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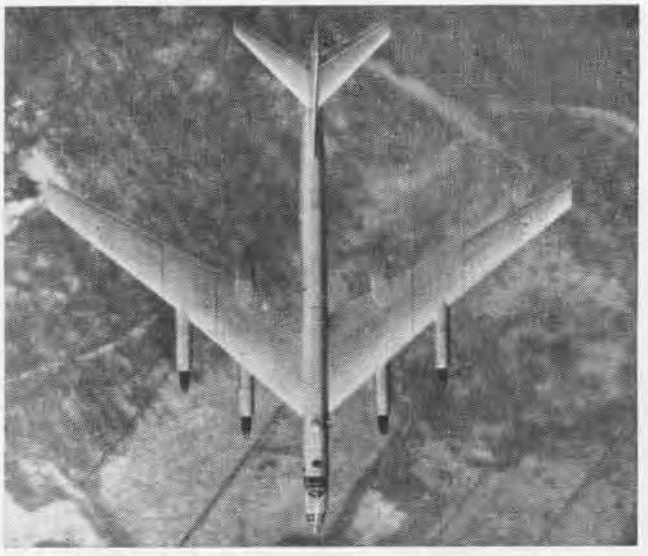
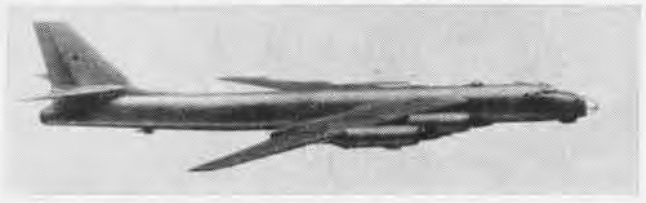
THE RUSSIAN BEAR BOMBER





This four-engine, swept-wing, long range turboprop bomber was first shown to the West in early 1955. Its fuselage closely resembles that of the *Badger*, as does the tail. The wing is also similar, but mounts four turboprop engines with contra-rotating props. Its outline is similar to our B-52.

NAVY'S MISSILE MUSTER

WHETHER AIR-TO-AIR, SURFACE-TO-AIR, AIR-TO-SURFACE, OR SURFACE-TO-SURFACE WEAPONS, NAVY HAS THEM READY TO GO

IT IS FIVE minutes to firing time. The missile, resting ominously on its launcher, points its nose into the sky, barely waiting to throw itself into that trackless space. All last minute check-off reports have been channeled into the flight test control center. Instrumentation within the missile itself has been given its final check.

At zero minus two minutes, two ordnance men have hooked up and armed the igniters. One quick turn on a handle, and the missile itself is armed. All lights in the test control area now flash red instead of green. The ordnance men stand by the arming gallery so that, if anything should go wrong, they can still disarm the entire circuit and can stop the firing of the missile.

At minus 60 seconds the oral count begins—30 seconds, 25, 21, 20. Lighted numbers begin flashing. As the automatic functions within the missile start bringing it to life, red numbers flash on the panel instead of the green.

Minus 5—4—2—the count of zero is lost in the roar of the missile as the propellant of the booster rocket is ignited and thousands of pounds of thrust are created, catapulting the missile forward with unbelievable force.

For a second or two the missile cannot be seen for the cloud of white smoke that envelopes it. And then it appears. It ejects its booster rockets and soars away into the sky, this sleek killer, this guided missile, seeking out its inevitable victim.

JUST EXACTLY what is a guided missile? What is this strange new weapon about which so much has been said, and written in the past few months? What are its capabilities—and its possibilities? Of the voluminous information concerning missiles to which we have been exposed, much of it has been conjecture. Since not all of guesswork can be 100 percent correct, we can assume that at least a part of what has been said can come under the heading of misinformation. In addition, the complex, and even fantastic nature of guided missiles has tended to surround them with an aura of mystery.

A guided missile is a robot weapon, a pilotless aircraft that can be directed to a target by instruments built into the device, or by commands originating outside it. It has been said of a missile: "There is no cockpit, no pilot. Instead, there is a built-in intelligence, crammed into black boxes."

Through common usage, guided missile has come to mean a robot aircraft that can fly through the air, or through space. Actually, though, it should not be so limited; it may move through the atmosphere, into space beyond the atmosphere, on land, or under the surface of the sea.

The belief has been expressed repeatedly by persons whose opinions are respected that the era of the unmanned missile in warfare is very much at hand. More and more, as technology progresses, the impact of the guided missile on our military, scientific, and industrial planning and organization is going to be felt.

That does not mean that the era of manned airplane, and other "conventional" weapons, in warfare is over. Rather it is to say that the guided missile, and the kind of destructive force it can carry, forecasts, perhaps more than any other single item in our military arsenal, what the future will be like in our defensive and offensive power.

Of the guided missiles presently in production, and in operation, there are four broad categories, classified by type according to the location of the target, and the location of the launcher.

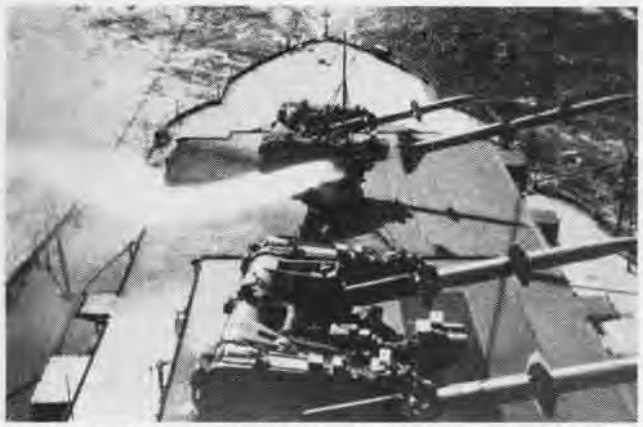
1. Air-to-air, in which missiles are launched by one airplane against another, or against a missile—this is a fighter weapon.

2. Surface-to-air, in which missiles are launched from land installations, or ships against airborne targets. Missiles of this type are categorized as anti-aircraft defense.

3. Air-to-surface, in which missiles are launched from aircraft against targets on the ground or at sea—bombing missions.

4. Surface-to-surface, in which missiles are launched from land or ship against targets on land or at sea—artillery support or bombing missions.

RAdm. John H. Sides, formerly Director of the Guided Missiles Division in CNO, and later Commander, Cruiser Division Six (Guided Missiles ships) is now the Deputy to Dr. Murphree, Special Assistant for Guided Missiles, Office of the Secretary of Defense. Adm. Sides pointed out that the tasks that are expected to be performed by guided missiles are not new tasks, *per se*. The fact is that the effectiveness of guns, rockets and artillery decreases in direct proportion as the speeds and altitudes of enemy fighters and bombers increase. And as the effectiveness of any enemy's defenses improves, the effectiveness of piloted aircraft as offensive weapon-carriers must also decrease.



TERRIER MISSILES WERE TESTED ON BOARD USS MISSISSIPPI

TERRIER'S RECORD OF 'KILLS' DURING TEST WAS VERY HIGH

THE INCREASINGLY important role of guided missiles is becoming more and more apparent. Missiles will first supplement and extend the capabilities of present-day "conventional" weapons. At some future date, perhaps even in the foreseeable future, certain types of missiles will replace their forerunners. The extent to which guided missile development and production have forged ahead in the past ten years, and the vastly expanding programs of the Armed Services for these weapons clearly reflect the high order of importance attached to them.

Further proof of this was the March appointment of E. V. Murphree as guided missiles director for the Department of Defense. He is responsible for direction and coordination of research, development, engineering and production of all military guided missile activities.

Guided missiles are, like Mrs. O'Grady and the Colonel's lady, sisters under the skin. Under their metallic hides, all missiles share the same four basic components: the airframe that holds the other three components; the powerplant that furnishes the power that makes the missile go; the intelligence that directs the missile; and the warhead, the payload of the missile to be delivered to the intended target. Each of the components, developed separately, is bound with the others in a complete and workable system. This has posed problems of design and production that are fantastic in their complexity—fantastic, but yielding to persistent research.

REGULUS DESIGNED FOR LAUNCHING FROM SUBMARINES, SURFACE SHIPS AND SHORE BASES IS A TURBOJET POWERED MISSILE

The airframe must provide an efficient package for the containment of the other components. It is the link between the brain of the missile and the surrounding atmosphere. Because of the extreme variety of loads imposed upon the airframe, loads imposed by flight, by altitude, temperature, power plant, weight of fuel, and in some cases in the warhead itself, special problems in aerodynamics, particularly those associated with stability and control characteristics are the concern of the airframe production division.

Airframe weight has definite limitations. It must be the lightest possible, as counterbalance for the weight of the fuel and guidance equipment.

The three main materials currently used for airframes are aluminum alloys, magnesium, and high tensile strength steel, all capable of withstanding heat and atmospheric pressures encountered in present operations. However, looking to the greater speeds of the future, scientists are experimenting with other metals. They are seeking metals that are capable of withstanding heats generated by these higher speeds, while still retaining their original tensile strength.

A REGULUS MISSILE IS LANDED AFTER TEST AT NAOTS CHINCOTEAGUE WITH DRAG PARACHUTE BRAKING THE WEAPON TO SAFE ROLL-OUT

ONE OF THE LIGHTEST, SMALLEST MISSILES IS NAVY SPARROW I

MISSILES are armaments for war. Their job is one of destruction, whether it be the enemy's planes, ships, or land installations. The warhead they carry is their sole reason for existence. Whether the warhead is an explosive charge, an A-bomb, or an H-bomb, whether it be a sphere, a cone-shaped charge, or a smaller missile to be launched from the mother missile, the warhead must accomplish its end purpose.

Propulsion, a third component of missiles, is achieved by using rocket motors or one of the air-breathing jet engines. The power-plant of a missile must propel it at supersonic speeds. If the vehicle is offensive, high speed is needed to decrease its vulnerability. If it is defensive, high speed is needed to increase the probability of the missile intercepting its target to make the kill.

When rockets, either liquid or solid propellant, are used, the oxidizer as well as the fuel is carried in the missile. For that reason, rockets can operate at altitudes above the atmosphere. They are the ones that will be used in the missiles destined to go out into space beyond the reaches of the earth's atmosphere.

Once the fuel in a solid propellant rocket engine is ignited, it cannot be turned off. Giving extremely high thrust for a very short period of time, it is presently used chiefly for small missiles and for missile boosters, such as is used in launching Terrier.

Air-breathing jets carry only fuel, and they must stay below a ceiling of about 60,000 or 70,000 feet where they can draw oxygen from the air for combustion. As fuel they use gasoline, kerosene and similar petroleum products. They may be operated more economically and for longer periods of time than the rocket engine.

These air-breathing jets fall into three types. First is the very simple type, the relatively inexpensive pulse-jet. Used to power the German V-1 rocket, and later for target drones in our own country, this engine is subsonic, and so has its limitations.

The turbojet engine is the most common jet engine in use today. This highly complex and expensive engine powers some of the medium to long-range missiles. Limitations on its performance, however, are imposed by the limited ability of materials to withstand the high temperatures generated in its combustion chamber.

Most promising power-plant for medium and long-range missiles, and for short range missiles launched from supersonic platforms is the supersonic ramjet engine. In comparison with the turbojet, the ramjet offers the possibility of cheap and rapid construction, light weight, compactness, simplicity of operation, and high speed, although at a higher rate of fuel consumption. This engine, however, develops no thrust until it gets up to speed. It must depend on a mechanical booster to attain the requisite supersonic speed to build up ram pressure, so that the engine is self-propelling. It must be rocket-assisted or be carried aloft in a mother vehicle. Some missileers believe that hybrid jet engines, under research at the present time, will overcome this disadvantage, while retaining most of the ramjet's advantages.

Since the propulsion system is a major component of the guided missile, advance in the guided missile area will depend to a great extent on advance in propulsion. Constant research is carried on, striving for reduction of engine weight, for better specific fuel consumption, and increased over-all reliability of performance.

The whole idea of guided missiles is hinged upon the word "guided." Technicians could design and produce the best possible air frame, engineers could propel the missile with the best possible fuel, instruments could give completely detailed information on the missile's performance, but if the missile does not hit the intended target, everything has been wasted from a tactical standpoint.

Since a missile does not have a pilot, the intelligence must be built in. This leads to an enormous amount of internal avionics, and other controls, governed by intelligence designed into the "black boxes," either in the missile or on the ground.

Two general categories of guidance systems include those used against moving targets and those used against fixed targets. For moving targets, the advantage of guidance is to correct the path of the missile to compensate for maneuvers of the moving target, and also to reduce any initial aiming error. For use against fixed targets, guidance offers increased accuracy.

Probably the best known, and the simplest system is the beam rider, sometimes called the 'beam timer.' By this, a missile is directed along the line of sight which extends from the launching site to the target. After launching, a beam-rider missile picks up the coded guidance beam, which is provided through the tracking radar and is a radar, or other beam, such as light, laid along the line of sight. With the help of its automatic pilot, and correcting its course when necessary, the missile follows this beam to the target for the kill. In beam-riding systems, information as to target location goes from target to guidance station, on the ground, or in the launching aircraft, and then back up to the missile.

In the homing system, information as to the whereabouts of the target goes directly from the target to the missile. The 'homer,' built into the nose of the missile, senses changes in the direction of arrival of signals from the target, and orders the missile to change its course accordingly. Homing systems are either active, semi-active, or passive, classed according to the source of the signal. In active homing, the missile itself is furnished with an illuminator to send out the impulses that are bounced off the target. In semi-active homing, the missile follows a path of signals sent out initially by the carrier plane, or the

NAVY'S AIR-TO-SURFACE GUIDED MISSILE PETREL IS SHOWN SUSPENDED FROM THE WINGS OF A LOCKHEED P2V NEPTUNE

ground station. Passive homing relies on target disturbance caused by higher temperatures, or presence of light. Certain devices have been developed supersensitive to heat radiations, or that have the uncanny ability of distinguishing between the light reflected by the target and that by the surrounding sky, or land or water areas. One heat-seeking unit, developed at the close of WW II, was so sensitive that it could detect the warmth of a human body a quarter of a mile away.

