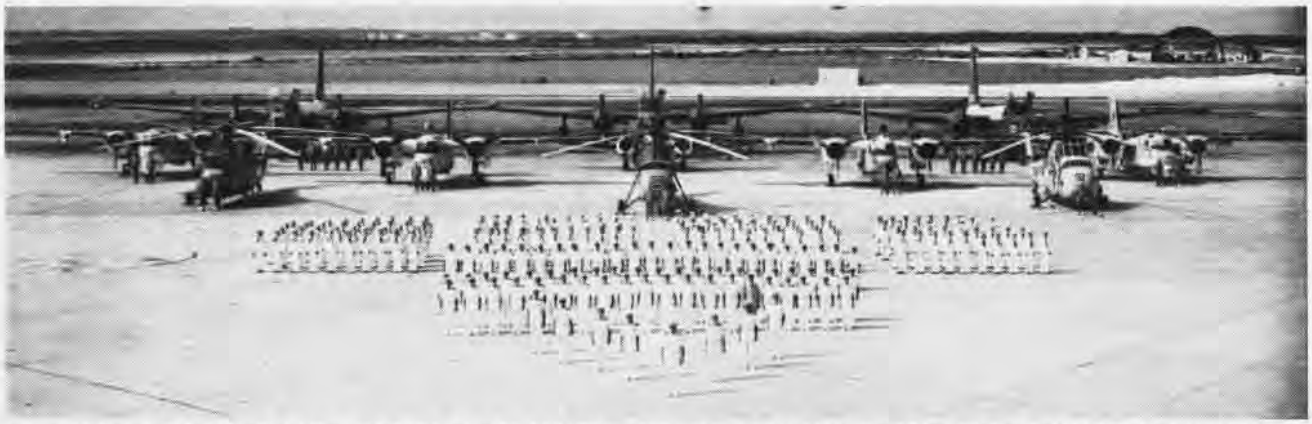
Initial trials of the technique, made over NS MAYPORT, Fla., at about 2000 feet, proved another VFP-62 theory —side effect. The side effect was recorded by a second photographic *Crusader* flying a few thousand feet above the test plane. It shot vertical photographs using the light produced by the low-flying test plane.

In giving details, Cdr. R. A. Koch of VFP-62 explained that the aircraft testing night forward photography had its vertical camera modified to take photographs forward of the flight path with a 15° depression. In several runs, the plane used two types of photographic flares—the M-123A-1 cartridge, rated at an intensity of 260 million candlepower, and the M-112 with 110 million candlepower.

A teammate flying higher (3000 feet) used exactly the same camera system except that the lenses were aimed vertically and obliquely. His film moved in perfect synchronization with the movement of the ground.

His camera shutters were closed by the low-flying aircraft's flash cartridge. A flare at 500 feet will provide 36 times as much light on the ground as flares bursting at 3000 feet.

VERTICAL SHOT WAS TAKEN BY SECOND PLANE A FEW THOUSAND FEET ABOVE FIRING PLANE



AIR DEVELOPMENT SQUADRON ONE, LOCATED AT NAS KEY WEST, FLA., FOR ASW WORK, OPERATES UNDER DIRECTION OF COMOPTEVFOR

TESTERS, APPRAISERS AND EVALUATORS

AN INVENTOR transforms an idea into a piece of equipment for the U. S. Navy. Each piece of equipment is destined for use by a Navy man, the Operator. Inventor and Operator, then, are the Alpha and Omega of a sequence of manufacture and development that transforms an idea into a piece of usable and useful equipment when it is placed in the hands of an Operator.

Between the Inventor and the Operator is another—equally important—man, the Test and Evaluation Expert. To him falls the job of determining whether the equipment has a Naval use, will do its advertised job and whether the Operator will be able to use and maintain the equipment.

In the U. S. Navy, the testing and evaluation of shipboard and airborne equipment falls to a two-ocean organization known as Operational Test and Evaluation Force (OPTEVFOR).

OPTEVFOR has assigned to it three air development squadrons; surface detachments in Norfolk, Key West and New London; a guided missile detachment at Roosevelt Roads, Puerto Rico, and 18 to 20 ships. Test and Evaluation is a task that consumes the full time of a force of several hundred men working day and night.

Strange as it may seem, the Japanese had a hand in forming this unique group of technically trained U. S. naval personnel known as the Operational Test and Evaluation Force. Its origin dates back to World War II in

response to a specific wartime need, an effective means of combatting *Kamikaze* attacks. In July 1945, the Composite Task Force, U. S. Atlantic Fleet, consisting of miscellaneous types of combatant ships with supporting aircraft and drone control groups was organized. Its mission was to develop fire control methods and to evaluate the equipment available to counter suicidal attacks against the Fleet.

When World War II ended, the task force was consolidated with other fleet units doing development work. In December 1947, the force was re-designated the Operational Development Force, U. S. Atlantic Fleet (OPDEVFOR). In the Force was a unit that had been known earlier as the Anti-Submarine Development Detachment

By Cdr. Warren Eli Johnston, USN

(ASDEVDET). This detachment was originally formed under CNO's Tenth Fleet in 1943 to develop aircraft and surface ship equipment and tactics for use in the Atlantic against the German submarines.

Air Development Squadron One (VX-1) and Key West Test and Evaluation Detachment (KWESTEVDET) have both been in the OPTEVFOR family for many years. VX-1 was commissioned as a squadron in early 1946, and KWESTEVDET was developed from the old Surface Anti-Submarine Development Detachment (SURASDEVDET).

On 31 March 1959, expansion continued with the establishment of a Pacific Division of the COMOPDEVFOR staff, headed by a Deputy Chief of Staff. Its headquarters was established at NAS NORTH ISLAND, San Diego.

Operational Test and Evaluation Force became the force's official name in May 1959 with the issuance of OPNAV Instruction 5440.47A. Not only was there a change in name, but a revision of mission, responsibilities and tasks.

When OPDEVFOR was originally formed, it was with the support of the material bureaus and the Fleet Commanders. OPDEVFOR avoided the fields of invention and development of new equipment along laboratory lines. This policy, which stemmed from the conviction that a fleet evaluation force should remain in the position of a referee without prejudice or bias, has continued under the new COMOPTEVFOR.

By early 1961, the scope of opera-

tions in the Pacific area had broadened to such an extent that a Deputy Commander Operational Test and Evaluation Force billet was established to direct and coordinate the Pacific portion of COMOPTEVFOR's staff.

Under the current mission, the Operational Test and Evaluation Force is a two-ocean operational fleet. Its commander reports for operational control in all matters under their purview to both Commander in Chief, U. S. Atlantic Fleet, and Commander in Chief, U. S. Pacific Fleet. In the field of development, test and evaluation, COMOPTEVFOR is under the administrative command of Commander in Chief, U. S. Atlantic Fleet, and under the technical control of the Chief of Naval Operations.

Present commander of the force is RAdm. Charles K. Bergin. His deputy Commander on the Pacific Coast (DEPCOMOPTEVFORPAC) is Capt. Charles E. Gibson.

In the area of test and evaluation, OPTEVFOR:

(1) Conducts the operational planning for the cognizant technical agency when the equipment or systems require a technical evaluation in an operational environment.

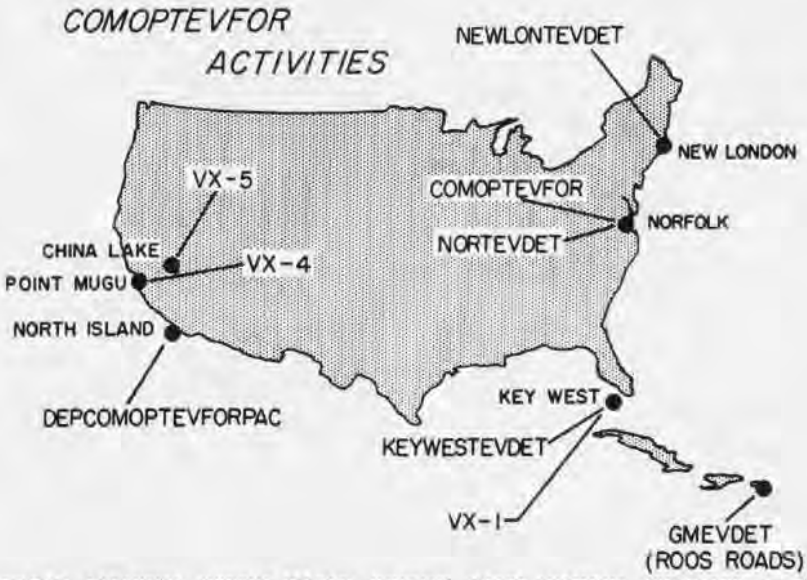
(2) Plans for and conducts operational evaluations of specific end items or systems to determine the ability to meet specified performance requirements and overall suitability for service use.

(3) Reports formally to CNO the results of operational evaluations and concurrent operational tests and evaluations, with recommendations in connection therewith.

(4) Recommends to CNO training procedures, training aids, countermeasures and basic tactical doctrine to be used, developed or employed incident to evaluation programs conducted.

In the area of development, COMOPTEVFOR assists with the provision of services and facilities for those naval and extra-naval agencies engaged in development projects which require an operational environment involving the use of OPTEVFOR and other fleet units as assigned, reporting directly to CNO on observed development projects with comments and recommendations.

In fulfilling his mission, COMOPTEVFOR receives guidance and technical direction from the Deputy Chief of Naval Operations (Development). He is authorized direct access to DCNO(D) for all technical matters relating to the Navy Research, Development, Test and Evaluation program. For all technical matters relating to formally assigned projects, COMOPTEVFOR is authorized direct communications with the chief of the developing bureau or office.



OPTEVFOR ACTIVITIES, WIDELY SPREAD, INVOLVE MANY MISSIONS, HUNDREDS OF MEN

In the early years of OPDEVFOR, the Commander flew his flag in an AGC, USS *Adirondack*. In the summer of 1949, COMOPDEVFOR shifted his flag ashore to the Norfolk Naval Base, adjacent to the headquarters of Commander in Chief, U. S. Atlantic Fleet. In January 1960, owing to the enlargement of both staff and mission, the Commander moved his headquarters to its current location at what was formerly Camp Allen.

In addition to the 18 to 20 ships normally assigned, OPTEVFOR family also includes: Norfolk Test and Evaluation Detachment, New London Test and Evaluation Detachment, Key West Test and Evaluation Detachment, Guided Missile Evaluation Detachment at Roosevelt Roads, Puerto Rico, and Air Development Squadron One (VX-1) normally based at Key West; in the Pacific, Air Development Squadron Four (VX-4) at Point Mugu, and Air Development Squadron Five (VX-5) at China Lake, Calif.

The headquarters staff of COMOPTEVFOR is organized along lines which give primary consideration to types of warfare and to project administration. Equipments or systems are evaluated by staff divisions manned by personnel with experience appropriate to the type of warfare for which the division is named: Project Coordination and Operations, Air Warfare, Undersea Warfare, Combat Direction Systems, and Surface Warfare and Space.

At San Diego the Pacific staff is similarly organized, though on a smaller scale. The qualifications of personnel assigned are such as to permit supervision of all types of projects assigned to COMOPTEVFOR for prosecution in the Pacific area. Work includes the origination of project plans, prosecution of projects and the drafting of reports. Additionally, DEPCOMOPTEVFORPAC represents the COMOPTEVFOR in matters pertaining to the Force in the Pacific Area.

Each detachment has its own special mission. The function of both Norfolk Test and Evaluation Detachments at Norfolk (NORTEVDET) and New London (NLONTEVDET) is to test and evaluate shipboard weapon systems, support systems, components and equipments, and to develop tactics and methods for their use. NORTEVDET operations normally are conducted in the Chesapeake Bay and Virginia Capes operating areas, but encompass the sea areas from New York to Jacksonville. A large share of the ship

operations is devoted to furnishing services for projects under the offices of the Naval Research Laboratory.

NLONTEVDET is involved primarily in providing services to assist various developing agencies in the sea phase of equipment development. Activities served by NLONTEVDET include the Office of Naval Research, Naval Research Laboratory, Underwater Sound Laboratory, BUWEPS and BUSHIPS.

Key West TEVDET tests and evaluates surface ship anti-submarine weapon systems, support systems, components and equipments, mines and mine countermeasures, and develops tactics and methods for their use.

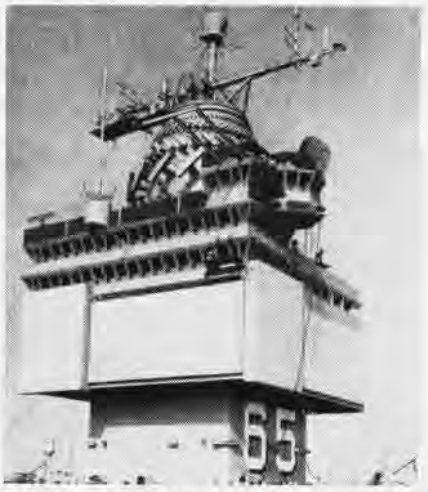
The Guided Missile Evaluation Detachment (GMEVDET) at Roosevelt Roads, Puerto Rico, conducts tests and operational evaluations of guided missile weapon systems, support systems, components, equipments and materials in accordance with projects assigned by COMOPTEVFOR, to determine whether specified performance requirements are met and determining suitability for service use.

Air Development Squadron One

As WW II drew to a close it became increasingly evident that, in the field of Air Anti-submarine Warfare, a need had been generated for the creation of a technically competent test and evaluation group to screen equipments and aircraft before their general release for use in the Fleet. To this concept of proving the worthiness of an equipment or aircraft prior to its release to the Fleet, Air Development Squadron One (VX-1) owes its existence.

Under the operational control of the COMOPTEVFOR, the mission of VX-1 is to conduct tests, evaluations, and investigations of ASW aircraft weapons systems, support systems, equipments, and materials in an operational environment and to develop tactics, doctrines, and training procedures for their use.

