NAVAL AVIATION NEWS

43rd Year of Publication

SEPTEMBER 1962

NavWeps No. 00-75R-3

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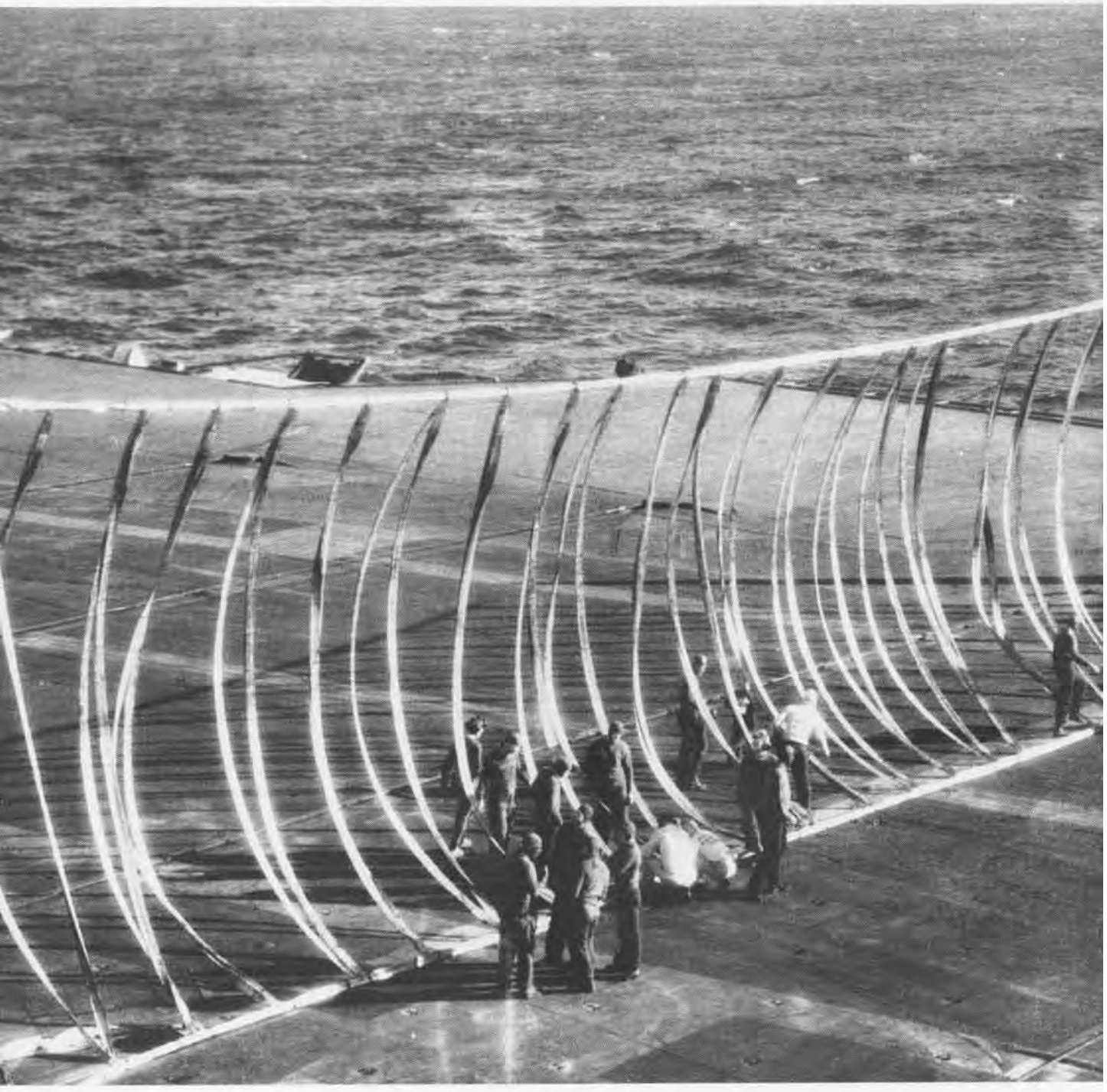

DRILLS PERFECT TEAMWORK

'Discipline is willing obedience to attain the greatest good by the greatest number. It means laying aside, for the time being, of ordinary everyday go-as-you-please and do-what-you-like. It means one for all and all for one—teamwork. It means a machine—not of inert metal, but one of living men—an integrated human machine in which each does his part and contributes his full share.'—FAdm. E. J. King, 1942. (Carrier drills described on pages 6-12.)

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FORTY-THIRD YEAR OF PUBLICATION SEPTEMBER 1962

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

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

■ COVERS

Cover (shot by R. E. Lawrence, PH2, of VFP-63) shows A. E. Fuller, AMS3, and L. J. Graham, ADR-2, peaking one of VA-126's 'big guns'—a spare engine. Full story is on pp. 32-35. Picture above depicts emergency barricade drill aboard Constellation. Crew rigs it in one minute, 14 seconds.

NAVAL AVIATION NEWS

CNO Safety Awards Listed

Announcement Made on Aug. 7th

Winners of Chief of Naval Operations Aviation Safety Awards were announced in 39 categories of competition.

In the major type competition between the Fleets, Pacific Fleet Navy and Marine units garnered 14 awards compared to Atlantic Fleet's Ten. Winners in the Naval Air Training Command, Naval Air Reserve Training Command, Marine Air Reserve Training Command and in Special Award categories were announced at the same time.

Admitting that improved safety records had made selection of winners "a most difficult task," CNO paid tribute to the "outstanding professionalism displayed throughout Naval Aviation" during the fiscal year that ended June 30, 1962.

Winners by command and category:

Naval Air Force Atlantic

VF (day)	VF-33
VP (land)	VP-11
RCVG	HS-1 (VP/VS/HS)
VR	VR-24

Special Missions, VAW-33, VFP-62
Special Award, VR(F)-31

Naval Air Force Pacific

VF(AW)	VF-193
VA(jet)	VA-216
VA(prop)	VA-196
VAH	VAH-6
RCVG	VF-121 (VF/VA/VAH)
CVG	CVG-15
VP(sea)	VP-40
VS	VS-33
VW	AEWBarRonPac
HS	HS-4
Special Mission:	HU-1

Fleet Marines Atlantic

VMA(jet)	VMA-224
HMR	HMM-263
H&MS	H&MS-24

Fleet Marines Pacific

VMF/VMF(AW)	VMF(AW)-451
VR/VMR	VMGR-352

Naval Air Training

ATU(jet)	VT-21
ATU(prop)	VT-30
BTG(jet)	VT-9
BTG(prop)	VT-1

Special Award:
NATTC/NAS GLYNCO

Naval Air Reserve

VF-VA(jet)	VA-831
VA(prop)	VA-813
VP	VP-724
VS	VS-662
VR	VR-742
HU/HS	HU-811

Marine Air Reserve

VMF/VMA(jet)	VMF-313
VMA(prop)	VMA-222
HMR	HMM-773

Special Award

USS *Valley Forge*

ON JULY 18, *President Kennedy presented the 1961 Collier Trophy, one of Aviation's highest honors, to the four X-15 pilots standing directly behind him: Maj. Robert M. White, USAF; Scott Crossfield, North American Aviation; Dr. Joseph Walker, physicist and veteran chief pilot of NASA's Flight Test Center, and Cdr. Forrest S. Petersen, USN, now C.O. of VF-154. White, Walker and Petersen were also the recipients of NASA's Distinguished Service Medal.*

Ten Air Squadrons Honored

Receive Battle Readiness E Awards

Ten air squadrons have been named for the 1962 Battle Readiness Excellence Award this fiscal year.

The E awards were conferred by VAdm. Frank O'Beirne, Commander Naval Air Force, U.S. Atlantic Fleet, who remarked that "the numerous

squadrons that provided such close competition can be justly proud of their demonstrated readiness under trying circumstances."

The Norfolk winners and their commanding officers are: VS-24, Cdr. John L. Kent; HS-7, Cdr. George W. Cogswell; VF-103, Cdr. F. T. Rooney; and VA-83, Cdr. James Spargo.

Other squadrons receiving the award were: VF-31, LCdr. T. R. O'Neil, NAS CECIL FIELD, Fla.; VP-18, Cdr. Robert F. Lyons, and VA-15, Cdr. David J. Munns, NAS JACKSONVILLE, Fla.; VAH-5, Cdr. Roy E. Farmer, NAS SANFORD, Fla.; VP-11, Cdr. Raymond G. Neal, NAS BRUNSWICK, Me.; and VP-8, Cdr. Creighton W. Cook, NAS PATUXENT RIVER, Md.

This is the second consecutive year VF-103, VA-83, VA-15 and VP-8 have received the Battle Readiness Excellence Award. The competition is designed to test the readiness of each unit to meet the challenge of combat in respective fields of Naval Aviation.

AFTER ARRIVING *in the "Iron Angels'" first F8U-2NE Crusader, LCdr. E. D. Jackson, operations officer of Fighter Squadron 141, gives farewell wave to the squadron's last F3H-2. Lt. Dave Opheim pilots the departing Demon.*

Lights Boost Deck Safety

Slated for All CVA-CVS-LPH's

A very small investment is producing a tremendous pay-off on several Navy carriers. To relieve the "black hole" condition on the flight deck during night operations, someone got the bright idea of illuminating the deck with shielded red floodlights.

Randolph's crew mounted such floodlights high on its mast and island structure in late fall of 1961. The total cost came to only $1075. Response to the lights was so favorable that CNO authorized them for ship's force installation on all CVA's, CVS's, and LPH's.

Crews of *Enterprise, Independence, Coral Sea, Constellation, Kitty Hawk, Ranger* and *Bon Homme Richard* have made similar installations on their ships.

Coral Sea installed her lights during a five-day in-port period at Kobe, Japan, last May. Standard shipboard floodlights, fitted with eight-inch width shields, and equipped with 300-watt bulbs and heat resistant red plastic filters were used. Four banks of five lights each were placed high on the island structure. Five variacs in Pri-Fly control the intensity of illumination.

A fifth bank, to better illuminate the after flight deck and arresting gear area, was mounted atop Tilly, the mobile aircraft crane, during a Hong Kong in-port period a couple weeks later. Power leads to this bank can be readily disconnected if Tilly has to move from her accustomed spot.

Coral Sea's C.O., Capt. M. F. Weisner, called the installation of flight-deck floodlights, one of the "most significant developments . . . during this cruise." The ship reported that "since the red lights were first used to illuminate the flight deck there has not been a single aircraft crunched on the flight deck at night."

Flatley Awards Announced

Independence, Essex are Winners

Two U.S. Atlantic Fleet aircraft carriers topped their Pacific Fleet counterparts for the third consecutive year in winning the annual Admiral Flatley Memorial Award for outstanding achievement in accident prevention during carrier operations, Atlantic Fleet Naval Air Force headquarters has been officially announced.

The USS *Independence* (CVA-62), commanded by Capt. Evan P. Aurand, was given the award for the attack aircraft carrier class. USS *Essex* (CVS-9), skippered by Capt. Gerard S. Bogart, received the honor for anti-submarine warfare carriers.

The highly coveted award is given to one attack and one anti-submarine aircraft carrier by the Chief of Naval Operations for furthering the naval aviation safety program. It was named for the late VAdm. James H. Flatley.

Runners up in the competition were two Pacific Fleet ships, USS *Bon Homme* Richard (CVA-31) and USS *Hornet* (CVS-12).

Patuxent Squadrons Get P3V

Twenty-two Orions by End of Year

Two patrol squadrons based at NAS PATUXENT RIVER, Md., are the first operating units to receive the new Lockheed P3V-1 *Orion* anti-submarine aircraft.

The first *Orions* arrived at Patuxent River in July. VP-8 and VP-44, which have been flying the Lockheed P2V *Neptunes,* were the squadrons accepting delivery.

A total of 22 P3V-1's are scheduled to be in squadron duty by the end of this year.

The *Orion,* manned by a crew of ten, is equipped with advanced ASW detection gear and can carry bombs, torpedoes and nuclear depth charges.

An *Orion* recently sped from Burbank, Calif., to Norfolk, Va., a distance of 2540 miles, in 5 hours, 44 minutes, averaging 441 miles per hour.

AN AD SKYRAIDER *belonging to VA-115 returns to the line at NAAS Fallon, Nev, trailing its drogue chute. The A3D belongs to VAH-13, a component of CVG-11. The "Arabs" of VA-115 had watched the Skywarrior squadron use the drogue chutes and decided to try one out on the Skyraider during long taxi runs. The experiment was a success, but a Service Change for the AD is not anticipated unless a requirement arises for non-arrested landings on small carriers.*

GRAMPAW PETTIBONE

Double-Crossed

An experienced pilot had been assigned to ferry an F9F-8B *Cougar* from a West Coast base to a storage facility.

He went to the Transient Line shack around 1000 one fine morning, carrying his RON kit and looking for the *Cougar*. After considerable delay, he was finally able to ascertain that it was in an UP status, had a full fuel load and had been pre-flighted.

Since his squadron duty officer's status board listed it as UP but AOCP for a starter, he did some further checking and found that the starter had been changed and the *Cougar* actually was UP. Whew!

Suspicious of the whole lash-up but finally convinced, the pilot went to Operations, filed his flight plan, loaded his gear aboard, pre-flighted the plane carefully, and climbed in.

The line crew plugged in the NC-5, and he tried a start. No luck. The power unit didn't put out enough power to even turn the engine over. He tried a combination of NC-5 plus battery switch ON and got a wet start. After one more unsuccessful try, he had the line crew go get another power unit. After plugging in, this one wouldn't even turn the engine over. The line crew now informed him there were no more NC-5's. No one had a solution to this problem.

He had them bring the first one back and by using it plus battery power finally succeeded in getting a light and ran the engine up a bit. While going through the cockpit checks, he now found he had no elevator or rudder trim indication.

He shut the engine down and going to the line shack wrote out a work order after "downing" the plane.

Checking around the maintenance office, the pilot found that the tail had been pulled after the starter change, because a mech had inadvertently fired an air start igniter and a check of the engine had been required. The pilot now figure that maybe things weren't connected up and, telling a couple of electricians to come along, went out to the *Cougar* to check this. Sure enough, the elevator trim cannon plug and rudder trim cannon plug were not fully connected and had not been tightened down. This was fixed and the trim check out O.K. with an NC-5 plugged in.

Back to the line shack, put the *Cougar* back in an UP status and down to Operations to refile, this time for a 1315 (local time) departure.

After another pre-flight and a recheck of the trim tabs, he got a good start, set in 2½ degrees of nose-up trim, got clearance from Ground Control and taxied out to the runway.

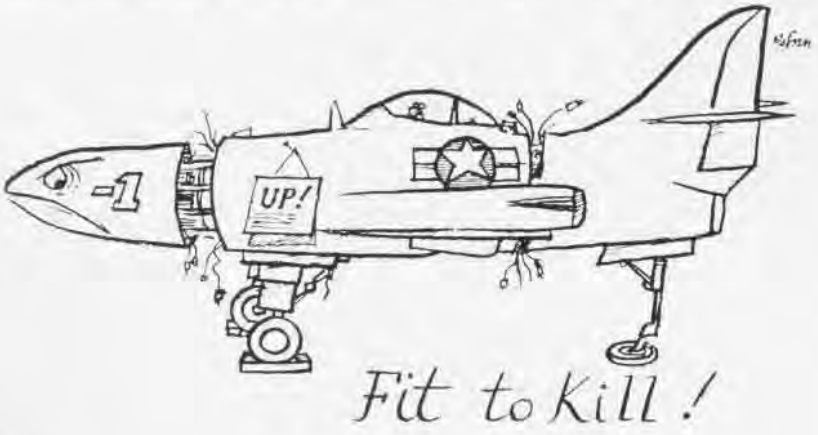
Cleared into position for take-off, he completed his cockpit check, had everything "in the green" and released the brakes for the take-off roll.

The *Cougar* flew off at about the 4000-foot marker at 130 knots and started a gentle climb-out. As he was reaching for the landing gear handle, the nose suddenly pitched down toward the runway! He put some back pressure on the stick and rolled in some UP trim. The nose wouldn't come up! He eased a little throttle off, thinking he'd better set it down again, but the nose dropped more steeply! He was only at about 50 feet of altitude, and rather than dive into the runway, he now rammed on full power, more nose up trim. As the nose came up slightly, he cleared the end of the runway jet barricade by inches.

His speed was now about 150 knots as he approached the shore line a few hundred feet beyond the runway when, suddenly, the nose pitched violently up, the *Cougar* going into what looked like a loft maneuver entry.

He threw in full forward stick, but the nose only pitched up higher, finally reaching what seemed like almost a vertical attitude!

Like a flash the thought occurred to him that he might have reversed controls, so he applied full back stick.



ILLUSTRATED BY OSBORN

No use! The controls were sloppy. He was stalled! No doubt about it.

With a feeling of complete futility and knowing he had only a standard seat with zero lanyard, he reached up and pulled the curtain! It was hopeless!

With a roar, the ejection seat hurled him through the canopy. Amid a shower of plexiglass debris as he hurtled upward, he felt the seat separate and suddenly felt a delightful shock as that beautiful chute opened! He oscillated once as it slowed him down and then hit the water about 150 feet off shore. The plane smashed in about 200 feet away.

Shedding his parachute harness, he swam for shore. With the help of a couple of men who had witnessed the accident, he was helped to safety, badly bruised but O.K.

Grampaw Pettibone says:

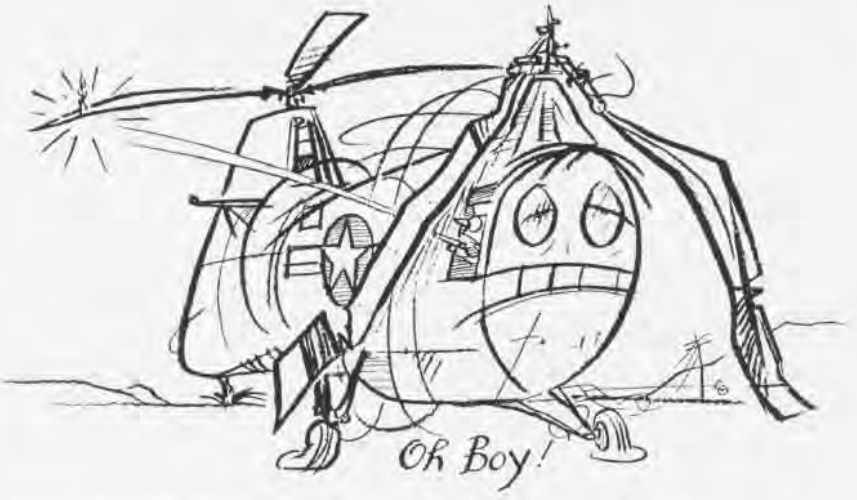
Great blisterin' balls of fire! The would-be widow makers who pulled the tail on this *'Cougar'* and then hooked up the controls "reversed" are WORTHLESS! Although they weren't familiar enough with an F9F, they never bothered to check the HMI. The job was checked by an "inspector" who also never checked the HMI. The book explains the color coding of the cables, yellow for the down cable, red for the up cables—but nobody checked—just snapped it together. Obviously, it wasn't checked after reassembly or they'd have found the trim tab gripe themselves. They're well on the way to earnin' their outfit the title of *Worst maintenance department ever!* SAD!