Missiles having active or semi-active homing systems are particularly subject to countermeasures. Anything the enemy can do to minimize or to eliminate the generated signal, or set up false signals, foils the system. The WW II trick of "window"—scattered tinfoil—is effective against such missiles.

The command system utilizes a guidance station from which an operator follows both the missile and the target. Using the flight data from both, a lightning swift computer determines the course for the missile to take to intercept the target, and the command goes out to the missile.

As has been said, "Generally, the earlier missiles (chronologically speaking) and the shorter range missiles use a passive, or at best, a semi-active [or active] system. They are told what to do, and they do it. The later missiles and those with longer ranges generally have the inherent capacity to figure out what to do and then to execute the command."

Other techniques, that are automatic adaptations of navigation systems, have proved useful. The "base-line" system, familiar as Loran or Shoran of WW II days, uses an artificial grid of lines laid down over the target area. Briefly, the missile flies out along a certain line until it crosses the lines representing the target, then dives onto its victim.

The "self-contained" guidance system implies that a missile carries within it all the information needed for it to get to a target. It knows the location of the target and it has the internal means of sensing any deviation from an arbitrary, pre-set course to the target. To accomplish this a technique denoted as "inertial space" is used. Using a gyroscope, which controls the direction of the missile in flight, and an accelerometer, which provides indirectly, the distance traveled, the missile knows at all times where it is, and can compute the course it still has to take to reach its target. An advantage of this system is that the only forces that can influence the missile are inertia and gravity.

Closely related to the inertial type of guidance is the one called "stellar," or "celestial." This requires cooperation of the stars and the clouds. Advantage of this system is that the gyro's angular positions are corrected with the star sights, bringing them back to the point for which they were originally set.

THESE SYSTEMS, being essentially navigation systems, lend themselves to use by the extremely long range missiles—perhaps by the Intercontinental Ballistics Missile.

The U.S. Navy includes the surface fleets, the submarine fleet, the Naval Air Force, and the Marine Corps, with its air wings—forces on land, on sea, and in the air. Accordingly, it has been necessary for the Navy to develop capabilities in all four of the basic categories of missiles. That has been done; the Navy's family of missiles is complete. Right now, in operational status in the fleet, there are missiles capable of discharging each of the four fundamental missions.

One of the lightest and smallest of the Navy missile family is the air-to-air *Sparrow I*, a 12-foot missile weighing about 300 pounds. Built by Sperry Rand, this needle-nosed beamriding weapon is capable of reaching 1500 mph in two seconds, and is considered a Mach 2 missile. Powered by an Aerojet solid fuel rocket engine, it has adequate range and is exceptionally accurate. Douglas Aircraft and Raytheon each produces a slightly different version. Up to four *Sparrows* can be carried beneath the wings of Navy fighters like the Douglas F3D-2M *Skyknight* or the Chance Vought F7U-3M *Cutlass*.

The *Cutlasses* of VA-83, deployed in the USS *Intrepid* are

equipped with *Sparrows*, as are the Marine night fighter *Skyknights* of VMF(AW)542, based at El Toro. The *Forrestal* and other fleet units will carry planes equipped to launch these deadly aerial weapons.

The *Sparrow* is not the first missile produced by Sperry. That activity began in 1915 with development of the very first guided missile for the Navy. Lost in the secrecy of World War I, this project came to light recently in official documents that described the missiles—". . . an automatic aerial torpedo, a passengerless aeroplane, capable of flying a desired distance on a course, true and predetermined, and of descending to earth and exploding a heavy charge upon impact. . . ."

These first missiles were produced under Navy sponsorship between 1917 and 1919 at locations not far from the present Sperry plant at Lake Success, N. Y.

Flight test, field research and development, and proof firing of this 'passengerless aeroplane' were carried out at a secret Sperry airfield on Long Island under strict Marine Corps guard. About 100 missiles were fired from shore over a sea range extending into the Atlantic Ocean. A good number scored direct hits on targets at ranges up to 96 miles!

The surface-to-air *Terrier* already is serving in defense of the fleet. A supersonic beam-rider missile, *Terrier* has entered the service with the Atlantic fleet on the converted guided missile cruiser, USS *Boston*. Later this year, the USS *Canberra* will report for duty, fitted out with *Terrier* launchers.

This ship-to-air 1500-mph weapon, riding its radar beam, can be launched singly or in salvos. On the *Boston*, the two twin launchers are located well aft on the main deck, above the two magazines which store the *Terriers* in a combat-ready condition.

The 2700 pound 15-foot *Terrier* is boosted off the launcher by a solid propellant rocket that is burned out in three seconds, after which a sustainer rocket takes over. Guided by the intelligence built within itself, the missile, riding the center of its radar beam, steers a collision course with its target. A proximity fuse detonates the missile.

Terrier's record of hits was so high in the test program that almost all launchings against target drone aircraft have been made by dummy missiles—minus explosive warheads. A 'kill' is signalled by a puff of smoke released near the target planes.

TALOS IS A NAVY-DEVELOPED SURFACE-TO-AIR GUIDED MISSILE

Suitable for both ground or ship launching, and unaffected by poor weather or low visibility, *Terrier* will be used by Marine Ground forces. It also can be adapted for launching from destroyers.

Built by Convair, *Terrier* is the result of a BuOrd development program conducted by the Applied Physics Laboratory of Johns Hopkins University. The program dates back, under the code name *Bumblebee*, to the closing days of WW II when the Navy was searching for countermeasures against the Japanese kamikaze attacks.

The *Bumblebee* program paid off very well, resulting not only in the *Terrier*, but also in the Bendix *Talos*. This supersonic anti-aircraft missile is larger and heavier than *Terrier*. Funds have been authorized for conversion of a light cruiser to a guided missile ship, which will be equipped to utilize *Talos* within its armament. The Navy has requested funds for additional light cruisers to carry *Talos*.

Next in the group is *Petrel*, an air-to-surface missile. Designed primarily for use against enemy ships at sea, *Petrel* is launched from patrol planes, flying well outside the range of the target's air defense. Capable of evasive action in flight if necessary, *Petrel* homes in on the target at very high speed and with devastating effect. Its use will save the pilots from deadly anti-aircraft fire such as they experienced in WW II when they closed in on a target.

Launched from patrol planes, *Petrel* makes quick, sure kills of surface ships. The Navy now has Lockheed P2V *Neptunes* equipped to launch this lethal weapon.

Developed by the Bureau of Standards, under the technical direction of the Bureau of Ordnance, *Petrel* is produced by Fairchild. It is powered by a Fairchild J44-R-24 turbojet engine. During the course of the development of *Petrel*, the Naval Aviation Ordnance Test Station at Chincoteague, Va. has thoroughly tested this missile.

Built by Chance Vought, *Regulus* is the Navy's first fleet operational surface-to-surface missile. This 'bombardment missile' is about 30 feet long. A tail-less design with a single vertical fin, it resembles a conventional swept-wing jet fighter.

Regulus was designed for launching from submarines, surface ships and shore bases. This seven-ton missile is launched by two boosters. Its Allison J-33 turbojet engine thrusts it over a range of about 300 miles at a speed of about 600 mph.

This year its adaptability was increased by the development of a lightweight launcher dolly that makes possible catapult launchings on carriers with steam catapults.

In preparation for launching from such carriers, the missiles can be loaded aboard the launcher-dollies ashore and stowed on the hangar deck. To ready it for launching, the dolly is wheeled to the flight deck, hooked up to the steam catapult, and the catapult run can begin. As the *Regulus* takes to the air, the launcher is jettisoned.

Regulus has been successfully launched from the carrier *Hancock*, from the submarine *Tunny*, especially modified for firing this missile, from the cruiser *Los Angeles* also fitted with a built-in launching rack, and from other ships fitted with the portable launcher. The USS *Helena*, *Toledo* and *Macon* also have this capability of launching *Regulus*.

BEARING THE NAME OF A FIRST MAGNITUDE STAR, REGULUS IS SHOWN HERE BEING PLACED INTO POSITION FOR CATAPULTING

THE USS *Barbero* is the second submarine converted to a missile carrier equipped to fire *Regulus*. *Regulus* extends the range and function of the submarine from one of a torpedo firing craft to a vessel able to launch a missile that can travel several hundred miles at transonic speed from its point of departure.

Two versions of *Regulus* were designed: a recoverable test and training missile with retractable landing gear, and a non-recoverable tactical missile, fitted with a warhead. The recovery feature of the training missiles is very important; all the flight test data is also recoverable. This might be lost if the missile were destroyed. Several test missiles have been flown many times and recovered without damage. Record number is 15 times. The saving on this in actual dollars is an item worthy of consideration.

Regulus has been in quantity production for several years. As evidence of future planned use, the Navy has placed an order of about $14,000,000 with Chance Vought for continued production of the missile.

The story of guided missile development is characterized by constant search for new and better ways of meeting the exacting performance required from everything that is associated with a missile. Demands imposed by missiles have forced a rate of progress in many fields that far surpasses anything in mankind's previous experience in research and development, and with each "technological breakthrough," as termed by Defense Secretary Wilson, the rate of progress is accelerated.

New paths have been blazed in new close tolerances, in refinement of radar, in miniaturization, and in making super delicate instruments impervious to environment, and to launching shock. The word "reliability," as applied to guided missiles, assumed a new meaning. In a guided missile, no human being is along to monitor and correct for error. Absolute success or complete failure hangs on the exact and proper functioning of every individual part of the missile, and of the ground equipment related to it. Any failure anywhere among the thousands of single parts may result in complete failure of the flight of the missile.

In these days when great importance is given to balanced budgets, any increase or appreciable change in the budget is regarded as a good barometer. It is a straw in the wind to point to significant changes in the thinking of those upon whom rests the responsibility and the authority for planning our nation's future course, security-wise. The 1956 level of expenditure, $1,074,000,000, for conventional ammunition is to be cut almost one-fourth in 1957. This $247 million difference is to go into guided missiles, clear indication of the high importance these weapons are assuming. And that is exclusive of the more than a billion dollars earmarked for the ICBM and IRBM program.

At the end of WW II, primarily as a result of the development of the atom bomb, our nation, together with the other free nations of the world, held a significant lead over Russia in the quality of weapons. This lead is believed to have been the primary deterrent to the Russians in their desire, and efforts for world conquest. It will continue to be a deterrent only if highly technically-trained men, as well as the industrial resources of our nation, backed up by our wealth, continue to search and strive for those technical advances—some even yet undiscovered—which will result in developing and improving the quality of our weapons.

Perhaps the very survival of this nation rests upon the ability of our people to develop and produce systems of such superior quality that no aggressor nation will dare risk the consequences of our retaliatory striking power.

Adm. Arleigh A. Burke has pointed up the Navy's broad scope of influence in this age of missiles—"Sea-based reprisal forces are one of the most effective deterrents to nuclear aggression . . . The more a potential aggressor must worry about our wide-ranging carriers, about our jet fighters and attack planes, and about our guided missiles—the less effort he can devote to our stationary military bases, our industries, and our cities." ★ ★ ★

GRAMPAW PETTIBONE

It All Adds Up

It's simple arithmetic that when a pilot is passing through the 300 to 600 flight-hour range, he's in a period of his flying career that warrants special consideration. Behind is the comparative safety of the Training Command and facing him is flight in high performance aircraft and operations which are inherently more hazardous. To help get him over the hump he should:

Remember that professional flying

demands planned action and smooth application of the controls. Avoid abrupt changes in flight and power plant controls.

Realize that flying speed must be maintained. Stalls occur most frequently in banked attitudes of flight as a result of the pilot's failure to appreciate fully the increasing speed required with increasing angles of bank.

Recognize that emergency procedures must be anticipated. Minor emergency situations often result in accidents because the pilot failed to utilize the proper emergency procedure in the time available for its effective application.

Dear Gramp:

Early this year our FASRon received an AD-4W from the forward area for transfer to Litchfield Park for storage. Upon receipt, the plane was reportedly in flying condition. We test-hopped it, found no downable gripes and readied the aircraft for its flight to Litchfield.

Before take-off the air speed indicator became inoperative and the pilot returned to the line. When the check crew inspected the aircraft for the

cause of the failure, they found that the pitot tube line had been severed previously. Instead of replacing the line, someone had merely wrapped masking tape around it, painting the tape the same color as the rest of the line and making detection of this discrepancy almost impossible. Except for the timely observation of the pilot, this slipshod repair might have caused a serious accident with possible loss of life.

LTJG, USNR

Grampaw Pettibone Says:

Great Balls of Fire! This reminds me of what the housewife told the judge when he asked her why she went back upstairs and reloaded the gun after shooting her husband—"Well, judge, he wasn't dead yet."

How *anyone* concerned with the maintenance of aircraft could pull such a dastardly trick is beyond me. Pistols, poison, or masking tape—morally, if not legally, in my book, it still spells murder.

Stopped that Rattle

After actuating the gear handle preparatory to landing a *Banshee*, the pilot noted that the landing gear indicator showed unsafe for the right main

gear. Investigation subsequent to the landing revealed that the gear may actually have been down, but that the gear indicator malfunctioned. At any rate, the pilot recycled the gear and still had an unsafe indication; however, he did not have the tower or other aircraft give him a visual check.

Following squadron doctrine and the Pilot's Handbook, he attempted emergency extension with negative results. At this time visual check by other aircraft revealed that the right landing gear was up and the landing gear door was closed. The pilot elected to land in field arresting gear without further delay because of low fuel state.

The damage, while not extensive, was charged to maintenance personnel error. Line personnel had lengthened the door actuator rod to prevent door chatter caused by weakened landing gear door actuator clutch. This precluded movement of the torque tube which would have allowed the landing gear door to open when the emergency system was actuated.