The Commanding Officer of VX-1, Capt. Jack J. Hinman, III, is a graduate of the U. S. Naval Academy, the Naval Postgraduate School, and the holder of a Master's Degree in Aeronautical Engineering from the Massachusetts Institute of Technology. Capt. Hinman's previous duty assignments include Patrol Squadron Training Officer, COMNAVAIRPAC Staff; C. O., VP-



NEW CARRIER MEANS MANY TEST PROJECTS

28; Operations Officer, Commander Taiwan Patrol Force Staff; Head of the Ordnance and Gunnery Department of the General Line School; X. O., USS *Thetis Bay*, and assignment at BUWEPS as Assistant Weapons Engineering Officer.

Many advantages accrue from the selection of NAS KEY WEST, Fla., as a base for squadron operations. Flight operations are seldom limited by weather conditions in the local area. Proximity to the Gulf stream permits the choice of varying water depths and thermal conditions to accommodate the testing of sonobuoys and sonar equipment. The location of Submarine Squadron 12 at the Key West Naval Base has permitted utilization of submarine services beyond those normally allotted for project work. The relatively short transits to and from the operating areas facilitate the maximum use of submarine time. In addition, the coordination of local air, surface, and submarine services for mutual project support by KWESTEVDET provides operational flexibility.

VX-1'S AVIONICS EVALUATORS AT WORK

Whether the squadron is participating in a fleet exercise, demonstrating ASW equipments and techniques to our Allies overseas, or assisting in testing at facilities in the United States, the big JA, which identifies squadron aircraft, is a familiar symbol to those connected with the ASW effort.

An estimate of the capability of a fleet squadron to operate and maintain the equipment undergoing testing is a necessary part of any project assigned to VX-1 for evaluation. In order to accomplish this phase of the evaluation, the 317 enlisted personnel assigned are generally representative of the talents and skills to be found in a fleet aviation unit. The degree of maintenance afforded an equipment being tested depends upon the type of investigation. Where required, supervision and schooling by industrial contractors are provided for early training on new equipments. The preparation and concentrated effort required for project prosecution often permit the raising of technical competence to unusual levels. As a result of this technical competence, special knowledge and experience, squadron enlisted personnel are in demand in fleet units.

The nature of the squadron's mission has required the creation of an Evaluation Department which comprises over half of the 47 officers assigned.

All of the squadron pilots participate in project flights. The average pilot experience is about 3000 flight hours and two previous squadron tours. Twenty-four officers have postgraduate training, several have master's degrees, and one is studying for a doctorate. As part of the American-British-Canadian information exchange program, one officer each from the Royal Navy, Royal Air Force, Royal Canadian Navy, and the Royal Canadian Air Force is assigned as liaison officer for his respective country and service. These officers participate in all phases of project evaluation and provide an invaluable link to the anti-submarine research and development effort being conducted in the United Kingdom and Canada.

An Operations Evaluation Group representative is permanently assigned to provide assistance in statistical analysis and data reduction. Three permanently assigned NAESU technicians

and 11 factory representatives add to the pool of experience which is available to be concentrated on any facet of operations. Thus the squadron can combine the technical engineering approach with the practical fleet operational viewpoint.

In order to carry out the flight operations necessary to support project evaluation, varying numbers of aircraft are assigned. Recently the squadron was assigned four P-2 *Neptunes* (P2V) in two different models; five S-2A *Tracker* (S2F) aircraft, in three models, including a specially configured S-2A photographic version; four helicopters in three models which include two H-3 *Sea Kings* (HSS-2); and one TC-45J (SNB-5P) utility and photographic aircraft. Aviation maintenance and supply personnel can readily appreciate the challenge which support of the above aircraft presents.

As the tenor of anti-submarine warfare operations has changed to meet the threat posed to our national security by the nuclear submersible, so too has the assignment of projects for evaluation changed to reflect this trend. Refinement of ASW weapons systems and equipments to improve detection, localization, and kill capabilities against the conventional submarine continues.

VX-1 normally has approximately 20 projects assigned for prosecution. During FY 1963, it is estimated the squadron will provide support for an additional 30 shipborne or shore-based ASW projects. With the arrival of the P-3A *Orion* (P3V) in August, VX-1 commenced the evaluation of the third of the truly representative second generation ASW weapons systems, having previously completed evaluation of the S-2D (S2F-3) and H-3 (HSS-2). Other projects include investigation of helicopter-borne MAD and the towed magnetometer capabilities of fixed wing aircraft. New and improved sonobuoys and sound underwater source signals are under a continuing evaluation program. A mobile checkout van to provide for electronic equipment calibration, testing, and operator training through the use of taped inputs is being carefully considered. Infrared, photographic, and optical detection systems for submarine detection also receive attention.

The unique position which VX-1 occupies in the Navy's ASW test and evaluation effort is one of tremendous responsibility. It is a complex problem to detect a submarine in all kinds of weather in the vast ocean areas, localize its position, and then pinpoint it accurately enough to release a kill weapon. The officers and men of VX-1 are making an important contribution to the anti-submarine warfare effort.

(To be continued in a coming issue.)

RAdm. Charles K. Bergin

Commander Operational Test and Evaluation Force

Adm. Bergin attended the Baltimore Polytechnic Institute and Johns Hopkins University before he entered the Naval Academy from which he was graduated in 1927. During his naval career, he completed courses in ordnance engineering at the Postgraduate School, Annapolis, Md., and in advanced management at the Harvard Graduate School. He also attended the National War College, Washington, D. C.

Prior to World War II, he served aboard the battleship USS *Maryland*, the destroyers *Gilmer* and *Blakely*, the destroyer tender *Dobbin*, and the USS *Ralph Talbot*. At the outbreak of WW II, he was engaged in research, development and service test of ordnance as Experimental Officer at the Naval Proving Ground, Dahlgren, Virginia.

In 1944 he commanded USS *Monssen*, participating in operations at Saipan, Marcus Island, Palau Island, and the Leyte landings. For extraordinary heroism during the Battle of Surigao Strait, he was awarded the Navy Cross. He commanded Destroyer Division 122, a radar picket group off Okinawa, until after cessation of hostilities.

Between 1946 and 1949, he was Project Coordinator on the staff of Commander Operational Development Force.

In 1952, he assumed command of the USS *Des Moines*, flagship of Commander Sixth Fleet, and from mid-1953 through 1955, he was Assistant Chief of the Bureau of Ordnance for Research. In December 1956, he reported for duty as Director, Near East, South Asia and Africa region, Office of the Assistant Secretary of Defense (International Security Affairs).

Adm. Bergin was Commander Mine Force, U.S. Pacific Fleet, from April 2, 1959 until he assumed command of the Operational Test and Evaluation Force on August 2, 1960.

Capt. Charles E. Gibson

Deputy Commander, OPTEVFOR, Pacific

Capt. Gibson was graduated from the U.S. Naval Academy and commissioned on June 2, 1937. He served on board USS *Lexington* (CV-2) for two years prior to reporting for flight training at NAS Pensacola. In June 1940, he was designated a Naval Aviator and reported to Scouting Squadron 42 on board USS *Ranger* (CV-4). His next assignment was to form and assume command of Composite Squadron 36.

For two years, beginning in 1943, he attended Postgraduate School at the U.S. Naval Academy and the California Institute of Technology, receiving Master of Science and Aeronautical Engineering degrees.

In 1945-46, he served on board USS *Bunker Hill* and, in 1947, he assumed command of Light Carrier Air Group One assigned to USS *Saipan*. After two and a half years in the Fighter Design Branch of the Bureau of Aeronautics and five months at the Armed Forces Staff College, he returned to sea duty as Operations Officer on board USS *Wasp* (CV-18). He next served as Plans Officer, then as Operations Officer, on the Staff of Commander Fleet Air, Eastern Atlantic and Mediterranean.

In 1955, Capt. Gibson headed Support Systems Branch, Air Warfare Division of OpNav, then attended the National War College, completing the course in June 1957 and reporting for duty on the staff of Commander-in-Chief, U.S. Atlantic Fleet. In January 1959, he assumed command of the helicopter carrier, USS *Thetis Bay* (LPH-6) and, in May 1960, assumed command of USS *Yorktown* (CVS-10), flagship of Commander Carrier Division Seventeen, and part of the ASW Task Group operating under Commander, Seventh Fleet. Capt. Gibson became Deputy Commander, Operational Test and Evaluation Force, Pacific, in 1961.

SIGN LANGUAGE FOR LINE PERSONNEL

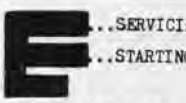
AN INTERNATIONAL sign language—designed to insure safer servicing of aircraft wherever in the world they land—has been adopted by the Navy, U. S. Air Force, NATO and the American-British-Canadian nations.

Servicing symbols (shown on these pages) are to be painted on appropriate exterior panels where the service is to be performed. Symbols are about four inches in the longest dimension and instructions are lettered near the symbols. "Filling" symbols are black or white, depending upon background. "Ground handling" symbols are orange-yellow and the "hazard" symbol is red. Decalcomanias or paint may be used.

Instructions and specifications for the new marking system are contained in Military Standard 33739(ASG).

FILLING(a)

FED. SUP CLASS 1500

1	REFUELING	FILLED FOUR POINTED STAR WITH NOTATION OF NATO CODE NUMBER FOR FUEL AND MAXIMUM FILLING PRESSURE IN ENGLISH AND METRIC SYSTEMS	 NATO CODE NO. MAX FILLING PRESSURE ___ PSI ___ Kg/Cm²	9	OXYGEN (BREATHING)	TWO HORIZONTALLY FILLED RECTANGLES WITH NOTATION OF FILLING PRESSURE IN ENGLISH AND METRIC SYSTEMS. FOR LIQUID SYSTEMS THE WORD "LIQUID" SHALL BE USED INSTEAD OF "GAS" AND THE CAPACITY IN LITERS SHALL BE ADDED	 GAS ___ psi ___ Kg/Cm²
2	ROCKET FUELS	FILLED FOUR POINTED STAR IN CRESCENT WITH NOTATION OF NATO CODE NUMBER FOR ROCKET FUEL AND MAXIMUM FILLING PRESSURE IN ENGLISH AND METRIC SYSTEMS	 NATO CODE NO. MAX FILLING PRESSURE ___ PSI ___ Kg/Cm²	10	ANTI-DETONANT OR THRUST AUGMENTATION	FILLED CHEVRON WITH NOTATION OF NATO CODE NUMBER AND PERCENTAGES	 METHANOL % ___ WATER % ___ NATO CODE NO. (METHANOL CODE NO. S-747)
3	ROCKET OXIDIZERS	FILLED CRESCENT WITH NOTATION OF NATO CODE NUMBER FOR ROCKET OXIDIZER AND MAXIMUM FILLING PRESSURE IN ENGLISH AND METRIC SYSTEMS.	 NATO CODE NO. MAX FILLING PRESSURE ___ PSI ___ Kg/Cm²	11	AIR CONDITIONING	DOT PATTERN	
4	ENGINE LUBRICATING OIL	FILLED SQUARE WITH NOTATION OF NATO CODE NUMBER FOR ENGINE LUBRICATING OIL AND MAXIMUM FILLING PRESSURE IN ENGLISH AND METRIC SYSTEMS	 NATO CODE NO. MAX FILLING PRESSURE ___ PSI ___ Kg/Cm²	12	INERTING SYSTEM	FILLED SQUARE WITH A QUARTER ARC REMOVED FROM EACH CORNER, WITH TYPE OF GAS USED AND PRESSURE IN ENGLISH AND METRIC SYSTEMS	 NITROGEN ___ psi ___ Kg/Cm²
5	HYDRAULIC FLUID	FILLED CIRCLE WITH NOTATION OF NATO CODE NUMBER FOR HYDRAULIC FLUID AND MAXIMUM FILLING PRESSURE IN ENGLISH AND METRIC SYSTEMS	 NATO CODE NO. MAX FILLING PRESSURE ___ PSI ___ Kg/Cm²	13	FIRE EXTINGUISHING SYSTEM	A FILLED DIAMOND WITH NOTATION SHOWING NATO CODE NUMBER	 NATO CODE NO.
6	DE-ICING	FILLED TRIANGLE WITH NOTATION OF NATO CODE NUMBER FOR DE-ICING FLUID	 NATO CODE NO.	14	EXTERNAL ELECTRICAL CONNECTIONS	A FILLED VERTICAL BAR WITH THREE EQUALLY SPACED HORIZONTAL BARS ON RIGHT HAND SIDE WITH NOTATIONS TO INDICATE CHARACTERISTICS AND PURPOSE	 ..SERVICING ..STARTING ETC. 28V OR 115 V DC 115/200V, 400 CYCLES

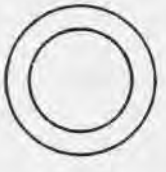
COOLANT	TWO FILLED HORIZONTAL S's WITH NOTATION OF NATO CODE NUMBER FOR SOLUBLE OIL AND PERCENTAGE COMPOSITION IF NECESSARY	 NATO CODE NO. WATER - % SOLUBLE OIL - %	7	GROUNDING OR EARTHING RECEPTACLE	A FILLED INVERTED "T" WITH TWO PARALLEL BARS UNDERNEATH WHICH DIMINISH IN SIZE	 GROUND (EARTH) HERE	15
PNEUMATIC SYSTEM	FILLED X WITH NOTATION OF MAXIMUM CHARGING PRESSURE IN ENGLISH AND METRIC SYSTEMS	 MAXIMUM ___psi ___Kg/Cm^2	8	INSPECTION OF BATTERY	A FILLED ELECTRIC FLASH SIGN		16

(a) COLOR - BLACK OR WHITE ACCORDING TO BACKGROUND.