Hot Lines

Two pilots and the plane captain lifted a HUP-2 off a West Coast base for the last hour of the required four-hour run-in time on a new engine.

The engine was running as smooth as silk, so they cruised inland from their coastal air station and after about 30 minutes of flight commenced a return to the station following a dry creek bed at about 75-100 feet of altitude.

Two young boys had been lost in a flash flood in this same creek some two months previous, and one body had never been recovered. All the station helo pilots made a practice of scanning the creek bed at every opportunity, hoping to find the missing body, a sort of civic duty.



Today the creek was only a trickle in a vast bed of gravel and steep hills, almost small mountain ridges, extended sharply upward on both sides.

The pilot, who was trying to scan the creek, too, lifted the HUP over a couple of sets of high tension wires. He was flying into the sun and there was considerable haze or smog present, so visibility was pretty poor.

Suddenly, at a point only two miles from the airfield and as they were rounding a bend, there was a blinding flash, a thud, and the HUP began to vibrate and shake. With sparks and much electrical activity all around the greenhouse area, the pilot performed an expert autorotation to the creek bed. They had hit a high tension line (16,000 volts, it later developed) with the forward rotor.

Wires were entwined all around the helo, so the crew sat where they were and tried calling the base and numerous passing aircraft on both tower frequency and guard channel. No luck. Eight red flares were fired, both at planes and for the benefit of construction workers on a bridge project less than a mile away. For 55 minutes, no attention was paid the distressed crew.

Finally, the radarmen on a nearby mountain top radar site spotted them through binoculars and called the air station.

Meanwhile, some electric company linemen checking on the power outage also discovered the wrecked helo, advised the crew to "sit tight" and turned off the power. Shortly afterwards another helo arrived to return them to the station. It had been a hot, dusty, and somewhat tense wait.

Grampaw Pettibone says:

Jumpin' Jehosophat! It would certainly pay any air station to chart accurately all power lines, towers, obstructions, or any other hazards their helos might encounter during low level flight in the local area.

You just can't be an observer and pilot at the same time. Each is a full time job. When you're flyin' the airplane, do just that, especially at low altitude. A "sandblower" pilot learns to watch the path ahead and to plan ahead. The helo goes a lot slower and tends to lull a man into a sense of false security, but those power lines can still trip him up and just as fatal-like.

Memo from Gramps

The word has been pretty well spread around by now that the accident rate has been cut again. In case a 9 percent improvement seems like not so much, a little background dope may help.

We've dropped the FLOP HOP score from 2,066 accidents and a rate of 5.48 in FY '52 to 579 accidents and a rate of 1.56 in FY '62, just ended.

Here are some highlights:

- **The high performance aircraft accident rate dropped 16%.**
- **Despite greatly increased embarked hours flown, the day carrier landing accident rate decreased 28%, the night landing accident rate 11%.**
- **Fewer aircraft were destroyed, fewer lives lost.**
- **CNATra drove the Training Command rate down 24% to a new low of .75/10,000 hours flown—a very real achievement. Looks like a crop of real PRO's are coming out to join the Fleet.**

Material for my yarns is getting hard to come by—you guys will drive me clean out of business yet!

FIRE-FIGHTERS *in drill on Ranger use oxygen-breathing apparatus to protect themselves from smoke and fumes.*

'LEARN OR BURN'

REALISTIC DRILLS ON CARRIERS

"THIS IS a drill, this is a drill!

"General quarters, general quarters, all hands man your battle stations.

"Condition Zebra will be set in three minutes."

With these sounds ringing in their ears, some 3900 men aboard the USS *Ranger* (CVA-61) make the mad dash to their GQ stations. For some it may be a short run. Others make their way in well organized dashes to distant stations.

Whether the signal for drill is sounded on the *Ranger* (CVA-61) or the *Enterprise* (CVAN-65), the *Constellation* (CVA-64) or the *Lexington* (CVA-16), the *Essex* (CVS-9) or the *Bennington* (CVS-20), it comes with the same urgency. Aircraft carriers use drills, so that in the event of real trouble, every man can cope efficiently with the emergency.

The largest aircraft carrier in the world, equipped with the most modern aircraft and weapon system, is impotent if it is incapacitated before reaching the scene of battle. Excluding the action of a potential enemy force, there are many ways in which such a tragedy could occur. Fire, with resultant internal explosions can render a ship helpless. Instability can produce deck rolls and angles of list that preclude air operations. Combined with heavy seas, this same instability can cause progressive internal flooding and result in capsizing. In war, a nuclear explosion delivered by a far-reaching enemy missile could disable a ship by either radioactive deposits or blast damage. Panic by undisciplined personnel could result from any of the preceding conditions and render a ship defenseless.

In an emergency, the response of each man must be automatic. The fact that he knows what to do in case of attack or fire is not sufficient. He must be able to perform his particular role without pausing to question his actions. On a large carrier, loaded with enormous quantities of aviation gasoline and ammunition, any pause could spell catastrophe.

Not only do the drills keep the crew alert and ready, but they are also the best method of training new men to fit into new jobs. The *Forrestal*, which in 1961 captured all five readiness awards, points up the importance of drills as follows:

"Upon our return from a Mediterranean deployment in late August 1961, we entered the Norfolk Naval Shipyard, Portsmouth, Va., for an extensive alteration, modernization and general overhaul period. . . . Many of our old stalwarts were transferred to other commands or paid off from the Navy. This meant that we left the

A GROUP OF LEXINGTON MEN *is shown in battle dress. One of the most frequent drills held on a carrier is the fire drill because of the extreme danger to ship when fire occurs.*

A STRIKING PICTURE *of the "washdown" of one of the Navy's fast attack carriers was taken during a drill on the USS Kitty Hawk.*

EXECUTIVE OFFICER *gives instructions to his Officer of the Deck as Lex secondary conn stands by to receive steering and command control.*

IT LOOKS REAL *on the Bennington (CVS-20) as hosemen crouch low to direct a simulated stream of water into "burning" boatswains' locker.*

AFTER THE FIRE *has been reported completely out, fresh air is pumped into the compartment through flexible ducting and portable air blowers.*

shipyard with a newer ship, but a less experienced crew. To again mold a ship, its aircraft and 4000 men into an efficient fighting team, we began an intensive training period. Under the careful guidance and experienced eyes of the Fleet Training Group in Guantanamo Bay, we developed the standards of efficiency that brought the coveted E awards to the *Forrestal* in 1961."

Another vital purpose of shipboard drills, as important as that of training, is that of checking the equipment. "The best means," according to *Essex* officers, "of finding out whether the fire mains are operational, whether there is sufficient protective clothing for monitors in case of atomic attack, or whether the thousands of fittings to be closed in setting material condition 'Zebra' are in proper order, is to hold a drill in which all these items come into use. Nothing can be left to chance. The safety of the ship is only as certain as the condition of her least watertight fitting."

In order to maintain constant combat efficiency and maximum safety, the ship operates under several Emergency Bills, which are flexible enough in their design to handle any foreseeable situation. These Emergency Bills come under four categories: (1) General Emergency, (2) Fire, (3) Man Overboard, and (4) ABC Defense.

The USS *Bennington* describes the first drill as follows: "The General Emergency Bill contains procedures and responsibilities for three general emergency situations. First, the organization and control of personnel during a major emergency or disaster suffered by the ship, such as collision, grounding and internal or external explosion. Second, it provides for the orderly and controlled egress of personnel if abandonment of the ship is required. And finally, it provides for salvage of the ship, if feasible."

In order for drills to be effective, they must be authentic. Every effort is made to give them verisimilitude. Whether it is a water line rupture, smoke filled compartments, or electrical failures where emergency power must be rigged, realism is the keynote. The exercises are so close to "the real thing" that should an accident occur during one of them, it could be taken care of with no additions to the personnel and equipment already on hand.

The true complexities of these ship-

TWO MEN *on Lex check "hot" gun mount. Reports help determine safe routes to decontamination stations and what areas on the ship are safe.*

AFTER SIMULATED *atomic attack, monitors on Bennington check aircraft for contamination while recorders log radiac instrument readings.*

board drills appear during the yearly competitive Operation Readiness Inspection. On the *Essex*, for example, personnel undergo a series of exercises which enable the trained observers to determine the ship's capabilities under battle and emergency conditions. The air group holds flight operations for 48 continuous hours. During this time, every item of equipment is rigorously examined. Every step in launching, recovering, refueling, etc., is carefully observed.

Meanwhile the ship's company deals with a battle problem. The words, "Torpedo on the port beam," may be the beginning of an exercise in which repair parties fight flames and attempt to repair damage. The exercise may end with the orderly evacuation of personnel from all spaces in an "abandon ship" drill.

PERHAPS the most comprehensive of the four Emergency Bills under which carriers operate, according to the USS *Bennington*, is the Atomic, Biological, Chemical (ABC) Defense Bill. This bill sets up procedures for coping with attack either by atomic, biological, or chemical agents. The first of these—atomic attack—seeks to achieve severe material damage or injuries and casualties to personnel by the blast, thermal radiation and radioactive effects characteristic of these weapons. Biological warfare involves the use of living agents or their toxic products, to incapacitate personnel by disease or death. The third agent—chemical—is designed to produce casualties or harrassment by inhalation and contact with the skin.

Although biological and chemical methods of warfare are military capabilities, it is the defense against atomic attack which is the more important because of its severe damage and casualty potential. Further, a good atomic defense is equally effective against biological and chemical agents; therefore, it is the drilling in atomic defense that has the highest priority aboard aircraft carriers. ABC Defense Drills are required to be practiced once each quarter aboard aircraft carriers.

USS *Bennington* describes the procedure thus: "During an atomic attack drill there are two phases in the preparation stage: (*1*) when an attack is probable, and (*2*) when the attack is imminent. Most atomic attack drills are held while the ship is at General Quarters, and the 'attack probable'

IN DRILL, *medical corpsmen participate fully and give first aid at battle dressing station.*

command is the signal for all personnel not required in exposed areas topside to take cover.

"All inflammable and loose materials are removed from the weather decks; dosimeters, gas masks, and other protective clothing are distributed; and radiac instruments are checked throughout all repair parties. If flight operations will permit, the water curtain is rigged. If this is impractical, the ship is wet down as much as possible to assist in the rapid run-off of radioactive material.

"The second preparatory phase begins with the announcement, 'Atomic attack imminent.' If possible, the water curtain is activated, all personnel take shelter and the gas-tight envelope is set throughout the ship. (All X-ray, Yoke, Zebra, and Circle William fittings are closed.)

"A 15-second blast of the chemical alarm signals the actual attack, followed by a description of the type burst, and its range and bearing from the ship. If it was an underwater burst, the ship is maneuvered into the best position in relation to the approaching base surge. Alternate methods of steering the ship have been established in case of necessity. The Executive Officer is standing by in secondary conn while the Operations Officer is prepared to assist in conning the ship from CIC if primary and secondary conn are destroyed or untenable.

"Once the initial shock of the blast has been absorbed, the repair parties begin the tasks for which they have been trained. Investigators are sent out on pre-determined routes with radiac in-

struments to determine the location and amount of radioactivity, as well as any material damage sustained by the ship. Repair party personnel are ordered to stand by until the advisability of movement about the ship has been established. As an added precaution, the word is passed that until further notice, there shall be no eating, drinking, or smoking.

"When appropriate, repair parties follow standard procedures in repair and control of structural damage, fire and flooding.

"As the final stage of recovery from atomic attack, personnel decontamination stations are manned, and all personnel who were exposed during the attack proceed to these stations. Here, their contaminated clothing is dis-

'LEARN OR BURN' *is Forrestal's fire-fighting motto. Here Repair 2 Chief indicates area of fire on damage control plate and relays information to Control via sound powered telephone.*

TWO SEAMEN *man their phones in Damage Control Central during GQ drill on Essex.*

TELEPHONE TALKERS *on Yorktown receive damage reports and pass data to plotters in Damage Control Central. "DC" can give the captain report of ship's damage and fighting ability.*

SPEED *in applying patch to ruptured water lines prevents flooding and continues use.*

FAILURE *of weakened structure is avoided as manhole is shored up against an angry sea.*

ELECTRICIAN *makes sure no other source of power is in use before making the connection.*

ESSEX *Air Department officer supervises direction of the barricade on flight deck.*

THE BARRICADE, *made of nylon webbing, is built strong enough to hold a total of 200,000 pounds. Most crews are able to get the barricades into position in less than two minutes.*

carded; fresh water showers are taken; and clean clothing is issued in an orderly and controlled manner.

"The closure condition of the ship will be modified as soon as possible but on a selective basis, to insure that ventilation systems do not carry contamination from topside areas into the interior of the ship. Finally, when the condition of the ship is known, the radioactive hazard acceptably reduced or eliminated, and the safety of all personnel assured, the drill is secured."

One element, common and necessary to all drills whether they be damage control exercises, fire drills, ABC warfare, man overboard, or abandon-ship drills, is communications. These include general announcement systems, squawk boxes, ship's service telephone, and messengers. In addition, numerous circuits, sound-powered so that an electrical failure will not affect their proper functioning, are kept open at all times and manned by trained phone-talkers. These men have a vocabulary all their own which enables them to comprehend the "word" as it is passed and to send it on to those concerned.

Aboard USS *Ranger*, there are eight repair parties operating out of ten lockers. Each repair party is broken down into units which operate throughout the ship, a total of 1000 men.

In addition to the drills each week, work load permitting, there is a one-hour class, held each day and attended by approximately 25 men each session. One of the points stressed is the definition of damage control: the action taken to maintain or restore the offensive and defensive power of the ship. These involve two principal phases: preventive and action.

The preventive phase relates primarily to the responsibility of the various divisions for the proper setting of material conditions—keeping spaces in good shape and making sure that damage control equipment and fittings are properly maintained and stowed.

The action phase is the responsibility of the ship's repair parties. Here Damage Control Central enters the picture. This control station receives reports, evaluates them, then issues orders for action.

Fire fighting drills fit hand in hand with the damage control scheme. At sea, when fire drill is sounded, all hands man their GQ stations.

Each man is thoroughly familiar with the equipment and methods for fire drills. For instance, to fight Class "B" fires (oil or gasoline blazes), *Ranger* has 17 high velocity fog foam stations. These stations serve swivel monitors on the hangar deck and hoses on the hangar deck and flight deck. Each hangar deck monitor can be turned on at the monitor station or from a conflagration station.

Ranger has three conflagration stations which are located on the 02 level with a direct view of hangar bay areas. Foam to each hangar deck or flight deck hose can be turned on near the hose station serving it.

Class "A" fires in the hangar bays can be fought with the hangar bay sprinkling and water curtain systems. These systems can be actuated from the conflagration push-button station on the main deck, and from pushbutton stations on the second deck.

To prevent fire from spreading from one hangar bay to another, a set of sliding doors has been built. These doors, which can be closed by an electric motor in about 20 seconds, are controlled from the conflagration stations or two local control stations on the main deck.

Flight deck crash crews and fire fighters are also standing by for any emergency. Again and again they run through the drills made to seem as nearly as possible "the real thing."

USS *Essex*, in reporting its drills, regards the man-overboard routine as the one most constantly applied in Navy life. *Essex* reports, "The boat crews and others involved are given frequent opportunities to practice their skill. Also, since a rapid muster of all personnel on board must be taken so as to determine the identity of the man who is overboard, this too is on the drilling agenda. During the ORI, one or two crewmen are usually hidden by the inspectors to determine the length of time necessary for establishing their identity."

USS *Ranger* concurs with the *Essex* in the importance of the man-overboard drill. *Ranger* has a lifeboat manned and ready 24 hours a day. The eight-man crew is a well-trained, smoothly running team. Each man is a specialist in his own field. The team has worked hours upon hours to maintain a high standard of efficiency.

It was not a drill when J. D. Terry, AN, aircraft pusher in Carrier Air Group 13, fell over the side of the USS *Constellation* (CVA-64) March 16 during a shakedown cruise at Guantanamo Bay.

How does it feel to fall over the side with the ship travelling at a good speed? Terry says it is an experience he will never forget.

ON USS CONSTELLATION, *realism is keynote in aircraft firefighting drill. At first sign of impending fire, crewmen bring foam applicators on deck.*

A SMOKE BOMB *provides the setting for the firefighting teams. The men dash to their task and, with equipment, approach "burning" plane.*

LOOKING DOWN *on the active drill on the deck, the "burning" plane appears to be the real thing as the men go through serious rehearsal.*

A MAN IN 'HOT SUIT' *gets up on the aircraft to rescue the pilot as hosemen encircle plane to safeguard rescuers as well as smother fire.*

FIREFIGHTER TEAMS *approach aircraft with seven hoses from windward and protect a rescuer in asbestos suit as he helps the pilot from cockpit.*

RESCUERS *in asbestos suits carefully remove the "injured" pilot from plane as fog applicator protects the men by cooling the cockpit area*

It took only six minutes from the time "man overboard" word was passed until Terry was lifted from the water. HU-2 Detachment's helicopter crew was on the ball.

Terry was standing near No. 3 elevator swabbing up water and foam left over from a fire drill. "I decided to ring out my swab the lazy way by stepping on it and squeezing it," he said. "All of a sudden I lost my balance and over the side I went, into the water."

CREW TOUCHES *down in water to pick up man-overboard dummy; time after alarm, 7 mins.*

Terry is a good swimmer and he swam as fast as possible away from the ship to avoid being caught in the screws. Another thing in his favor was the calm sea.

"The ship was about one-quarter-mile away when I saw it turning," Terry said. "I was glad to see that."

LCdr. R. B. Moran, helicopter pilot and OinC of the HU-2 Detachment, said, "I was seated in a helo when I heard a series of blasts on the ship's horn indicating a man overboard. I had on my helmet because an A4D was turning up near me, and I was unable to hear any announcement. I thought it might be a drill.

"I started the engine while the crew removed the blade boost, and then a crewman yelled, 'Man overboard!' Sharretts, my rescue crewman, checked the hatch and hoist as we cleared the area for engagement.

"We lifted off and were advised the man was in the ship's wake just aft of a smoke flare. As we came abreast the flare, we saw the man about 250 yards away. He was splashing around and

'OSCAR,' *Forrestal's dummy, has again been rescued and is hoisted aboard in stretcher.*

was difficult to see because his dungaree trousers and blue jersey blended with the water."

J. R. Sharretts, AN, goes on with the story. "The pilot made his approach and gave me the signal to open the hatch. After I had done so, I lowered the seat and gave the pilot directions as to where the man was. When we were over him, I saw he was in good shape. He sat down on the seat, and I raised him into the helo without difficulty. Terry was one of the happiest men I've ever seen."