Grampaw Pettibone Says:

Looks like they stopped the rattle, but wrecked the jet. Fortunately,

the use of the arresting gear minimized the damage to the airplane, but this is one of those things that shouldn't have happened at all. A pilot can think up enough ways of getting into trouble all by himself without contributions of this type.

Dear Grampaw:

I believe that a significant point is often missed as concerns the detection of anoxia. It should be emphasized that section leaders must be alert to the possibility of anoxia and if the slightest indication of it appears, a lower altitude should be sought immediately. If a wingman does not appear to be functioning in a normal manner or there is any reason to suspect possible anoxia, the section leader is justified in ordering, in a clear and emphatic voice, his wingman to de-

scend. There should be no unnecessary time lapse.

A high index of suspicion on the part of high altitude flyers to peculiarities and irregularities of flying by their wingmen and prompt action—clear, loud, firm orders to descend—could prevent this type of accident and fatality. Not only do wingmen have a great potential life-saving function, but others—including non-aviators—can participate in saving lives and equipment by being alert to manifestations of anoxia and taking positive action when they see or hear anoxia manifestations.

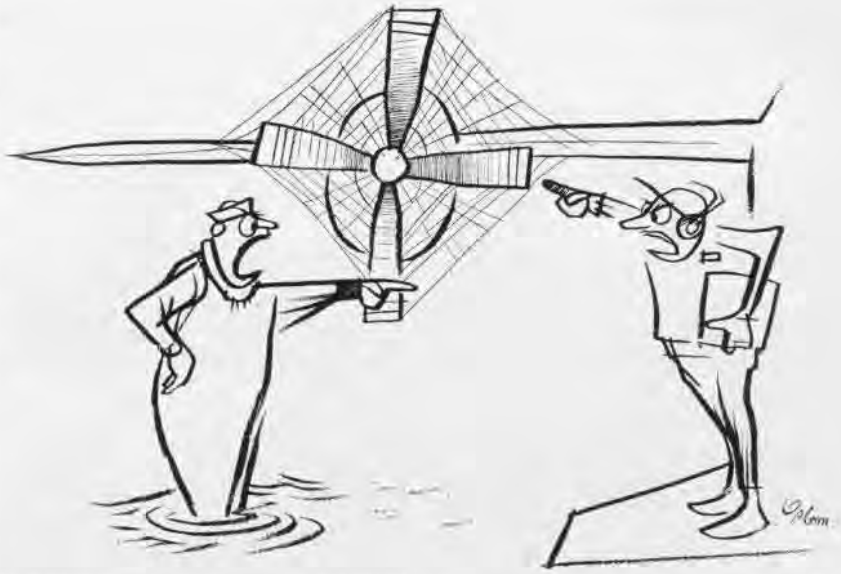
Capt. (MC), USN

Grampaw Pettibone Says:

A very good point—if a pilot's actions are strange or slow he should be directed to turn on 100% oxygen and reduce altitude at once. We should also be alert for another killer, carbon monoxide poisoning. In either case, the victim needs life-saving oxygen and quite possibly a life-saving buddy to avert disaster.

Training Problem

Just about the time you think you've heard them all, someone comes



in with a new one. Recently, a VR-31 squadron airman reported that the "voice" tube he found under the seat in an aircraft was out of order. He couldn't talk to the pilot through it.

Grampaw Pettibone Says:

I'm glad they passed this discrepancy to the Training Department, rather than to Maintenance.

Dear Gramp:

Your assistance is requested in resolving an argument over the definition of an "aircraft accident" as it concerns one phase of seaplane operations. Here's the question: Should an accident which occurs during the routine beaching of a seaplane be treated as an "aircraft accident" or an "aircraft ground accident?"

OpNav Instruction 3750.6A defines an aircraft accident as an occurrence which results in damage to the aircraft between the time an engine or engines are started for the purpose of commencing flight until the time the aircraft comes to rest with all engines stopped for complete or partial deplaning and/or unloading. This is interpreted by one side to mean the time when the engines are cut after making the ramp buoy preparatory to beaching, regardless of whether unloading occurs at the top of the ramp or at the buoy.

The opposite side contends that the definition normally refers to the time the aircraft comes to rest at the head of the ramp for unloading after being beached, but that it can also refer to the time when the engines are cut at the ramp buoy, provided the unloading occurs at the ramp buoy.

What say you, O Wise One!

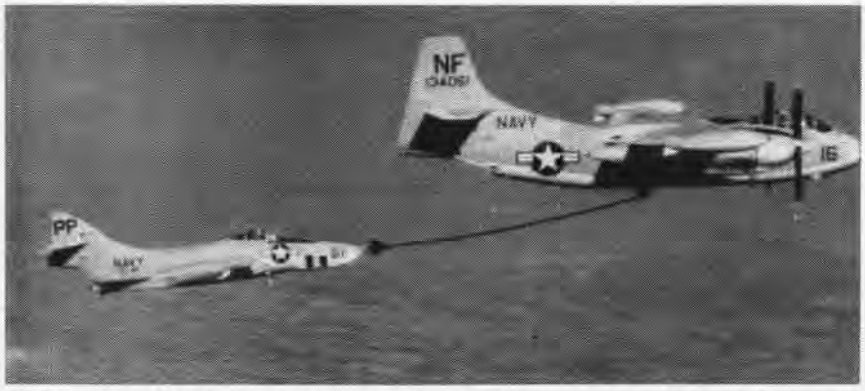
LCdr., USCG

Grampaw Pettibone Says:

The Aviation Safety Division tells me that the flight ends for the purpose of aircraft accident definition when the engines are cut and the airplane is at rest—on ground or water—with no intent or further flight until after a complete or partial deplaning and/or unloading has occurred.

It doesn't matter whether the unloading has actually taken place or at which location it may occur as long as the engines have been stopped for that purpose. Any damage occurring to the aircraft after the engines have been stopped (with no intent of further flight) would meet the definition of an aircraft ground accident. They tell me the next revision of OpNav Instruction 3750.6A will be more specific on the point you raise.

I had thought maybe there ought to be a water accident category for seaplanes, but I've talked myself out of it. I figure that if seaplanes can be "grounded" without going aground, they can also be subject to ground accident on the water.



F9F-8P PHOTOGRAPHIC *aircraft of Compron-61 refuel in flight over NAS North Island. These Cougars are the first instance of jet photo planes refueled air-to-air on the West Coast.*

VP-9 Plane Limps Home
After Engine Failure in Transit

A ten-man crew of VP-9 kept their heads during a rather hair-raising incident in March, and saved the American taxpayer the price of a P2V *Neptune*. They tossed everything overboard, that wasn't bolted to the decks, to keep the plane in the air, and it staggered 600 miles to its home base at NAS ALAMEDA and landed without further incident.

Piloted by Ltjg. E. D. Wulf, who was qualifying as patrol plane commander, the plane was inbound from NAS BARBER'S POINT, when one engine quit while still miles from its destination. Check pilot for the flight was Cdr. M. A. Merril, VP-9 XO.

The assistant navigator, Lt. Yasuiko Ogawa, undergoing training at Alameda under the terms of MDAP, was among those who lost all their personal gear.

Pilots and aircrewmen were highly praised for the excellent manner in which they handled the situation.

Others aboard were Ens. L. W. Lack, R. H. Mason, AOC, D. A. Bardon, ALC, J. C. Rafferty, AD1, J. C. Paulsen, AM3, N. C. Staeber, AT2, and M. J. Ehlers, AT3.

Marine Ejects from Fury
Jet Crashes as Pilot Lands Safely

Except for the seat ejection phase of bailing out of a jet, the parachute ride was the same as any ordinary jump, according to 1st Lt. Earl J. Michael, of VMF-334 MCAS Cherry Point, who recently bailed out of his *Fury* near Monroe, Ga. His first bail-out occurred at Pensacola during flight-training little more than a year ago.

On the return leg of a hop between Cherry Point and Dobbins AFB, Michael's plane began to lose power. Following the advice of his flight leader, Maj. E. A. Mitch, he quickly ejected.

EJECTION SEAT LIKE THIS SAVED MICHAEL

Michael landed unhurt in a cleared pasture near a road where a passing motorist was awaiting him. The *Fury* crashed harmlessly seven miles away.

Given a "go-ahead" by the medical examiner, Lt. Michael returned to Cherry Point to greet his anxious wife and ten-day old daughter.

CVA Sailors Rescue Girl
Chinese Girl is Pulled from Sea

A small Chinese girl owes her life to three sailors from the USS *Hancock*. The sailors, all members of the captain's gig crew, are Sam Wingate, SN, Paul Massey, SN, and Burton Schuller, EN3.

The men were taking their skipper, Capt. J. D. Black, to Kowloon Landing when the incident occurred. As they neared the landing, shouts from a nearby sampan attracted their attention. A man pointed to the small girl, estimated to be four or five years old, in the water astern of his boat.

Wingate instantly dived into the water and swam the 50 yards to the child. Schuller and Massey threw life rings into the water near the girl, then dived in themselves.

Lewis Nigh, BM3, coxswain of the gig, directed rescue operations from the gig as the three sailors and an unidentified Chinese man kept the child's head above water.

Once she was hoisted aboard the sampan, the sailors delivered their skipper to the landing.

VR-5 Maintenance Man
Commended for Emergency Work

Because of his "professional knowledge and skill of the highest order," Daniel Moore, AM1, of VR-5 Maintenance Department, NAS MOFFETT FIELD, received a letter of commendation from Capt. A. J. Wilson, Commander Fleet Logistic Air Wing Pacific Fleet.

Moore was selected to supervise emergency repair of several R6D aircraft assigned to NAS BARBER'S POINT.

Under Moore's supervision, damaged aileron assemblies were removed, and replacement parts were installed in a successful 'round the clock effort.

THREE F9F'S *at ATU-206 Pensacola display old and new paint jobs. The all-blue design of Panther 8 (far right) dating from WW II, was superceded last year by combat gull gray and high gloss white, exhibited by Panther 69. At left, TV-2 #101 demonstrates the new international orange and high gloss white with which all training jets will be painted. The striking color scheme provides maximum "see ability" necessary in crowded training areas.*

Ohio Professor Honored

Devised Visual Recognition System

On April 16, VAdm. Austin K. Doyle, Chief of Naval Air Training, presented to Professor Samuel Renshaw of Ohio State University the U.S. Navy's Distinguished Public Service Award. The ceremonies took place in the Faculty Club on the campus.

Prof. Renshaw is receiving the highest honor the Navy can bestow upon a civilian for his "outstanding contribution to the Navy in the research and development of the visual recognition training program in WW II."

Some 4,000 officers were trained in the Renshaw method of visual perception, enabling them to train others to identify speedily and accurately approaching surface and air craft.

VADM. DOYLE PRESENTS CIVILIAN AWARD

Sailor Wins AF Award

Airman of the Quarter at Kirtland

Winning awards in any branch of the service isn't easy. But when a sailor wins an Air Force award, that's news.

Allen L. Mitchell, AM2, of the Naval Air Special Weapons Facility, was selected Airman of the Month in October. In February he was presented with the Airman of the Quarter award.

The Naval Air Special Weapons Facility is based at the Kirtland AF Base, Albuquerque, and Naval personnel there are encouraged to participate in local Air Force activities. Mitchell was originally selected by a board of local Naval officers as the outstanding sailor of the Facility and then won out in the Air Force competition. Judging was based on devotion to duty, military appearance, and attitude toward military service.

A Navy man since 1950, Mitchell earned several citations during the Korean conflict. While at the Facility, he has done outstanding work in the special installations division on the A3D, AJ, F7U, and F2H aircraft.

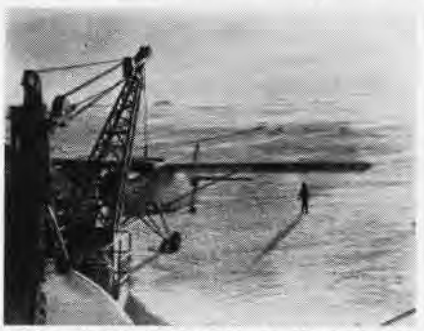
In the picture, Mitchell receives his award from New Mexico Governor, J. F. Simms. Capt. G. E. Marcus, Facility CO, and Col. H. Hamby, Kirtland CO, also extend congratulations.

GOVERNOR SIMMS CONGRATULATES MITCHELL

Antarctica Exciting Duty

Rescue Pilot Back from Deepfreeze

Lt. Don M. Sullivan, rescue pilot of the *Otter* crew that crash-landed and spent seven days in Marie Byrd land during Operation *Deepfreeze*, is



RESCUE OTTER OFFLOADED AT KAINAN BAY

back from Antarctica where he found all that he wanted in excitement.

It was Lt. Sullivan and his crew—Selman, AD2, Perry, ETC, and MSgt. Dollarman—who spotted the downed crew and made the rescue on February 9. When LCdr. Lathrop and his crew were discovered, they were, in flying time, one hour and 15 minutes ENE of Little America.

At the present time, there are 166 officers and men at the two bases in Antarctica, seven of whom are aviators. The commanding officer at the McMurdo base is a pilot and an active reservist, LCdr. Dave Canham.

CAPT. TAKAHIDE *Aioi of Japanese Defense Force prepares to fly first of P2V-7's to Japan after training at Alameda. Planes were obtained and crews trained under MADP.*

GREY GHOSTS *of VF-21 explain acrobatic maneuvers to SecNav Thomas on Forrestal visit. The team members are: (L to R) Ltjg. Cassidy, Capt. Wollmers, LCdrs. Humes and Engen.*

BUAER REPRESENTATIVES *and Douglas Aircraft officials pose before the 3000th Skyraider accepted by the Navy. The picture was taken at the Los Angeles International Airport.*

SAILORS, SISTERS *and orphans of the "Oriskany Home" pose before part of the 30 packages of clothing which were delivered to the orphanage recently by personnel of the attack carrier.*

MODERNIZED FDR REJOINS FLEET

TWO THOUSAND guests watched as the USS *Franklin D. Roosevelt's* commission pennant was hoisted during colorful hangar deck ceremonies. The Navy's number two carrier in size and power has rejoined the Fleet after being completely modernized at Puget Sound Naval Shipyard, Bremerton, Wash.