PNEUMATIC STARTER CONNECTION	X INSCRIBED WITHIN A RING WITH NOTATION OF MAXIMUM OPERATING PRESSURE IN ENGLISH AND METRIC SYSTEM	 MAXIMUM PSI Kg/Cm^2	22

GROUND HANDLING (b)

COLOR - ORANGE-YELLOW #13538

JACKING POINT	ORANGE YELLOW FILLED SQUARE WITH TWO SLANTING LEGS ON BOTTOM SIDE		17
SLINGING OR HOISTING POINTS	ORANGE YELLOW FILLED HOOK ON A HORIZONTAL LINE		18
MOORING OR PICKETING	ORANGE YELLOW FILLED ANCHOR		19
TOWING (c)	ORANGE YELLOW FILLED RING		20

HAZARD (b)

COLOR - RED #11136

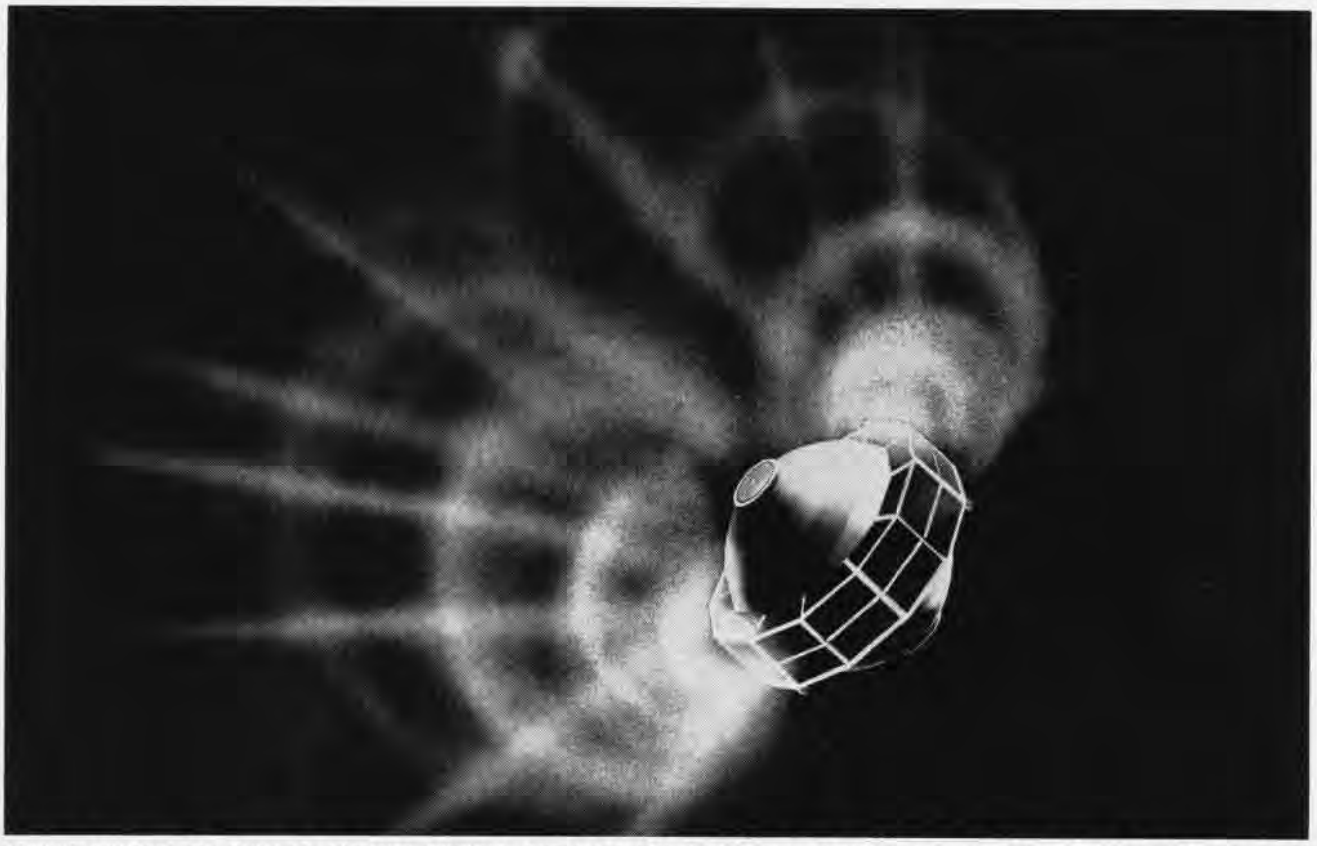
MARK BOTH SIDES OF FUSELAGE

EXPLOSIVE ACTUATED DEVICES	RED FILLED EQUILATERAL TRIANGLE WITH 9-INCH SIDES AND WITH APEX POINTING DOWNWARD WITH THE WORD "DANGER" ON EACH SIDE OF TRIANGLE		21

(b) OUTLINE SYMBOLS IN BLACK OR WHITE ACCORDING TO THE BACKGROUND.
(c) OPTIONAL WHERE TOWING POINT IS OBVIOUS AND SUITABLE LOCATION FOR SYMBOL IS NOT AVAILABLE.

Military Standard 33739 (ASG)—Service markings shall be used to give warning and minimize possible errors in servicing, handling of aircraft and safety of flight. Symbols approved by international agreement shall be displayed on all "in production" and "in service" aircraft. Trainer and liaison aircraft shall be included.

ANNA'S WINKS ADD TO WORLD SCIENCE



ARTIST'S CONCEPT OF ANNA-1B SATELLITE SENDING OUT ITS FLASH COMMANDS AS IT CIRCLES THE EARTH AT 600 NAUTICAL MILES

THE ANNA-1B geodetic research satellite, carrying a powerful flashing light, was successfully launched in an easterly direction from Cape Canaveral by a *Thor-Able* star booster on October 31, 1962.

The new 355-pound satellite, very similar in appearance to Navy's *Transit* navigation satellite, is in a near circular orbit, with an apogee of 639 nautical miles and a perigee of 581 nautical miles. It is circling the earth at an altitude of 600 nautical miles, with a 108-minute period, inclined at 50° to the equator. It is one of the brightest objects in the heavens.

The high intensity beacons employed are flashing lights in 20 daily sequences of five flashes each, the flashes separated by about five seconds. All instruments are transmitting information satisfactorily, and the objectives of the launch have been achieved. Precise measurement of ANNA's orbit should advance knowledge of the shape of the earth.

By Marie Pfeiffer, BuWeps

The ANNA satellite configuration is a 36-inch-diameter aluminum sphere banded around the middle with a bank of solar cells which extend out about six inches from the body of the sphere.

This is the second ANNA launch. The first, ANNA-1A, launched May 10th at Cape Canaveral, did not go into orbit because of failure of the second-stage booster.

Geodetic satellites of the ANNA type eventually will be used for the establishment of highly accurate distance measurements between selected reference points on the earth's surface. They will also provide instruments for locating the earth's major land masses with respect to each other and to the earth's center of mass. They will yield also refined determination of the strength and direction of the earth's gravitational field.

Over-all management of the ANNA program has been assigned to the Bureau of Naval Weapons, but the technical direction and development of the satellite, including the Navy Transit type Doppler system, is the responsibility of the Applied Physics Laboratory of the Johns Hopkins University, under a BUWEPS contract. The radio ranging system is under the cognizance of the Department of the Army. The high intensity flashing beacon for optical measurements is provided by the U.S. Air Force. The Space Systems Division, USAF, is responsible for placing the payloads in orbit.

Ground support tracking equipment is provided and operated by the Service providing the satellite component. Ground stations for instrumentation are located on a world-wide basis.

The name ANNA is an acronym for Army, Navy, National Aeronautics and Space Administration and the Air Force, the agencies originally collaborating in planning for the satellite.

Since ANNA's recent declassification by the Department of Defense as a true geodetic satellite, NASA has re-entered the program in order that through its international programs all nations may participate in the observations.

Participating activities are: Pacific Missile Range, Point Mugu, Calif.; U.S. Army Map Service, U.S. Air Force, Space Systems Division; and USAF Cambridge Research Laboratory.

Other groups actively interested in the geodetic program include the President's Science Advisory Council, National Academy of Sciences, International Union of Geodesy and Geophysics, International Committee on Space Research, and Coast and Geodetic Survey. Several nations have already agreed to participate in the program.

Cdr. Mark M. Macomber of BUWEPS recently told a symposium sponsored by the international Committee on Space Research (COSPAR) that the satellite experiments will provide three distinct types of precision measurements—angle, range, and range-rate. Cdr. Macomber described the payload equipment as follows:

"Of particular interest to world geodesists and astronomers is the high intensity optical beacon for angle measurements by determination of the direction from an observation station to the satellite when photographed against a background of stars. This combination will give geodetic positioning to better than 100 feet. When activated by a clock and a small computer housed in the satellite, the beacon produces a series of five light flashes spaced 5.6 seconds apart. An infinite number of observers within the circle of visibility may observe this flash with relatively simple equipment, making this system of maximum benefit to the scientific community.

"A drawback of the optical system is the very large power consumption of the beacon, limiting the number of flash sequences per day to about 20 or less, depending on the satellite exposure to sunlight for battery recharging. This power limitation will prevent the unlimited programming of light flashes, which will have to be scheduled to provide the maximum return in geodetic knowledge.

"The Army's radio frequency distance-measuring device to improve stability and reliability," continued Cdr. Macomber, "employs a transponder, or radar beacon, coupled with ground instrumentation. It makes a phase comparison between a modulating frequency signal as transmitted to, and returned from, the satellite. Three frequencies in the VHF-UHF bands are being used—one for transmission to the satellite, and two coherent frequencies for transmission from satellite to ground. Analysis of the difference in phase shift on the two returning frequencies permits a correction to be made for refraction effects.

"To resolve any ambiguities in distance measurements, four different modulating frequencies are employed. The satellite transponder receiver is energized at all times, but the transmitters are off except during satellite interrogation. Interrogation will be possible only during six or seven passes in each 24 hours because of power limitation. This power limitation means that the satellite is adequate for use by only one ground complex. To keep the satellite instrumentation as simple as possible, the ground stations are tied together by a VLF timing net. The stations transmit in bursts, so that interrogations from the various ground stations are received sequentially by the satellite. The complex ground instrumentation necessary to accomplish the interrogation and measurement functions, coupled with the limitation on power available for the transponder, will not permit system use by the scientific community."

Cdr. Macomber pointed out that the third device on board ANNA "is designed to obtain range-rate information by observing the Doppler shift of ultra-stable transmissions from the satellite, thus indicating its velocity toward and away from the ground station. Four frequencies are broadcast continuously for this purpose. The frequencies designed for geodetic measurements are 162-324 mc, with the 54-216 mc pair being reserved for refraction studies and as a backup in event of failure of the prime tracking frequencies.

"All four of the frequencies are coherent, so tracking can be accomplished using any two. These transmitters are of low power drain and are left on continuously, available to observers throughout the world. The ground instrumentation for receiving the signals and counting the Doppler shift is complex, and may be a deterrent to observations by the civilian scientific community."

At approximately every 90 seconds, time signals are being broadcast from the satellite as phase modulation on two of the Doppler signals. By observing the frequency drift, as obtained by the Doppler tracking stations, it is possible to correct the time of transmission of the time signals to better than ½ millisecond. The same clock which provides these timing signals also initiates the flash sequences for the optical beacon, so that the Doppler and optical observations are tied together in time.

In addition to the geodetic systems instrumentation, the ANNA-1B satellite contains various minor experiments which obtain data on the environment and the attitude of the satellite.

During the first three months of orbiting, an intensive calibration program has been undertaken, and the three types of measurements will be compared with each other and with terrestrial survey results. This calibration program is designed to determine if biases exist in any of the instrumentation used or in the methods of data handling. If biases do exist, they will be eliminated or corrected before survey work can be undertaken on a world-wide scale. The world-wide survey phase will refine knowledge of the earth's gravitational field and determine location of tracking stations relative to the earth's center of mass.

Participation of foreign and domestic scientific interests has been coordinated by NASA.

Because of the power limitation for the optical beacon, only selected observatories which will add strength to the present planned deployment of tracking equipment can be considered for use in this program as far as special programming of the light is concerned. This does not limit in any way participation by all observatories within the area of visibility of each flash sequence. It does mean, however, that certain observatories will not derive the benefit of optimum geometry. Contact with civilian observers will be via NASA.

Beyond the ANNA-1B launch, some planning has taken place on the variety of orbits which would be of value to a geodetic program and which are within the realm of feasibility from existing launch sites with existing boosters in the moderate price field.

WEEKEND WARRIOR NEWS

WEEKEND WARRIOR AIRCRAFT FROM ALAMEDA ARE LINED UP AT WHIDBEY FOR RECON FLIGHT

THE FIRST COORDINATED antisubmarine training exercise since the release last August of Naval Reserve ships and aircraft recalled to active duty in October 1961, incident to the Berlin crisis, was conducted in West Coast waters during the weekend of November 17-18.

Six Reserve destroyer-type ships and five submarines from the Pacific Fleet teamed up with aircraft of the Naval Air Reserve in three simultaneous hunter-killer maneuvers designed to test the training and readiness of all surface and Air Reserve units participating.

The exercises, which were scheduled by the Commander, Naval Reserve Training Command, Omaha, Neb., took place in operating areas off the coasts of San Diego, San Francisco and Seattle.

West Coast Commandants of the 11th, 12th and 13th Naval Districts, whose headquarters are in the vicinity of the operating areas, were in command of exercises in their respective districts.

California-based Naval Reserve ships of the antisubmarine warfare component of the Navy's Selected Reserve participating in the exercises were the escort ships USS *Wiseman* of San Diego; USS *Marsh* and USS *Vammen* of Long Beach; and USS *Cockrell* from San Francisco. Also engaged in these training maneuvers were the escort ships USS *Brannon* of Seattle and the destroyer USS *Watts* of Tacoma, Wash.

Helicopters and patrol bombers, adding their punch to the operations, sortied from NAS LOS ALAMITOS, NARTU ALAMEDA and NAS SEATTLE.

Spanish for Norfolk Marines

A spare-time project has Norfolk's VMA-233 squadron muttering in Spanish.

The project is a self-imposed course in the Spanish language, conducted at home and on drill weekends each month.