Drills pay off. The *Constellation* got the "man overboard" word at 1340, the help was launched at 1343, and Terry was picked up at 1346.

The Air Department has its share of drills. The continuing practice of rigging the nylon barricade for emergency landings may make the difference between a successful or disastrous barricade landing, depending on the speed in which the gigantic nylon device is ready for use. *Ranger* personnel have rigged the barricade in less than two minutes and are trying to beat that record.

In the event that a ship must be abandoned, all hands must be trained in water survival. Survival instruction is usually given to large groups. In smaller groups, demonstrations on how to don a life jacket, launch a life raft or net, and the proper way to enter the water give each man the confidence necessary to assure an orderly ship abandonment.

Shipboard drills can be grim and difficult, and those who participate in them derive little enjoyment from them. But these drills can save not only the ship, but thousands of men aboard her in an emergency. The drills spell readiness. New flight deck and hangar deck teams are trained to work at peak efficiency. Air groups are requalified and honed to a keen edge. Gun crew, director crews, CIC teams, communications watches, boat crews, at sea replenishment teams and others are in training continually.

The never-ending cycle of training and drills continues. It must. It is not being continued just to upset scheduled activities of a day. The cycle continues because the strength of the Navy depends on the efficiency and speed which drills provide.

ON HANGAR BAY 1 *on the USS Forrestal, a portion of the big attack carrier's crew is given instruction in procedures used in abandoning ship and insuring their survival in the water.*

Squadron Report

VW-13 COLLECTS POLAR ICE DATA

VW-13 BIRDSEYE CREW USE CONSTELLATION IN FLIGHTS CHARTING POLAR ICE DATA

By Ltjg. E. M. Stuart

VW-13's PRIMARY mission is the airborne extension of the DEW Line in the North Atlantic, but it has other missions. Since March of this year, the squadron has been participating in a special project set up by the U.S. Navy Hydrographic Office.

Project *Birdseye*, as it is called, is devoted to the collection and evaluation of ice intelligence in the Polar Basin. The project is being carried out under the supervision of the Arctic Research Section of the Oceanographic Prediction Division, U. S. Navy Hydrographic Office. VW-13, based at NS ARGENTIA, Newfoundland, is furnishing the necessary aircraft and crew.

The scientific and technical objectives of Project *Birdseye* include:

- Collection of ice information for the development of techniques which will make it possible to predict changes in ice distribution and characteristics.
- Compilation of this information into an improved ice atlas.
- Evaluation of aerial observation techniques and of electronic equipment used for determining sea-ice features.

Birdseye flights will cover as much of the polar area as it is possible to do in a few months. The aircraft being used for the project is one of VW-13's WV-2 radar *Constellations*. Its interior has been modified to make it suitable for ice reconnaissance missions. Even the most casual observer can now easily distinguish it from the rest of the squadron aircraft by the generous amount of brilliant orange trim applied to the nose, wing and tail areas.

The specially trained *Birdseye* crew, the members of which are familiar with the vast, barren regions at "the top of the world," is led by Cdr. D. A. Heberling of VW-13.

While the other crews deploy to NS KEFLAVIK, Iceland, on a rotational basis for the squadron's airborne early warning operation, the special crew works out of Project *Birdseye's* two major staging bases, Thule AFB, Greenland, and Eielson AFB, Alaska. The locations of these bases make possible maximum coverage of the Arctic area during each of the project crew's two-week deployments.

Normally about six Hydrographic Office personnel deploy with the *Birdseye* crew to assist in visual observation and to supervise plotting and on-the-job training. Among them is Mr. W. I. Wittman, head of the Arctic Research Section.

Having completed the special course offered at NAS BRUNSWICK, plus three additional days of training at Thule AFB, each of the crew members is well trained in polar survival.

Assisting the Hydrographic Office in Project *Birdseye* while continuing to meet its AEW commitments has given VW-13 the opportunity to demonstrate its inherent flexibility. As Capt. M. P. Bailey, the squadron's C.O. says, "Accurate ice intelligence is of tremendous value to our modern Navy's global mission, and VW-13 is proud to contribute to the collection of this intelligence."

'Omega" Tested by Navy

Navigation Aid for Use with Planes

U.S. Naval Research Laboratory (NRL) scientists have presented a report to the Institute of Radio Engineers describing application of the Omega navigation system to aircraft.

Omega is a new, Navy, very-long-range navigation system which will provide accurate fixes for aircraft, surface vessels and submarines. Omega can provide complete world-wide navigation coverage using six to eight stations and providing a position fixing accuracy of less than two miles under all atmospheric conditions. It will complement the more accurate Loran C position fixing system by providing navigation coverage in areas not suitable for Loran C stations.

Omega is a development of the Navy Electronics Laboratory, San Diego and NRL under the direction of BUSHIPS. Like Loran, Omega utilizes synchronized radio signals from landbased stations. But unlike other systems, Omega operates in the very-low-frequency (VLF) navigation band of 10 to 14 kilocycles. The stability of the Omega signals makes them dependable night and day under any weather condition. Also, VLF permits the synchronization of land-based stations at distances of 5000 to 6000 miles, hence a few widely-spaced stations provide world coverage.

The Navy is now testing the operational capabilities of an experimental three-station system with synchronized transmitters located at Hawaii, New York, and Panama. This investigation, to be completed this year will verify the range and accuracy of Omega, determine the suitability of the system for naval aircraft, ships and submarines, and provide a sound basis for system implementation.

EXPEDITIONARY MEDAL RULES READY

FACE AND REVERSE OF NEW EXPEDITIONARY MEDAL TO BE AWARDED BY ARMED FORCES

THREE DIFFERENT categories of operation have been defined for the awarding of the Armed Forces Expeditionary Medal established by Executive Order No. 10977, December 4, 1961. These categories are:

U.S. Military Operations — Under this category, personnel of the Armed Forces of the United States who served in Berlin after August 14, 1961 to a date yet to be announced; those who served in Lebanon during the period July 1, 1958 to November 1, 1958; those who served in the Quemoy and Matsu Islands from August 23, 1958 to a date yet to be announced; and those who served in the Taiwan Straits from August 23, 1958 to January 1, 1959, shall be entitled to award of the Armed Forces Expeditionary Medal.

U.S. Operations in Direct Support of the United Nations—This category covers personnel who participated in U.S. operations in direct support of the United Nations in the Congo from July 14, 1960 to a date to be announced.

U.S. Operations of Assistance for Friendly Foreign Nations—This category covers personnel who have participated in U.S. operations of assistance for friendly foreign nations, such as Laos and Vietnam. Those who served in Laos from April 19, 1961 to a date to be announced and those who served in Vietnam from July 1, 1958 to a date to be announced are entitled to this award.

Executive Order No. 10977 also gives the criteria that must be met in relation to kinds and lengths of service. The order indicates, among other points, that personnel who participate as regularly assigned crew members of an aircraft flying into, out of, within, or over the area in support of the military operation, are among those entitled to the medal.

The Armed Forces Expeditionary Medal takes precedence immediately after the Antarctica Service Medal.

No more than one Expeditionary Medal will be awarded to any one person, but for each succeeding operation justifying such an award, one bronze service star may be awarded to be worn on the medal or ribbon prescribed by appropriate regulations.

The Armed Forces Expeditionary Medal may be awarded posthumously and, if so, presented to such representative of the deceased as may be deemed appropriate by the Secretary of the department concerned.

Training Film in the Making

LCpl. Jensen Selected to 'Star'

AT MCAS CHERRY POINT, LCpl. Richard C. Jensen of MABS-27 has "starred" in a training film produced at Bogue Field, N. C.

Jensen was chosen for the lead role owing to his impressive record and neat appearance.

Lopatin Productions of Philadelphia, Pa., under contract by the Navy has produced a 26-minute training film about the new M-20 expeditionary arresting gear now in use at Bogue Field with SATS/SELF.

A former Cherry Point Marine, 2nd Lt. James D. Eckert, now assigned to the Navy Photo Center, Anacostia, D. C., served as photo adviser.

Under the watchful eyes of director C. Davis Smith and cameraman Peter Montefusco, both of Lopatin Productions (see picture), LCpl. Jensen operates the M-20 expeditionary gear.

JENSEN (L) OPERATES M-20 ARRESTING GEAR

VT-25 Claims Three Records

Also Given Coveted ACES Award

Training Squadron 25, based at NAAS CHASE FIELD, Beeville, Tex., and commanded by Cdr. Ralph J. Rosen, claims three major flight records during the month of June.

The training squadron, a component within the Naval Air Advanced Training Command complex, made its first record claim by flying a total of 3026.4 flight hours in one month to set the Navy's world-wide record for the most jet training flight hours ever flown within a one-month period. Earlier in the month, VT-25 flew a record breaking 801.6 hours in one week. In that same week, the squadron flew 173.6 flight hours in a single work day.

At almost the same moment that Cdr. Rosen announced the flight record, RAdm. F. A. Brandley, Chief of Naval Air Advanced Training, awarded the coveted ACES Award to VT-25. This award is given quarterly to the jet training squadron within the Advanced Training Command with the best safety record. The latest ACES Award is the third time that VT-25 has won the award during FY 1962. To this date, the squadron has flown over 17,000 consecutive accident-free hours.

STRUGGLE FOR GUADALCANAL 20 YEARS AGO

IN AUGUST, *two 1st Marine Division reunions, East and West, commemorated the struggle for Guadalcanal. In this 1942 picture, a patrol enters enemy territory on a reconnaissance mission.*

A MACHINE GUNNER *keeps a sharp eye on opposite bank for possible snipers as Marines bathe.*

SHORTLY AFTER *the invasion, the 1st Marine Aircraft Wing under BGen. R. S. Geiger arrived and formed allied units known as Cactus Air Force.*

THIS PAGODA *at Henderson Field was headquarters of Cactus Air Force fliers throughout first months of operations from the captured field.*

ENEMY FORCES *and disease were not the only enemies. Weather also hampered operations. Three Marines await help to get jeep going again.*

WEATHER AGAIN HIT *hard during rainy season and flooded Guadalcanal camp areas. Camping was rugged at best, and water only made it worse.*

Lakehurst Gets New GCA

West Field Unit Gives All-Wx 'Go'

A new radar unit and its associated equipment has been installed at NAS LAKEHURST's west field, providing local traffic a chance to operate safely when the ceiling has dropped to 200 feet and visibility to one-half mile.

The new unit enables the station to increase its maximum support to fleet aircraft. The GCA unit includes a vehicle to house a diesel generator which provides enough power to operate the radar, communications and air conditioning systems. A second vehicle contains enough spare parts to keep the unit operational, short of a major failure.

LCdr. R. W. Harrison is in charge of the unit. His approach control officer is Lt. W. W. King; his maintenance officer, Ens. J. T. Knowles. His crew of 12 men is made up of senior rated men, all of whom have been graduated from GCA school.

A LUNCH BOX *as a training device is something new. Lt. Courtney Yelle, an instructor pilot with VP-30, is credited with devising a practical instrument hood for simulating flight conditions by using such a box.*

Want to Shoot at Stars?

Procedures are Given by SecNav

SecNav Instruction 3163.1 outlines procedures for including experimental payloads in future space probes and satellites. These payloads should be of scientific, experimental or developmental nature which can be carried pick-a-back with other payloads. This Instruction does not apply to payloads which are a part of a space program where launch vehicles are programmed as an integral part of a system.

Requests for payload space must contain sufficient information necessary for preliminary negotiation and should include: (1) brief description of experiment, objective and priority; (2) weight, cube and envelope dimensions; (3) power requirements; (4) environmental, stabilization, orientation and mounting requirements; (5) control, telemetry, readout and recovery requirements; (6) trajectory, orbit and time in orbit requirements; and (7) any additional requirements, including special handling.

All requirements for pick-a-back payload flights will be referred to Chief, BUWEPS, for coordination.

MEMBERS OF THE EARLY *Naval Aviators Association had a wonderful time visiting the USS Enterprise as the guests of Adm. Robert L. Dennison, Commander in Chief Atlantic Fleet, and VAdm. Frank O'Beirne, ComNavAirLant. The early Naval Aviators arrived in Norfolk on June 24 and the next day embarked in Enterprise. Later, they were flown back to Norfolk by COD aircraft. That evening they gathered for dinner at the Breezy Point Commissioned Officers' Mess. To express their appreciation to the Enterprise, VAdm. C. P. Mason, USN (Ret.), on behalf of the early Naval Aviators, presented to Capt. Vincent de Poix, C.O. of CVA(N)-65, a ship's clock for the men of the ship. Before they left the Norfolk area, the early Naval Aviators also visited the Naval Amphibious Training Command, Little Creek, Va. They attended the "New Four Ocean Challenge" presentation by RAdm. J. S. McCain. Names of "Bald Eagles" attending the two-day session are given below.*

Names of early Naval Aviators:

(Front row, L-R) Ltjg. Wellesley Laud Brown, USN (Ret), VAdm. Charles P. Mason, USN (Ret), Capt. Bruce G. Leighton, USNR (Ret), LCdr. Patrick J. Byrne, USN (Ret), Ltjg. John M. Vorys, USNR (Ret), Lt. R. Livingston Ireland, USNR (Ret), Cdr. Samuel S. Walker, USN (Ret), James M. Hepbron, Cdr. Kenneth R. Smith, USN (Ret), Francis R. V. Lynch, Lt. Reginald G. Coombe, USNR (Ret), Lt. George F. Lawrence, USN (Ret), Capt. Edmund G. Chamberlain, USMC (Ret), Capt. Richard T. Whitney, USNR (Ret), George Crompton, RAdm. John J. Schieffelin, USNR (Ret), LCdr. Percival S. Fuller, USN (Ret), Charles B. Dushane, Jr., Ashton Hawkins.

(Middle row, L-R) Capt. Clayton C. Marcy, USN (Ret), RAdm. Robert G. Lockhart, USN (Ret), Aldred K. Warren, Charles W. Greenough, Theodore P. Grosvenor, Harold J. Rowan, William H. Cantwell, Lt. Lester B. Hutchinson, USN (Ret), Cdr. Thomas H. Chapman, USNR (Ret), Raymond L. Atwood, Cdr. George S. Hodges, USNR (Ret), Ralph R. Lewis, Ltjg. Thomas M. Bergin, USN (Ret), Stanley C. Kennedy, LCdr. Carl E. Shumway, USNR (Ret), Cdr. William G. Knapp, USN (Ret), Ltjg. Charles Fahy, USNRF, Gibson Gardner, and Ltjg. Raymond C. Mudge, USN (Ret).

(Back row, L-R) Adrian O. Van Wyen, DCNO (Air) Historian, RAdm. Willis E. Cleaves, USN (Ret), RAdm. Jesse G. Johnson, USN (Ret), Col. James B. Bryant, USAF, Maj. John C. Toomay, USAF, Charles S. Lerch, Jr., Capt. Duncan H. Read, USNR (Ret), RAdm. Harry B. Temple, USN (Ret), Thomas Maggio, Douglas L. Mather, Ltjg. Ernest Henderson, USNRF, LCdr. John Epps, USN, Capt. William H. Gardner, USNR (Ret), Cdr. John M. Rutherford, USNR, Henry M. O'Conner, Charles E. Hodges, Cdr. Frederick W. Keith, USNR, and Kenneth B. Keyes. U.S. Air Force officers listed were also visiting.

ROCKETS PROBE MYSTERIES OF UPPER AIR

By Marie Pfeiffer, BuWeps

WHAT LIES above us in that vast upper area which contains less than one per cent of the earth's atmosphere? To bring the conquest of space within our grasp, scientists must tap the unknown. To this end, the Navy has made rocket soundings throughout the last decade and a half.

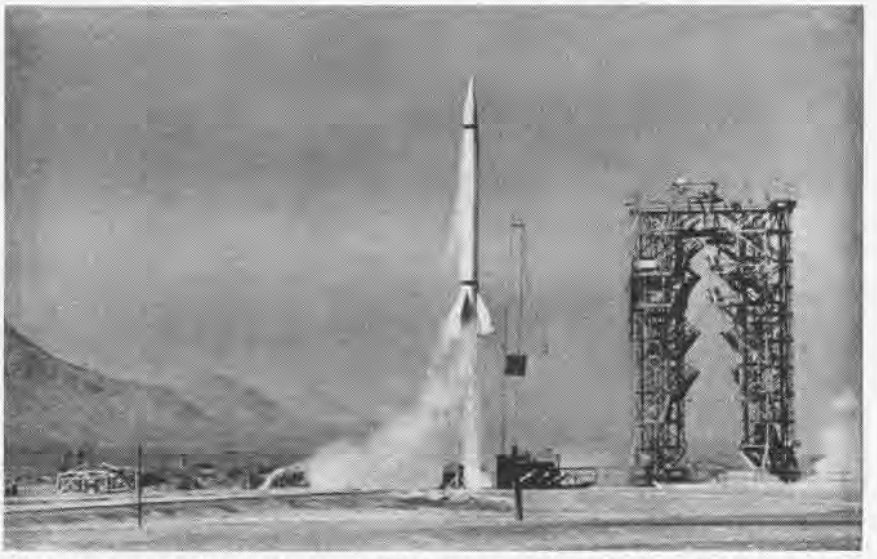
Actually, since 1945, the Navy has used upper air research rockets of increasing variety and purpose. Many observations can be made only from rockets. Especially advantageous, for instance, are the meteorological data which can be obtained by rockets close to the time of missile launchings. This type of vertical probe also is valuable in the operation of naval aircraft by increasing the quality of weather prediction, and in activities in which a rapid appraisal of atmospheric conditions is essential.

When the United States upper air rocket research program began, the liquid propellant rocket held the greatest promise for development of a high altitude vehicle. It had been realized early in 1946 that the captured German V-2 rockets, obtained by this country after WW II for experimentation, were complicated, in short supply and unsuitable for extended high altitude test programs. Hence, the smaller, more economical *Viking* and *Aerobee* rocket developments were undertaken.

Because of the increasing importance of guided missiles, and the expectation of very high altitude flight, the large rocket, originally called the *Neptune* and later known as the *Viking*, was developed by the Navy. It was used primarily for upper air research.

Measuring 45 feet in length, the 7½-ton *Viking*, powered by a Navy-developed liquid rocket, was designed to carry a 500-pound instrument payload.

A series of *Viking* rockets was fired with Number 11 reaching a height of 158 miles. It carried almost 1000 pounds of usable instrumentation to relay and record data from the threshold of space. The major aim in these tests was to measure the properties of the ionosphere, the layers of charged particles surrounding the earth which reflect radio waves and make possible long-distance radio communication.



THIRD VIKING ROCKET WAS FIRED FROM WHITE SANDS, N.M., FEBRUARY 9, 1950

Other objectives, such as cosmic radiation research and training for operational use of large rockets launched from ships, were achieved with singular efficiency.

In those first years of rocket sounding, the concept of an "ideal rocket" for high-altitude research began to evolve. With the accumulation of experience, and use of smaller lightweight measurement payloads, the requirement for a smaller, less expensive rocket resulted in development of the highly reliable *Aerobee* series.