The 1956-model *Roosevelt* weighs 62,000 tons fully loaded, measures 974 feet in length, 210 feet wide at extreme limits, and 226 feet from hull bottom to mast top. This is an all-round increase over her original size when commissioned at New York in 1945.

Refurbished from stem to stern and modernized to handle A-bomb carrying, supersonic jets, the new *FDR* is only 10,000 tons lighter than the *Forrestal*. The flight deck is but 60 feet shorter than that of the super-carriers.

The most dramatic new feature is the 481-foot angled flight deck which juts out along the port side from stern to amidship. The new hurricane or enclosed bow gives the forward section a sleek, seaworthy look. There are three new steam catapults, increased oil and aviation gas capacity, the latest electronics equipment, and tougher plane-handling gear. Other new features for battle potential include bigger and better-placed elevators, redesigned control points, and gear to launch the Navy's new guided missiles.

The carrier's 2,500-man crew will be able to fight better, and they will be able to live better, too. Air conditioned spaces, new paint schemes, the latest in washroom facilities, improvements in mess halls, lounges and living compartments — all these should brighten a sailor's eyes and his life.

LARGEST SHIP TO PUT INTO PUGET SOUND

The Navy transformed the *Roosevelt* into the ideal airfield-at-sea for today's and tomorrow's heavier and faster planes. As many as 3,600 shipyard men at a time have worked aboard the *FDR* during the 23-month stay at Bremerton. Half a million blueprints weighing 90 tons have been used on the job.

After the recommissioning, the *FDR* tested her new sea legs in the Puget Sound area. She is now undertaking a 14,000-mile cruise around Cape Horn to her home port, Mayport, Fla. Stops will be made enroute at Alameda, Calif.; Peru; Valparaiso, Chile; and Rio de Janeiro, Brazil.

After she has become a full-fledged member of the Atlantic Fleet's Naval air arm, the "Foo-de-roo," as her old crewmembers dubbed her, will go through intensive training and air operations off the Florida coast.

Following final checks and adjustments at Brooklyn Naval Shipyard, the *FDR* will be set for a Mediterranean cruise with the powerful Sixth Fleet.

The first of the Midway-class carriers to get a face-lifting, the *FDR* is commanded by Capt. J. T. Hayward and Cdr. John B. Howland is the XO.

F4D Skyray Joins Fleet

Introduction Program Completed

The Navy's supersonic F4D-1 *Skyray* is joining Fleet units. It has just completed the six-week Fleet Introduction Program at the Service Test Division of NATC PATUXENT RIVER.

First fleet units to receive the F4D-1 *Skyray* for operational use will be VF-74, NAS OCEANA; VC-3, NAS MOFFETT FIELD; VMF-115, MCAS EL TORO.

Built by Douglas, the F4D *Skyray* made history in October 1953 when, piloted by the late LCdr. James B. Verdin, it became the first carrier-based plane to break and hold a world's speed record. The jet was then powered by a Westinghouse J-40-WE-8 with afterburner. Powerplant for the plane now is the P & W J-57 turbojet with afterburner.

Verdin flew the *Skyray* over a 1.863-mile course for an average speed of 752.9 mph in four passes, the fastest being the second when he attained a speed of 761.414 mph.

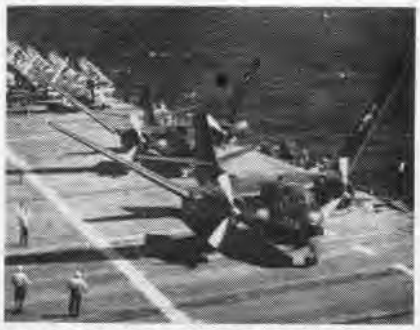
The *Skyray* was designed to intercept the enemy's most modern bombers at high altitudes, but can also be used effectively as a fighter and in ground support missions.

At Patuxent River, 12 officers—ten Navy and two Marine Corps pilots—and 100 enlisted men—70 sailors and 30 Marines—took part in the training, and accumulated over 600 flight hours with the six F4D's utilized in the program. The Fleet Introduction Program was designed to introduce men from both the Navy and Marine Corps in the operation and maintenance of new aircraft prior to Fleet assignment.

ANGLED STERN AIDS LANDING VISIBILITY

HURRICANE BOW IMPROVES SEAWORTHINESS

THE SKYRAY PASSED FIP, COLORS FLYING



TF'S READY FOR TAKE-OFF FROM INTREPID

COD Unit Receives TF-1's
VR-24 Unit to Fly Out of Naples

VR-24's COD Unit has received the new TF-1 as a replacement for the reliable old TBM *Turkeys*. Six of the new planes were delivered to the unit in March after a trans-Atlantic crossing on the decks of the USS *Intrepid*.

The TF-1 is a cargo-carrying version of Grumman's S2F-1, which is used extensively for ASW. The modified version has been stripped of much of its electronic gear, clearing a sizable area for carrying cargo and passengers. The plane is capable of seating nine passengers or transporting 3,500 pounds of cargo to the operating forces in the Mediterranean area from Naples where the unit is based. The plane carries a crew of three and is powered by two Wright 1820-12 engines.

When the first plane arrived at NAF PORT LYAUTEY, Capt. A. H. Bowker, CO of VR-24, greeted the crew and accepted the new cargo carrier. Crew for this first flight was Lt. S. V. Hubbard, S. W. Godwin, AD3, and E. O. Guidette, AD2. They flew the TF-1 from *Intrepid's* flight deck.

'Re-Ups' at NAS Cecil Field
Hit the 100% Mark for Early 1956

Life at NAS CECIL FIELD, a master jet complex, seems to agree with its personnel. Reenlistments there have hit the 100% mark for the first two months of 1956.

Nineteen sailors shipped over at the jet base for additional tenures with the Navy. They collected bonuses totaling more than $10,000 plus the added compensation of travel allowances and mustering out pay.

With two weeks remaining in the month, a 73% reenlistment figure was recorded at the base during March. The men at Cecil Field know that the U.S. Navy offers a good career.

A BENSEN *Aircraft Corp., pilot demonstrates the "flivver-of-the-air", built from a do-it-yourself kit, at the Raleigh-Durham Airport. The complete kit can be purchased for $1500.*

• Visitors to NATC Patuxent River are amazed to learn that there are 30 different types of aircraft under test at any one time.

Princeton Men Cop Trophy
Win Operation Blood Brotherhood

The officers and men of the USS *Princeton* racked up an outstanding record when they boosted their ship into first place in the Philippine Red Cross blood donor campaign called Operation *Blood Brotherhood*.

During the four-day campaign, 63 percent of the crew turned out to give 1072 pints of blood for use in case of disaster or international emergency. They bested the *Shangri-La's* donation by 15 percent.

In recognition of the crew's generosity, President Magsaysay of the Philippines donated a trophy. Miss Pilita Corrales, a local beauty queen, presented the trophy to the *Princeton* commanding officer, Capt. W. E. Gallaher.

Princeton's blood donors were treated to two beach parties in their honor, and a floor show following the trophy presentation ceremony.

TROPHY PRESENTATION ABOARD PRINCETON

BAIL-OUT PRACTICE HAS PROVED INVALUABLE

Corry Pilots 'Hit Silk'
In Newly Adopted Bail-out Trainer

Cdr. S. G. Kalemaris, O-in-C of BTU-4 at NAAS CORRY FIELD, made the first "practice jump" to initiate the unit's new T-28 bail-out trainer.

To make the jump as realistic as possible, Lt. W. H. Rose, a Corry flight instructor, was in the cockpit of the trainer revving up the engine to produce winds as Kalemaris went over the side.

The new bail-out trainer, first of its kind in the area, is equipped with an adjustable jump net, which is adaptable to any type of training plane.

MCAS Special School
Trains Officers as Aerial Observers

Every Marine ground officer an aerial observer, is the goal of what might be called the "airborne terrain appreciation school." The school is being conducted by the First Provisional Marine Air-Ground Task Force at MCAS KANEOHE BAY, Hawaii.

The officers are not primarily observers; they are company grade officers from the 4th Marines (Reinf.). In line with the newest concepts of amphibious assault, they are being trained to recognize, on the basis of observation aircraft and from aerial photos, important combat terrain features.

During the one-week training, the Marines learn how to plan helicopter assault operations and select landing zones. Much of their time is spent in airborne study, according to Maj. R. E. Roach, OinC.

Stereovision, a process which gives the student the 3-D effect of aerial observation, supplements classroom study. This accelerates assault planning without the dangers of low-level fly-overs for close observation.

FOUR ANGLED *deck carriers in line (from bottom): HMS Eagle, Centaur, Albion and Bulwark.*

HMS ALBION *is described by the British as one of their "light fleet carriers." Note position of mirror landing lights. Sea Hawk and Wyvern fighters are seen parked on the forward deck.*

IN HER MAJESTY'S SERVICE ★

★ **From its beginning in 1912, the British Fleet Air Arm has been an integral part of the Royal Navy in protecting the sea lanes over which ships bring vital supplies to the United Kingdom. Antisubmarine warfare holds high priority, and next in importance is air defense of fleets and convoys at sea. Activities in search and patrol activities are limited to carrier-based operations.**

CARRIER OPERATION *does not differ greatly from ours. Here one Sea Hawk has been catapulted from HMS Bulwark; another is ready to go.*

HMS EAGLE *enters Gibraltar Harbor with her company in dress whites. She serves with the Mediterranean Fleet, usually based at Malta.*

THIS FLIGHT *of Sea Venoms, all-weather night fighters based on HMS Heron, plays its role in Naval Aviation. They are to be superseded by the de Havilland 110, but in the meantime, they will be a significant part of air strength. The French Navy also uses this plane.*

BUILT BY *Hawker, Ltd., and Armstrong Whitworth, these Sea Hawk day interceptors on board the Eagle may be compared to our Panthers. This fighter is powered by a single Rolls-Royce Avon and was first flown 31 August 1948. Here Sea Hawks are made ready for take-off.*

POWER IS *displayed as the DH 110 is catapulted. Originally designed for shore bases, it is now an all-weather carrier fighter.*

A SEA VENOM *is set and ready to go on the steam catapult of HMS Ark Royal. This two-seated night fighter is powered by a Ghost engine.*

THESE TURBOPROP *Wyverns, Navy antisubmarine and strike fighters, are starting up on HMS Eagle during rough weather on a NATO exercise. The Wyverns are powered by single Armstrong-Siddeley Pythons. First flight of the aircraft was made during March of 1949.*

AT AN UNDESIGNATED *naval air station, these Sea Hawks taxi out, preparatory to a training exercise. These fighter aircraft feature a folding wing for stowage aboard carriers. At the Farnborough 1954 show, one Sea Hawk had rockets installed for jet-assisted take-off.*

A BRITISH FIGHTER *comes on board one of Britain's angled deck carriers and engages the arresting wire. In furthering carrier capabilities, British aeronautical scientists have utilized the angled deck, the steam catapult, as well as the mirror sight landing system.*

WHIRLWIND *helicopters of 845 Squadron come in to land on the big carrier, HMS Bulwark, during Exercise Sea Enterprise in North Sea.*

DRAGONFLY, *a search and rescue helicopter, comes on board a carrier. Note its scoop net which was designed to rescue injured pilots.*

A DRAMATIC *view of the two-seater de Havilland 110 is taken as it approaches the carrier, HMS Albion, to make a touch-and-go landing.*

PICTURE OF *Supermarine 525, prototype naval fighter for 544, was taken in 1955 as it made its first landing on the deck of an aircraft carrier.*

STREAMLINED NAVIGATION KITS DUE

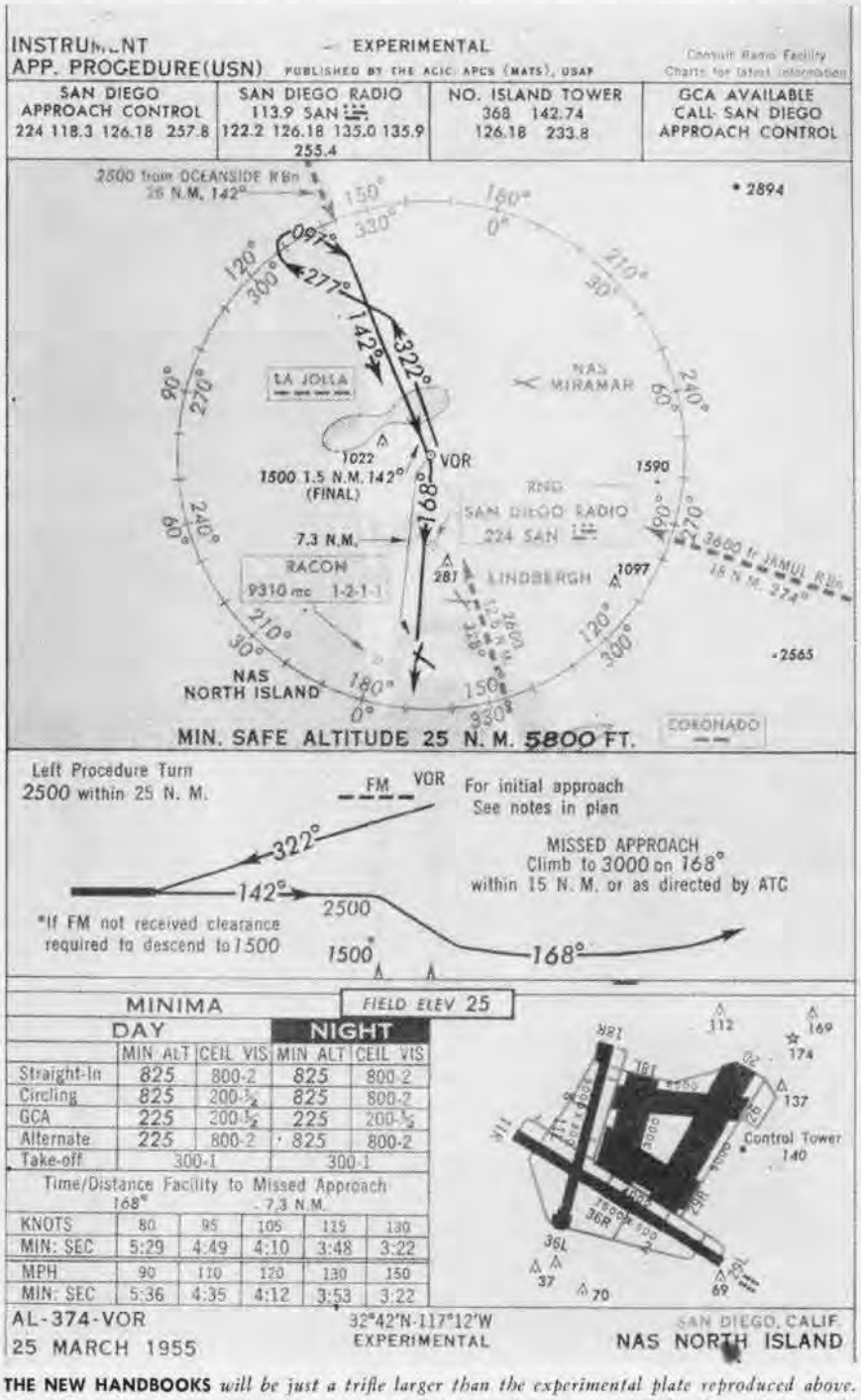
APPROACH and landing charts are due for a major change. The familiar H.O. 510 may soon be a thing of the past. The pilot's handbook is to be reduced in size to a handy 5½ by 9½ inches. The Jet handbook will become the "High Altitude" handbook, and have as its counterpart, the "Low Altitude" handbook.