Teaching the VMA course is LCpl. Ojus Malphurs, Jr., of Norfolk, who picked up the language during two summers of archeological study at Mexico City College.

The course sprang up after the Marines' Commandant expressed a wish that more Marines become proficient in a foreign language.

Willow Grove Award Ceremony

Cdr. John Thornton, a procurement officer at Willow Grove, received the Navy-Marine Corps Medal for the part he played in the rescue of a helicopter pilot. The helicopter crashed near Medford, N. J., on August 15, 1960.

Presentation of the medal was made by RAdm. William I. Martin, CNAResTra, during his annual military inspection at the Pennsylvania air station. Cdr. Thornton, a passenger in the helicopter when it crashed, effected the rescue even though his flight clothing was saturated with gasoline and his shoulder had been injured. Cdr. Thornton was a prisoner of war during the Korean action after his helicopter was shot down in 1951 in Korea. After evading capture for ten days, he was finally found and spent 30 months in prison.

The Robert Shermet Memorial Award was presented to VS-936 and was accepted for the squadron by Anthony Decker, AO1. The local award is given annually to the station's outstanding squadron.

Quick Response at Andrews

A NARTU ANDREWS C-54 transport carried six tons of clothing and relief supplies to the West Coast for delivery to the typhoon-hit inhabitants of Guam. The cargo was part of a 20,000-pound collection made in the Washington area after appeals for help were made by the Guam Territorial Society, the Navy Department, Marine Corps and other federal agencies. Other cargo aircraft were to pick up collections at Norfolk for transfer to Guam as part of Operation *Handclasp*.

'In-Betweens' at New Orleans

The status of eight Naval Air Reserves has baffled many a saluting sailor at New Orleans. Wearing the uniform of officers without insignia or braid, the eight men are halfway through the Naval Reserve Officers Candidate School at Newport. They took the summer training for eight weeks, must wait until next summer to complete the officer course before receiving their commissions. Meanwhile, they perform drills, one weekend each month at the Louisiana station. Officially the men are neither enlisted nor officer. That's why the question, "Salute or no salute?"

Alameda to Whidbey Island

More than 80 Weekend Warriors and NARTU support personnel trekked to NAS WHIDBEY ISLAND as VP-873

VR-742 MEMBERS, WHO HELPED WIN SQUADRON'S THIRD CONSECUTIVE SAFETY AWARD, ARE SHOWN ON NARTU HANGAR RAMP AT NAS JAX

conducted two weeks of annual training. The group included five crews for the squadron's P-2 *Neptunes*. ASW exercises and over-water surveillance missions were included in the training program.

From Glenview to the Fleet

A hardy band of midwestern Naval Air Reserves, including one who commutes more than 1200 miles to drills, set up squadron headquarters at NAS NORFOLK to "fly with the Fleet" for two weeks. The unit, VP-721, flew six *Neptune* patrol bombers to Norfolk for the active duty drill period. Included was one man who attends drills at Glenview, but lives in Denver, Colorado. It was the first time since the Berlin call-up that a Glenview unit had been assigned to fleet exercises. Hosts for the drill period were VP-24, VP-56 and Fleet Air Wing Five. Pilots and crewmen of the patrol unit are from Illinois, Wisconsin, Missouri, Indiana and Ohio, principally. Cdr. George Krosse, Villa Park, Ill., is C.O.

Minneapolis Farewell

Personnel of the station gave an unusual send-off to their departing executive officer. As Cdr. E. M. Ward left the station for the last time, he passed through a gauntlet of sailors who lined both sides of the station's main thoroughfare. A final salute was given by the sailors as Cdr. Ward, in mufti, rode to the gate. A veteran of five polar expeditions, including *Deep Freeze I*, Cdr. Ward was ordered to the Naval Air Technical Services Facility, Philadelphia, after two years as executive officer and two months as acting C.O. of the Minnesota air station. Three of his polar assignments were to the Arctic area. On one flight he and his party were stranded 400 miles from the North Pole, following a takeoff accident. The crew lived in the disabled aircraft until a rescue party was able to make a pickup.

Donald Menking, PN2, was selected as the outstanding enlisted man at the air station and presented with a Navy League plaque. Judged on leadership qualities, professional performance, military appearance, community relations and physical fitness, Menking was the first recipient of the award.

Third CNO Safety Award at Jax

Transport Squadron 742 was proud enough to "almost" lay claim to permanent possession of the CNO Aviation Safety Award. The third consecutive CNO award was delivered to the unit by RAdm. Joseph Carson, Commander Fleet Air, Jacksonville.

RADM. MARTIN PINS MEDAL ON THORNTON

Marine Air Reserve Notes

A drill attendance of 90 per cent will earn Marine Air Reserves the new Marine Corps Reserve Medal and/or a certificate. Applications for the medal must be submitted in accordance with a new MCO. A separate order deals with the certificate. Four consecutive years of attending 90 per cent of all drills and annual active duty training periods is required for the medal.

After a year of training in its new transport aircraft, the Marine Air Reserves took stock and figured they were all set to fly C-119 *Boxcars* (R4Q). After eight months of intensive training, the Marines counted 117 plane commanders, pilots, second pilots and third pilots, averaging 11 pilots per airplane. The reserves now have 11 of the *Boxcar* aircraft available to them.

Transport squadrons in the command include VMR-222, Grosse Ile; VMR-234, Minneapolis; VMR-541, Seattle. Seattle's VMA-216 was scheduled to change its designation from attack to transport on December 1, 1962.

Training for the transition period involved the movement of special training aids for enlisted maintenance programs. Included were 12 mockups of the *Boxcar's* systems. These pilots were assigned the transition training duty and 129 enlisted men have completed the service courses at Marine Corps Air Station, Cherry Point, N.C.

USS MIDWAY *(CVB-41) was the first of six planned carriers of a new design. Construction began during World War II. Toward the end of hostilities, three of the new carriers were cancelled. Upon delivery, the Midways were the mightiest aircraft carriers in the world.*

Evolution of Aircraft Carriers

CVB'S: THE BATTLE CARRIERS

'The life of the *Midway* also demonstrates the progress of our Navy; the accommodation of our ships to aircraft of high performance; the use of missiles; exploitation of electronics; the capability to employ a whole family of weapons unheard of when her keel was first laid. No other navy, no other service of any country, has a single military unit as powerful, as versatile and as mobile as this great ship.'—VAdm. George W. Anderson, Jr., Chief of Staff, U.S. Pacific Command, 1957.

By Scot MacDonald

LIKE THE CVE's, the CVB's were a direct product of World War II needs and experience, though their missions were different. The former were to be most effective in providing close-in support of troop landings. The latter was designed to pit against the enemy the most potent aircraft carrier the world had yet seen.

The CVB's were to provide a solution to the problem of designing a tough rugged ship which would have good aircraft operating features as well as every possible characteristic that would enable it to both give and take punishment. Our early war losses were caused by our failure to adequately control damage sustained. It was obvious that we needed a much sturdier aircraft carrier than we operated in the early years of the war, one with an armored flight deck and improved compartmentation. The resulting design gave us a new breed of ship, battle-cruiser fast, battleship rugged, and with more aircraft operating capacity than anything we had known.

At the same time, aircraft designers were producing larger, heavier types to be operated off sea-going carriers. These higher performance planes, heftier, faster, would place great demands on the flight decks of the proposed CVB's. The planes would require greater room, and these considerations added to the over-all weight of the constructed carrier.

On July 9, 1942, Congress authorized their construction. Already, the toll on both U. S. and Japanese carriers had been heavy. In January that year, the *Saratoga* was damaged by submarine torpedo and forced to a yard for repairs. In the Battle of the Coral Sea in May, the light carrier *Shoho* was sunk by U. S. carrier-based planes which, the next day, also damaged the *Shokaku*. In this battle, the *Yorktown* was damaged; the *Lexington*, ravaged by uncontrollable fires, sank. During the decisive Battle of Midway, the Imperial Japanese Navy lost the *Akagi*, the *Kaga*, the *Hiryu*, and the *Soryu*. *Yorktown*, already damaged at Coral Sea, was hit again at Midway and on June 7 was sunk.

Midway was a significant victory for the Allied forces. While proving a turning point in the war, it again conclusively demonstrated the warfare potential and, in fact, superiority of carrier aviation. To commemorate the occasion, the escort carrier CVE-63 was named USS *Midway*, but on September 15, 1944, her name was changed to USS *St. Lo*, relinquishing her name to the first of a new class aircraft carrier then being built, USS *Midway* (CVB-41). This battle carrier was laid down on October 27, 1943. A sister ship, CVB-42, was laid down as USS *Coral Sea* on December 1, 1943, but upon the death of the President, was renamed USS *Franklin D. Roosevelt*. The third large aircraft carrier built, CVB-43, became USS *Coral Sea*.

Contracts for the new carriers were signed August 7, 1942, and by September 18, plans for them were well under way. On that date, the Chief of the Bureau of Ships wrote to the Commander in Chief, U. S. Fleet, to

the Vice Chief of Naval Operations and to several Bureau chiefs, discussing the proposed contract design:

"It will be noted that the island is shown offset from the side of the flight deck to the maximum extent permitted by clearance for passage of . . . the Panama Canal," he wrote. "This location of the island has the obvious advantage that a straight fore and aft flight deck runway for airplanes is interfered with to the least possible extent. It gives a flight deck width in way of the island of 107 feet."

This was one of the last times the Panama Canal was a limiting factor in the construction of aircraft carriers. The "Canal block" was broken when it was later decided to construct a carrier *not* to go through it.

Concerning the island structure, *BuShips* continued: "Extensive wind tunnel model tests of the CV-9 class island with a large number of modifications involving various degrees of streamlining and attempts to reduce smoke nuisance on the flight deck caused by stack gases have been performed. These studies showed clearly that the details of island contour were of negligible importance in effect upon air-flow patterns as compared with the bulk of the ship and of the island itself. In view of these conclusions, attempts to streamline the various essential protuberances on the island and of the island itself were discarded in the case of the CV-9 class and, therefore, have not been incorporated in the present plans."

The island structure was the subject of considerable correspondence in the months and years following. There was an obvious effort by most bureaus to keep the island as small as possible. In this there was general agreement. Comment and discussion became extensive when locations of specific spaces in the island were brought up, as well as uses to which they would be put. Occasionally, proposed requirements threatened to bloat the island structure, but as alternate locations were found, it was possible to keep it to a reasonable size. In October 1942, for instance, the Chief of the Bureau of Aeronautics, RAdm. John S. McCain, noted:

"Location in the island of the following space, the functions of which do not necessarily require island space

STERN VIEW *of the FDR shows increased flight deck space and small island arrangement.*

is noted: Pilot balloon room, two squadron lockers, repair I, flight deck crew, flight deck control, flight deck equipment, and one unassigned space. . . . This bureau considers that effort should be continued to reduce island size."

The original proposals called for the installation of two flushdeck type catapults capable of launching VT type aircraft and one double action type in the hangar, capable of launching fully loaded VSB type aircraft. But by October 1942, the General Board considered the complications involved in the installation of a hangar catapult and decided against it. Within the year, the decision was reached to eliminate hangar catapults from *Essex* class carriers, then either under construction or planned.

Hangar fires resulting from combat damage offered particular danger in both Japanese and U. S. aircraft carriers during the early days of the war. In designing the CVB-41 class carriers this danger was considerably lessened by the introduction of four bulkheads in the hangar, dividing it into three spaces connected by sliding doors.

Underwater subdivision of compartments and spaces was given considerable attention, in event of torpedo

JATO TAKEOFF *is made by a P2V Neptune from the deck of USS Franklin D. Roosevelt.*

or mine hit, and was described as "excellent." To provide additional protection, the flight deck was armored with 3½ inches of solid steel, and the deck side belt armor at the waterline tapered from 7½ inches to 3.

In 1943, the wave of war in the Pacific turned against the Japanese as Allied forces made a concerted offensive, capturing Rendova Island in July. The Japanese-held airfield at Munda in New Georgia island was taken by the Allies, who invaded Bougainville in October and landed on the Gilberts in November.

That same year, U. S. shipyards launched and the Navy commissioned 15 CV's and 24 CVE's.

In early 1944, the Marshalls were taken. On the first day of this operation, complete control of the air was obtained and maintained by carrier-based aircraft. The Marianas were invaded in June and Guam recaptured in August. Leyte was occupied in October-November, the opening blows struck by Task Force 38 under VAdm. Marc Mitscher. American shipyards, mass production well organized, launched 7 more CV's, 33 more CVE's.

March 18 to June 21, 1945, the Okinawa campaign raged. The desperate Japanese had already turned to the *Kamikaze* strikes and now introduced the *Baka* bomb, seriously damaging the carrier *Franklin*. Between May and August, carrier-based aircraft were launched against the Japanese home islands, destroying or immobilizing the remnants of the Japanese Navy. On September 2, the formal terms of surrender were signed and World War II was over. Eight days later, on September 10, USS *Midway* was commissioned, the first of the CVB's, Capt. Joseph F. Bolger commanding. In the following month, on October 27, 1945, USS *Franklin D. Roosevelt* (CVB-42) was commissioned. Construction on USS *Coral Sea* (CVB-43) was delayed, the ship finally being commissioned on October 1, 1947. Three additional CVB's, the 44, 56 and 57, were cancelled.

The *Midway* was a giant among aircraft carriers. She had an over-all length of 968 feet, an extreme beam of 136 feet at the flight deck, and had a standard displacement of 45,000 tons. *Midway* had a trial speed of 33 knots, four propellers and a shaft horsepower of 212,000. She was armed

with 18 five-inch, 54 caliber single double-purpose guns, and 21 quad 40mm A.A. mounts. Like the *Essex* class carriers, CVB-41 had a deck-edge elevator in addition to her forward and aft elevators. She accommodated 379 officers and 3725 enlisted.

These general characteristics held true for her sister ships. But there were subtle differences, especially in the case of the *Coral Sea*. Comments in correspondence during construction of the *Midway* indicated that a large

CAMERAMAN *records the first takeoff from USS Coral Sea (CVB-43) December 11, 1947.*

number of minor modifications, learned in the construction of the CV-9 class carriers, the *Midway* herself, and from wartime experiences, would be incorporated in the final design of CV-43.