With the development of the one-ton *Aerobee* by the Aerojet Engineering Company and Douglas Aircraft, supported by the Navy Bureau of Ordnance and the Naval Research Laboratory, the *Aerobee* immediately commenced playing a notable role in the Navy's space effort. Its relative simplicity and low cost, as well as its ability to carry 100-pound payloads to altitudes of more than 150 nautical miles, have made the rocket attractive to every major agency active in this country's sounding rocket program. It is 18 feet long and 15 inches in diameter, fin-stabilized, and uses liquid propellant. In order to minimize impact dispersion owing to the effects of surface and lower-atmosphere winds, the *Aerobee*, launched from a 150-foot tower, uses a short-duration booster rocket. The booster is a solid propellant rocket, a standard item in all *Aerobee* and *Aerobee-Hi* flights. *Aerobee-Hi*, a higher performance rocket, was first fired in early 1956.

The *Aerobee* has been fired in great numbers on many missions. On one of the flights several years ago, an *Aerobee* equipped with aerial cameras photographed 1,250,000 square miles of the world from an altitude of 100 miles. Included in the panoramic view was the first photograph of an entire hurricane 1000 miles in diameter.

TO OBTAIN information for the International Geophysical Year, sponsored by the U.S. National Committee for the National Academy of Science and by the National Science Foundation, an extensive program using rockets and rocket-balloon combinations became part of United States' participation in the IGY. As its contribution, Navy used two rocket types, *Aerobee-Hi* and *Rockoon*.

During the IGY (1957-1958), Navy scientists fired 42 *Aerobee-Hi* rockets in an effort to extract data on the physical characteristics of the earth's high atmosphere and to observe extra-terrestial radiations.

Navy's second rocket research program during the IGY utilized the *Rockoon* technique, i.e., balloon-launched rockets. By this method, a rocket was fired electronically by re-

mote control and climbed upward on its own power to an altitude of 70 miles. Approximately 85 *Rockoons* were fired through their launch balloons, in regions stretching from the Arctic to the Antarctic, to obtain data on cosmic ray particles at higher altitudes, and on ultra-violet x-rays emitted by the sun during solar flares. *Rockoon* efficiency was greatly increased because the very low drag loss from 80,000-foot launches allowed the use of small, low cost rockets. These were *Deacon* and *Loki*, solid-fueled rockets which carried 6 to 20 pounds of rugged electronic devices for gathering and telemetering upper-air information.

The *Deacon* was originally fired in 1948-49. A meteorological rocket, it carried a nose cone instrument package developed to measure pressure, temperature and humidity.

The original *Loki* rocket was developed as a defense against high-level enemy bomb raids. Later it replaced the heavier *Nike* missile. Since the *Loki* could be readily adapted to shipboard use and is moderate in cost, the Navy selected it to propel weather instruments to extreme altitudes. It was designed as a weather-measuring vehicle by the Naval Ordnance Laboratory (NOL) for BuWeps.

Hasp (High Altitude Sounding Projectile) is a derivative of the *Loki*. Use of a *Loki* launch tube attached to the barrel of a 5-inch/54 naval rifle to launch the *Hasp* single-stage, solid-propellant rocket has been reported by NOL.

First firings of the *Hasp* occurred in January 1957, and developments are continuing to provide a 200,000-foot capability using a wind-sensing "chaff" payload and an instrumented payload which provides temperature and pressure data. The *Hasp* is characterized by a very short duration thrust. Upon separation its 1 to 1.5-inch diameter nonpropulsive "dart" payload coasts to altitudes where the payload is deployed and tracked by ship radar. The *Hasp* dart, modified at NOL, is in limited fleet use.

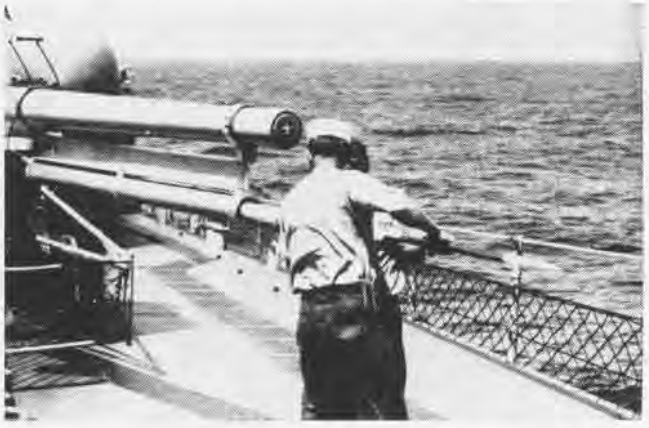
The single-stage *Archer* rocket, 12′ in length and 7″ in diameter, weighing approximately 300 pounds, has been proposed for measuring atmospheric density from a 100-mile height on down. It was to be flight-tested at the Naval Missile Center (NMC), Point Mugu, this summer. If results justify selection of the Archer, the National Science Foundation has funds for firing 100 of these sounding rockets, each carrying a 30-pound payload (density measurement), during a world-wide magnetic survey throughout the International Year of the Quiet Sun (1964-1965). At this time solar activity will be at a minimum. During other years, the atmosphere is disturbed with high and low densities as the sun goes through periods of electrical storms.

The Naval Ordnance Laboratory is responsible for the aerodynamic and mechanical design and fabrication of the nose cone and fins of the *Archer* rocket. The telemetry package and experimental payload to be used in the rocket's evaluation and flight tests are being designed and assembled at NMC.

THE USE of aircraft as rocket launch platforms has obvious advantages of economy, mobility, and flexibility in chosen launch conditions. The high-performance aircraft can act as a very reliable, recoverable first-stage launcher, to provide added payload capability, along with launch platform mobility. The Navy presently has two air launch probe programs underway, BuWeps *Caleb* and *Sparoair*.

The 3000-lb. canted-fin *Caleb*, 24 inches in diameter and 200 inches in length, is a versatile space research rocket for performing scientific experiments. It can be launched as a vertical or horizontal high performance probe, from aircraft or from shipboard, with one, two, or three-stage propulsion.

CALEB ROCKET IS HEADED FOR CHINA LAKE FOR LAUNCH FROM F4H



NAVY MEN LOAD HASP INTO LOKI LAUNCHER ABOARD USS McCAIN

Attainable altitudes for an almost vertical probe launched at 85 degrees are: 85 pounds to 1000 miles with a two-stage vehicle, and 13 pounds to 2000 miles with a three-stage vehicle.

It is anticipated that *Caleb* will eventually provide an operational probe for use with the Fleet for communications relay, meteorology and other defense missions. The *Caleb II* two-stage, high performance air-launched probe development is now being completed by the Naval Ordnance Test Station with the assistance of the Naval Research Laboratory (NRL). Vehicle structural stiffening, fire control and electronic circuitry checks are now in progress. Nominal altitude performance is 600 nautical miles for a payload weight of 200 lbs. when launched from a Navy F4H-1 aircraft. The next flight at the Pacific Missile Range is expected to carry an NRL-developed high altitude ion measurement equipment (Project *Hi Hoe*).

The *Sparoair* air-launched, experimental, two-stage, high-altitude probe rockets were designed and developed

at the Naval Missile Center, Point Mugu, as part of a BuWeps project. Tests of the first *Sparoairs* were conducted employing the F3H-2 as the launch aircraft. The *Sparoair* measures eight inches in diameter, with an overall length of 145 inches and a launch weight of 315 pounds. Two standard 1.8 KS-7800 *Sparrow* rocket motors were staged and fired sequentially to achieve an altitude capability of approximately 100 miles.

The *Sparoair II* has been proved capable of carrying 40-lb. payloads to 65 nautical miles when fired into a near-vertical trajectory, using the Navy F4D aircraft as a launch platform. Modifications and improvements, now underway at NMC, can be expected to increase performance of the *Sparoair IIA* by as much as 40%. Cost of the complete *Sparoair* probe is reported to be only $6000. These units are available for Defense and NASA-sponsored R&D programs. *Sparoair's* simplicity, economy, performance, and proved feasibility have already indicated the rocket's potential usefulness to the Navy for a variety of applications.

The *Arcas* rocketsonde and the *Hasp*, described above, are the sounding rockets selected by the Navy for use in the world's first synoptic Meteorological Rocket Network. The network is now obtaining nearly simultaneous observations from seven different sites in North America.

This program, initiated on October 13, 1959, and designed to provide synoptic measurement of upper atmosphere parameters, originally involved firings of meteorological sounding rockets at local noon on each working day during the months of October, January, April and July from each of two ranges, the Pacific Missile Range, Calif., and Fort Churchill, Canada. Rockets are now fired three times weekly throughout the year in accordance with a schedule recently adopted.

Participation beyond the original two ranges now includes Wallops Island, Va.; White Sands Missile Range, N. M.; Tonopah Test Range, Nev.; Fort Greeley, Alaska; Eglin AF Base, Fla.; and Atlantic Missile Range, Fla.

Arcas made its debut in a water launch on July 1, 1961 at the Pacific Missile Range, Point Mugu. An *Arcas* rocketsonde was teamed with a simple *Hydra* floating launcher at approxi-

HASP ROARS UPWARD AFTER LOKI LAUNCH

mately 10° North, 120° West during a sea operation designed for the test.

The dramatic *Hydra* launch took place as part of the BuWeps-sponsored research program at the Naval Missile Center on the use of water launch rockets weighing up to thousands of pounds. The launch was achieved by hand-lowering the 70-lb. single-stage *Arcas* rocket into the ocean from the USS *Point Defiance* (LSD-31). The missile, attached at its nose to a foam plastic float, floated vertically with only a portion of the nose flotation protruding from the water. From this position, *Arcas* was fired by remote control from the LSD mother ship standing by. According to BuWeps astronautics officials, the sea itself provides stability in the initial stages of the launch, holding the missile at between a degree or two of vertical, until momentum builds up and the missile leaves the water.

Another *Arcas*, in a meteorological probe, was towed to sea and launched successfully by a crew from Point Mugu, in March 1962, as part of the BuWeps Project *Hydra* to develop and demonstrate the concept of launching solid propellant rockets from the water.

Other uses of BuWeps *Arcas* include firings in support of ICBM launchings, general meteorological experimentation, and a considerable number of flights devoted to evaluating various instrument systems for use in high-altitude soundings. They also provide information for the design of the *Polaris*, *Saturn*, *Atlas* and other missiles and aircraft.

Other important coming developments in the Navy's meteorological rocket program include a destructible rocket motor, which upon burn-out is pulverized to eliminate motor fallback problems. The development of the frangible *Arcas* rocket is being carried on by Atlantic Research, Arlington, Va., for BuWeps. A limited experimental program with fiberglass motor cases has demonstrated its feasibility, but certain problems remain to be solved. One particular advantage, other than improved vehicle performance because of its lighter weight, is that its use may be allowed in populous areas to provide improved weather prediction data.

Tests made by BuWeps in its upper air rocket research program have furnished a wealth of data which relate to the performance, deficiencies and requirements on which later naval weapon designs have been based. They have also produced a volume of required technical data limited only by the size, weight and type of instrumentation that could be carried aloft.

Unique Navy 'Retirement'

VT-27 Honors Old Timer R-1820-82

In a special ceremony, an aircraft engine was given full "retirement" honors by New Iberia-based Training Squadron 27—side boys and all. The S2F-mounted R-1820-82 engine served its full tour plus two extensions. The first ten percent extension is not a rarity, but the second is so uncommon that it required personal approval of Chief of Naval Air Advanced Training.

The engine flew 1440.1 hours without a single failure, although in training planes it was subjected to "more than usual" stresses and strains. The engine log book lists three overboosts at 2100 rpm or higher, and three overspeeds above 2900. Not listed, however, are the uncounted times the engine was used at the extreme power settings called for by simulating engine failure. Also there was the strain from long periods in the landing pattern.

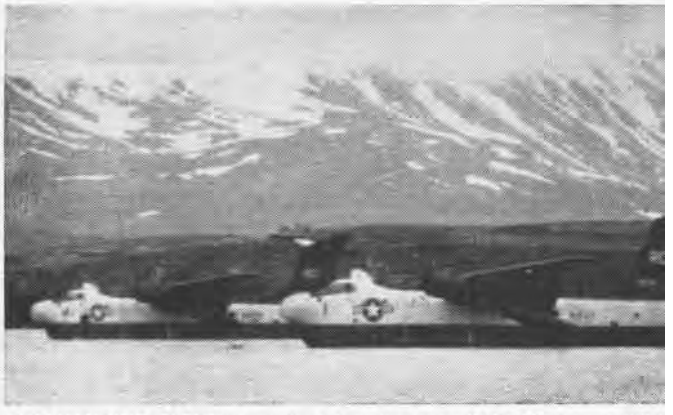
Four times during its second extension, this engine had to bring its plane back solo, with its mate feathered.

This old-timer now goes back to overhaul to be rebuilt from scratch and reassigned. So its story is still to be continued.

Pilots in VT-27 will remember her well. Over a cup of coffee they may even say, "Remember old BL 515915?"

'WARM-UP' CRUI

RUGGED 34-FOOT TIDES *caused dockside problems during Anchorage visit. Crane moved brow with tides as 3500 Alaska-staters visited Currituck.*



CLIFF-HANGING CLOUDS *form backdrop for three P5M Marlins of VP-4 waters of Cold Bay. Currituck provided them "room, board and serv*

In a 'warm-up' cruise preliminary to a We Alaskan journey that spanned the Far Nort year. Ship's photographers garnered these 49th state. After operating as advanced Women's Mountain and in aptly-named Col became the largest ship ever to visit tha

BOAT CREW *rigs cables of seaplane mooring buoys prior to dropping them for incoming aircraft.*

SNOW-CAPPED MOUNTAINS *are background for rituck's silhouette during serene twilight spell at*

CRASH BOAT *is battered by high winds and swells during 50-knot storm that hung over Cold Bay. Operations were conducted from extreme southwestern tip of Alaskan Peninsula.*

E FOR CURRITUCK

including the laying of sealane markers, mooring buoys. Ship also gave radio assistance and guided aircraft with tender-controlled IFR approaches

ic deployment, the USS Currituck (AV-7) made an warming-up months from April to June of this llent pictures of aviation duties in and near the ating) base for VP-47 in the shadow of Old ıy, Currituck ran up Cook Inlet to Anchorage and nited States port. The trip took sixty days.

SERVICE AT KODIAK *included major engine maintenance work, requiring deck hoist for P5M. VP-47 flew 1056 hours in May while deployed*

SPRINGTIME SNOWS *pelt Currituck crewmen Sims and Stubeck (l) during deck tie-down work.*

Bay. Ship is commanded by Capt. R. W. Windsor, Jr., who in 1956 flew F8U to Thompson Trophy victory.

FIFTY HOURS *at buoy were logged by VP-47 C.O., Cdr. Dow, and crew. They and the storm arrived at Cold Bay at the same time. Transfer to Currituck by smallboat was impossible.*

A FAMILIAR VIEW *of USS Ranger (CV-4) shows forward palisade placed aboard carriers with cross-deck tie-downs to protect planes and men from wind, spray and water. She entered the Fleet Problems in 1935 and with comapratively light tonnage indicated role of small carriers.*

Evolution of Aircraft Carriers

LAST OF THE FLEET PROBLEMS

'The culmination of the year's operations arrives when the carriers with their squadrons participate in the annual cruise of the Fleets. On these cruises, the year's efforts to perfect the detail of aircraft operations are given the test of simulated major campaigns against possible enemies. Our efforts in the past have been crowned with a certain amount of success, but every success has only indicated new possibilities of the employment of aircraft in fleet operations and has emphasized the vital importance of continuously operating with the Fleet the maximum number of aircraft that can be carried on our surface vessels.'—RAdm. J. M. Reeves, USN, Commander, Aircraft Squadrons, Battle Fleet, 1929

By Scot MacDonald

RADM. REEVES described the year-long training schedule of Naval Aviators as the Twenties came to an end:

"Concurrently with . . . gunnery exercises, the squadrons are embarked on the aircraft carriers and they participate in the monthly exercises with the Fleet. These fleet exercises are arranged to present new and increasingly difficult problems to all arms of the Fleet and to insure the effective coordination of these arms in major fleet operations and engagements.

"It is not sufficient for one officer, Commander, Aircraft Squadrons, to be proficient in effectively employing aircraft. This knowledge must be possessed by all flag officers. To this end, aircraft on the various carriers, and the carriers themselves, are assigned from time to time in fleet exercises to the various subdivisions of the Fleet. In part of a problem, the aircraft will cooperate with destroyers; in another part, they operate offensively against destroyers; in another part, they operate with and against submarines; they operate continually with battleships and these battleship planes must continue their activities during the attack of 'hostile' aircraft. This employment of aircraft on widely differing missions reacts not only to the vast improvement of the air arm, but also and equally important, it acquaints the officers of command rank with the possibilities and effective means of employing aircraft to further the main mission of the Fleet, the destruction of the enemy."

Fleet Problem Nine, conducted in 1929, created a profound impression on the tacticians of the day. In March and again in April of 1930 two more problems were presented the Fleet, both conducted in the Caribbean, and both concerned with the versatility of aircraft carriers as naval weapons. They were Fleet Problems X and XI.

Fleet Problem X investigated the maneuvers necessary to gain a tactical superiority over a force of approximately the same strength and in the use of light forces and aircraft in search operations. Carriers were here defined as a complete tactical unit, operating with cruisers and destroyers as a high-speed striking force.

The *Blue* force, representing the U.S., was assigned both *Saratoga* and *Langley*, while the *Black* force, a coalition of enemy nations, operated the *Lexington*. Earliest control of the Caribbean was crucial to solving the problem.

At the outset, neither force knew exactly where his opponent was, though *Black*, through intelligence reports, had enough information available to assume the *Blue* ships would transit the Panama Canal to the Atlantic side. The ships already had.

Blue's commander considered the water too rough for the safe operation of seaplanes on the first day of the

VOUGHT CORSAIR *attached to Ranger's utility unit was typical of Corsairs used for scouting observation duties during the later war games.*

MONOPLANE TYPES, *such as this Vought SB2U-1 of VB-3 on the Saratoga, were employed in the Fleet Problems conducted in the late Thirties.*

problem and was reluctant to send his carrier-based planes, for he expected to contact the *Black* carrier force before dark. The *Black* ships were in a position just north of the island of Haiti. By dawn next morning, they had moved to the west side of the island.

On the second day of the problem, the *Blue* commander again called off air operations because of bad weather and rough seas. *Black,* on the other hand, conducted extensive scouting operations while advancing to the west. Haitian-based planes scouted from daylight to dark, while *Lexington*-based fighters and scouts launched every three hours for a 12-hour period.

Weather improved on the third day and the *Blue* commander ordered his carrier planes launched. Still neither side had any idea where the opponent was. This status continued through the fourth day, and it was not until the fifth that contact finally was made.