It all started a few years ago, when a small group of senior officers from the U. S., Great Britain and Canada figuratively rolled up their sleeves and began work on a difficult but badly needed project. They comprised the Air Standardization Coordinating Committee, and the results of their work will affect all military aviators of the three countries.

The need for a standardization program was agreed upon in late 1947. It was appreciated that the air elements of three countries should be able to operate effectively from the bases and carriers of each other. In January, 1948, the committee was formed. Its objectives included the arrival at agreements on common or similar methods, procedures, tactics and techniques. They felt that the English-speaking countries should employ identical or closely similar equipment to provide for interchangeability of equipments and component parts, particularly in aircraft. An added advantage of the plan was to enable the servicing of equipment of one nation by the forces of another.

The Committee was broken down into Working Parties, each assigned to a particular field, and comprised of representatives of the three nations. Working Party 64, for example, was assigned the task of standardizing aerial maps, charts and flight information publications. It seemed simple enough at the beginning, but then the fun began. First, the U. S. Navy and Air Force representatives had to reach an agreement. Then the ideas of Canada and the United Kingdom had to be incorporated. With a "give a little, take a little" system, Working Party 64 has reached some definite conclusions. The projected changes in pilot handbooks represent a happy "meeting of the minds" and the successful hurdling of a big obstacle.

Although the High Altitude book will be a trifle larger than the present Jet handbook, it will have many compensations. For example, all information required for a penetration, letdown and landing at a particular field will be printed on one plate. Superfluous information will be omitted. If a station has more than one approved approach procedure, a separate page



THE NEW HANDBOOKS *will be just a trifle larger than the experimental plate reproduced above. Note that all necessary information for approach procedure is on a single plate. During the conversion period, the new smaller plates will be centered on a page the size of an NANews page.*

will be devoted to each procedure.

By 31 January 1957, conversion to the new format is expected to be complete. During the conversion, the new size approach plates will be printed on pages the size of the present handbooks, as changes in procedures occur.

Civil Aeronautics Administration has a big finger in the pie, also. Compulsory check points for high altitude flights will be fewer and farther apart. Plans are being made for radical changes in Radio Facilities publications, which will greatly ease flight planning and radio navigation.

When the efforts of Working Party 64 take effect, the present bulky navigation kit will assume a svelte and fairly slim appearance. One High Altitude handbook will cover the U. S., four Low Altitude books and one Seaplane handbook will do the same. From information established jointly, the USAF will publish the landplane books and the U. S. Navy Hydrographic Office will publish the seaplane publications. All will be the same size as illustrated on the left.

It will be a boon to wandering military pilots to be able to obtain navigational aids at any British, Canadian or U. S. air facility in identical size and format as that with which they are familiar. Even more important, as the diligent efforts of other Working Parties result in effective conclusions, other advantages will be apparent. A pilot will be able to land at major air facilities of the three countries, secure in the knowledge that if a mechanical difficulty should arise during his visit, trained mechanics, familiar with his plane, are available.

• VF-43 has been recognized as the most outstanding squadron in its class by ComAirLant. Cdr. T. N. Coppedge, Jr., CO, was presented the Battle Efficiency "E" by RAdm. D. S. Cornwell, ComFAirJax, while Cdr. J. R. Dierker, former skipper, looked on.

IFR-IQ?

If a pilot is given GCA field minimums of 200 feet and ½ miles, and reaches 200 feet on his approach without gaining contact conditions, but is still more than ½ mile from the field, what action is mandatory on his part?

Answer on page 40.

THE NAVY'S R3Y-2 *Tradewind is shown in its latest role as an aerial tanker as three thirsty F2H-3 Banshees from VF-23 hook on to the drogues for inflight refueling. The big Tradewind, powered by four T-40 turboprop engines, was originally built as an assault seaplane transport.*

Plane Fueling Speeded Up

By Use of Two-way Radio System

Re-fueling operations at NAS ALAMEDA have been speeded-up by using a two-way radio system. Twenty tank trucks began using the system in March.

With the use of the radio setup, half full tank trucks need no longer return to the dispatcher for another assignment. The driver merely picks up his microphone and calls. If he has enough fuel left to load another plane, the dispatcher directs him to his next.

Cost of transmitters and receivers, including installation, was about $400 less than price of a new truck.

Safety Plaque for VA-151

Pacific Fleet's 'Safest Squadron'

The Chief of Naval Operations has recognized VA-151 as one of the "safest" squadrons in the Pacific Fleet. At ceremonies held at NAS ALAMEDA, home port for the squadron, RAdm. R. F. Hickey, ComFAirAlameda, presented a bronze plaque to the squadron CO, LCdr. R. H. Moore, Jr., as VA-151 personnel stood at attention.

The squadron's award-winning performance dates back to the fall of 1954, in which an intensive training cycle at NAS ALAMEDA, NAAS FALLON and aboard the USS *Wasp* was climaxed by the squadron's deployment for its third tour of duty in the Far East.

In the ensuing eight months, VA-151's *Panthers*, along with other planes of ATG-1, flew 4,000 sorties from the deck of the *Wasp*. The operations were highlighted by "around-the-clock" air protection for the Tachen evacuation.

VA-151 was the second Fleet unit on the West Coast to receive the F7U *Cutlass* as an operational aircraft.

A NAVY HUP-2 *forms a backdrop on the flight deck of the attack carrier USS Ticonderoga for US Navy and German Federal Republic Defense officials during a visit to the carrier in the Med: Capt. F. Harlfinger, US Navy; MGen. H. Laegeler, GFRD; Capt. W. Gaul, GFRD; LGen. A. Heusinger, GFRD; RAdm. Gerhart Wagner, GFRD; LCdr. V. L. Richly and Cdr. M. Gibson.*

FLIGHT DECK CREWMEN SPOT A BANSHEE

CAT CREWS SPOT FJ-3 FURY FOR LAUNCH

CREW POSITIONS A CAT SLING ON FJ-3

RETRIEVER IS PART OF HU-2 DETACHMENT

USS FORRESTAL

AN F2H TAXIS OFF DECK EDGE ELEVATOR

HANGAR DECK DIRECTOR PARKS A BANSHEE

CREWMEN PUSH A FURY JET INTO PLACE

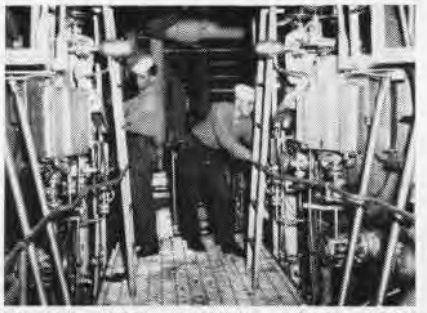
ATG-181 PILOTS SWITCH TO FLIGHT GEAR

BRIEFING IN A READY ROOM

DAMAGE CONTROL PARTIES MAN STATIONS

RADIO FACSIMILE RECEIVERS

REPLENISHMENT AT SEA IS BIG OPERATION



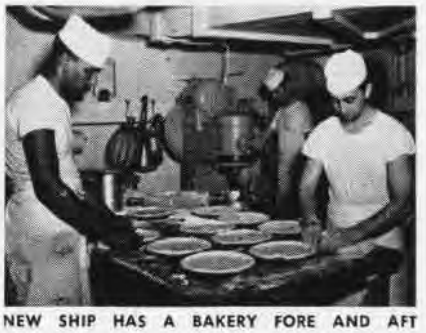
IN THE SUPER CARRIER'S BOILER ROOM

THE METALSMITH SHOP CAN DO BIG JOBS

RE-SUPPLY IS AN ALL-HANDS OPERATION

CARRIER BOASTS A PHOTO OFFSET PRESS

MESS COOKS INSPECTED



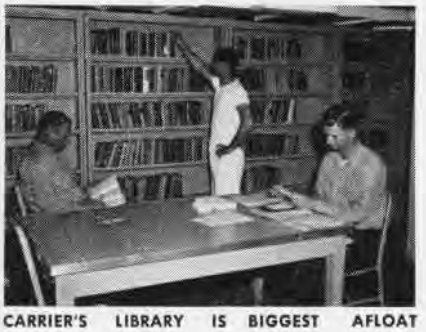
NEW SHIP HAS A BAKERY FORE AND AFT

SALAD BAR IS WELL LIKED BY CREW

CVA 59

CLEANING AND PRESSING IS NO PROBLEM

HABITABILITY IS STRESSED



CARRIER'S LIBRARY IS BIGGEST AFLOAT

SODA FOUNTAIN IS POPULAR

THEY LEARN TO ATTACK AT CABANISS

JERRY WORKS *out his flight plan for final cross-country. He went home, Akron, on IFR.*

MANY HOURS *are spent in "Link Shack" before taking a plane off entirely on instruments.*

UNDER THE *hood in the back cockpit, the student does the flying by use of instruments.*

A SHORT DISTANCE from the land of tamales and tequila is the home of the Navy's advanced pilot school. When a flight student completes basic training at Pensacola he heads for Corpus Christi and a really rugged course. Here he wins his wings. Such a student is 1st Lt. Jerry E. Kehrle, typical of the young men who, with a college degree on their records, want to fly.

Jerry graduated from the University of Akron in 1954 and entered the Marine Officers School at Quantico. Badly bitten by the aviation bug, he applied for flight training after being commissioned. For him, basic training was a breeze, and at Corpus, he was selected for training as an attack pilot. NAAS CABANISS FIELD is the base used for this purpose.

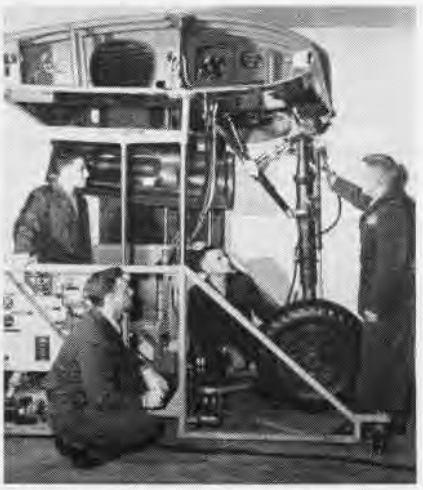
The first phase at Cabaniss consists of about 50 hours of advanced instrument flying in the North American two-seated T-28B trainer. The student does the flying during this time, with an instructor along to keep him out of trouble, because the student is usually under a hood and has to fly entirely by reference to his flight instruments. Thus, instrument weather conditions are simulated.

Jerry didn't get into the T-28B immediately after his arrival because the syllabus calls for some preparation for this phase. Ground school classwork comes first, and after two and a half days of study, the fledgling attack pilot starts to fly daily, with more ground school running concurrently.

Four and one-half flying hours usually suffices for the student to become familiar with the plane before he goes "under the hood." The old reliable Link trainer comes into the course at this point. Enclosed in this simulator, he must "fly" to asigned geographical points on a map. He must also, during this familiarization period, successfully leave the "bail out" trainer.

Finally, with his instructor in the front seat of the T-28B, the student flies "blind." After approximately 50 hours of basic patterns, radio range approaches and use of the automatic direction finder, he can pretty well find his way through all kinds of weather.

One night toward the end of his instrument work, Jerry participated in a "night stack flight." This is the procedure used when groups of planes are waiting to land on a field with very low visibility. Each plane flies in small circles over the field, each at a different assigned altitude. The lowest plane is guided down, while each of the others move down a notch in their orbiting circles. When there are numerous planes in the "stack," it takes a while to get them all down, but there is a minimum of confusion.



LANDING GEAR *unit of AD is demonstrated by Maj. R. E. Luther, using workable mock-up.*

Final phase in instrument work is a cross-country flight flown entirely with the student under the hood. The pilot pulls the hood down before taking off, and doesn't see daylight until he has reached his destination, sometimes over a thousand miles away.

The pilots are permitted to pick any part of the country within a reasonable distance for their cross-countries. Favorite spots include the West Coast, Las Vegas, Memphis and St. Louis. When Jerry pushed back the hood at Cabaniss after returning from his cross country, he was advised that he had completed the instrument training syllabus except for a check ride. Jerry's course time was 54 hours, well within the time margin allowed.