Midway had her shakedown in November 1945. Her aircraft aboard consisted of 57 F4U-4 *Corsairs*, 59 SB2C-4E *Helldivers*, and 4 F6F *Hellcats*, totalling 120 aircraft, 17 fewer than her full complement of 137.

The carrier's nucleus crew came from a Carrier Aircraft Service Unit (CASU) under ComAirLant. Plane handlers were sent to Great Lakes where they boarded the training ships *Sable* and *Wolverine* for an approximate six-week period during which they learned basic carrier work. The February *Naval Aviation News* of 1946 described their later training:

"The men then proceeded to a CASU, where they awaited shakedown of a carrier other than their own. Their own still was building. Most of the *Midway's* original crew leaders shook down on the USS *Antietam* and the USS *Charger*. On this shakedown, embryo plane handlers stood battle stations, observed the regular crew at work and finally assisted. They were supervised by a training officer from ComAirLant who expedited their progress.

CORAL SEA *is shown in Mediterranean waters during last tour before modernization work.*

"Following this shakedown, the *Midway's* nucleus crew returned to a CASU near where the ship was building. Here they were groomed in taxiing, spotting and parking aircraft. The work [was] accomplished on a runway painted to simulate a flight deck. Also, they familiarized themselves with the aircraft they would be using."

Midway conducted her shakedown in the Caribbean, devoting 51 out of 57 days to air and gunnery operations, simulating all types of wartime conditions. Exercises included fueling escort ships at sea, damage control drills and problems, A.A. tracking and firing at towed spars and drones, emergency lube-oil drills for engineers, arming planes, gassing, and use of inert gas.

Air operations involved all types of flying and battle exercises, climaxing the tour with a two-day strike against the Caribbean island of Culebra—a well-pummeled three-mile tract of land used by U. S. warships for shakedown training at that time.

USS *Franklin D. Roosevelt* also conducted her shakedown training in the Caribbean, under command of Capt. Apollo Soucek. After post-shakedown alterations in New York, she was shifted to Norfolk, where she became flagship of Adm. Marc Mitscher during the first large-scale training operations since the end of World War II. These maneuvers of the Eighth Fleet took place in the western Atlantic between April 19 and May 27, 1946.

In the following year, during Caribbean maneuvers, Sikorsky HO3S helicopters were operated. Noted *Naval Aviation News* in June 1947:

"It was not the first time a helicopter had operated off a carrier deck. Four (of them) were with the Byrd Antarctic expedition. . . . But the helicopter really proved its worth as a utility and rescue plane off the *FDR*, a showing which may have an effect on fleet operations of the future."

Activity of the *FDR* in the early post-war years was typical of that of her sister ships. After an extended yard period between March 1947 and July 1948, she completed refresher training in the Caribbean before leaving for her second tour in the Mediterranean. At this time, the "Berlin blockade" was formed and the presence of CVB-42 in that area provided a "show of strength." This was her mission for the next five years, as the Berlin blockade was followed by crises in eastern Mediterranean countries and armed aggression in Korea.

In October 1952, the CVB's were re-designated attack aircraft carriers (CVA's). In 1953 the fleet modernization program was authorized. First aircraft carrier to undergo rework was the *FDR*. The ships were equipped with steam catapults, hurricane bows, and the angled-deck design of Project 27C.

AT ATHENS, GREECE, *USS Coral Sea makes an official visit in October 1956. Commissioned in October 1947, CVB-43 incorporated features learned in WW II and in other carrier construction.*

A CRASH CREW READY IN 13 SECONDS

By GySgt. J. McAllister

ON THEIR WAY IN SECONDS, CRASH CREWMEN HEAD FOR THEIR VEHICLES DURING AN ALERT

"IF WE'RE NOT well on our way within 60 seconds, there's no use going at all." Thus MSgt. William E. Kane, NCOIC of the Crash Crew at MCAS CHERRY POINT, sums up the unit's operational creed. This limit is academic since the average time taken by any of the duty crews to drop whatever they're doing and be on board crash vehicles in 13 seconds.

The full crew, composed of some 95 men under CWO John W. Donnelly, operates out of a building adjacent to the airfield operations tower. Their primary mission is threefold—rescue of personnel, protection of property, and clearing of runways. Any idea that crews sit around between alarms reading or playing checkers is as false as a sad look on the face of a gambler holding a royal flush.

Those of the assigned 24-man duty crew not actually standing the runway watch, manning the dispatcher's desk or handling other duties, join the rest of the unit in checking gear, performing repairs and preventive maintenance on emergency apparatus, or taking an active part in the daily training program.

A comprehensive driver training program is conducted. At present, 80 per cent of the personnel are qualified to drive one or more types of the 22 vehicles used by the crew. These range from pick-up trucks to a 50-ton self-propelled crane. Approximately 20 per cent are qualified to handle all the equipment.

This training, plus unscheduled practice alerts during a duty crew's 24-hour tour, is designed to improve the proficiency and teamwork of the crash crew. Each crew member, be he a driver, turret operator or rescue man, must understand the other man's job and be able to do it.

Rigorous training includes first a five-week course at the unit's fire fighting school at Cherry Point. Under GySgt. Robert D. Reid, NCOIC of the school, any pre-conceived notions that crash crew work is mostly glamor are quickly dispelled. The course includes extensive practice in fighting pit and aircraft fires as well as the removal of dummies from aircraft under actual fire conditions. Great emphasis is placed on the development of coordination, cooperation and the ability to size up changing situations and make decisions in the absence of instructions during a rescue operation.

The operations of the crash crew are not confined to Cherry Point. They cover crashes within a 50-mile radius of the station and assist and train local civilian fire department personnel when such help is requested.

Every member of the crew, from the drivers of the gleaming red vehicles capable of delivering 12,000 gallons of foam in two minutes, to the rescue personnel in their silver protection gear, are aware of their responsibility. They stand ready to carry it out.

REID DIRECTS STUDENT MANNING NOZZLE

AIRCRAFT AND GROUND AROUND IT FOAMED

PLANE FIRE, PILOT RESCUE RUN DISCUSSED

NATOPS, A QUEST FOR THE BEST

NATOPS 'QUEST *for the best' led to experimental integrated flight/NATOPS manual shown here to CAG-12, Capt. P. F. Stevens, by LCdrs. Hickman and Chalbeck. Manual was CVG-12 idea.*

By Cdr. Robert E. Empey, USN

THERE ARE few these days who ask, "What's NATOPS?" Perhaps a better sign of progress is the fact that there are still fewer who say, "Damn NATOPS."

In a little more than a year, Naval Air Training and Operational Standardization (NATOPS) has become a potent force in Naval Aviation's search for increased combat readiness. Although there are few who ask what it is, there may be many who are not clear as to what the aims of this program are.

The word, standardization, taken by itself, has connotations of mediocrity: "line 'em up, by the numbers, everybody do it my way." Standardization on a set method of operating a given aircraft is not the primary aim of the NATOPS program. Standardization of operating procedures is a bonus, a fortunate by-product of the program.

The primary aim and the central theme of this vital program is a search for the *best* methods. An organization has been created whose primary mission is threefold:

- Ferret out the optimum method for the performance of each and every function contributing to the safe and efficient operation of each and every aircraft in the Navy's inventory.
- Publish and promulgate these procedures for the benefit and enlightenment of all hands concerned with the operation of Naval aircraft.
- Ensure that all pilots and aircrews comply with these standardized procedures as set forth in the manuals.

In order to accomplish these aims, the organization of the NATOPS program is in some ways unique. It is a "users' " program. Authority is decentralized throughout the aviation organization. Pilots currently flying a given model aircraft write the books and establish the check-grading criteria. It is the pilots themselves who dictate the procedures to be used and the degree of proficiency that must be demonstrated. The aviators specifically prohibited from getting in their two cents worth are those currently defying death and gravity behind the BMD's (Big Mahogany Desks).

For administrative purposes, of course, the NATOPS program is centralized. CNO's Aviation Training Division (Op. 56) gives over-all direction.

Production and distribution of the manuals is handled by the Naval Tactical Doctrine Development and Production Activity (NTDDPA), located at the Naval Weapons Plant, Washington, D. C. The director of the NATOPS division works closely with Capt. N. R. Charles, Op. 561, on matters concerning the production and distribution of the manuals and the over-all administration of the program.

Illustrations—Courtesy of VFP-63

Each Type Commander has a full-time coordinator on his staff. Present incumbents are: ComNavAirPac, Capt. W. R. Hazlett; ComNavAirLant, Capt. James Ferris; CG, Second Marine Air Wing, LCol. F. C. Haxton; CNATra, Capt. M. H. Richey; AirFMFPac, LCol. R. S. Rash. These officers, together with LCol. J. D. McGough, representing Commandant, Marine Corps, and Capt. P. D. Halpin from BUWEPS, form the permanent NATOPS Advisory Group operating more or less as a field staff for CNO.

RAG STUDENT *Lt. C. Klusmann shows mastery of NATOPS methods to Evaluator G. Gardner.*

Operating under the Coordinators, the Replacement Squadrons form the clearing houses for NATOPS matters. Each Replacement Squadron has a NATOPS Evaluator assigned for each model aircraft flown. This evaluator's task is to get out with the troops and ferret out the optimum operating procedures. He is generally the one on whom falls the task of consolidating these procedures into a rough document that eventually becomes a NATOPS manual. He also performs periodic checks on squadron NATOPS instructors and selected pilots in the model for which he has responsibility.

As previously stated, any given NATOPS manual is supposed to contain the optimum operating procedures for the model aircraft with which it is concerned. But does it? Of course not. If it did, we could quit right now. It might be well at this point to quote

OpNav Instruction 3510.9A, the governing directive for the NATOPS Program:

"Standardization, based on professional knowledge and experience, provides the basis for development and use of sound Navy-wide operational procedures. It provides flexibility in the exchange of combat pilots/crews between fleets as well as ensuring rapid dissemination of improved procedures and techniques. The NATOPS Manuals are ready reference books, not intended to replace or needlessly duplicate the flight handbooks or Naval Warfare publications. They are prepared by the users for the users. While compliance with published procedures is mandatory, nothing therein should prevent the pilot from taking such action as he may deem necessary under unusual or emergency conditions to safeguard life and property. Constructive changes are both necessary and desirable. Increased aircraft familiarity, changing operational requirements, new developments and/or limitations will require continued up-dating of the NATOPS Manuals. Initiative in formulating new procedures must be encouraged."

In other words, there are many ways to skin a cat. And among those ways, there's always *a best way*. However, we can never sit back and say we've zeroed in on the best way, for the cats we deal with are an ever-changing breed.

A continuous flow of recommendations for improvement is the life blood of the NATOPS program. A change to any NATOPS manual may be recommended by anyone in the aeronautical establishment of the Navy. Changes are addressed to the Advisory Group member in the chain of command, generally the Air Type Commander. Here the change will be reviewed. If considered valid, it will be forwarded to the cognizant command, that is, the command, on the type command level, which has cognizance over the aircraft. This could be the original addressee.

Copies, at the same time, go to all other members of the advisory group who study the recommendation and forward comments to the cognizant command. The coordinator of the cognizant command will, of course, discuss the proposal with the evaluator for the particular aircraft concerned and with as many squadron C.O.'s and pilots of the model as may be necessary to evaluate properly the proposal. Other advisory group members will do the same. Upon acceptance, the recommendation is forwarded to CNO for approval and publication. At first glance, this may seem to be an involved procedure. It's really not.

While continuously striving for improvement and seeking better methods, the coordinators and evaluators have, at the same time, a solemn responsibility to all pilots to protect them from the occasional harebrained inspiration of a whiz kid.

Changes to NATOPS manuals are divided into urgent and routine categories. An urgent change is one upon which immediate action is necessary. These often deal with safety of flight. The procedure for evaluating both an urgent or a routine change are the same except that in case of an urgent change, all the transactions noted above are processed through the use of priority messages.

The span from the germ of the thought to the promulgation of an urgent change can be amazingly short. Anyone following the correspondence or the message traffic concerned with one of these changes can take heart and be thankful for the dedication of these coordinators. It is clear that they take this thing seriously. If they, together with their evaluators and advisors, don't agree on a recommended change, they don't give up easily. They're out among the troops and they know what's going on. We can all rest assured that when a change is promulgated, it's been kicked around by the best experts available and been well considered and evaluated.

With this type of review machinery, a minimum amount of screening is necessary when a recommended change comes to CNO for approval. Only in isolated cases is it necessary for CNO to request clarification or further review prior to approval. Upon approval by CNO, the change is forwarded by messenger, usually the same day, to NTDDPA for production and distribution.

While NATOPS is a users' program and a vital one, it has to have teeth.

ANNUAL NATOPS *check measures pilot's knowledge and proficiency. Lts. Colvin, Hamilton, Davis, VF-211, do open-book part of F-8 check.*

F-3 NATOPS *Evaluator, Lt. Ron Hess, briefs VF-121 Fleet Replacement pilots on carqual pattern as depicted in the Demon NATOPS Manual.*

One of the missions of the program is to ensure compliance. The grading supplement to the NATOPS manual supplies the teeth. The grading supplement, usually issued separately, is the document that outlines the detailed procedure for the pilots' annual NATOPS check. This check is comprehensive and is comprised of written and oral examinations and flight checks. The flight check is all-inclusive and covers such items as briefing, aircraft inspection, starting, taxiing and flight maneuvers.

The check, in addition to ensuring compliance with the NATOPS manual procedures and supplying a periodic jacking up, provides a very useful measurement by which the squadron commanding officer can assess his squadron's combat readiness. It further provides him with very useful information on the effectiveness of his training syllabus and its results. If a reorientation or change in emphasis would enhance the effectiveness of his training program, the NATOPS check results serve to identify these areas.