Saratoga was spotted by *Lexington* aircraft and as a result of the attack that followed, *Sara's* flight deck was damaged. Before her planes could be respotted for launching off the usable end of her deck, *Sara* suffered another and finishing attack. *Lexington* next turned her attention to the *Langley* and in two flights of first 15 and then 12 planes successfully placed the converted collier's flight deck out of commission.

Next, USS *Litchfield,* one of *Saratoga's* plane guards, was dive-bombed and placed out of action. *Blue's* battleships then felt the effects of *Lexington's* planes with the result that the *West Virginia* suffered the destruction of two anti-aircraft guns, the *California* lost an observation plane on deck, injury or death to personnel, foretop material damaged, and a 15 per cent reduction in main battery fire; and the *New Mexico,* lost four AA guns as well as an observation plane still on one of the ship's turrets. Neither *Saratoga* nor *Langley* took part in the main action that followed the destruction of their flight decks.

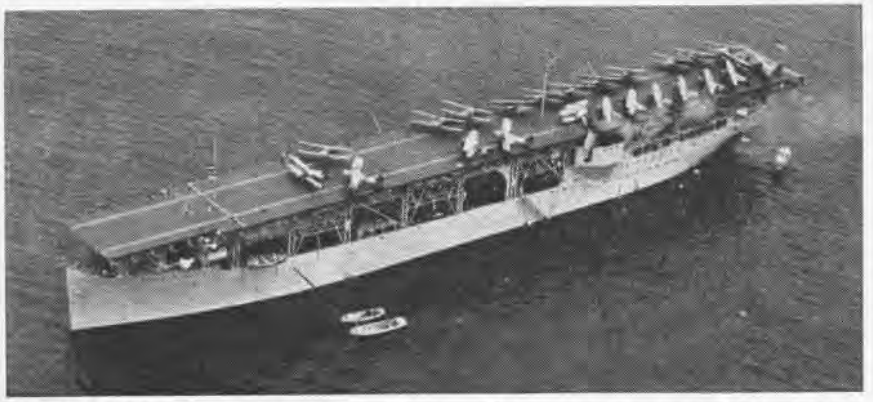
At its conclusion, Fleet Problem X demonstrated the suddenness with which an engagement could be completely reversed by the use of air power. Scouting planes and scouting operations were also scored, the planes found wanting in range and the scout pilots unable to bomb carrier decks when contact was made.

A month later, Fleet Problem XI investigated further the limitations of scouting planes as well as their most effective use. After the game, it was recommended that scouting squadrons be increased to 18 planes and that a more suitable scouting plane be developed. It was felt that better flotation was needed for amphibians and that a greatly increased range for carrier-based scouts, as well as the ability to take off with a short run were necessary. Among desirable secondary characteristics were small size, folding wings, and high speed, even at the cost of ceiling and armament.

It was also recommended that semi-permanent task groups be organized, each consisting of one large aircraft carrier, a division of cruisers, and a division of destroyers. These ships were to be trained as a unit in frequent exercises.

The 1931 Fleet Problem (XII), conducted in the Pacific-Panama Bay area, had among its tasks exercises in strategic scouting, in the employment of carriers and light cruisers, and refueling at sea.

Primarily, this problem dealt with actions between a fleet strong in aircraft and weak in battleships, and in a reverse situation where the fleet was weak in aircraft. At its conclusion, it was considered that two cruisers and two destroyers were minimum protection for an aircraft carrier in a carrier group. Further, the commander of that group should be stationed in the air-



LANGLEY'S ROLE *in the war games became decreasingly important as new aircraft carriers were added to the Fleet. Aboard are an assortment of O2U, SU, and F6C aircraft. Note port stack.*

craft carrier, rather than in a cruiser or destroyer, so that he could fully understand the mission of that group and obtain its quickest cooperation. Also, it was pointed out, escorting vessels must maintain the speed and proportionate fuel capacity of the carrier.

At the end of the problem, the three carriers transited the Canal and headed

CANAL ZONE—*based aircraft, such as this early Corsair, participated in the games.*

for Cuban waters and more exercises. On the last day of March, Capt. Ernest J. King, commanding *Lexington,* was ordered to assist Navy and Marine units in relief operations in Nicaragua. An earthquake had destroyed most of the city of Managua. When *Lexington* launched five aircraft with medical personnel and supplies aboard, in addition to provisions, she inaugurated carrier aircraft relief operations in the U.S. Navy. This was to become a frequent peacetime mission.

During Fleet Problem XIII, held in the Pacific-West Coast area in 1932, the vulnerability of submarines to air detection and attack, at that time, was clearly demonstrated. Four out of five submarines of one force, assigned scouting missions, were detected by land and carrier-based planes and "sunk." C.O.'s of these submarines reported their own vulnerability when operating in an aircraft-screened area.

Aircraft carriers assigned to the problem were forced to exercise in widely separated areas of the Pacific. RAdm. H. E. Yarnell, who commanded the "U.S." aircraft during the exercise, noted that in event of actual war in the Pacific, the number of aircraft carriers on hand would be totally inadequate to meet the needs.

Also, the admiral pointed out, this problem was not greatly dissimilar from all other problems conducted in the past, in that when one aircraft carrier was assigned to each of the forces in the war games, each of the forces invariably made the destruction of the other's carrier the prime tactic. This

MORE MODERN *Consolidated P2Y-1's replaced older flying boats in the mid-Thirties.*

resulted in both forces losing their carriers early in the game.

It was therefore obvious, he repeated, that the side with the greater number of carriers had a tremendous advantage. In time of war, this would be critical. He suggested that at least six or eight more aircraft carriers be added to the Navy's inventory.

THE NEXT problem, XIV, was conducted in the same area the next year, 1933. Its conditions were that "during preparation for escorting an expeditionary force overseas in a campaign, an outlying possession was in danger of a raid, and important industrial, military and mobilization centers of a long coast line were threatened by carrier raids."

The *Blue* force was to protect the West Coast while *Black* was ordered to make at least one raid in the San Diego-San Pedro, San Francisco, and Puget Sound areas. *Black* divided its force into three groups. Its Northern Carrier Group was to raid San Francisco and then proceed to Puget Sound to the north. The Southern Carrier Group was to raid San Pedro and then San Francisco, rendezvousing later with *Black's* Support Group.

The first four days were uneventful. On the fifth day, a *Lexington*-based plane of the Northern Group spotted an enemy submarine, causing the carrier to change formation for the approach to the launching point of the

WITH THE PBY'S, *VP squadrons made the change to monoplanes. This one was a target tow-er.*

raid. Weather worsened, forcing the suspension of flight operations. Early the next morning, as *Lexington* warmed up her planes, a *Blue* battleship was sighted at a 4500-yard range. As the carrier tried to escape, a second enemy battleship came into view and the Northern Carrier Group was declared out of action, caught unexpectedly between two enemy battleships at close range.

The Southern Carrier Group had better luck. On the seventh day of the problem, *Saratoga*-based planes successfully launched the attack. *Black* reported that 12 scouts had attacked the oil refinery at Venice with 24 100-lb. bombs, five scouts attacked a power house at Long Beach with ten equally powerful bombs, encountering no enemy force and sustaining no losses. The force lost three bombers to the enemy's two fighters during an 18-bomber attack on an enemy transport, an oil field at El Segundo and docks at Long Beach. *Saratoga* sustained slight damage. The force moved north for the San Francisco raid.

When she arrived in the San Francisco area, *Saratoga* launched her planes. Before she completed, aircraft from the cruiser *Richmond* and the carrier *Langley* bombed her flight deck. After *Sara's* planes returned from the raid, 37 per cent of her flight deck was assessed damaged, 36 planes lost, and her flight deck out of commission for 38 hours. The CV-2 aircraft had succeeded in making a dive bombing attack on the *Langley,* temporarily dis-

BOEING F3B-1 *was typical of the light fighter bombers which used dive bombing tactics.*

abling her flight deck, and attacked Crissy Field, San Francisco docks, San Andreas reservoir, and the drydock at Hunter's Point.

This exercise underscored the urgent requirement for the development of better planes, particularly carrier bomber and torpedo planes. Adm. Yarnell again pleaded for three addi-

tional 18,000-ton carriers which were permitted under existing treaties.

In the period 1933-34, the Fleet conducted a series of 20 tactical exercises. The last three of these comprised Fleet Problem XV, which also proved the last of the war games of the three-carrier period.

In his official monograph "Aviation in the Fleet Exercises, 1911-1939," historian LCdr. James M. Grimes, USNR, described the war games: "The primary effort of the Commander-in-Chief when drawing them up had been to introduce realism into fleet tactics and to simulate as nearly as possible actual wartime operations. For this reason, the opposing fleets represented actual navies of the period. Carrier operations were extensive throughout the problem. . . .

"There were several important results of Fleet Problem XV as regards the development of Naval Aviation. The most important, perhaps, was the realization brought out by air operations during the problem, that if the carrier was to be the offensive weapon it was considered to be, carrier-based planes would have to be so armed that they could carry the offensive to the enemy.

"It was seen that planes carrying 100-lb. bombs were obsolete and of little use against an enemy force equipped with planes capable of carrying 500- and 1000-lb. bombs. The Commander-in-Chief, in his remarks at the critique held on Fleet Problem XV, stated that at least three-fourths of the carrier-based planes should be so equipped."

USS *Ranger* joined the Fleet for the next war game, Fleet Problem XVI, conducted in 1935. Actually, this game consisted of five separate exercises, none of them related, spread over the Pacific from the Aleutians to Midway, to Hawaii. Both the Army and Coast Guard participated.

BOEING F4B-4's *were famous carrier fighters. One is now in National Air Museum collection.*

The major air operations took place during the third phase of the problem. Unfortunately, these were marred by a series of plane and personnel casualties that, unfortunate in themselves, also seriously affected later air and sea operation. Athough valuable experience was obtained in mass flight of patrol squadrons, nothing of significance developed in the operation of aircraft carriers.

Fleet Problem XVII was conducted in the Panama-Pacific area in 1936. The exercises (again five) saw extensive use of patrol planes and the effective use of automatic pilot, but there was no major contribution to, or effect on, the evolution of carriers, either in design or tactics.

The question of proper employment of aircraft carriers was brought up again in Fleet Problem XVIII of 1937: Should they operate with the main body of a fleet or should they operate at a distance?

Black's aircraft commander held that a carrier tied down to a slow main body formation was certain to be destroyed. "Once an enemy carrier is within striking distance of our Fleet," he said, "no security remains until it, its squadrons, or both, are destroyed, and our carriers, if with the main body, are at a tremendous initial disadvantage in conducting necessary operations."

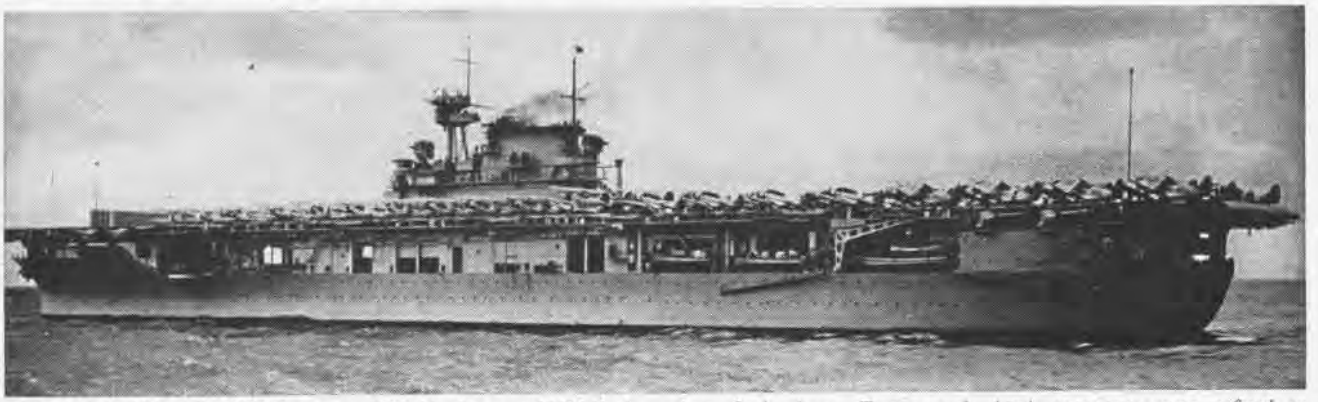
But his force commander took a different view. He felt that carriers should be an integral part of the main body and defended his decision to employ them in such a way, as he did in this problem. He suggested that *Ranger,* because of her small size could provide scouting and spotting with less chance of being detected. He hoped that when *Yorktown* and *Enterprise* joined the Fleet, such an employment of *Ranger* might be possible.

LAST OF THE NAVY *Curtiss Hawk types were the BF2C-1 dive bombers of the mid-Thirties*

Fleet problem XIX was the last of the *Ranger* phase of the war games. It was conducted in 1938 and consisted of Parts II, V, and XI of the Annual Fleet Exercises.

In the first phase, the outstanding performance was a long-range San Diego-based patrol plane bomber attack which successfully eliminated *Lexington* as a carrier unit in the game.

The notable development of the second phase of the war game, Part V, was an attack on Pearl Harbor, launched from *Saratoga* some 1000 miles off the coast of Oahu. *Sara's*



WITH THE ENTRY *of the USS Enterprise (CV-6), above, and USS Yorktown (CV-5) into the war games in 1939, the Fleet Problems entered their final phase. Tactics and ships' operations were refined in the tense years immediately prior to the United States' entry in WW II*

recon group flew over Lahaina area, photographing beaches and reporting the enemy's strength there.

At the same time, *Sara* sent an attack group which bombed Fleet Air Base, Hickam Field, Wheeler Field, Wailupe Radio Station, and returned to the carrier. This tactic was to be employed by the Japanese some three years later, in December 1941.

In phase three (Part XI), the outstanding air operation was an unopposed air attack by *Lexington*- and *Saratoga*-based planes launched against Mare Island and Alameda.

"Excellent experience was provided in planning and executing a fast carrier task force attack against shore objective," says Grimes. "The problem of defending a coast line, or even an isolated portion thereof, against fast enemy raiding forces equipped with large carriers and protected by powerful surface ships was seen to be one difficult of solution."

Yorktown and *Enterprise* entered into the 1939 exercises of Fleet Problem XX, which were conducted in the Caribbean area and off the northeast coast of South America. The war games entered their final phase. Neither *Langley* nor *Saratoga* participated.

As a result of this game, reports indicated that carrier operations reached a new peak of efficiency; particular credit was given the two new carriers which, despite inexperience, contributed significantly to the success of the problem. These exercises studied employment of planes and carriers in connection with convoy escort, development of coordinating measures between aircraft and destroyers for anti-submarine defense, attack on mobile patrol plane bases, scouting and attack by patrol planes, defense of surface ships against aircraft attack, and trial of various forms of evasion tactics against attacking aircraft and submarines.

The last war game, XXI, was played in 1940 in the Hawaiian-Pacific area. It consisted of two separate exercises. Historian Grimes describes them:

"The first exercise was designed to afford training in making estimates and plans; in scouting and screening; in the coordinaton of various types of fighting units; in employing standard and fleet dispositions; and finally to train the opposing forces in decisive engagement.

"The second major exercise of the problem was designed to afford training in scouting, screening, communications, coordination of types, protection of a convoy, seizure of advanced bases and finally, decisive engagement."

Between the two major parts of the problem were two minor exercises in which air operations played a major part: Fleet Joint Air Exercise 114A and Fleet Exercise 114. Exercise 114A underscored the need for greater cooperation between the Army and Navy in organizing the defense of the Hawaiian area. Exercise 114 compared patrol plane attacks on surface units with use of planes in high altitude tracking. The former proved the planes vulnerable, while the latter met with great success.

Few new difficulties emerged from this war game. Reiterated was the question of latitude given carrier commanders by force commanders. *Yorktown's* commanding officer stated his belief that success could best be achieved when aircraft personnel in carriers operated under a broad directive. The exercise proved again—as it did in Fleet Exercise 114—that low-level horizontal bombing attacks had little chance of success — especially against a ship that was not otherwise engaged.

By 1940, the war games were halted. Although one was planned for the next year, worsening of world tensions caused their cessation. Various tactical exercises were held instead.

Naval Aviation grew with the war games. The first phase—the pre-aircraft carrier years—employed "constructive" carriers and merely indicated to the Navy the potentials of this new weapon. The *Langley* phase was an informative one, but this was more an experimental ship than an aircraft carrier. The games reached fruition with the addition of the *Lexington* and *Saratoga* in Fleet Problem IX. It saw the employment of an aircraft carrier as a separate striking force and introduced a new tactic in the book of naval strategy. The *Ranger* phase showed the potentials of small aircraft carriers, employed with telling effect in WW II. And the final phase, the addition of *Yorktown* and *Enterprise*, increased and refined carrier operations in the critical years prior to WW II.

GRUMMAN F3F *biplanes were mainstay of carrier fighters until shortly before WW II.*

DURING COMMISSIONING *ceremonies at the Naval Operating Base, Norfolk, in 1937, men lined up on the flight deck of USS Yorktown (CV-5). It entered the war games two years later.*

THIS HELLCAT HAD MANY LIVES

THIS CHINCOTEAGUE DRONE OF YEARS AGO IS A SISTER AIRCRAFT OF HELLCAT AT PT. MUGU

By Sam McCrum, JO1

Out at Point Mugu, there is a lone WW II fighter aircraft painted in blue just as it was before it became a drone. It awaits honorable retirement in a museum. The last operational one of its type, it will proudly represent one of Naval Aviation's greatest planes, the F6F *Hellcat*.

The ready-to-retire fighter is known simply as Bureau Number 77722. Its career spanned 17 years and more than nine lives. It served its last two years attached to the Naval Missile Center Targets Department at Point Mugu as a bright red target plane.

Now it's back in dress blues. The pistons in its big Pratt & Whitney engine are idle. The landing gear is down and welded in place. Its instruments are still; its power is gone.

When 77722 went on active duty in January 1945 out of the Grumman factory at Bethpage, N. Y., it already had a reputation to live up to.

The *Hellcats* had been created specifically to master the deadly Japanese Mitsubishi *Zero*. Put into service in 1943, *Hellcats* proved their superiority by destroying over 9000 enemy aircraft.

Buno. 77722 headed for Pearl Harbor after acceptance to join Carrier Air Service Unit 12 (CASU-12) and await further assignment to carrier duty with the Fleet—an assignment that never came. Conceived and constructed as a first line fighter plane, this *Hellcat* was never to see actual combat. Only hard work and disappointment lay ahead for Buno. 77722.

While the *Hellcat* waited at Pearl Harbor, the war ended, and the plane was put into storage.

Six months later, it was taken out of mothballs and sent to San Diego to join CASU-5 to be used for training and transportation. This was only the beginning of such duty for Buno. 77722.

For the next 11 years, the *Hellcat* wandered from command to command like a nomad, looking for its place as a fighter plane and finding only disappointment.

In 1956, Buno. 77722 was given to O&R, NAS Pensacola, Fla., and equipped wtih special remote and radio control devices for "No Live Operator" (NOLO) flight. Its designator changed from F6F-5 to F6F-5K; the first line fighter became a first line target drone.