Upon completion of the instrument phase, students are assigned to fly the Douglas AD *Skyraider* attack bomber. This first-line Navy plane is used for ground support, rocketry, bombing and strafing. Launched from carriers, these planes threw everything, including the kitchen sink, at the enemy in

'THUMBS UP' *gives line crewmen signal that pilot is ready to start engine. C. E. Brittin and R. L. Hotman, AA's, man APU and fire bottles.*

A FORMATION *of eight Skyraiders wing their way over the Texas countryside, en route to Cabaniss after tactical training mission.*

Korea. (One enterprising ground crew actually strapped a kitchen sink to an AD's wing and the pilot dropped it on some shocked enemy soldiers.)

After an instrument check ride, Jerry moved on to the AD's for the final part of his advanced training. For the first time since arriving at Cabaniss, he assumed complete control of his plane, solo flight.

After about ten hours of familiarization hops, a group (five or six students and their instructor) fly together in four hours of formation flying. One of these flights includes use of oxygen at high altitudes. A "chaser" plane follows to check for any erratic flying that might indicate malfunction or misuse of oxygen equipment.

A series of six hops follows, covering tactics in the air for approaching ground targets. Next comes instrument aerobatics plus night navigation with hops over both land and water. Each man becomes more conscious of the importance of finding his own way back to that postage stamp on the ocean, after completing a mission.

The final flights are the "payload" hops. South of the station, on a deserted section of the Gulf Coast, is "Caffey," a Navy bombing range. Here rings of sand bags, six feet high, mark out a bullseye target. A small center, surrounded by rings of larger radii, greet the approaching pilot. Here he practices glide bombing runs, coming in at a shallow angle, with his bombs.

Next, dive bombing brings them roaring down on the target at a steeper angle with dive brakes extended to slow down the plane. During bombing runs, the instructor orbits at the minimum pull-out altitude set for safety.

The first couple of hops are dry runs to get the pilots used to the proper angle, and the place to start their pull-out. This is to counteract the dangerous tendency toward target fixation, when a pilot gets so intent on the target during the downward plunge that he forgets the pull-out altitude. Pilots have had close shaves, saved from destruction when their instructor, seeing them go by still in a dive, has yelled into the radio to pull out.

Five hops for rocket and strafing drills complete the flight training. Two days after Jerry completed the course, Nancy Kehrle, his wife, proudly pinned Naval Aviator's gold wings on her husband. He was personally congratulated by Capt. Davis, CO of Cabaniss Field on attaining the first big step of his flying career. First duty assignment, MCAS MIAMI, Fla.

DURING PRE-FLIGHT *briefing, Maj. H. E. Mendenhall gives chalktalk to three student pilots.*

JERRY PAUSES *with two friends on the flight line to talk over their training experiences.*

PROUD NANCY *Kehrle pinned on her husband's gold wings after the graduation ceremonies.*

LET'S LOOK AT THE RECORD

CVG-6 Sets a Few Records

While Embarked on the Champlain

Carrier Air Group Six returned stateside in March after tabulating a few statistics aboard the USS *Lake Champlain* which was operating in the Mediterranean with the Sixth Fleet.

In February, LCol. K. L. Reusser, CO of VMA-324, made his squadron's 1,000th landing of the cruise in an AD-4B. Two days later, he made his 200th carrier landing since being designated a Naval Aviator in 1942.

On February 27, Lt. J. N. Malnerich, brought his AD-6 aboard for VA-25's 1,000th accident-free landing during the eight-month cruise. Later in the day, Cdr. Roy P. Gee, CO of VA-25, made the 25,000th arrested landing aboard the *Champ*, his 400th carrier landing.

Gee was an LSO aboard the *Lake Champlain* when it was first commissioned in June 1945. In July 1945, he had the honor of bringing the first plane, a *Corsair*, aboard the carrier during shakedown operations.

Three weeks before the carrier arrived at NAS MAYPORT, Cdr. J. E. Lacouture, CAG-6, took honors as he made his 100th landing during the cruise. Capt. J. H. Flatley commanded the carrier during the 8-month tour.

High Score for GCA Unit

NAS Unit Logs 75,000th Landing

In terms of averages, the men of GCA Unit #7 at NAS MOFFETT FIELD have talked a plane down out of the soup every hour for the past eight and a half years. On 6 April, Cdr. J. E. Creed, a pilot of VR-873, made the 75,000th GCA approach in an R5D.

This GCA unit holds second place. The unit at NAAS KINGSVILLE holds the record with over 90,000 GCA approaches.

LCdr. E. J. Passanisi is in charge of the Moffett Field unit. During the past three months, 21 different types of jet and prop-driven aircraft have been landed. Included in this group was a giant AF B-36, which made several practice runs over the field.

O'DONNELL AND GROSVENOR AFTER TOUR

ATU-205 Claims a Record

6600-Mile Flight in One Weekend

ATU-205, NAS MEMPHIS, claims that 6,600 miles on one weekend for a single-engine aircraft is a record until someone comes up with a better one.

LCdr. John O'Donnell and Lt. Alexander Grosvenor, both instructors at ATU jet transition unit out to accumulate flight time, spent 20.1 hours in their TV-2 touring the continental United States from one coast to the other. The trip required eight refueling stops. Their trip included Miami, Patuxent River, Brunswick, Maine, Fort Wayne, Ind., Rapid City, S. D., Alameda, Cal., and Albuquerque, N. M.

The flight was routine except for a take-off at Brunswick, Maine, during a snowstorm. Good weather conditions prevailed with only 1.6 hours actual instrument time logged.

RAF's Low Accident Rate

Birch Reveals Lowest in 20 Years

The Royal Air Force has recorded the lowest fatal accident rate in 20 years. Air Secretary of State Nigel Birch revealed this accomplishment in a memorandum that accompanied the recently published Air Estimates. The record included fatal accidents in both jet and piston engine aircraft.

The major accident rate has seen a decrease also and is the lowest recorded for 10 years in the Royal Air Force.

VF-214 CarQuals on CVA

Completed Without an Accident

VF-214 returned to NAS MOFFETT FIELD after completing carrier qualifications on the same ship on which they will deploy to the Far East. The operations were conducted on board the USS *Yorktown* without a single accident.

This safety record is significant in view of the fact that just last November the squadron traded in their FJ-3 *Furies* for the F9F-8 *Cougars* and commenced carquals in January. The average pilot time in type at the beginning of the cruise was 50 hours, as compared with approximately 200 hours for a *Cougar* squadron with a full year training cycle in type.

The squadron CO, Cdr. L. T. Raynor, credits his squadron's outstanding performance aboard the *Yorktown* to LSO, Lt. P. J. O'Keefe, who worked long hours waving pilots aboard, and to highly skilled maintenance men.

NAAS Whiting Flyers

Log Record Hours in Five Days

Capt. John J. Lynch, Whiting Field CO, congratulated all hands on the outstanding record set in flying hours and ground maintenance achieved during a five-day period in March.

North and South Fields, in a joint effort, managed to log a total of 10,035 hours. BTU-S flew 4,723 student syllabus hours, while BTU-1N flew 4,879.

Maintenance personnel played a key role in the record week by keeping aircraft available for the pilots.

Reenlistments in VA-45

New ComFAirJax Record is Set

The Blackbirds of VA-45 have broken ComFAirJax's monthly reenlistment record. The squadron personnel office reenlisted a total of eight men during a 30-day period. The previous record was held by VF-171 with six reenlistments.

The squadron CO, Cdr. Glendon Godwing, attributes the success of his reenlistment program to his Career and Reenlistment Team. Godwing's XO, LCdr. W. E. Edwards heads the team, which points out the various advantages and benefits of a Navy career.

Reenlistment talks are given in plain, ordinary, easy to understand lectures and personal interviews.

FLEET UNITS GET ALL WEATHER DEMON

THE McDONNELL F3H-2N *Demon*, one of the Navy's newest, fast, all-weather jet interceptors, has been assigned to Fleet units. It is being flown by VC-3 at NAS MOFFETT FIELD and VF-14 at NAS CECIL FIELD.

Before the *Demon* was assigned, pilots and maintenance personnel from AirPac and AirLant units participated in the Fleet Introduction Program at NATC PATUXENT RIVER. They gave the aircraft a thorough workout before its acceptance on March 7.

In this program set up by NATC Service Test pilots and the Bureau of Aeronautics, pilots already experienced in flying the model introduced Fleet pilots to the *Demon* and checked them out in it. Pilots flew 600 hours of a typical squadron syllabus. This included a familiarization phase followed closely by tactics, instruments, day and night cross-country hops, day and night GCI, day and night FCLP, catapult shots, rockets, air-to-air gunnery, and strafing. Two periods were devoted to radius-of-turn and buffet boundary determination to give the pilots a knowledge and appreciation of the fighter's performance.

It is through this type of program that the objectives of the FIP are achieved. These objectives include the disclosure of discrepancies in any aircraft before Fleet use and the provision of an early opportunity to determine operation and maintenance suitability of the plane. In addition, the plane is introduced to a nucleus of Fleet maintenance personnel, and parts usage data is assembled with a view to determining future spare parts needs.

Service Test pilots at Patuxent who conducted the program were Lt. John Wissler, LCdr. R. K. Awtrey, and Lt. T. R. O'Neil. Participants were pilots and men from VF-14, including the CO, Cdr. Walt Roach; a team from VC-3 headed by LCdr. W. E. Niemann; Cdr. Robert Elder from AirPac's staff; Cdr. John Hill, CAG-1; and pilots and maintenance personnel from FAWTULant and VX-3. In addition, maintenance personnel from FASRons-9 and 12 attended.

At the completion of the FIP, Capt. Donald Gay, Jr., Director of Service Test, presented each of the pilots with a "Demon Driver" diploma. The maintenance personnel received a certificate which entitled them to be called "Demon Doctors."

THE DEMON'S debut in the Pacific Fleet was made in April as two of the transonic jets made low passes over Moffett Field on their arrival from St. Louis. At the controls of the two jets were LCdr. Niemann, VC-3's "Demon Team Leader," and Lt. R. B. Carter of the same squadron. On hand to greet Niemann and Carter was Cdr. R. W. Stone, VC-3 skipper, successor to Capt. R. F. Farrington.

Squadrons who are assigned the *Demon* will receive thorough indoctrination in operating the new plane before it joins the ranks of other Fleet jets. The transition program at Moffett Field has already begun and will be augmented by extensive training for both pilots and maintenance personnel at the local Naval Air Mobile Training Unit. Pilots will receive 45 hours in the airplane, 16 of which will be night operations. The first western group were officers from VF-124.

LCdr. Niemann is assisted in VC-3's training program by flight instructors, LCdr. W. I. Brown, and Lts. W. L. Murphy, R. G. Thomson, and Carter.

The *Demon* combines the speed of an interceptor and the maneuverability of a fighter while carrying the payload of an attack bomber. It is powered by an Allison P-71A-2 turbojet, which delivers 10,000 pounds thrust to put the *Demon* in the transonic speed class of jet fighters.

DEMON TEAM LEADER *Neimann and Carter make fast low level sweeps across the strip at Moffett Field to announce the arrival of the new Demon to West Coast fighter-interceptor squadrons.*

THE DEMON *was delivered to Fleet Units after extensive evaluation tests at NATC Patuxent.*

FLEET PILOTS *who qualified in the Demon pose before ready room at NATC Patuxent River.*

VC-3'S CO, *Cdr. R. W. Stone, was on hand to greet pilots who brought new F3H-2N.*

Weekend Warrior NEWS

IN JUNE *1955, the Recruit Class at NAS Spokane turned out in drill dress and paraded along the grinders in formation for inspection.*

THE SAME UNIT *from Spokane made preparations for a five-day trek into Kalispel National Forest, Washington State, for special survival training.*

Summer Training for Weekenders

The month of June marks the time of year when a new batch of recruits and old timers will cast aside civilian attire and join the ranks of the Weekenders on the Reserve Accelerated Training Program. From every corner of the nation, young men will don Navy uniforms and spend time marching and drilling.

Military smartness and bearing will be emphasized, in addition to traditions and customs of the Navy. Watches will be stood, and each recruit will "bone up" on the general orders which all sentries must know.

A complete explanation of Navy jobs and the various ratings open to strikers will be given. Existing opportunities in career Naval service will be stressed. Military obligation under present law for the young men of our country will be another point of interest plus various forms of recreation.

The program has one purpose: to make better citizens and better fighting men in case of an emergency.

Reservists Map Flood Area

Weekend Warriors attached to AWS-87, PH Branch, NAS OAKLAND, completed a staggering number of aerial photographic assignments during their annual two-week training cruise in March. Mapping the flooded areas of Yuba City and Marysville for the Department of Agriculture and the Corps of Army Engineers, they covered a radius of 200 square miles.

Under the supervision of PHC's Jack Logan and Arthur Trimble, both professional aerial mappers in civilian life, the Reservists, which included two WAVES, spent eight days working on intricate, precise aerial photographic assignments, all done to standard photogrametric specifications.

Most of this was accomplished for

AN AWS-87 *photographer uses a station enlarger in filling publicity picture assignment.*

MEMBERS OF AWS-87'S *Photographic Branch lay out an uncontrolled mosaic of the Marysville-Yuba City flood area. These maps were invaluable in determining the extent of the flood damage.*

WEEKENDERS OF VA-692, *were members of the first NAS Columbus squadron to conduct its annual training cruise in jets away from the home station. It was highly successful, and 15 pilots averaged 25 hours of flight time in five flying days at NAS Dallas with no accidents.*

the purpose of determining the extent of damage done to crops. Dr. Robert Colwell, a Reserve commander at NAS OAKLAND, did the required analyzing and photo interpretation on the prints prior to the assembling of mosaics.

The Reservists accomplished four mapping missions, made two sets of contact prints for the Experimental station at Berkeley's UC, as well as one uncontrolled mosaic, one photographic index laid of the Marysville-Yuba City area, plus additional publicity pictures and routine Speedgraphic assignments. It was a busy two weeks in any man's organization!