When the NATOPS program was first launched, there was some apprehension concerning the check program. Some commanding officers, quite naturally, resisted the idea of an evaluator from the Replacement Squadron invading their domain, checking their pilots and then running off to higher authority to report their proficiency. There was never any intent in the program to employ this kind of "Gestapo" tactic. The evaluator will attempt to schedule his checks to meet the squadron's convenience. Further, the results of his checks are always strictly a matter between the squadron C.O. and himself. If, in isolated cases, the checks should turn up a shaky pilot, the squadron C.O. will want to be, and should be, the first to know. He will be the last one who would want to harbor an incompetent pilot, and if stringent action, such as a disposition board, is indicated, he will be the one to take action to convene it. Nothing in the NATOPS program is meant in any way to dilute the authority or usurp the prerogatives of the squadron commanding officer.

After a year and a half, where are we now? Have we got it whipped?

Not by a long shot. The NATOPS program was launched in much the same manner as Dad tells us Grandfather taught him to swim. He got kicked off the pier and told, "Now swim!" We've made many mistakes, but we've learned lessons from all of them. We safely reached shore after that first push, so to speak, and now we're busy perfecting our stroke.

Some of the first manuals printed proved, in the cold light of day, to be a bit hard to live with. In the mechanics of distribution, we made and still are making some real "goofs." We probably could have called in publication, composition, and distribution experts and started off with a real polished product, avoided some of the mistakes and dodged some of the resulting brickbats.

We have, however, persevered. We've kept this an aviator's program.

VA-126 OPS *Officer and Standardization Instructor study the proposed pre-flight change.*

Pilots formulate the policy. Pilots write the books. And pilots administer the mechanics of the program. The manuals are written in aviator's language and stilted style is avoided like the plague.

At the moment, a second generation of manuals is appearing on the stands. These manuals have become more standardized in format. In content, they are a lot easier to live with than some of the original products. Most important, we begin to see signs that our search for improved methods is bearing fruit. The recommended procedures show signs of thought, experimentation and application. We've got books on the market that the experienced have contributed to, and that the neophytes can learn from. We've a long way to go and a lot to learn, but it's all in the up direction.

Those of us in the NATOPS program know now that NATOPS will never become routine. When the day comes that we run out of problems, we may as well hang up our hardhats, because that's when we will have stopped learning. We feel we've got a good start, but we hope we will never see the finish of our "quest for the best."

PHANTOM II *"Brain Trust" discusses proposed change to F-4 operating procedures; Cdr. J. H. Dozier, Lt. R. D. Witthoft, LCdr. J. L. Moore, seated; VF-121 C.O., Cdr. Lee Tarleton at desk.*

VT-27 Hits New Record

No Accidents in 3901 Flight Hours

Training Squadron 27, NAAS New Iberia, La., recently celebrated a new flight hour record by logging 3901 accident-free hours for October. This record included 1395 flights with 8232 landings. VT-27 has remained accident-free for the past 11 months.

642 Selected for AX Rate

BuPers Announces Nucleus List

The Bureau of Naval Personnel has approved a list of 642 names submitted by a selection board to form the nucleus of the new aviation anti-submarine warfare technician (AX) rating.

Most of the new AX men converted from ATS and SOA service ratings. Future changes in rate to AX will be handled in accordance with all existing instructions promulgated by BuPers.

'Chuting Star' Given Award

Honoring Leadership, Development

On November 12, 1962, at the annual banquet of the Wings Club in New York City, CWO Lewis T. Vinson, USN (Ret.), received the Astronaut Lee Stevens Parachute Medal for 1961 for his contribution in designing, developing and testing parachutes, ejection seats and related equipment of new and untried performance.

In making the award, his voluntary mission in leading a rescue team to the scene of an accident and rendering medical assistance to the stricken pilot was also considered, as well as his organizing and training the U.S. Navy Parachute Exhibition Team, the *Chuting Stars*.

The *Chuting Stars* gave CWO Vinson a special plaque in honor of his winning the Stevens Parachute Medal for 1961. The Stevens award is given annually to the individual or group that has made the most distinguished contribution for the saving of life in aerial navigation by perfecting or using the parachute or other means of bringing individuals or disabled aircraft in safety to the ground.

VINSON AND CHUTING STARS' GIFT TO HIM

Lew Vinson has logged more than a thousand parachute jumps. Twice he has appeared on the front cover of *Naval Aviation News*, and once on the back cover. After retiring from the Navy in September 1957, he was employed by Para-Dynamics of Radioplane Co., Van Nuys, Calif. He was a field test representative at El Centro during the testing of the recovery system for the Project *Mercury* space capsule.

In January 1961, CWO Vinson returned to active duty with the Navy to organize and train the U.S. Navy Parachute Exhibition Team. On April 26, 1962, he retired for the second time and returned to his former work with Para-Dynamics.

NEW DEEP FREEZE *commander, RAdm. James R. Reedy, USN, right, inspects Hallett Station, Antarctica, and other U.S. Navy-supported stations at the bottom of the world, with RAdm. David M. Tyree, who has led the annual U.S. expedition since 1959. RAdm. Reedy assumed responsibilities of Commander, U.S. Navy Support Force, Antarctica (Task Force 43) last November. RAdm. Reedy previously served as ComCarDiv 20 and, before that, as C.O. of Lexington.*

Crash Truck to be Modified

Jet Engine Test Planned for MB-5

The U. S. Navy plans to employ a jet engine for the first time in an aircraft crash fire vehicle for test and evaluation.

BuWeps has awarded a contract to American LaFrance Division of Sterling Precision Corporation, Elmira, N. Y., to incorporate the engine in an existing Navy MB-5 crash truck. The company will use a Boeing 502 gas turbine engine, which develops 330 hp and weighs only 325 pounds, one-tenth the weight of a conventional engine.

It is expected that the turbine-repowered fire apparatus will be able to accelerate from zero to 60 mph in 30 seconds or less. The modification should also permit the truck to "drive into" a fire with its turret foam nozzle in full operation and hand lines operable if required.

While the crash truck is the first of its type, jet-driven fire pumper trucks and aerial ladder trucks have previously been delivered to various municipal fire departments.

Bombing Derby Postponed

Annual Sanford Meet Cancelled

The U.S. Atlantic Fleet Heavy Attack Tenth Bombing Derby scheduled for the week of 3-8 December at NAS Sanford had to be indefinitely postponed, according to Capt. J. M. Tully, Jr., Commander Heavy Attack Wing One.

Postponement of the Derby was caused by the uncertainty of the international situation.

The Bombing Derby is normally held each year at Sanford to enhance the operational readiness of the flight crews of Heavy Attack Squadrons.

Fire Truck for Heliport

Protects Pentagon Whirlybird Pad

A small truck equipped with the Navy's latest fire-fighting equipment has been placed on duty at the Pentagon for fire protection of the helicopters that use the heliport pad on the north lawn.

Designed and developed by scientists at the U. S. Naval Research Laboratory under BuWeps sponsorship, the truck is equipped with a red spheroid "fireball" filled with 400 pounds of the newest, most potent, fire-killing chemical power yet discovered. This same kind of equipment is used at naval air stations all over the world with immediate protection for gasoline fuel fire. It provides protection in case of an aircraft accident at or near a landing strip.

The equipment, mounted on a "quick response" small truck, is capable of reaching any part of the heliport area at the Pentagon in 20 seconds or less. The pressurized "fireball" goes into action when a single valve is opened. Two firemen direct hoses with nozzles which blast out large heavy clouds of harmless, non-toxic, flame-quenching white powder. This powder has six times the fire extinguishing capacity of the old carbon dioxide and more than twice the ability of the older "baking soda" powders which were in use before NRL discovered the new material called "Purple K Powder."

Since all helicopters are constructed with large amounts of burnable magnesium in their frames, the Pentagon fire truck is also equipped with two instantaneously acting fire extinguishers containing a liquid called TMB, developed by the Navy, for quickly extinguishing magnesium fires.

Former DP Now a Pilot

World War II Refugee Wins Wings

When Ens. Harold E. Lenbergs received his wings from RAdm. F.A. Brandley at NAS Corpus Christi, a new chapter was added to an already dramatic family story.

His father, the late Jacob Lenbergs, a pilot in the German Air Force during WW I, was shot down on the Eastern front and spent the last two years of the war in a POW camp.

WW II found Lenbergs, his wife and son Harry, the latter born in 1938,

HIS WIFE PINS ON ENS. LENBERGS' WINGS

living in the capital of Latvia, Riga. Under the Hitler-Stalin non-aggression treaty, Latvia was occupied by the Russians in 1940. However, Germany attacked Russia in June 1941, and Latvia was occupied by the Germans. When the Russians began to drive the German Army back in 1944, Lenbergs and his family left their home just ahead of the approaching Soviet armies, so greatly did they fear communism.

After the war, the family lived in a series of displaced persons camps. In 1951, the son and his mother came to the United States. Later the father, who had not been able to pass the physical tests by reason of WW I injuries, entered the U.S. by a special Act of Congress.

Harry attended Penn State under the NROTC program. After receiving his commission at graduation in 1961, he entered flight training at Pensacola. Now a Naval Aviator, he reports to VP-50, Iwakuni, Japan.

CDR. M. E. STEWART, *C.O., assisted by his Aviation Safety Officers, is attempting to pull VT-21 up to its CNATra record set in July '62: 21,581 accident-free flight hours. The 10,000th hour has been passed on the way up.*

Navy Announces Speed-up

Two Kaman Helicopters Involved

The Navy intends to speed up its current modification program on the UH-2A *Seasprite* (HU2K-1) produced by Kaman Aircraft, Bloomfield, Conn.

Purchase of UH-2B *Seasprites* (HU2K-1U) authorized in the FY 1963 Defense Appropriations will also be accomplished shortly. Total commitments to the company for both programs will approximate $17 million.

The UH-2B is a single rotor helicopter powered by a G. E. T-58 gas turbine engine. It is a high speed helicopter designed to perform search, rescue, liaison and general utility missions. It can operate from a wide variety of Navy ships and shore bases.

VW-11's Crew One Winner

Men Are Again Given Force Trophy

Repeating an immediately previous win, Crew One of Airborne Early Warning Squadron 11 received the Commander Barrier Force, Atlantic, Outstanding Crew Trophy.

RAdm. R. B. Moore, ComBarForLant, presented the trophy at his headquarters aboard NS Keflavik. Cdr. Charles C. O'Hearn, Patrol Plane Commander of Crew One, accepted the award.

In addition to the trophy, ComBarForLant awarded individual certificates of achievement to 17 members of Crew One. The certificate signifies that the crew member has flown a minimum of 12 missions with the trophy-winning crew.

FAA Announces New ADIZ

150-Mile Zone around San Juan

The Federal Aviation Agency announced November 2 the establishment of a coastal Air Defense Identification Zone (ADIZ) within 150 nautical miles of San Juan, Puerto Rico, in the interest of national defense and the safety of air commerce.

All pilots of civil aircraft operating within this zone, into or out of Puerto Rico or the U. S. Virgin Islands, are ordered to file flight plans and make position reports as required by the appropriate air traffic control facilities. The ADIZ became effective November 3, 1962.

There are eight ADIZ's set up in areas outside the continental United States for purposes of national security.

Grumman Will Build 'LEM'

Lunar Excursion Module for 'Apollo'

Grumman Aircraft Corporation of Bethpage, N. Y., has been selected to build Project *Apollo*'s lunar excursion module (LEM)—a spacecraft in which Americans will land on the moon and return to a moon-orbiting mother craft for the journey back to earth. Grumman was one of nine companies competing for the development.

LEM is the final major segment of the three-module *Apollo* space vehicle and its advanced *Saturn* (C-5) booster to be put under contract.

Under present plans, *Apollo-Saturn* will stand some 325 feet high and weigh six million pounds at launch. On top will be a five-ton command module housing a crew of three. Under the command module will be a service module (25 tons) to provide mid-course correction and return-to-earth propulsion. Beneath it and shrouded by a fairing joining the top stage of the booster will ride the 12-ton lunar excursion module.

In the LEM development, Grumman will be under the technical direction of NASA's Manned Spacecraft Center, Houston, Tex.

Air Intelligence Training

DOD Directive Puts AF in Charge

A directive (#5160.52) establishing a management system for air intelligence training has been issued by the Department of Defense. It gives the Air Force responsibility for common air intelligence training which can most economically and effectively be conducted on a Department-wide basis.

The directive also provides for the Air Force to collect and maintain for the use of all DOD components a current record of all DOD air intelligence training requirements, training programs and courses.

Air intelligence training includes photographic interpretation and radar analysis training.

Under the new directive the Secretary of the Air Force is authorized to establish an Armed Forces Air Intelligence Training Center (AFAITC) to conduct common air intelligence training programs and courses which satisfy the training requirements of more than one DOD component. Personnel of all military services may serve on the staff and faculty.

MRS. CUNNINGHAM, *widow of LCol. A. A. Cunningham (first Marine Aviator) and LCol. J. H. Glenn, Jr., pose with Cunningham trophy. Col. Glenn was first to receive the trophy as "Outstanding Marine Aviator of the Year."*

Quonset Sailor Gets Medal

Is Commended for Heroic Service

Paul S. Andrus, AM1, Helicopter Anti-Submarine Squadron 11, NAS QUONSET POINT, was recently awarded the Navy Commendation Medal for heroic service while aboard the USS *Wasp* on February 21, 1962. RAdm. H. H. Caldwell, Commander Fleet Air, Quonset, presented the medal during special ceremonies.

The Navy citation was signed by Secretary of the Navy Fred Korth and reads in part: "With utter disregard for his own safety, he returned to the area of an aircraft fire in order to aid a shipmate who had been critically injured by debris from an exploding engine and removed this man from danger area. His actions in so doing were with full knowledge of the explosive nature of the fire and of the possible further spread of burning gasoline. These actions saved the life of his shipmate and made his ultimate recovery possible."