After surviving a tour as an anti-aircraft target at the Naval Ordnance Test Center, China Lake, Calif., the plane was transferred to Point Mugu in 1960 to become a target for *Sparrow* and *Sidewinder* air-to-air and *Talos* surface-to-air firings.

Although beaten by flak and explosion concussions, the old *Hellcat* still was able to get back in the air.

Duty at Mugu got to be sort of routine after a while. The control truck, carrying a pilot manipulating the remote control panel, would take the plane down the runway to get it airborne. Then a chase plane would take over and guide it out to sea and put it in orbit for the target run.

After the run, the *Hellcat* would be guided back to Mugu by the control plane, and the truck would again take over and land the drone.

On its last NOLO operation in May 1961, Buno. 77722 touched down on the Pt. Mugu runway on the verge of exhaustion. The old *Hellcat* bounced a couple of times, wobbled a little, and went out of control.

Almost out of revenge, it seemed, the drone skidded across the runway and collided with the control truck, almost putting the vehicle out of commission.

That was 77722's last flight. Retired to await museum status, it is the last of a proud breed—*Hellcats*.

X-15 Flown to 314,750 Feet

Air Force's Maj. White Makes Flight

Maj. Robert M. White, Air Force project pilot, reached an altitude of 314,750 feet in the X-15 on July 17. The altitude mark was computed by the NASA Flight Research Center, Edwards, Calif.

The X-15, a joint program of the Air Force, Navy and NASA, was originally built to obtain data on flight at altitudes up to and above 250,000 feet and hypersonic speeds as high as 4000 mph. The speed objective was attained November 9, 1961 by Maj. White when he reached 4093 mph. NASA Chief Research Pilot, Joseph A. Walker, flew in June to a slightly higher speed, about 4105 mph.

White flew X-15 No. 3 July 17 following a launch over Delamar Lake, Nev., about 218 miles north of Edwards. His flight represents a marked advance over the original altitude of 250,000 feet for which the X-15 was designed to fly.

Main purpose of the flight was to complete checkout of a new self-adaptive control system, which was built by the Minneapolis-Honeywell Regulator Co. The system, installed only in X-15 No. 3, is capable of sensing air density and other factors affecting control and of automatically adapting to meet these conditions. It makes use of both reaction jets and the more conventional movable aerodynamic surfaces for control.

NAA representatives monitored the flight for FAI certification.

WEEKEND WARRIOR NEWS

RECRUITER'S DREAM, *but a nightmare to Robert Mitchell, PN2, NAS Atlanta, when 12 recalled Reservists swamp him with application to rejoin their former units after the August 1 release.*

OFFICERS AND MEN of 18 Naval Air Reserve squadrons made transitions, some smooth and some rough, back to civilian status after ten months on active duty with Atlantic and Pacific Fleets.

Longest jaunt to home was made by VS-721 which had spent its active duty period at Seattle, Wash., before heading home to NAS GLENVIEW. The Chicago area greeted the squadron and the crew of the USS *Joy* with a parade down State Street in mid-July. The unit was to return to its Weekend Warrior status on August 1, as were 17 other recalled Naval air squadrons.

At Jacksonville, Governor Farris Bryant of Florida signed a proclamation setting the week of July 28 to August 3 as "Naval Reserve Appreciation Week." On July 29, state and local civic officials were scheduled to join Navy officers in review of VP-741 as the squadron returned to civilian life.

Detroit area aviation personnel attached to VS-733 received plaudits from RAdm. Henry H. Caldwell, COMFAIR QUONSET, during deactivation ceremonies at South Weymouth. VS-733 and Weymouth's VS-915 spent their active duty working for Fleet Air Wing Three, NAS BRUNSWICK, Maine, under the command of COMFAIR QUONSET. VS-733 reported back to NAS GROSSE ILE.

Laudatory messages were received by all squadron commanders from the Secretary of the Navy and Chief of Naval Operations. The President, in a special letter to Secretary of Navy Fred Korth, asked that his personal thanks be passed to all commanding officers for their outstanding performance (see back cover).

A movie—"Cold War Call-up, the Navy's Selected Reserve"—was scheduled to be distributed Navy-wide to show the role played by surface and air reserve units during the past year.

RADM. H. H. CALDWELL, *ComFAir Quonset, presents plaques to Grosse Ile's VS-733.*

Reserves Integrated with Fleet

Alternately converging on East Coast Marine Air Stations during July and August, 21 Marine Air Reserve Units took their training alongside Fleet Marine Force counterparts in two-week increments.

The summer training program is the second in a series of three annual periods devoted to "more closely integrating" Marine reserves into Fleet maneuvers, according to BGen. L. B. Robertshaw, COMART, who coordinates training for 17 detachments. This year's exercise was designated as Operation *Unity*. The third annual training exercise in 1963 will be Operation *Climax*.

Highlight of the 1962 training was a joint air-ground exercise, July 23-26 at Camp Lejeune, utilizing both regular and reserve forces.

GOV. BYRANT *signs proclamation as Capt. R. E. Elliott, Jr., and Cdr. R. M. Koontz (L) look on.*

Jamaica Revisited

Grosse Ile air reserves visited West Kingston, Jamaica, for the third time and had a chance to see the results brought about by previous *Helpmate* medical supply flights. Cooperating with World Medical Relief, Inc., De-

troit area Weekend Warriors have now flown in enough drugs and supplies to provide support for a 25-bed medical and dental facility in Jamaica. The latest trip added 2000 pounds of supplies, delivered at dedication ceremonies for the Children's Medical and Dental Clinic of West Kingston. *Helpmate* started when Grosse Ile reservists learned that the U.S. Men's Club of West Kingston had all but abandoned hopes for building a clinic, owing to lack of funds. Through cooperation of the Navy and World Medical Relief, the project was saved.

Fury Jets to Orleans

Naval Air Reserve pilots of VF-821 and VA-822, New Orleans, have started transition into the FJ-4 *Fury* jets, which are replacing the -3 models formerly assigned. Transition training commenced during annual training cruises of the two units in July. ASW helicopter squadrons HS-821 and HS-822, meanwhile, have begun training in the -1N (night, all-weather) version of the HSS-1.

No Misses since 1946

One of three chief petty officers who re-enlisted for six years of duty in New York's VR-831 has not missed a drill or cruise since he entered the Naval Air Reserve program in 1946. It is further claimed that Chief Eugene Kramer has not even been late for muster in all that time. Kramer, plus Chiefs Frank Young and Charles Sweet, signed on for six more years with the transport squadron. Kramer is a fleet representative for a Jersey City

LCDR. JOSEPH DOMAREKI *and Cdr. George Lutz study ocean bottom model for ASW plotting.*

auto supply firm.

A midnight takeoff took LCdr. Warren Schulden on a mercy mission to Gastonia, N. C. He was called out to transport a supply of gamma globulin in an attempt to save the life of a two-year-old child stricken with an infection in the Carolina city.

An ocean bottom model, showing the sea floor in three dimensions, has been produced by members of NAIRU 832 as a special station support project at New York. The model, designed and produced by LCdr. Joseph Domareki, is lighted from below and provides visual briefing information on wrecks and other anomalies affecting ASW equipment. A transparent overlay will provide pilots with information for ASW search plotting. LCdr. Domareki, a commercial artist in civilian life, and members of the Air Intelligence unit built it during drill weekends.

Up the Photography Ladder

Chief Photographer Robert Costello, NARTU MEMPHIS, has been elected president of the Tennessee Professional Photographers Association. A former staff member of the Covington *Leader*, Costello has been on active duty since 1950 and is a past president of the Memphis Professional Photographers Association. He is the first active duty serviceman to hold the presidency.

Flag Presented to Retiree

Hoping to set a precedent for all retirement ceremonies, NARTU LAKEHURST enlisted men bought an American flag and presented it to AD1 Henry Hofstetter upon his retirement from active duty. Hofstetter's flag was paid for by all the unit's personnel and presented by Capt. F. M. Duffy, C.O.

Alameda Cruise vice Hawaii

After cruising in 1961 at Barber's Point, Hawaii, VS-875 stayed home this year and did its training at NAS ALAMEDA. The "at home" cruise brought together a pair of former West Germans who are now members of the squadron and "striking" for naturalization papers. They are Manfred Ehrhardt, a photographer striker, and Manfred Schreiber, electrician striker. Both were born in West Germany.

Coincidence: Capt. Louis Burke was relieved as NARTU skipper by Naval Academy classmate, Capt. Raymond Hill; and the X.O., Cdr. Robert O'Maley, was relieved by a flight training classmate, Cdr. Max Moore.

CDR. HAROLD WHEELAHAN, *C.O. of NAS New Orleans' Attack Squadron 822, is shown at controls of FJ-4 Fury. He was first to check out in plane.*

CAPT. F. M. DUFFY, *C.O. of NARTU Lakehurst, presents Aviation Machinist Mate First Class H. P. Hoffstetter a flag, gift from his shipmates*

Uniform Aircraft Symbols

DOD Seeks Similar Service Numbers

All military aircraft are to be identified with a uniform designation system, according to the Department of Defense. A proposed uniform system will replace the present practice under which the Army, Navy and Air Force designate their aircraft by different systems.

Major purpose of the uniform system, established by DOD Directive No. 4505.6, is to insure that a given basic airplane bears the same identification no matter which department procures or utilizes it. This will be similar to the action under which the Air Force's North American T-28A design, when adopted with modifications by the Navy, became the Navy's T-28B and T-28C models. More recently, the Air Force C-130B, with ski-landing gear, became the C-130BL for VX-6 antarctic operations.

The uniform designation will follow current Air Force practice with a basic mission/type letter (F for fighter, B for bombers, etc.), followed by a design number to identify the basic model and a series letter to signify a change in the basic model. The basic model numbers will be in sequence, beginning over again, rather than following the present Air Force sequence. Additional letters to indicate a modified mission will precede the basic mission/type symbol, rather than following the basic designation as in current Navy practice.

The Air Force has been made responsible for establishing procedures, including a time schedule for applying this uniform system in coordination with the Army and Navy.

Duxbury Bay Banner Ship

Clean Sweep in Battle E Awards

The Norfolk-based seaplane tender, USS *Duxbury Bay* (AVP-38), made a clean sweep in her class by winning the white Battle Efficiency E award and five departmental E's in the Atlantic Fleet Naval Air Force Competition for 1962. The *Duxbury Bay* is commanded by Capt. John M. Miller.

Aircraft carriers USS *Intrepid* (CVS-11), Capt. Robert J. Morgan, commanding, and USS *Lake Champlain* (CVS-39), Capt. Cecil A. Bolam, commanding, won the Battle E awards in their class and also two of the Departmental E's. The *Intrepid* was recently assigned anti-submarine duty but spent most of FY 1962 as a CVA.

Departmental E awards are as follows: the yellow pennant for Air Efficiency went to USS *Saratoga* (CVA-60), USS *Essex* (CVS-9) and *Duxbury Bay*. The red engineering pennant was awarded to the USS *Intrepid*, USS *Randolph* (CVS-15) and *Duxbury Bay*. The black "G" for the best gunnery department was won by the USS *Forrestal* (CVA-59), *Lake Champlain* and *Duxbury Bay*. *Intrepid*, *Lake Champlain* and *Duxbury Bay* received the green E for Operations, and *Saratoga*, *Randolph* and *Duxbury Bay* were named to receive the green C for communications.

USS *Randolph*, also a Norfolk-based ship, received the white "A" for her anti-submarine warfare proficiency.

Battle E awards are made annually to one ship in each class, both in the Atlantic and Pacific Fleets, for outstanding operational readiness during the year. The ships also compete for individual E pennants for outstanding operations.

VAdm. Frank O'Beirne, Commander Naval Air Force, U. S. Atlantic Fleet, stated that "competition was keen in all phases," and extended congratulations to all hands and a special "well done" to the USS *Duxbury Bay* for her clean sweep of honors.

The Pacific Fleet operates on a 16-month cycle for awards as compared to the Atlantic Fleet's cycle of 12 months. The Pacific Fleet announcement of awards will not, therefore, be out until the end of October.

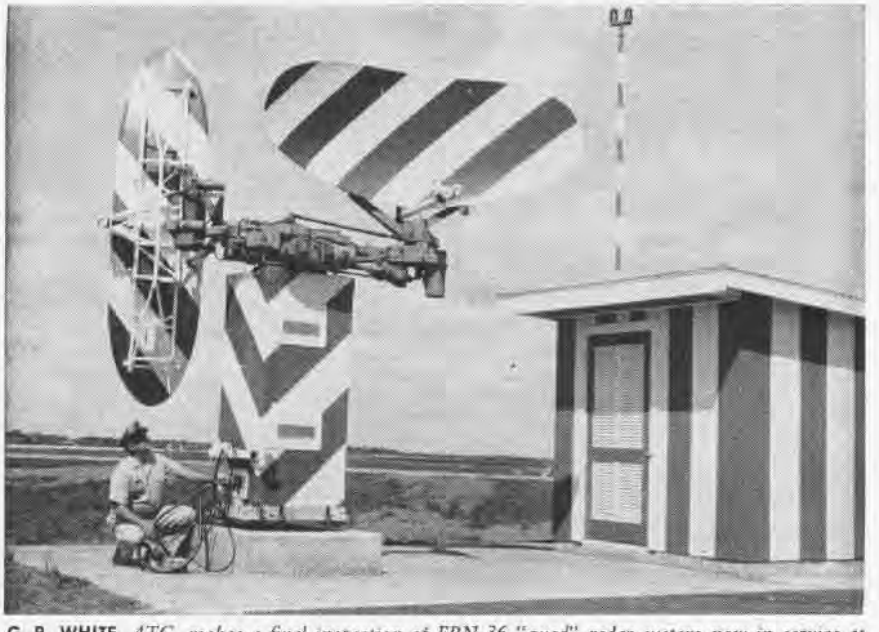
Huge Congo Airlift Ends

Navy MATS Fliers Return Home

In July at McGuire AF Base, N. J., units of the Atlantic Naval Air Transport wing welcomed home Navy aircrew personnel from the Congo, following completion of the largest single airlift of United Nations forces in that African country.

Navy men involved in the operation left McGuire and NAS NORFOLK, Va., on June 17, along with other elements of MATS's Eastern Transport Air Force. In the next month, Navy and Air Force squadrons airlifted 5961 Ethiopian troops in a normal rotation of men and equipment between the Congo and Ethiopia. Cargo transported in support of these forces for this period totaled some 25,000 tons.

Navy participants included members of VR-3 and VR-6, both based at McGuire, and VR-22, based at Norfolk. The three units make up the Naval Atlantic Transport Wing.



G. R. WHITE, *ATC, makes a final inspection of FPN-36 "quad" radar system now in service at NAS Cecil Field, Fla. The new radar system will allow GCA approaches on all four of Cecil Field's runways from a single control point. It permits instantaneous shift of runway control. The mobile trainer unit, which was formerly in use, could control only one pair of runways at a time, and shifting the unit to the other pair took as much as 30 minutes.*

Enterprise Wins Top Award

Rated 'Outstanding' for Fiscal '62

The Navy's USS *Enterprise* (CVAN-65) has won an Outstanding Achievement in Refresher and Shakedown Training during the 1962 fiscal year, according to the Commander of the Atlantic Fleet's Training Group, Guantanamo Bay, Cuba.

Each year ships of the Second Fleet and other Atlantic commands undergo training exercises and evaluation at the Caribbean training center.

The planes aboard the *Enterprise* are from Carrier Air Group Six. They include F8U *Crusaders* in VF-33; A4D *Skyhawks* in VA-64, VA-66 and VA-76, and AD-6 *Skyraiders* in VA-65. VF-102 is equipped with the F4H *Phantom II* while VAH-7 flies the A3J *Vigilante*. Other planes in detachments aboard include WF-2 *Tracer* and photo-equipped *Crusaders*.

The USS *Enterprise* is commanded by Captain Vincent P. de Poix, USN.

Maintenance Manual is Out

Book Cancels 11 NAMP Directives

The long-awaited Naval Aircraft Maintenance Program manual was officially approved by RAdm. P. D. Stroop, Chief of BuWeps, on June 21, 1962. Initial distribution of the manual began in August.

This comprehensive directive—BuWeps Instruction 4700.2—supersedes 11 instructions ranging from BuAer Instruction 5440.2, "Organization and Procedures Manual for Aircraft Maintenance Activities," to BuWeps Instruction 3700.2, "Post Maintenance Aircraft Test Flight Requirements."

A classified companion directive, BuWeps Instruction 04700.3, also approved on June 21, details the available facilities and allowance lists for support of naval aircraft maintenance.

The new manual has received what may be the most thorough editing ever given any maintenance directive. Draft version of the instruction was reviewed with word-by-word thoroughness by the World-Wide Naval Aircraft Maintenance Conference held in Washington last February (NANews, Feb. 1962, p. 31).

The manual was developed first by the Fleet Readiness Division of BuWeps, now headed by RAdm. Emerson E. Fawkes.

RADM. FAWKES REVIEWS NAMP PROOFS

Though the new directive does not change the basic concept of the Naval Aircraft Maintenance Program (See "Naval Aircraft Maintenance Program," NANews Feb. 1961, pp. 25-29), it updates the directives and brings them together in a handy manual.

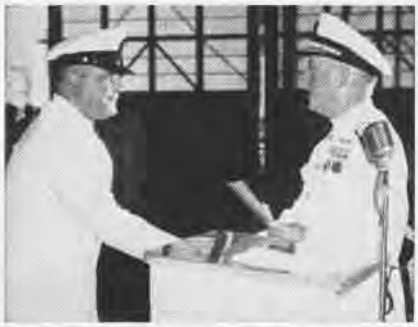
Trophy is Awarded Again

CG Selects 'Outstanding Squadron'

VMA-224 has been selected the "Outstanding Squadron" in the Second Marine Aircraft Wing by its acting commander, Col. Arthur W. Fisher, Jr. The squadron was chosen on the basis of attaining the highest overall score in competitive evaluation exercises. The award has not been presented since 1958.

LCol. Paul A. Noel, commanding VMA-224, received the three-foot tall trophy in ceremonies in the squadron's headquarters at MCAS Cherry Point.

During the ceremony, "Top Gun" awards were also presented three of the squadron's pilots. Maj. G. D. Overmyer received an award for his dive bombing score; 1st Lt. D. R. Black, for achieving the best loft bombing mark, and 1st Lt. J. R. Lousma, for his rocket-firing score.



OVER $50 MILLION *was saved the U.S. by an idea leading to the design of an adapter for Bullpup missiles. Ideaman John N. Garbarini, AOC, receives SecNav Commendation from RAdm. Joseph M. Carson at NAS Cecil Field.*

VT-21 Proud of Record

Sums up Accomplishments of FY 62

On 30 June, VT-21 announced a total of 25,519 flight hours in Fiscal Year 1962. As the year ended, the squadron in its F9F-9 *Cougars* had flown 20,569 consecutive accident-free hours, exceeding the record of 15,000 hours set August 29, 1961.