Navy 'Copter Saves Duck Hunter

Don't let anyone tell you that duck-hunting can't be dangerous. Leo J. Montgomery will tell you another story!

Stranded on a wind-swept dike along a Detroit River channel, the hunter went nearly two days without food and very little sleep. He managed to absorb a little warmth from a driftwood fire, but keeping it going meant a constant vigil. Montgomery became a victim of the elements when his outboard was swamped.

When the Coast Guard became aware of the situation, it notified the Navy. A helicopter from NAS GROSSE ILE was dispatched, piloted by Lt. William E. Lindsay, a Weekend Warrior, and his crewman Morris C. Bertsch, AD1. The rescue was made by a lift lowered from the 'copter, which could not land on the dike.

Asked about the rescue, Montgomery said, "Nothing to it. I just hitched on like you see in the movies."

MONTGOMERY *thanks Lt. Lindsay for saving him from death as crewman Bertsch watches.*

THESE OAKLAND *keglers will represent the air station in ABC's Annual Championship matches.*

Community Spirited Reservists

Members of Naval Reserve Aviation Company 3-2 at Lindenhurst, L. I., have a favorite son. He's Earle L. Holmes, DCWC (really a grandfather) and others of his company point to him with pride for his untiring efforts and devotion to support of his country and community.

Holmes is employed at the Grumman Aircraft Co.'s Bethpage plant. Four years ago, as a representative of the company's welfare department, he visited many hospitals in the area. One of the things he noticed was the lack of patient entertainment.

After some research and assistance from others, he found that he could help by furnishing radios and televisions to these patients.

NavAvResCo 3-2's personnel were given practical experience in training then being afforded the Company by reconditioning the sets. In time, members found themselves coming out for drill oftener than the one night a week prescribed for them.

Since the operation got underway, the hybrid factory has distributed over 300 radios and 75 television sets to hospitals and health centers nearby.

Inspired by Chief Holmes, the 10 officers and 35 enlisted men of this unit have found a way to derive the utmost good from their training program. Not only are they receiving the benefit of practical training in electronics, but they are also performing an outstanding service to members of the community. Cdr. G. H. Klaus is unit Commanding Officer.

USAF F104

THE USAF'S *supersonic fighter, the Lockheed F-104 Starfighter, is distinguished by its razor-blade thin wings extending only seven and a half feet from the fuselage. It is the first production fighter to be equipped with a downward ejection seat for the pilot. Powered by a GE J-79 turbojet engine and equipped with afterburner, it climbs as fast as it flies straight.*

TRAEX Unit Sets Record

VMF-531 Logs 2,657 Flight Hours

LCol. W. W. Turner, CO of VMF-531, his pilots and men returned to MCAS CHERRY POINT in March with a new squadron flight record tucked under their belts. The squadron tallied 2,657 flight hours during six weeks of TRAEX Operations in the Caribbean area around Puerto Rico.

In one 11-hour period, the squadron's F3D *Skynights* were airborne collectively for the equivalent of six days. Col. Turner praised the efforts of his ground crews, transportation section and engineers for enabling the night fighter squadron to maintain an outstanding aircraft availability of 88%.

Flight Surgeons to Solo

CNO Approves One Flight in T-34

Medical officers, undergoing training to be Naval flight surgeons, again have been granted authority to solo Navy aircraft, providing they are physically qualified and meet proficiency requirements. The authority was granted by CNO and states that the flight surgeons will be authorized one solo flight in the T-34 basic trainer.

Class #78, which recently completed graduate medical training at the school at NAS PENSACOLA, has entered the flight phase. This is the first class to receive instructions in the T-34 *Mentor*. (NANEWS, February 56, carried a more complete and comprehensive story titled "Navy's High Mach Medics.")

All who are physically qualified will receive instruction and those who demonstrate satisfactory proficiency will be permitted to solo.

A 'Natural' for Flying

On Instruments, McCullough Excels

NavCad R. K. McCullough completed the instrument phase of his flight training at NAAS CORRY FIELD and the instructors there think they have found a "natural" for flying.

When his final score was turned in, McCullough's flight marks were unsurpassed by any member of his class. He had no marks below average, 55 average marks, and 100 marks above average, while the normal student winds up with a final score (percentage wise) of 20-60-20.

His personal history as a flight student began as being a normal student during the first phase of basic training at Whiting Field. During the formation and tactics phase, he was slightly above average, and well above average, but not outstanding, at Barin where he qualified for carrier landings.

It was when he entered the fourth phase of his flight training that he started to open the eyes of his instructors, for there he became an outstanding student. Comments, such as "student doing excellent work," "transition above average," "student relaxed, very smooth and easy on the controls at all times," and "student has ability to think ahead," became part of the daily routine for his instructors.

His record is unsurpassed by any flight student in history of BTU-4.

WESTWARD HO, READY TO FIGHT

TWO AJ-2 SAVAGES *from VC-62's Detachment of ATG-201 set on the catapults ready for immediate launch as the aft end of the flight deck is arrayed with Panthers, Banshees, Cougars, Skyraiders.*

A BOXER OFTEN trains for weeks to get in top condition for a fight. When he steps into the ring, he must be strong, quick, alert and ready for battle. But when the fight is over, he can relax, but not too much. He may have to fight again, and soon, so he keeps in condition.

And so it is with the Navy's mighty aircraft carriers. Each must constantly be in fighting trim. For an example of how it is done, follow the USS *Bennington* and her Air Task Group 201 on a tour with the Seventh Fleet.

Before ATG-201 reported aboard the *Bennington*, its squadrons underwent weeks of intensive training at Quonset Point, R. I. Aboard ship, they spent many more busy weeks trying out full operations with the carrier and her crew to perfect the necessary teamwork. Then came the big day, and departure for Japan, to relieve a carrier due to return home for a rest.

En route, at Pearl Harbor, the Commander Air Force Pacific Fleet takes a close look at the carrier, her crew and her air complement during its Operation Readiness Inspection. ORI lasts several days and duplicates every possible situation that might arise during a carrier's Far East tour. The air group pilots and crews work night and day, intercepting incoming attacks and carrying out simulated offenses against enemy bases.

Upon joining the Seventh Fleet, a carrier participates in simulated strikes, her air group patrols, furnishes air cover, and helps keep an alert vigil. Training and more training under actual operating conditions keeps the crew and Air Group on their toes.

The many moving parts of a giant carrier are bound to develop mechanical troubles. Some of these troubles cannot be corrected while underway, so a stay in port with an available ship's repair facility is required. Thus it was with the *Bennington*. When a carrier is due for such a repair session, it often means "R & R" (rest and recreation) for the Air Group. For ATG-201, it meant "repair and requalify."

CATG-201 *Blouin and Cdr. McCuddin, VF-13, get repair run-down on F9F by ADC P. Carr.*

While the *Bennington* was still miles out at sea, bound for Yokosuka, the jets and propeller-driven planes of ATG-201 were launched from the flight deck and headed for NAS ATSUGI.

Both the pilots and mechanics have their hands full while shore based. The pilots are kept busy with air-to-air gunnery practice, strafing, and instrument flying. They practice GCA landings, night flying and special weapons training.

Cdr. Clarence Blouin, Commander ATG-201, said: "Pilots lose part of their proficiency if they lay off for even two weeks. They would be more susceptible to accidents when they return to the carrier if we didn't keep them busy."

The hard-working maintenance men give the aircraft a thorough check. Everything from an engine change to a new coat of paint is accomplished at Atsugi. VF-13's *Cougars* and VA-36's *Panthers* must be ready to provide fighter cover. The *Skyraiders* of VC-33 and VA-105 must be ready for attack missions. *Banshees*, AD-5W *Skyraiders* and *Savage* tankers of various detachments must be in top shape.

NEWLY ATTACHED *tailpipe of Panther is inspected by Lt. K. Weaver, R. E. Pinkall, ADC.*

After the repairs are finished, the *Bennington* puts out to sea again for more patrolling. And so it goes. The fighter is strong, alert and ready.

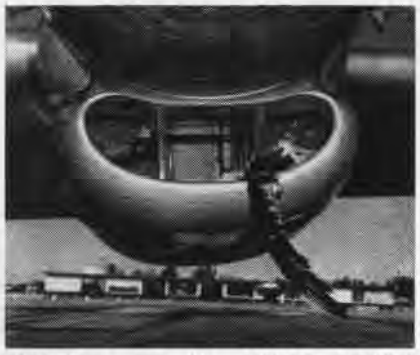
Eventually, the day arrives to steam eastward and home. The *Bennington*'s crew and Air Group may not see it, but they know that another fighting flattop, fresh and equally fit for battle, is speeding westward to fill a gap in the Fleet, caused by departure of the "Busy B" homeward bound for a rest.

'SECOND BATTLE OF MIDWAY'

By Norman Fritter, JO3

PERSONNEL at Midway have by no means surrendered to the foe in what has been termed "the Second Battle of Midway." The battle is still on, and the naval strategists' chances of winning sole rights to the island's runways seem slightly better than ever.

The squabble with Midway's natives—the gooney birds—has been go-



COMPETITOR FOR THE AIRSTRIP PERISHED

ing on for a number of years; and although the "war" might be called a cold one, it has at times been a noisy one.

Prior to the construction of runways at Midway a number of years before the Second World War, the native goonies—the albatrosses—and human inhabitants of Midway shared the island with no recorded discord.

When the big steel "birds" started landing at the naval station, however, the conflict was on. It wasn't a matter of the birds resenting the giants which came in from the skies; in fact, the necessary runways built for the planes also proved to be an asset to the goonies.

Before the well-paved air-strips were laid, the gooney had only the sandy beaches and short, curving roadways to use for take-offs and landings.

Although the albatross is a full-fledged comic and a never-ending source of entertainment while on the ground, when airborne he is a living symbol of gracefulness and beauty. As a result the bird has been studied quite extensively by air-craft designers; and, upon observation, it can easily be understood why.

The bird can take to the air only after fully spreading its wings and

PROUD PARENT AND CHILD NEAR RUNWAY

running for a considerable distance to gain speed for the take-off; like heavier-than-air craft he becomes airborne by taking off into the wind. He then neatly folds his webbed feet into his feathers and calls the airways his.

The areas bordering the runways became nesting areas for many of the birds. After all, why shouldn't they build close to a landing strip since so much of their time is spent in the air?

Seriously, albatrosses have been and still are the source of a rather serious problem at Midway. They pay no attention to a plane coming in or to one taking off, therefore, the weekly gooney casualty list is a rather lengthy one and the damage to planes is no light matter. Fortunately, none of the collisions between these rivals of the airways have caused disaster to the planes. Frequently, however, it is necessary for a plane to return for repairs as a result of encountering the enemy during the takeoff.

Several means have been employed (experimentally) to rid particular areas of the goonies. Smoke-flares and burning rubber tires were used, but the birds simply sat watching what they seemingly considered a "much ado about nothing" project.

The noise from ordinary weapon firing proved completely unsuccessful. So, a bazooka was brought on the scene; it proved a bit more successful. After five or six projectiles had been fired, a few of the birds moved—a few feet back. They're stubborn cusses.

At present, a 500-foot area on the sides of each runway is being cleared of gooney bird eggs. Perhaps the birds might re-lay in the same spots again this year, or they might come back next year and build their nests in the very same areas. However, it is believed that after a while the birds will grow tired of their "trial and error" method, and that their next move would be a retreat. It's quite obvious they wouldn't surrender their native territory, but they just might move to another island.

FRA to Pick Mrs. US Navy

Contest to be Held Navy-Wide

The Fleet Reserve Association is looking for the outstanding wife of a Navy enlisted man to designate her "Mrs. U. S. Navy 1956." SecNav has authorized all commands to participate in the contest.

BUPERS Notice 1700, 11 April 1956 contains contest rules, application forms and instructions. All correspondence should be sent to FRA, Contest Hqtrs., Wilton Hotel, Long Beach, California.

Marine Generals Honored

New "Flying Devil Dog" Members

Two Marine Corps generals have been given honorary membership cards of the Flying Devil Dogs, Inc., at MCAS CHERRY POINT. The organization is a private flying club near the air station for off-duty Marines.

At informal ceremonies, TSgt. Cleve Glover and SSgt. Pete Beresford, president and vice-president of the club, presented BGen. E. A. Montgomery, CG, MCAS CHERRY POINT and BGen. J. C. Minn, CG, 2nd MAW, with certificates.

Both generals are graduates of the Naval Academy and have been Marine Aviators since the early 1930's.

THE GENERALS ARE NOW CLUB MEMBERS

AND THERE I WAS ...

This is a Real Fish Story

IF IN THE course of your naval career, you are in contact with either LCdrs. R. B. Nichols or R. E. Brunson, presently assigned to FAETUPAC, and they relate a real fish story, please hear them out for it really happened, or so we are led to believe.

It started with a fishing trip near Hope Island in Washington State during the king salmon run. Nichols and Brunson were trolling for the big kings. Nichols was manning the outboard engine and had his rod fitted into a rod holder.

They had been trolling for some time when Nichols turned around just in time to see his rod, reel, line and rod holder disappearing beneath the water. He and Brunson headed back to the dock for more fishing gear.

Five hours later their creels were still empty so they disgustedly decided to call it a day. On arriving at the dock an attendant informed them that another fisherman had hooked a rod and reel while trolling near Hope Island and had left it to be claimed at the dock.

Sure enough, it was Nichols' rod and reel, minus the line, lure and fish. The story doesn't end there however, for the attendant informed them that the good samaritan, who returned the rod and reel, had left the fish on the scales —a whopping 32 pounds.

The only reward the good samaritan wanted for returning the fish, rod and reel was the lure the big salmon hit.

Solid, Man, Solid

TWO YOUNG hot rod recruits were standing near the end of the runway at NATC Patuxent River as the test pilot began his take-off run in testing the supersonic F8U-1 *Crusader*.