TO INDOCTRINATE *destroyer men, so often the rescuers of pilots, in special characteristics of flight gear, C. W. Engh, PR1, demonstrates the parachute quick release fastener to the crew aboard the Henry B. Wilson (DDG-7).*

Navy Carrier Idea Tried

FAA Tests Runway Arresting Gear

A series of aircraft tests of experimental transport-type runway arresting gear was completed at the Federal Aviation Agency's National Aviation Facilities Experimental Center, Atlantic City, N.J.

FAA Boeing 720 and Convair C-131 aircraft were flown in the test series which began on October 8. The 720 was arrested 35 times in the tests; the C-131, ten times.

Arresting gear involved in the tests was water-squeezer-type equipment produced under FAA contract by the All American Engineering Company, Wilmington, Del.

Top landing weight of the four-jet-engine 720 airplane in the "live" aircraft test series was 220,000 pounds. The plane at this weight was arrested at speeds up to 120 knots. Top speed in this series, 130 knots, was recorded at an aircraft weight of 135,000 pounds.

The arresting gear concept traces to Navy aircraft carrier operations. During recent years, such equipment has been installed at an increasing number of Air Force and Navy land bases as a safety device in the operation of jet fighter planes. FAA work has built upon a foundation of military experience.

FAA's aim is to test the feasibility of developing equipment to halt airliners that weigh more than 300,000 pounds, some six times the weight of fighter aircraft, at speeds as high as 130 knots.

For civil aviation use, this equipment must be capable of smooth arrestment, rather than the abrupt stop of carrier operations and, to a lesser extent, military airport arrestments.

Two Navy Contracts Made

Sea Knights and Vigilantes Ordered

The Navy's Bureau of Naval Weapons issued two contracts late in November totaling $23.8 million. The first is a $18,475,121 contract to Vertol Division of the Boeing Company, Morton, Pa., for the production of Marine Corps CH-46A *Sea Knight* (HRB-1) helicopters.

The other is a $5,395,000 contract to North American Aviation, Inc., Columbus, Ohio, for long lead time items for A-5C *Vigilantes* (A3J-3).

AT SEA WITH THE CARRIERS

ATLANTIC FLEET

Wasp (CVS-18)

The Boston-based *Wasp* paused in its busy schedule to observe its nineteenth birthday in November. The ship, commanded by Capt. Lee Mather, was commissioned in 1943 and headed for the Pacific battles of Wake, Tinian, Guam, Iwo Jima, Mindinao, Luzon, Palau, Formosa, Hong Kong, Okinawa and, finally, Yokosuka and Tokyo.

Wasp's VAW-33 detachment may have come up with the first NAO "Centurion." Ltjg. Fred Wilson, who received his commission with the first class of non-pilots to graduate from Pensacola's Pre-Flight school in 1960, joined the 100-landing club after 20 months of flying as an airborne radar controller.

To brighten all the corners of the *Wasp* (and to provide "Music to Refuel By"), Chaplain Robert McMillan has organized a band. Volunteer bandsmen from all ship units have formed what the crew calls "a real swinging outfit." (Chaplain McMillan once belonged to an all-minister dance band known as the "Swinging Parsons.")

The responsibility associated with becoming a Double Centurion hung heavy on the head of Lt. Duane Schumacher, VS-31, when he reached that milestone landing recently. A 20-pound tailhook point was hung around Lt. Schumacher's neck by the squadron's C.O., Cdr. Knute Knutson. Since VS-31 tradition requires 200-landing officers to wear the weight until they retire that night, the *Tracker* pilot said, "You can be sure that I went to bed early that night." Two other Double Centurions are aboard the *Wasp*—Lt. Bob Potter, VS-31, and Lt. Bill Mills, VS-28.

THE BOSTON SKYLINE *is a familiar sight to USS Wasp's crew. Ship was commissioned at the Boston Navy Yard November 1943 and is homeported there between its ASW missions.*

CHAMPLAIN'S *Captain Burgess congratulates Lt. Taylor after his 100th landing at night.*

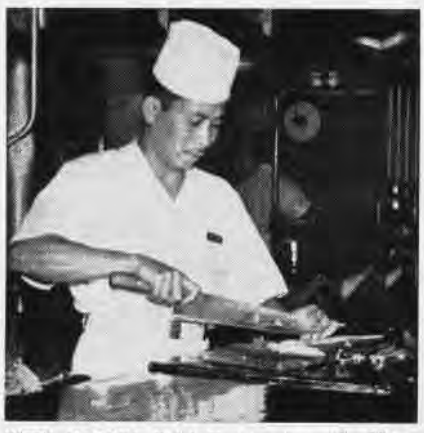
Franklin D. Roosevelt (CVA 42)

Serving with the Sixth Fleet for the 14th time in her 17-year history, the *FDR* logged its 115,000th landing in November. Pilot for the landing was Ltjg. Henry McCloskey, VA-15, in a *Skyraider*.

FDR claimed a new speed record for replenishment at sea. The carrier took on supplies from the USS *Arcturus* at the rate of 164 tons per-hour, 28 tons per hour faster than the accepted record set by the *Forrestal*. *FDR*, commanded by Capt. Walter Clarke, is aiming for a new mark of 200 tons at the next replenishment. The task required more than 800 men.

Essex (CVS-9)

Following receipt of the Flatley Award for aviation safety, the *Essex* "discovered" one of the prime movers in its safety program—an Aviation Boatswain's Mate who has worked in the ship's starboard catapult room for six and a half years. He is William Plemons, AB2, who has seen 17,000 accident-free cat shots on the starboard



KITTY HAWK'S *Fidel Castro at work. Name similarity has caused unwanted confusion.*

'QUARTER SQUAT' *is performed on Hornet's contraction bar by Lt. Bill Haas of HS-2.*

unit and recently helped celebrate the completion of the 25,000th catapult without accident. The cat is the original unit installed in 1950 and has never undergone major repairs or replacement, a tribute to the men who maintain the gear.

Antietam (CVS-36)

Ens. John McMahon, VT-30, Corpus Christi, made the 121,000th landing on the *Antietam*, flying an A-1H (AD-6).

Lake Champlain (CVS-39)

A flying admiral may have become the last Naval Aviator to be qualified to fly from both the straight deck and angled deck carriers. RAdm. Noel Gayler, Commander Carrier Division 20, requalified on the *Champlain's* straight deck, flying a C-1A *Trader* (TF-1). Earlier he had flown from the *Randolph's* angled deck. The *Champ* is the only straight-deck carrier in the Navy. Adm. Gayler, ranked as one of the earliest Navy jet pilots, made 10 landings on the *Champlain*.

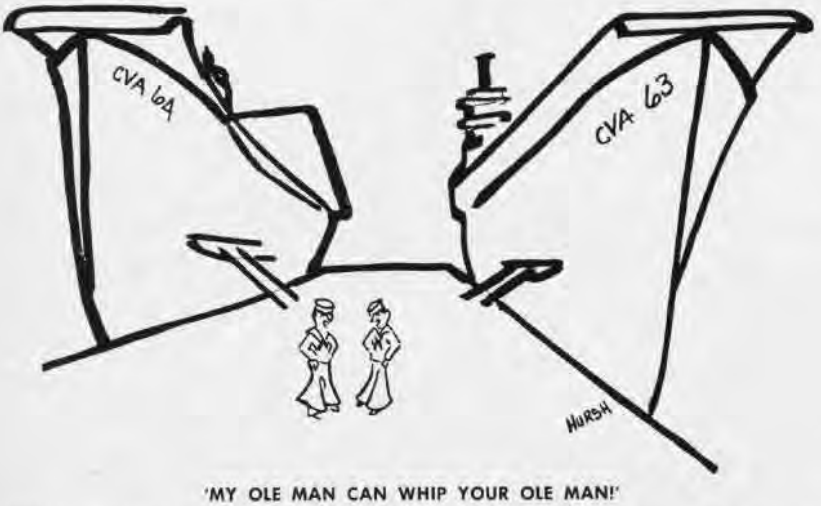
Lt. John Taylor, VS-22, became the first night Centurion in ASW Air Group 54, flying aboard during ASW exercises off the Atlantic Coast.

PACIFIC FLEET

Kitty Hawk (CVA-63)

Perhaps needled by the fact that *Kitty Hawk* lost in a "battle of measurements" with the *Constellation*, the ship's newspaper carried the cartoon on this page. "Official sources" said that *Kitty Hawk* is 1,047 feet and six inches long, one and three-sixteenths inches shorter than the *Constellation*. The *Constellation* thus won its claim as the "largest" in the Pacific Fleet.

A change of orders made a happy man of one of *Kitty Hawk's* crew members. He is Fidel Castro, SD2, who is attached to VF-114 and serves in the Wardroom One galley. He had been ordered to Guantanamo, Cuba, but asked for a change that brought him to the *Kitty Hawk*. "People think I'm kidding when I tell them my name," he said. His family lives in the Philippine Islands, which he hopes to visit during the ship's cruise.



'MY OLE MAN CAN WHIP YOUR OLE MAN!'

FAMILIAR, OFT-USED *cartoon caption shows USS Kitty Hawk's feeling toward her sister ship, USS Constellation (CVA-64). This cartoon is reprinted from the Kitty Hawk News.*

FDR'S CREW *takes another load of supplies from Arcturus during replenishment at sea.*

Kitty Hawk received the title of "Ship of the Year" from the Armed Service YMCA-USO organization in Philadelphia. Prior to the ship's detachment from the Atlantic Fleet last year, the crew had cooperated with the service group in a dance that celebrated both the 50th Anniversary of Naval Aviation and the 20th Anniversary of the United Service Organizations. A plaque and citation were given to the ship.

Constellation (CVA-64)

The *Constellation* celebrated its First Anniversary and welcomed aboard her second commanding officer. Commissioned on Navy Day, 1961, at New York, the ship was in San Diego for the birthday fete. On November 19 Capt. Stanley Vejtasa, who entered the Navy as an aviation cadet in the late 1930's, relieved Capt. Thomas Walker III, who had commanded the carrier through its first 47,000 miles of travel.

Hornet (CVS-12)

The new physical fitness method—functional isometric contraction—has found *Hornet* crewmen among its endorsers. Using a metal rod inserted into two 2-by-6-inch uprights, a crewman can complete a workout in 15 minutes and a basic workout in a mere 96 seconds.

Cdr. Richard Mann, X.O. of VS-37, recorded the 72,000th landing aboard

WASP'S NEW BAND *plays background music for VS-31's 200th-landing, tailhook ceremony.*

Hornet during ASW night operations off Japan's coast.

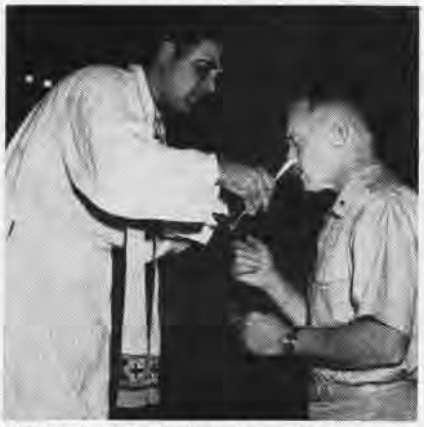
Interrupting ASW exercises off the coast of Southern Japan, *Hornet's* HS-2 squadron participated in the at-sea rescue of a merchant seaman who had been stricken with severe abdominal pains. Lt. T. G. Shell delivered the ship's flight surgeon, Lt. P.J. Gelber, to the British freighter SS *Wynn*, later picked up the victim and doctor and made a 60-mile flight to a naval hospital.

Hornet, with CVSG-57 aboard, operating with the Seventh Fleet, is flagship for RAdm. George Luker, Commander Carrier Division 17.

The *Hornet's* band "batted" 100 per cent in the advancement league. All 12 bandsmen who underwent Navy-wide testing last August were notified of their promotion to new rates. The CarDiv 17 band is directed by Chief Musician C. A. Cole.

As the *Hornet's* PIO put it, "The band has something to 'toot' about. The 12 bandsmen were part of a *Hornet* group of 217 men aboard the ASW carrier who earned new crows. The *Hornet's* advancement group included 153 new Third Class, 51 second class and 13 first class petty officers. An additional 72 seamen received rating designations.

To Ltjg. Martin Kee, of VAW-11, his 95th landing aboard the *Hornet* will be as well remembered as his 100th. On his 95th landing in an EA-5W *Skyraider* (AD-5W), he was notified that he had completed the 5000th CCA landing on the carrier. Part of his reward was a traditional cake.



ROYAL NAVY *chaplain John Davies serves communion while "hitching ride" in CVA-31.*

Oriskany (CVA-10)

Cdr. Dan Marshall, commanding officer of VA-163, made his 500th carrier landing, his last as squadron commander on the *Oriskany*. Shortly after landing his *Skyhawk*, Cdr. Marshall turned over the squadron reins to Cdr. M.D. Short. The 500th landing came after almost 5000 air hours for the Naval Aviator.

One of Cdr. Short's early duties after assuming command in mid-October was the "capping" of a new officer. The squadron's Floyd Gates, AME1, was selected for LDO, the first VA-163 man to be commissioned under the LDO program. Ens. Gates was presented a "Saints" baseball cap and was assigned to a place in the squadron ready room.

Bon Homme Richard (CVA-31)

Carrier Air Group 19 had a proud moment at sea when VAdm. C.E. Ekstrom, ComNavAirPac, presented two CNO Aviation Safety Awards to squadrons based aboard the *Bonnie Dick*. Presentations of the awards were made to Cdr. J. Bent, C.O. of VF-193 and Cdr. W.E. Edwards, C.O. of VA-196, as the admiral made a visit to the Seventh Fleet and Far East.

A Royal Navy chaplain has been designated as an honorary crew member of the *Bon Homme Richard*. He is Chaplain John Davies, RN, who spent several days aboard the carrier while he was en route to a new assignment.

Yorktown (CVS-10)

Landing number 86,000 was marked by the *Yorktown* as the ship observed Navy Day, October 27. Pilot of the milestone aircraft was Lt. G. S. Petersen, VS-23.