During the year, 974 carrier landings were made, a remarkable record because they were flown by student Naval Aviators in sweptwing aircraft.

In September 1961, VT-21 received a rating of "outstanding" during the annual Administrative-Material Inspection. It also was awarded the CNAVanTra "Aces Award" for calendar quarters ending December 31, 1961 and March 31, 1962. This award is presented to the Advanced Training Squadron which by alertness, competence, effectiveness and safety consciousness of personnel has displayed distinguished performance in the field of aviation safety.

On February 1, 1962, VT-21 was awarded CNAVanTra's annual Jet Aviation Safety Trophy for calendar year 1961. RAdm. Louis J. Kirn, former Chief of Naval Air Advanced Training, made the presentation.

Four instructors of VT-21 were commended for 1000 accident-free hours of advanced jet instruction: LCdr. F. J. Orrik, Capt. L. C. Wallace, USMC, Lt. J. R. Gunter, and Lt. T. L. Draper.

Cdr. J. H. Crawford is VT-21 C.O.

MAG-36 Claims Records

Unit's Squadrons are Commended

Marine Aircraft Group 36 set a new Marine Corps record for helicopter accident-free flying during FY 1962.

The Santa Ana-based group flew 44,948 accident-free hours in 307 days to set the record.

In addition to the flight safety mark, the helo squadrons of the group flew 51,865 hours to establish a new operations record within the unit.

Col. E. E. Anderson, commanding MAG-36, in a message to officers and men of the group, said: "From available records, this is the first occasion that MAG-36 has exceeded 50,000 flight hours in any fiscal year."

In amassing 51,865 flight hours, 8559 carrier landings were accomplished, including 1692 made at night.

SQUADRON VIEW OF FLEET WORK STUDY

By Lt. Jack Davis, VA-126

OVER A YEAR ago the Fleet Work Study Team completed its work at VA-126. The team's recommendations have been thoroughly tested. The squadron has scored great gains in aircraft readiness and the quality of its maintenance. Most improvements date from the team's visit. This is an account of our experience in hosting the Fleet Work Study Team and the benefits which have followed.

For those unfamiliar with VA-126, we operate 26 F9F-8T *Cougars* at NAS MIRAMAR, the jet fighter base for NavAirPac. We give instrument flight training for all students going through VF-121 (F4H, F3H) and VF-124 (F8U), the fighter RAG squadrons, and lend aircraft to squadrons for instrument checks or other needs.

The Fleet Work Study Team is a group of naval officers and CPO's specially trained to "work with work." If they were civilians, they would probably be called management consultants. All original team members—which included the people assigned to the VA-126 project—were trained in a British Fleet work study school and had received training in the industrial engineering department of Proctor and Gamble Company.

The three-man team which worked with VA-126 was headed by LCdr. Bob Thorndike, an 1100 officer with a background in minesweepers and destroyers, and included R. J. Lamoglia, PNC, and J. A. Luther, ADCM. The team spent almost four months at VA-126.

Our former C.O., Cdr. C. J. Lee, requested the assistance of the Fleet Work Study Team in September 1960. CNO approval was forthcoming in February 1961 and the team started work soon after. The study, as approved, included these objectives: to reduce the time our planes were down for periodic inspection, to reduce the maintenance man-hours per check, and to improve quality control procedures.

When people in the squadron heard that a surface officer, a Personnelman and an Aviation Machinist Mate were going to come into the squadron to "straighten out our maintenance," some of them didn't think much of the idea and were all set to give them a bad time.

WITH THE HELP *of maintenance innovations sparked by Fleet Work Study Team visit, VA-126 improved the material condition of its F9F-8T Cougars while cutting maintenance man-hours.*

However, by the time the team had been aboard a week, suspicion and coolness had evaporated. Our boys found the team members to be good guys who knew their business. They didn't interfere with the work of the squadron any more than necessary. They worked so quietly that some people didn't know they were aboard.

The team operated in such a way that once a recommendation was developed, it was almost impossible to identify one person as responsible for the idea, or even to say that it was a "squadron" idea or a "team" idea. Rather than tell the squadron how team members thought we ought to be doing things, they helped pinpoint a problem and then worked with the VA-126 men to develop a better method. The team studied the work, developed the facts on the way the work was actually being done, then got everyone thinking on how to improve the system. "Inputs" from the team and the squadron were "integrated."

The WS people observed operations closely, asked a lot of questions and made notes. They came up with the startling conclusion: time in check could be cut almost in half.

Naturally, certain squadron members thought they just didn't understand aircraft maintenance. However, the team had facts to back up their claims. They found that on the average four men were assigned to work on a plane in check, and these four men were actually producing only about half the time.

They attributed the low productivity to two principal causes. Often men were pulled off a check to take care of high priority unscheduled maintenance. However, the biggest loss of productive time was attributed to coordination problems. People wasted time waiting for materials or waiting for another rate to finish part of the check, so they could get on with their work.

The WS team argued that if we had

seven men working on the plane full time, without interruptions, they could do the same amount of productive work in four work days. The team made several recommendations designed to make it possible to pack more work into the available time.

Key recommendations included the use of a "card system," which they devised, and permanent check teams.

Under the system in use at that time, the "bible" for the check was the 80-page Handbook of Inspection Requirements (HIR). One book was "used up" on each of the four inspections made on each plane each year. The work was performed by men assigned from the various shops with no common superior in charge of a check.

The WS team people developed their card system by copying the inspection items from the HIR on 5"x8" file cards. Each card was placed in a plastic cover, so it could be used around the plane. The team developed a sequence control chart which gave a logical order for accomplishing the work listed on the cards.

Neither the idea of a card system nor a check team was a new discovery. Card systems had been used in industry for over half a century—and even before in Navy aircraft maintenance. Card systems have probably been "reinvented" as many times as the button hole or the wheel. But the system was new to VA-126. (Editor's note: The system is substantially similar to the one described in "Card Sharp Maintenance," NANEWS, July, 1962, pp. 33-35.)

The WS team recommended that the bulk of the check be accomplished by a team consisting of a CPO, two AD's, two AM's, one AE, and one AT. Ordnancemen AME's, and the parachute riggers continue to do their part of the check on the shop concept, since there isn't enough of that type of work to keep them productively employed if they are added to the teams.

Key device for helping cram more productive work into the available hours is the sequence control chart which provides a smooth work flow. Every effort is made to maintain this plan. For instance, when discrepancies are found, repairs are scheduled to be accomplished at a later time set aside for correcting discrepancies. If a major job develops, help is brought in from the shops for sake of efficiency.

CHECK TEAMS, *permanently organized, now carry their checks through from start to finish.*

Another team recommendation called for ordering all components scheduled for high time replacement at least 30 days before the start of the check. Under the old system, the records were broken out just a couple of days before the plane went into check.

To improve quality control and cut the amount of rework required, they recommended incorporating the quality control inspections with the work sequence, so that discrepancies could be found and rework accomplished before the plane was buttoned up. Under former procedures, all quality control inspections were made after completion of the regular check.

By following its recommendations, the WS team claimed it would be possible to cut the time a plane was down for check from 7.6 days, using two shifts, to four days using the team on one shift. They estimated man-hours per check could be cut from 275 to 175, and calculated a new increase in aircraft availability of 3.93%.

When the team made these claims, skeptics tended to discount them as so much exaggerated "advertising." Now that we have had almost a year working with the system, we find the team's figures were very conservative.

Average time in check has been cut to 16.38 team hours—about 2½ days and 100 total man-hours. Quality control discrepancies, which had been running 20 to 30 per check, have been cut to an average of 5.2 per inspection. Largely as a result of ordering parts, in time the AOCP rate for planes in check has been cut by about 80%. In the meantime, the check teams have been reduced by one chief. We now have three six-man check teams, each headed by a first class, with a CPO, Chief Donald E. Baker, ADJC, over all three.

Availability, which had been running below 70% before the visit of the Fleet Work Study Team, is now right around 85%. All things considered, VA-126 is a "satisfied client" of the Fleet Work Study Team.

Any observer of the condition of our planes and the morale of the Maintenance Department will agree that things are going exceedingly well. As for the exact cause of the improvements, you can get as many opinions as people you talk to.

The check team system comes in for a large share of the credit. When the team idea was first proposed, some people thought it wouldn't work, because it would take too many men away from the shops. However, the squadron gave the idea a fair trial and found that it did pay off.

Chief Baker expressed the opinion of most of the squadron's senior petty officers when he said, "In a big outfit, 200 men or more, it is the only way." Most of the Maintenance Department chiefs say they would try the check crew system in a small carrier squadron, but expected some problems.

A few people will claim the check crews are doing so well because they are a collection of exceptionally fine mechanics and technicians. But for every one claiming the team members are above average, others can be found who point out that the shop chiefs select the men they are going to send to the check teams, and that they are not eager to let their best men go and, in fact, would like to "off-load their deadheads." The truth is, the men on the check teams are a cross-section of the squadron.

The card system and the sequence control chart also comes in for a share of the credit. However, the men are all quick to agree with LCdr. Walt Newell, our Maintenance Officer, that "our people make our card system work."

Probably the biggest single gain from the card system and sequence control chart is in the elimination of dead time. As James Napoli, ADJ1, leader of Check Team Three, put it,

UNDER TORII, *C. O. Chapman, Check Crew Chief Baker, Hangar Division Officer Cameron, and Maintenance Officer Newell confer.*

CHECK TEAM *works together on engine removal, an all-hands task. The teams compete to keep quality high and maintenance downtime short.*

"Nobody is ever out of a job. When the AT finishes his job, he goes to help the AD's. There is never any waiting around any more."

Some of the cards are assigned to two people. The man with the required rating for the job is responsible for the work with the other man assisting. Since in a good part of the jobs the man assisting will be higher rated than the man in charge of that portion of the check, a certain amount of friction might be expected. However, it hasn't happened yet. The men, without exception, have been pulling together as a team to get the job done. There hasn't been any complaint about people working out of their rates either.

In fact, one of the features the men like best about the check team system is the opportunity to learn the whole airplane as an integrated system. Napoli claims his AT is better than most first class mechs. Naturally, not everyone in VA-126 agrees with him, particularly the mechs. However, all concede that the men on the check crews not only learn more about the jobs in their own field, but also learn a lot about the total needs of the squadron's Cougars.

The cards proved to be an excellent training system. A new man can learn check duties a card at a time, starting with the simpler operations and working up from there. Richard Miller, AE3, a recent addition to Check Crew Two, said of his duty, "I like it on the check crew. I'm learning something here. I've learned a lot in just a week."

The total pay-off of the maintenance innovations at VA-126 cannot be gauged simply from the reduction in aircraft time down for periodic inspection or in man-hours per check. There has also been a marked drop in the amount of unscheduled maintenance. As the quality of the checks improved, the amount of work to be done by the shops decreased.

One reason for the improved quality is superior control of the work. The team leader, with the help of the cards and chart, is right on top of work progress all the way. Also, the system helps the team members "control themselves." Since only one team works on the check and carries it through to completion, there is no problem of coordination between day check and night check. Under the old system, some items were inspected twice, and some were not inspected at all.

Also the card system makes it easy to separate the work according to the skill required. The simple jobs can be accomplished by low-rated men leaving the experienced people free for the difficult jobs.

Another big factor—probably the most important—is high morale and pride in good work. When one team takes a check from start to finish, there is never any doubt where credit for the quality of the check belongs.

In any discussion of quality, the

> Any squadron or other unit desiring Fleet Work Study Team assistance should consult OPNAV Inst. 5250.1A of Sept. 12, 1961 for complete information.
>
> Requests should specify a well defined problem. Priority is normally given to requests concerning problems common to more than one command, or where potential pay-off is high.

work of the quality control people should not be neglected. They make frequent inspections on the work in progress. As the quality of the checks has gradually improved—quality control discrepancies down 80%—they have tended to raise their standards and look a little harder to detect any deviations from acceptable standards. Team members respect the judgment of the quality control people, particularly when they turn out a check which gets a 4.0 quality rating. So far, each team has turned out one complete check without a single discrepancy.

The use of check teams working with the cards and sequence chart has made competition almost inevitable. The system gives check teams a way to "keep score." They can measure the time it takes to do a whole check relative to their own time on previous checks and relative to what other teams have done.

Not only can they watch the "score" for the whole check, but they also can measure their progress on each part of it. Each card shows the number of minutes theoretically required to complete the job. This figure is like par for each hole in golf. It gives the men a target to shoot at and a lot of satisfaction when they come closer to par than on a previous check.

Spirited competition to shave the total time could conceivably cause people to hurry the work and cut corners on quality. It hasn't happened. The system also helps keep score on quality. Check teams probably pay more attention to the number of quality control discrepancies, and the number of squawks from the post-inspection test flight, than they do on the overall time.

By no means all the progress in the maintenance at VA-126 can be traced directly to recommendations of the Work Study Team. The team proved to the squadron that work could be studied and methods improved. VA-126 hasn't forgotten that lesson and has been improving operations ever since.

For instance, the check teams have reworked the sequence control chart several times since the team left. The last session was only a few weeks ago. Another significant improvement the squadron initiated was getting a couple spare engines (see cover). It was found that the time to check the engine was often much longer than to check the airframe. Extra engines were requested from ComNavAirPac and are now on board. Now when the check team finds engine work would delay completion of the check, engine is swapped and repairs done in a shop while the plane is flying.

When our people started really studying and applying the maintenance system, they developed a new understanding and appreciation of it. Walt Newell remarked, "You'd be surprised how good the maintenance directives are when you really follow them."

What do we do with all the time "saved" through better maintenance management? One use is training. We are probably the best customers of NAMTraGru detachments at Miramar. We also have a planned training program in the squadron. All new men start on the line and must qualify as plane captain before going on to their permanent assignments.

Not all the saved time goes into training. As our skipper, Cdr. W. C. "Bill" Chapman, says, "Shore duty is to be enjoyed." We have an active athletic program—coincidentally, nine of the top eleven men on the squadron golf ladder are from the Maintenance Department.

More production per man-hour has also been reflected in working hours. Sullivan R. VanWay, ADJ1, leader of Check Crew Two summed it up this way: "Since we got this crew system working, liberty has been better than anything I've had before, and I've been in the Navy 16 years."

Further proof that, with good leadership and good management, a squadron can have good maintenance as well as good liberty arrived a few days ago. Commanding Officer, VA-126 received a letter from commanding officer, NAS NORFOLK, dated second of July 1962, concerning the material condition of VA-126 planes going into O&R NORFOLK for PAR. The first paragraph stated: "Two F9F-8T aircraft recently received for PAR, Buno. 14604 VA-126, and Buno. 147349 VA-126 Det. A, were in excellent material condition. A review through past records indicated this condition is a general rule rather than the exception for F9F-8T's received from your activity."

This squadron is making good use of the improved "tools" the Work Study Team gave us. However, it doesn't necessarily follow that any outfit that gets itself a deck of cards can say good-bye to its problems. As the WS team kept emphasizing, "It's people who count." Our maintenance people know what they are here for. They have clear goals and know that they are contributing effectively toward reaching them. Without the kind of mission-centered leadership we enjoy, the cards and charts would probably be "just another program."

CROSS-RATE *training, where men learn total aircraft as a "system," is important fringe benefit of service on a check team. Here James Vacca, AT2, is shown helping Judson Fisk, AMS2.*

AT SEA WITH THE CARRIERS

USS RANDOLPH *fires 21-gun salute to the Government of Italy as she steams slowly into the Bay of Naples, her first Mediterranean port since 1958. The Randolph, commanded by Capt. Max Berns, flies the flag of Rear Admiral James R. Reedy, Commander of Carrier Division 20.*

AN INTREPID PIO from the USS *Intrepid* (CVS-11) has started a new "club," an exclusive organization of carrier commanding officers whose ships have recorded 10,000 arrested landings.

Appropriately named the "Ten Thousand Traps Club," the initial list was rounded up by LCdr. J. A. Morgan, *Intrepid*, and has 12 charter members. Not surprisingly, *Forrestal*-class carriers have produced the majority of C.O.'s who have logged 10,000 landings in a tour. Three former *Saratoga* (CVA-60) skippers are club members and two each have served in the *Forrestal, Independence* and *Ranger*.

The initial list as follows includes name of skipper, tenure, and number of arrested landings:

BON HOMME RICHARD (CVA-31)		
M. U. Beebe	Dec. 60 - Dec. 61	11,091
CORAL SEA (CVA-43)		
J. J. Lynch	Dec. 60 - Nov. 61	10,272
FORRESTAL (CVA-59)		
W. E. Ellis	Jun. 56 - Jul. 57	10,926
R. E. Riera	Apr. 60 - Jun. 61	17,525
INDEPENDENCE (CVA-62)		
J. W. O'Grady	Oct. 59 - Oct. 60	12,047
H. P. Lanham	Oct. 50 - Sept. 61	11,174
INTREPID (CVS-11)		
J. L. Abbot, Jr.	May 61 - Jun. 62	11,152
RANGER (CVA-61)		
N. A. M. Gayler	May 59 - Jun. 60	12,021
W. N. Leonard	May 61 -	11,310
SARATOGA (CVA-60)		
A. R. Matter	Dec. 57 - Oct. 58	11,452
A. F. Fleming	Nov. 59 - Nov. 60	11,651
R. W. Mehle	Nov. 60 - Nov. 61	11,150

ATLANTIC and Pacific Fleets exchange carriers this month.

USS *Constellation* (CVA-64) and USS *Lexington* (CVA-16) started "round the Horn" cruises late in July, starting from East and West Coasts, respectively. *Constellation* was scheduled to arrive in her new home port, San Diego, on September 16 and *Lexington* arrives at Norfolk on September 12. The *Lex* will be home-ported at Pensacola, Fla., and will replace USS *Antietam* (CVS-36) as the Naval Air Training Command carrier. *Antietam* is slated for inactivation later this year. *Lexington* will be redesignated as an ASW carrier. Both carriers visited ports in South America while en route.

PACIFIC FLEET

Coral Sea (CVA-43)

Coral Sea maintained a hot pace during its Seventh Fleet deployment by logging its 109,000th landing. More than 8400 of the arrestments occurred since *Coral Sea* began her deployment last December. Number 109,000 went to Lt. Peter Banks, VA-155, in an A4D *Skyhawk*. CAG-15, Cdr. Harold Streeper, prior to his detachment in July, ran up his personal total of carrier landings to 500, strung out over 7000 hours of accident-free flight time. He also logged his 100th *Coral Sea* landing, joining the air group's long list of Centurions.

RAdm. L. J. Kirn, returning to sea duty after a tour as Chief of Naval Air

Advanced Training, reported aboard the *Coral Sea* and assumed command of Carrier Division Five, relieving RAdm. C. T. Booth, II.

Midway (CVA-41)

Belatedly, but "for the record," USS Midway became the second Pacific Fleet carrier to register 100,000 landings, joining the *Coral Sea* in an exclusive club. Pilot of number 100,000 was LCdr. John Sundberg, VAH-8, in an A3D.