Commander Carrier Division 19, RAdm. Joseph Jaap, deployed with *Yorktown* for a Far East cruise that began late in October. Aboard ship were elements of CVSG-55, headed by Cdr. Vincent Collins. Capt. Waller C. Moore is C.O. of the *Yorktown*.

500TH LANDING *on carrier Oriskany is the occasion for handshake for C.O. of VA-163.*

Hancock (CVA-19)

Hancock's new commanding officer moved from a carrier command to his CVA command. Capt. T. D. Harris, reporting to the *Hancock* in late November to relieve Capt. P. K. Blesh, was C.O. of the USS *Iwo Jima* (LPH-2) prior to receiving new orders.

Intrepid (CVS-11)

Unable to launch aircraft or join the quarantine line around Cuba because of her stay in a shipyard for a overhaul period, the *Intrepid* and her crew did its part to help out. Because so many ships were out of port during the Cuba crisis, the carrier's men felt impelled to take up the slack in the Norfolk area blood donation program. One out of every four men went to the blood line, giving a total of more than 400 pints, when the Portsmouth Naval Hospital called for donations four times during the Cuban crisis.

CAPT. CURTIS *accepts plaque for Kitty Hawk after selection as YMCA-USO "Ship of Year."*

APL Scientist Honored

Potts Medal Given to Dr. W. H. Goss

On October 17, the Franklin Institute of Philadelphia presented 22 scientists and engineers with a medal commemorating their service in research and development.

The scientist most closely connected with research and development in the Navy was Dr. Wilbur H. Goss, assistant director, Applied Physics Laboratory, Johns Hopkins University. Dr. Goss' work under contracts first with BuOrd and later BuWeps has covered over 15 years.

The Howard N. Potts Medal was given to him for his engineering designs and technical supervision that led to the development of the first successful supersonic ramjet, and particularly for his development of the ramjet combustion systems and the integration of these systems in military vehicles. One of these is the *Typhon* missile.

The Institute is well known among scientists not only for its awards, but also for its many services to science. Founded in 1834, it was named for Benjamin Franklin.

NAMC Development in Use

Nylon Bridles on SATS Catapults

Bridle hook-up men working on the RE-1 catapults installed on the Marine Corps SATS (Small Airfield Tactical Support) fields at Bogue, N.C., Quantico, Va., and 29 Palms, Calif., will have an easy time of it because of the nylon launching bridles being used for the first time on these catapults. Made of multiple strands of standard flat nylon webbing, bridles for the F-6A (F4D) *and* A-4 (A4D) weigh only eight pounds apiece instead of 95-100 pounds for shipboard type bridles made of wire rope.

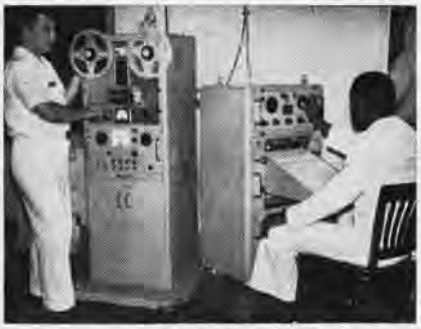
Despite their light weight, the bridles are able to withstand more than twice the loads to which they will be subjected when launching an aircraft and consequently combine ease of handling and safety. They were especially developed by the Naval Air Engineering Laboratory (SI), Naval Air Material Center, Philadelphia, Pa., to meet the needs of the shore-based catapults.

Unfortunately for carrier-based catapult crews, bridles made of nylon or other synthetic fibers presently available cannot be made strong enough

NEW NYLON BRIDLES BOTH STRONG, LIGHT

(without being excessively bulky) for use with heavy aircraft on steam or hydraulic catapults. With the 1000-foot power run of the RE-1 catapult, A-4, F-6A and F-8 (F8U) aircraft are launched at end speeds of 140 knots with bridle loads of less than half that obtained on short run shipboard catapults.

Because of these reduced loads, the use of nylon has proved to be quite practical for the purpose, and the nylon bridle admirably meets the expeditionary requirements associated with the SATS concept which was developed by the Marine Corps.



STUDENT (R) TUNES RADIOSONDE RECEPTOR

Radiosonde Study Speeded

Device Enlarges Operator Training

Radiosonde Operator's School (Class C) of the Naval Air Technical Training Unit, NAS Lakehurst, N.J., has completed installation of a new device that will improve the training of students and at the same time reduce the cost.

This device, which is called the Radiosonde Trainer Device X6D2, is basically a magnetic tape recorder-reproducer. A balloon-borne radio transmitter is released which sends back to earth readings of temperature, barometric pressure and humidity in the form of radio signals. The X6D2 records these signals on tape. This information can be retransmitted from the tape over a closed circuit system to ten AN/SMQ-1 weather data recorders. The data appears on the recorders as markings on a chart.

A series of these tapes can be prepared enabling the study by students to interpret and analyze many different types of upper air conditions. Previously, during the four-week course of study, practice soundings, required the launching of a helium-filled balloon with attached parachute and radiosonde transmitter for each sounding. These releases gave the student the opportunity to become familiar with the upper air conditions for only the season during the school period. Now, however, soundings can be taped during different seasons and be re-used indefinitely. This wide experience will be most useful when put to use in the field.

At present the school graduates nine classes a year, each class requiring 14 soundings. The cost of making a balloon-released sounding is approximately $28. By substituting taped soundings, a substantial saving will accordingly be realized.

TG Delta Celebrates Year

Is Specialized in Long Range ASW

A task group that started out as an experiment over a year ago, celebrated its first anniversary on a successful note at NAS Norfolk in November.

The group, commanded by RAdm. G. P. Koch and comprised of VP-24 and elements of VP-45, has earmarked itself as a "specialized long-range anti-submarine group."

RAdm. Koch, who also wears the hat of Commander Fleet Air Wings Atlantic, praised the two squadrons for "their untiring efforts in the complex field of ASW."

VP-24, flying P-2H *Neptunes* (P2V-7), was commanded by Cdr. M. T. Lulu during the critical first year. VP-45, flying P-5B *Marlins* (P5M-2), is commanded by Cdr. G. R. O'Bryan.

Task Group *Delta*, utilizing highly sophisticated electronics detection equipment in its ASW role, stresses "teamwork to the point of perfection."

Task Group *Delta* utilizes the very latest ASW tactics in performing its mission, and it has the ability to carry the "Cat and Mouse" game far out to sea, hundreds of miles from the coast.

LETTERS

SIRS:

Patrol Squadron Six received, with the usual great pleasure, the October *Naval Aviation News* today. Congratulations on another outstanding issue.

While we are loath to indulge in 'nit-pickin', we would direct your attention to the story appearing on page 14 concerning the recent visit of the Royal Australian Air Force's Number Eleven squadron to NAS Barber's Point. It was, in fact, Fleet Air Wing Two and Patrol Squadron Six that had the pleasure of hosting the Australians vice NAS BARBER'S POINT.

Since their visit to Hawaii, we sent two *Blue Shark* crews to RAAF Richmond AFB. The flight was led by former VP-6 Commanding Officer, Cdr. Edward F. Leonard, and their reports recounted in glowing terms the hospitality offered by the Australians as well as valuable training accomplished with our friends "down under."

R. J. DAVIS, JR., CDR.
Commanding Officer

SIRS:

The article "Squadron View of Fleet Work Study" (September 1962, p. 32), written by Lt. Jack Davis, VA-126, is considered one of the best reports on the efforts of Fleet Work Study Group Pacific personnel in the field of maintenance. It is through the dissemination of such factual and well written reports that the Navy will reap great benefits.

It was noted, however, that the name of H. P. Walton, AEC, was not listed as one of the four members of the FWSGPAC Team which conducted the study.

W. F. ZIEGLER, FWSGPAC

SIRS:

On page 20 of November's *Naval Aviation News* I see where *Lexington* claims a "first" in operating Spads in the roaring 40's. Not being a bubble-burster at heart, I reluctantly leap to the offensive for Capt. (Adm. Selectee) "Butch" Bringle and his *Kitty Hawk* brood of black-striped felines.

CAPT. W. J. SCARPINO, *Commander Airborne Early Warning Wing, Atlantic, presents the Lockheed-sponsored Meritorious Squadron Award, to Capt. M. P. Bailey, C.O., VAW-13, NS Argentia, Newfoundland.*

Kitty Hawk in the fall of 1961 transited from East to West with Air Group 11, VF-142, VA-113, VA-115, VAH-9 and VFP-63 Detachment embarked. The group flew daily until the ship passed south of Cape Horn when, in deference to the graybacks, we reluctantly welded the aircraft to the deck. Pilots being what they are, all flights immediately after launch intercepted the rhumb line between *Kitty Hawk* and the Falklands, Tierra Del Fuego, or Cape Horn itself. I am happy to report that the weather and visibility remained excellent for our viewing the rugged topography of that impressive part of the world.

J. B. STETSON, CDR.
Former C.O., VF-142

ABOUT THE AUTHORS

Cdr. Warren Eli Johnston *(Testers, Appraisers and Evaluators,* pp. 16-19) received his Navy Wings and commission at Corpus Christi, Tex., in May 1943. He spent 1944 flying from forward bases in the Southwest Pacific as plane commander of a *Liberator* in Patrol Bombing Squadron 115, completing 50 combat missions.

In 1945-46, he was flying in the Aleutians and Alaska as plane commander of a PB4Y-2 *Privateer* and as Aviation Safety Officer in VP-122. At the end of WW II, he transferred to regular Navy.

From early 1947 to mid-1950, he was attached to Air Development Squadron One at Key West, Fla., where as Project Pilot he flew developmental flights and performed duties of the Public Information Officer.

After a tour at Glenview as Aviation Safety Officer for CNAResTra and completion of a five-month CIC officers' course, he served as CIC officer and NIO aboard USS *Valley Forge* in Korean waters until the cessation of hostilities. In 1954, he embarked in the Flagship of ComCarDiv 16 and served as Flag CIC Officer, Material Officer, Electronics and ECM Officer, Assistant Plans Officer and Assistant Air Operations Officer during Hunter/Killer exercises in the Atlantic, including operations with NATO forces; in Northern Ireland with British units; in the Mediterranean with the Sixth Fleet and in the Caribbean for *Springboard* 1955 and INTEX 1-55.

After attending the General Line Officers' course at Monterey, he returned to the East Coast for a two and a half year tour as Head, Safety Literature and Education Branch, Aviation Safety Division, CNO. He was also a contributing editor of *Naval Aviation News* until July 1958.

From mid-1958 to mid-1960 he served on the staff of ComCarDiv One, twice deploying to WestPac aboard USS *Ranger* and also embarked in USS *Shangri-La*, USS *Ticonderoga* and USS *Kearsarge*, performing duties of Flag CIC, Air Defense, and ASW Officer, including like duties for Commander Task Force 77.

In August 1962, he completed 26 months of duty on the Pacific staff of OPTEVFOR where he was Project Coordinator and Executive Officer for DEPCOMOPTEVFORPAC. He is now serving in the Development Planning Division of the Office of Deputy Chief of Naval Operations (Development).

Cdr. Robert E. Empey *(NATOPS, A Quest for the Best,* pp. 30-32) is Director of the NATOPS Division of the Naval Tactical Doctrine Development and Production Activity. His group administers the Washington end of the NATOPS program under policy guidance of the Aviation Training Division of DCNO(Air).

The author brings to his job a wealth of operational and test flight experience. In early 1942 he transferred to the U.S. Navy from the Royal Canadian Air Force where he was a pilot with the rank of Warrant Officer.

While flying *Liberators* and *Privateers* with VPB-117 in the Pacific Theatre during WW II, his crew shot down 11 Japanese aircraft, including seven fighters.

Returning from the Pacific in the fall of 1945, he was assigned to the Tactical Test Division at NATC PATUXENT RIVER. During that tour—even though primarily assigned to multi-engine projects—he managed to fly every aircraft in the Navy inventory at the time, plus several captured Japanese and German types.

After graduating with the first class of the Navy's Test Pilot Training School, Cdr. Empey became one of the Navy's early jet pilots, checking out in the Bell P-59 *Airacomet* and McDonnell's original *Phantom*.

Most of his subsequent operational flying tours have been in patrol aviation—P-2's (P2V's) and P-5's (P5M's). He has also served in various operational staff billets and ASW planning billets.

Cdr. Empey's "quest for the best" methods has spilled over into his hobby, sailboat racing. He presently holds, for the third year, the high point championship of the Chesapeake Bay area and is co-author of a book on sailboat racing, *Techniques of Small Boat Racing*.

NATOPS NOTICES

Pending Distribution

A-3A	Supplement
A-5A	Original Manual
A-1H/1J	Supplement
F-1E/AF-1E	Supplement
SH-3A	First Revision
SH-3A	Supplement
UH-25B/C	Supplement
SP-2E/H	First Revision
SP-2E/H	Supplement

Watch this box for latest NATOPS distribution data.

SQUADRON INSIGNIA

Fighter Squadron One Hundred Fourteen proudly displays its 'new' insignia, a modification of the 'Executioner' patch used prior to 1950. In the original design, Bellerophon rode Pegasus in a dive to depict the squadron's bombing mission. A 90° clockwise rotation of the heraldry put the team in a climb to symbolize Phantom II-flying VF-114's current interceptor role. Cdr. J. J. Konzen, former 'Executioner' X.O., relieved Cdr. A. W. Chandler as Commanding Officer in December while the squadron was deployed with the Seventh Fleet in Kitty Hawk.

VF-114

TODAY'S EVENTS—TOMORROW'S HISTORY

Like a giant wheel, the calendar of days turns inexorably, unstoppably. Today's current events become tomorrow's history. Locked inside the 12 covers were 480 pages of 1962's events in Naval Aviation: 'First American in Orbit,' 'The Evolution of Aircraft Carriers,' 'Today's Revolution in Electronics,' 'Realistic Drills on Carriers,' and 'Riding the Range at Mach 2.5.' To keep track of tomorrow's history, get your personal copy of the *News* by sending $2.50 check or money order to Superintendent of Documents, Gov't Printing Office, Washington, D.C.

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