Lexington (CVA-16)

Prior to departing for Atlantic Fleet duty, USS *Lexington* celebrated its 44,000th arrested landing. Marine Lt. Tom Gibson in VMF-542 F4D *Skyray* made the landing. (Note: *Lexington* had 27,471 landings prior to going into the Fleet Reserve in 1946. The 44,000 landings during recent tours gives a total of 71,471.)

Bon Homme Richard (CVA-31)

A twist dance contest for crewmen and guests was part of the *Bon Homme Richard's* way of celebrating the Fourth of July. The ship took advantage of a lull between First Fleet operations and a late-1962 deployment to the Far East. A member of the *Bonnie Dick's* air group, VA-196, spending its shore duty at NAS MOFFETT FIELD, took note of the passing of the fiscal year with an announcement that 1962 (fiscal) had accomplished 7255 hours, 2006 landings and no accidents (see CNO Safety Award story, p. 2.)

CAPT. W. C. MOORE, *Yorktown, prepares to hoist broom signifying successful ASW operation.*

Bennington (CVS-20)

USS *Bennington* arrived in San Diego late in July after a six-month deployment with the Seventh Fleet. During the cruise, *Bennington* participated in ASW exercises with SEATO countries. Flagship of ComCarDiv 15, RAdm. Joseph Tibbetts, *Bennington* made delivery of 43,000 pounds of Operation *Handclasp*—clothing, books, food and medicine during port calls at Hong Kong. A period of overhaul at Bremerton, Wash., awaits *Bennington.*

Hornet (CVS-12)

Making first deployments in the Pacific Fleet are the S2F-3 *Tracker* and HSS-2 *Sea King*, part of the aircraft complement aboard USS *Hornet* as the ship reported for duty with the Seventh Fleet in July. Winner of four consecutive Battle Efficiency E awards, *Hornet* and her air group participated in Hunter-Killer exercises with two destroyer divisions after making its Seventh Fleet check-in at Yokosuka, Japan.

Flying a TF-1 *Trader*, LCdr. Vernon Hubler, *Hornet's* communications officer, became the first pilot to record 200 landings on the ship on July 5. LCdr. Hubler started his Double Centurion string as a member of VS-37 in 1958.

Yorktown (CVS-10)

A busy ship racks up 1000 landings in a hurry. This truism was borne out again as *Yorktown* logged its 84,000th landing, a three-week spread in time since its 83,000th. Flying with VA-122, LCdr. T. G. McClellan made his first "milestone" landing on July 8, first time in more than 400 arrestments that he had "won the cake." *Yorktown* conducted an ORI off the West Coast, Carrier ASW Air Group 55 embarked, and reported a "clean sweep" of opposing submarines in the exercise. One of the air group's squadrons, VS-23, reported the designation of 19 squad-

ATTENDING CONCERT *of National Orchestra of Monte Carlo Opera on Independence are VAdm. McDonald, Princess Grace, Prince Rainier.*

ANTI-SUBMARINE WARFARE *carrier, USS Bennington (CVS-20), departs Yokosuka, Japan, for San Diego after six months with the 7th Fleet.*

THESE 19 *sub-killer pilots of VS-23, skippered by Cdr. D. P. Crosby, represent over 2770 arrested landings. VS-23 has returned from WestPac where they served aboard USS Yorktown.*

ron pilots as either Centurions or Double Centurions, the result of a recently-completed deployment on the *Yorktown*. Double Centurions of VS-23 are Cdr. D. P. Crosby, C.O.; Lt. Jack Mergele, Lt. Dick Steinbach, LCdr. Bill Bryant, Lt. George McGreer, Lt. Jim Quinn, Lt. Roy Seaman, and Lt. Gene Normand.

Oriskany (CVA-34)

Oriskany celebrated its 59,000th landing during a tour with Seventh Fleet. First Lt. George Keys, III, USMC, VMF-232, got the cake-cutting honors. Fitted with new Naval Tactical Computer System and Automatic Data Control of Task Force Air Defense, *Oriskany* hosted Dr. Harold Brown, Director of Defense for Research and Engineering, during a visit in the Hawaiian area.

Kearsarge (CVS-33)

Wonder what happened to the crew of the P2V *Truculent Turtle*?

Co-pilot on the *Turtle*, now Capt. Eugene Rankin, recently assumed command of the USS *Kearsarge*, homeported at Long Beach, Calif. The *Turtle* set a long-standing endurance record by flying 11,256 miles, Perth, Australia, to Columbus, Ohio, in the Forties.

ATLANTIC FLEET

Shangri-La (CVA-38)

Attack and fighter pilots split landing honors on the *Shangri-La* during Med operations. VA-46's Ltjg. James Karg made the ship's 44,000th in an A4D and VF-13's Ltjg. Gerard Creagh, Jr., made the 45,000th in an F4D *Skyray*.

Shangri-La has a pilot who is so "earnest" about making landings, he has "arrested" himself into a new record. He is Lt. William Earnest, VF-13, who has made 300 carrier landings in the F4D *Skyray*, first in the Atlantic Fleet to attain that number. In addition to 175 on the *Shangri-La*, he has 110 on the USS *Essex* and 15 aboard the USS *Randolph*.

Independence (CVA-62)

Princess Grace, Prince Rainier and the National Orchestra of the Opera of Monte Carlo, Monaco, visited the *Independence* July 5 in port at Cannes, France. The orchestra performed for the Monacan royal family and dependents of the Sixth Fleet staff. It was the first time a symphony has performed aboard ship, according to *Independence*. Prince Rainier and the Princess, who arrived via private yacht, were greeted by VAdm. David McDonald, Sixth Fleet Commander; RAdm. John T. Hayward, ComCarDiv Two, and the ship's C.O., Capt. Evan P. Aurand.

VAH-1, based aboard *Independence*, set a new A3D *Skywarrior* flight time total by logging 885 hours in 17 operating days with the Sixth Fleet in June.

Franklin D. Roosevelt (CVA-42)

Nevada Senator Howard Cannon, visiting *Roosevelt* with the Air Force's 9999th Air Reserve Squadron (Congressional), was on board to share in the cake celebrating that carrier's 111,000th carrier landing. The honor went to LCdr. Clifford Wheeler, VA-15, who made the milestone landing in an A2D-6 *Skyraider*.

Number 110,000 was logged earlier by Cdr. E. H. Loftin, VF-11 C.O., in an F8U-2NE *Crusader*. VF-11 will deploy in the new *Crusader* model this fall, the first unit to take the -2NE on overseas missions.

Intrepid (CVS-11)

First night rescue in the Atlantic Fleet's new HSS-2 helicopter was made by pilots and crewmen of HS-3 on the *Intrepid*. Lt. Paul Frankenberger and his HSS-2 *Sea King* crew plucked Ltjg. Bruce Hardin, VAW-33 A2D *Skyraider* pilot, from the water only minutes after Hardin had gone into the sea. HS-3 earlier had made the daytime pick-up of Astronaut LCdr. Scott Carpenter on his orbital mission.

Lt. Fred Clark was pilot when the *Intrepid* notched landing number 71,000 during operations in the Caribbean.

Antietam (CVS-36)

Antietam reached 109,000 in its landing totals. Cdr. Mitchell Griffin, C.O. of VA-44, added a bit of unscheduled excitement to landing number 109,000. On the catapult takeoff following his milestone landing, Cdr. Griffin and his A4D shot into the water. He was picked up by the carrier's angel, brought back on deck. Landing number 108,000 was recorded in April by Lt. Lawrence Redfield, now an instructor at VT-28, in an S2F *Tracker*.

Randolph (CVS-15)

When the bakers are busy, it usually means another thousandth landing, but the *Randolph's* bakers had a new occasion for baking a cake in June. The ship logged its 500th refuelling operation since *Randolph's* conversion to CVS status in 1959. Three men, all boatswains, have handled lines on all 500 operations. They are J. Patty, Berkley Houghland and James Moore. USS *Ingraham* was recipient of the oil that marked the milestone.

CVA-43's Crunch Crusade

Campaign Cuts A/C Deck Damage

Coral Sea (CVA-43) started her recent seven-month WestPac deployment, if not with a bang, at least with a "crunch," or rather many crunches. A "crunch" is an accident in which a plane is damaged on the hangar or flight deck while it is under control of handling crews.

The ship decided to do something about this perennial problem of carrier operations. So effective was the campaign that only 20% of the cruise's handling incidents occurred during the last four months of the cruise.

Coral Sea attributes the success of her crunch control program to the following measures:

- Poor lighting on the flight and hangar deck was supplemented with red flood lights installed under a BuShips Forces Afloat Ship-Alt. The red lights on the flight deck "practically eliminated the crunch problem."
- Crunch "scores" for each crew were maintained in hangar and flight deck control. The result was intense competition with high team spirit.
- Each incident was "brain stormed" in a post-crunch conference with the entire handling crew taking part. Both the cause for the present accident and means for preventing similar ones in the future were discussed.
- After several stock plastic whistles failed under pressure, standard USMC brass models were obtained. Plane directors—yellow shirts—give the stop order with these whistles.
- In order to reduce personnel fatigue, various measures were taken to allow crews some rest during prolonged operations. Non-rated men from Air and other departments were reassigned to the Aircraft Handling Group to provide for relief crews during extended flight operations.

Engine Change is Lauded

Helo Crew Praised for Tough Job

A quick helicopter engine change, made during the night under adverse working conditions on the Island of Vieques in the Caribbean, earned GySgt. Theodore N. Wrabell and his six-man crew a Meritorious Mast before the assembled Marine Medium Helicopter Squadron 264 at MCAF New River, S.C.

While deployed aboard the USS *Thetis Bay* last March, an HUS-1 helicopter was reported grounded on the island with an engine overboost.

A new engine was drawn and transferred by boat to Vieques. GySgt. Wrabell and his crew, their tools, lighting facilities, and extra equipment were flown in by helicopter.

Without regard to personal inconvenience, fatigue or rainy weather, the men worked throughout the night to complete the change.

Wrabell's crew included Sgts. Joseph C. Innis and James W. Burnworth, and Cpls. Lloyd A. Morrison, Russell F. Abadie, Gordon R. Berry and Kenneth E. Sherry. The Meritorious Mast was conducted late in June.

VP-30 Claims Big Year

C.O. Calls the Record Outstanding

"An outstanding year" was the phrase Cdr. W. W. Honour, C.O. of VP-30, used when the totals of accident-free fiscal '62 were all summed up.

In training 213 Replacement Pilots, 100 Replacement NAO's, and 413 Replacement Aircrewmen in the complex systems of the P2V *Neptune* and P5M *Marlin,* plus their application to the latest techniques of ASW, 4059 flights were flown.

The P2V's amassed 10,737 hours and 10,694 landings. The P5M's tallied 2025 hours and 2052 landings. The grand total, 12,762 hours and 12,727 landings, just about one per hour, were all accident-free.

Another feather in the VP-30's Pro's hat was the "Outstanding" received during the annual Administrative/Material Inspection from Commander Fleet Air Wings, Atlantic.

On June 1, VP-30 Det. Alfa was commissioned at NAS Patuxent River with LCdr. J. W. Townes, Jr., as OinC. Creation of the detachment added the Navy's newest aircraft, the Lockheed P3V *Orion* to VP-30's training inventory.

VP-40's ANTI-CORROSION *program has four elements: education, inspection, correction and prevention. All squadron personnel learn what corrosion is, how to identify it, how to correct it, and how to prevent it. Armed with a squadron-produced corrosion control inspection guide 34 pages long, the inspection team goes over each seaplane once a month. The crew then treats affected areas. Every known, authorized corrosion preventive measure is employed. Paralketone, where appropriate, is generously used. At left, E. L. Williams, AMS-1, explains the corrosion areas of the P5M to his corrosion team. Above, Cdr. J. S. Laney, former VP-40 skipper, and Tommy Thompson, Naval Aircraft Engineering Service Unit representative, inspect bilges of a P5M-2 at VP-40's station, Sangley Point, Republic of the Philippines.*

LETTERS

Sirs:

This is not to detract from the fine safety record of VT-3 as set forth in the May NANews. However, Squadron 11-D (later 12-D) which was trained under my command for about a year commencing with its founding, flew about 84,000 hours of student training without a fatality or major accident. In the latter part of July 1942, LCdr. C. W. Johnson, USNR, became squadron commander and the outstanding safety record continued, as I recollect, to a total of about 150,000 hours of student training before the first major accident was recorded.

Anderson Offutt
Cdr., USN (Ret.)

‖ Editor's note—The record of Squadron 11-D (actually, VN11D8-D) reaching 83,797.3 hours of primary training without accident is noted in the BuAer Newsletter of November 1, 1942. However, attempts to find an extension of that record have been unavailing. The search continues. Meanwhile, Grampaw Pettibone, the all-knowing, says, "Baffles me!"

Sirs:

Many articles have been written concerning safety and survival. However, after nearly 20 years of Naval Aviation, I have only been attached to one squadron which tried to make available to the pilots the type of facilities in the area that are used in Search and Rescue.

The Air Force has been delegated the responsibility for Search and Rescue in the Inland Region, and the Coast Guard has the responsibility for the ocean and navigable waters. A Navy Liaison Officer is now attached to the First, Fifth and Seventh Coast Guard District Headquarters. These liaison officers are thoroughly familiar with the facilities available for search and rescue work and are readily available for lectures and discussions with aviation activities in their districts.

Squadron commanders are urged to contact these liaison officers and arrange for a visit, if the liaison officer has not already called on you.

CHARLES E. BUSBY, LCDR.
Navy Liaison Officer
1st CG Dist. Hdqtrs.
1500 Customs House
Boston 9, Mass.

TWO MEN AND A BUOY! *Cdr. R.L. Huber, C.O. of VP-5, assists Cdr. R.L. Morris, skipper of VP-56, in "making the Buoy," as the two AirLant squadrons exchange ASW reponsibilities at the Naval Station in Rota, Spain. VP-56, ex-P5M unit, now flies Neptunes.*

New Aid for VFR Pilots

Atlanta Radar Coverage Expanded

An expanded terminal radar service to handle the mixing of aircraft operating under visual (VFR) and instrument flight rules (IFR) will be offered by the Federal Aviation Agency at Atlanta, beginning November 15.

The Atlanta Airport Traffic Control Tower has been selected to start the voluntary program which, with possible modification, may later be expanded to other locations. The new service follows one of Project *Beacon's* recommendations for improving air traffic control services—the segregation of controlled from uncontrolled aircraft around airport terminals.

Participating pilots will receive radar separation, radar vectoring, and, if landing at Atlanta Airport, sequencing service for landing. Radar advisory service will be provided to the extent possible.

The terminal radar service area will include the airspace from 2000 feet to 6000 feet within a 15-mile radius of the Atlanta Airport, except that the base will be lowered to the ground within the immediate vicinity of the airport. Radar service will be provided all VFR and IFR aircraft operating within this airspace, including aircraft arriving and departing from nearby airports as well as the Atlanta Airport, and aircraft operating en route through the area.

Pilots will participate voluntarily, and no regulatory action will be taken in connection with the program.

No special airborne equipment will be required other than two-way radio. Special radio frequencies will be set up for the service, but if a plane is not equipped with these frequencies, contact with the tower can be maintained by using other general aviation air/ground frequencies listed in the *Airman's Guide* for the Atlanta Tower.

The new service will be outlined in the *Airman's Guide* before it is implemented, and a new VFR chart for the Atlanta, Ga., area will be issued.

NATOPS NOTICES

Latest NATOPS Releases

JD-1 Original Manual	Jul.
F4H Original Manual	Aug.
R4Q Original Manual	Aug.
F4D Stan/Eval Supp.	Aug.
A4D Memo Change 1	Aug.

Watch this box for latest NATOPS distribution data.

ABOUT THE AUTHORS

Marie B. Pfeiffer *(Rockets Probe Mysteries of Upper Air,* pp. 17-19) has been a frequent contributor to NANEWS. She has written for the *News,* "U.S. Navy Jets Wear Loud Coats," "Transit Scores in Near Perfect Orbit," "Twenty Years of Rocket Engines," and many other articles.

Her many articles on such subjects as value engineering, weapon system management, *Bullpup's* pre-packaged rocket engines, fluorescent paint research and development in BUWEPS, Project *Hydra,* and rocket-propelled ejection seats, have appeared in numerous periodicals, including *Navy, The Magazine of Sea Power, American Painter and Decorator, Aerospace Management, Armed Forces Chemical Journal, Armed Forces Management Magazine,* and *The Astronaut.* She is the author of many papers directed to Small Business, related to copyrights, patents, Walsh Healy Act, etc., and of a series of papers on the international book trade, issued by the Department of Commerce.

Miss Pfeiffer served for two years as International Aviation Research Analyst in the Civil Aeronautics Board before becoming a member of the National Production Authority Industry Advisory Committees on chemical, rubber and forest products, including printing machines and publishing.

In 1955 Miss Pfeiffer became Assistant Technical Information Officer, Bureau of Aeronautics, and was acting Technical Information Officer over several periods. She has been cited for Superior Accomplishment, accompanied by cash awards, many times in her government career. Following the BUAER and BUORD merger, she has been a writer and information specialist in the TIO office of the Bureau of Naval Weapons.

• NANews' "Evolution of Aircraft Carriers" will soon present a comprehensive run-down on carrier construction by the Imperial Japanese Navy in pre-WW II years.

SQUADRON INSIGHIA

Led by Cdr. Kenneth B. Austin, Attack Squadron One Three Four—which was one year old on August 21, 1962—did most of its flying from one of our newest carriers, USS Constellation (CVA-64). It was a 'Scorpion' Skyhawk (below), piloted by CAG-13, Cdr. G. C. Watkins, which made the first takeoff from, and landing on, the 4.1-acre flight deck of the new ship.

THE WHITE HOUSE

WASHINGTON

16 July 1962

Dear Mr. Secretary:

Upon the occasion of the return to civilian life of our recalled Naval Reservists, I would like to pay tribute to the officers and enlisted men of the Naval Air squadrons and destroyer-type ships who proved so ready, so willing, and so able.

In reaching the decision a year ago that it was imperative to build up the strength of our naval forces in a relatively short time, I was not unmindful of the many personal sacrifices a recall of our Reservists would entail. However, I considered the strengthening of naval anti-submarine forces so urgent that I could find no other satisfactory alternative.

Since the recall I have been deeply impressed by the wonderful response of our Naval Reservists, their willing acceptance of sacrifice, and their outstanding performance of duty.

Our eighteen Naval Air squadrons and the crews of the forty destroyers and destroyer escorts took their places in the active fleets and bolstered our forces in the Atlantic and Pacific Oceans, the Mediterranean, Caribbean, and in the South China Seas. They have demonstrated that the high regard we have always had for the readiness of the Naval Reserve is completely warranted. They merit a resounding "Well Done" from a grateful Nation.

Would you pass this letter to the Commanding Officers of all units involved with my personal thanks for their outstanding performance.

Sincerely,

The Honorable Fred Korth
Secretary of the Navy
Washington, D. C.