A few feet short of being airborne, the pilot snapped the afterburner into action. The jet made a loud popping noise, surged and was gone. One of the recruits turned to the other and said, "Man, did you hear that jockey double clutch that jet?" Real cool, that cat.

NOTAM Circa 1921

FLYING WAS for the birds back in 1921. Browsing around the Navy's Hydrographic Office at Suitland, Md., brought forth a dusty *Notice to Airmen* entitled: "Use of pigeons by aviators." Reportedly upon advice from the Naval Communication Service, the notice admonished aviators to ". . . request from the quartermaster in charge of pigeons as many birds as he thinks he will require, according to the length of his flight, etc."

Various uses for the pigeons were included in the notice such as, conveying matters of importance back to the base, and "the verification of important communications sent by radio." (The electronics boys will love that one.) Aviators were reminded to keep the pigeons dry and under shelter, since they have difficulty flying with wet wings.

Explicit directions were given on how to write and affix messages to the birds. Also carefully explained was how to liberate a bird. It was not to be let loose after 1800, unless the message was very urgent, nor let go in heavy fog, rain, or snow. "In liberating from all Navy H type aircraft, it has been found that if the pigeons are launched from the front cockpit, it is best for the liberator to face the pilot and throw the bird well down and outward under the aerial."

They Shot the Works

THE COMMANDING officer of the heavy cruiser USS *Baltimore* recently dispatched a "bill" and an urgent request to RAdm. Thomas B. Williamson, Commander Task Force 77.

The Admiral was happy to oblige.

The "bill" was for tow targets. The "request" was for the sharpshooters to take it easy on the targets. Pilots attached to carriers operating with the Seventh Fleet task force fired their planes' guns with such accuracy they literally "shot the works"—the works being targets towed by the cruiser.

They not only riddled the targets, but put a crimp in the day's exercises when on several occasions the tow lines were severed.

Capt. C. G. Christie, *Baltimore* CO, was notified that the request would be granted.

Giuseppe is Just a Mule

FASRON-77 is the envy of Italian-based Navy outfits because of a mule. Now the mule, Italian name—Giuseppe, American—plain Joe, was acquired because the outfit didn't have enough transportation for the line. Something simply had to be done.

Squadron skipper, Capt. C. A. Keller, called for his best mule-buyer, J. P. Nugent, IM2, and instructed him to go to the Naple mule market and buy the cheapest and best mule he could find. Nugent, after much haggling with local merchants, finally acquired "Joe" for 88 bucks.

The squadron built a cart for Joe to pull, from an abandoned jeep frame and scrap lumber, and designated it Navy Vehicle No. 0000, the first of its kind.

This posed a problem with the Public Works people, for existing regulations require a maintenance check on all Navy vehicles. They are trying to figure out whether or not to add a pedometer to Joe's cart for mileage checks or just what would constitute a maintenance check for a mule.

They do point out however, that Joe operates for $3.00 a day cheaper than a ton and a-half stake truck and driver and that the driver has been released for more important duties.

Joe plods along at a contented pace, completely unaware of the fact that in one year he will save the American taxpayer over $1,000 and pay for the cost of the cart in one month.

In that Joe is a DRAFT animal, we wonder —Will the squadron assign a DM (DRAFTSman) as Joe's official handler?

'MY THIRD CHOICE WAS ANYWHERE'

Phonetic Phun

ALFA said; "BRAVO, CHARLIE, its a good idea. Let's spend the weekend at the DELTA. We can listen to the ECHO, dance the FOXTROT and play GOLF at the HOTEL INDIA. We'd better take JULIET with us or she'll get in trouble. She'd fly thousands of KILOS right now, even to LIMA, to see MIKE, in spite of the fact he left her in NOVEMBER, and OSCAR, her PAPA, took off for QUEBEC while she and ROMEO were at the SIERRA doing the TANGO."

"Okay, but we'd better get out of UNIFORM and tell VICTOR to get us some decent WHISKEY. That triple XRAY stuff they serve would turn any normal YANKEE into a ZULU."

VIP's Visit Seventh Fleet

Witness Task Force Power Display

The Under Secretary of the Navy, the Honorable Thomas S. Gates, and the Assistant Secretary of the Navy for Air, the Honorable James H. Smith, Jr., joined the Seventh Fleet at sea off Okinawa. Commanded by VAdm. S. H. Ingersoll, this Fleet is patrolling the Western Pacific.

During their three-day visit, the secretaries watched task force operations and training exercises. These included air operations, defense against similated air and submarine attacks, and replenishment at sea operations.

During the operations, the secretaries and the Fleet Commander had front row seats on the carrier, *Shangri-La*, skippered by Capt. C. W. Lord.

VADM. INGERSOLL GREETS J. H. SMITH

pounds of screaming rockets on the barren slopes.

While the *Carronade* saturated the area, planes from VMF-214 and VMA-212 screamed in for low-level bombing and rocket runs. These two squadrons were covered by planes from VMF-232.

Offshore the ships of PhibRon-1, loaded with 7,000 troops of BGen. E. C. Dyer's 1st Provisional Marine Air-Ground Task Force, awaited the signal that would send the assault forces ashore.

Rocket firepower for the *Carronade* is automatic. Coupled with her 18-knot speed and high maneuverability, she is a powerful assault weapon. This was her first practice fire support mission since joining the Fleet.

CARRONADE'S FIREPOWER IS TREMENDOUS

Later it was learned that they had battled the fire all night and never realized they had been lost until aid came.

VA-105 Aboard Bennington

Gains 100% Membership in Club

Winner of the Atlantic Fleet Battle Efficiency "E" Award for two consecutive years, VA-105 became the "Squadron of the Century" when it gained 100% membership in the USS *Bennington's* Century Club.

Membership requires that a pilot log 100 landings aboard the ship. All 15 squadron pilots are now Club members.

Commanded by Cdr. S. W. Forrer, VA-105 has a total of 1944 landings aboard the *Bennington*, of which 252 were made during night operations.

PARTIAL ROSTER OF VA-105 CENTURY CLUB

ASST. SECNAV *James H. Smith, Jr., is given a cockpit checkout on the Navy's new supersonic fighter, the F8U-1 Crusader, by Chance Vought test pilot Bob Rostine at Pax River.*

GOVERNOR *Collins of Florida is "awarded" collateral duty as a Navy Recruiter by RAdm. D. S. Cornwell, ComFAirJax. The occasion was kick-off for "Navy Sign-Up Month" in Florida.*

LTJG J. A. *Schmidt (R) flys the instructor's seat of a Navy training plane in primary training at NAAS Whiting Field, as NavCad brother J. O. Schmidt rides in student position.*

New Weapon in the Pacific

USS Carronade Joins the Fleet

Operation *Mauka* in the Hawaiian Islands got underway with a bang. Tons of high explosives ripped into the slopes of uninhibited Kahoolawe when the USS *Carronade* (IFS-1) made her appearance. The small 245-foot ship, an inshore fire support vessel, lay but rifle-range distance from the shoreline and rained some 18,000

NAS Cecil Field Personnel

Help Battle Gigantic Forest Fire

Sailors from Cecil Field answered an urgent SOS during an 85,000-acre fire in Florida's Osceola National Forest. In a four-day period, over 200 enlisted men battled the blaze.

After the situation was well in hand, a forest ranger took time out to praise the Navy volunteers. He spoke of six Navy men who got lost in the woods.

Eighth Hornet Reunion

New York is Site for Get-Together

The USS *Hornet* Club of New York City has announced that their eighth Annual Reunion will be held at the Park Sheraton Hotel June 15-17. It promises to be highly successful.

Officers and men interested in attending should contact Kenn Henderson, USS *Hornet* Club, Box 312, Wall Street Station, New York 51, N. Y.

HANDICAPPED SHOW 'CAN-DO' SPIRIT

LOSS OF HER *legs does not keep this young woman from supporting her three children.*

THIS VETERAN *suffered serious injuries at Okinawa which requires metal plates in head.*

A DAMAGED *back produces an agony of pain at times, but this man will not give up.*

—By Elretta Sudsbury

EMPLOYMENT in the Overhaul and Repair Department at NAS CORPUS CHRISTI isn't, for certain workers, just a job, but a triumph. Of the 3000 employees, some 300 are physically handicapped.

At Corpus Christi the Navy policy of employing the physically handicapped on the same basis as the able-bodied—namely, on the basis of ability to do the work—is really in force.

What does it mean to have a job when one might so easily be excused from the competition of daily life?

One middle-aged man in the shops who was asked this question said, "It means that I can earn money for a home, car and other things a man needs. Sometimes the pain in my back seems too great to bear, but I can't give up.

"If ever I give into the pain, I'll be an invalid, a has-been, with a small retirement check each month to exist on. Worst of all, I'd have nothing to do the rest of my life. So I just grit my teeth when the bad pain comes and go on working."

One young woman works day after day at her bench. She has no legs, and her man-made ones are awkward.

"What is it like to work in a shop all day and be imprisoned?" she was asked.

"It's not so bad," she said. "With this job, I can take good care of my children. It doesn't take legs to brush a child's hair, rock a baby to sleep or bake a cake. I can wash and sew and cook and sing nursery songs. That's enough to make a life."

Look in another part of the shop, and you'll find a dwarfed man with a face marked by a grim determination.

"I've worked here ever since I got out of school," he said. "It's hard for a man who is small and weak to find a job, so I know I'm lucky to be here where I can earn my pay in work that's not too hard for me."

A strong young man standing nearby made his contribution: "I don't look like a handicapped worker, but I have certain limitations. In the war on Okinawa, part of my face was shot away and some skull besides. The doctors did a good patching job with plates in my head and skin grafting on my face, but sometimes I get sick from the plates in my head. They gave me a bench to work at so I can't get hurt. It's hard not getting to work in planes anymore, but I have to make the best of things."

Scores of other workers echo these words. Each is doing his assigned part with precision — and with courage.

ONE AMPUTEE *says, "We don't want favors or special handling, we just want jobs to do."*

PARALYSIS *caused this man's blindness, but he packages finished equipment parts efficiently.*

THIS LITTLE *man isn't strong, but he's worked in the shop since he left school.*

ABC OF WARFARE TAUGHT AT NAS ATSUGI

By Henry D. Morrow, JO3

THE SIX men in the gas chamber are apprehensive as the door shuts with finality. No one speaks. The silence is broken by the insistent hissing of escaping gas. This is it!

The scene is not Buchenwald or Dachau. This is not part of a system of mass extermination. This gas chamber is an integral part of the training given at the Atomic, Biological and Chemical School at NAS ATSUGI, Japan. The curriculum is thorough.

NAPALM *explosion simulates a nuclear burst during one of ABC School field exercises.*

The school was established by the First Marine Air Wing in 1954 to instruct Marine and Naval personnel in self protection against ABC attack. The three-week classes cover all phases of atomic, biological and chemical warfare. Since its beginning, approximately 380 men have completed the course. Instructors hold seven one-hour classes a day with field exercises conducted in the various subjects to cover the main topics.

The training for chemical warfare makes a dangerous, but interesting, subject of study. The students are taught how to recognize toxic chemical agents; how to detect them by chemical means; how to treat chemical casualties, and how to protect themselves with gas masks. The student actually works with the chemicals in the field, by testing with a chemical detector kit. Each class is subjected to the gas chamber to show the effect of harrassing agents, mainly tear gas, and to learn by experience the effectiveness of the gas mask.

STUDENTS ARE *given instruction by Rudolph Marr, DC1, on the use of the 400-gallon decontamination apparatus. In case of ABC attack, the unit would be an effective combatant.*

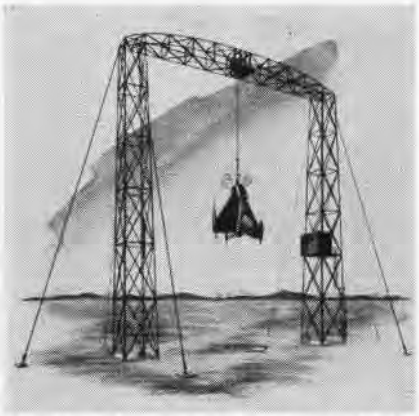
The biological phase of the course is aimed at teaching the students about this new type of warfare. They learn that it is the intentional spreading of harmful organisms, their toxic products or other agents to cause death and disease in man, his animals and his crops. Training consists of a brief historical background, followed by lectures on the type of biological agents which might be used. Since most of these cannot be seen with the naked eyes, the students study them first hand through a microscope. Other training includes protective measures to take, and the use of the newly developed BW sampling kit.

SURPRISE *tear gas grenade tests students' ability and speed in using the gas mask.*

The last and undoubtedly the most important phase is the atomic. Six instructors try to give the students a knowledge of what the atom can do and how to protect humans and equipment in the event of an atomic attack. A basic introduction to nuclear physics prepares them for work with radiac instruments and radiation and its effects. In class, the men watch movies on the various "test shots" of the atomic bomb. They learn about decontamination, protection and organizational setup of ABC units.

Upon completion of this course, the students will be looked upon as leaders of their units in the event that we are faced with ABC warfare.

THERMITE *safe destroyer is used to prevent "enemy" from learning important secrets.*



ARTIST'S DRAWING OF POGO TETHER RIG

Test Rig at NAAS Brown

For Checking Out New XFY-1 Pilots

More Convair pilots will learn to fly the XFY-1 *Pogo* vertical take-off plane in a special tether test rig now being erected at NAAS BROWN.

The steel structure will be 150 feet high and 150 feet wide. The large area inside the rig's framework will enable pilots to maneuver the plane both vertically and horizontally while learning to fly the *Pogo*.

Besides a control room for test personnel, located inside one of the towers, the test rig will include cables, control system and other equipment used in the hangar at NAS MOFFETT where captive flights with the *Pogo* were made two years ago.

Modernization for CVA-19

At San Francisco Naval Shipyard

The Navy's first carrier to be equipped with a steam catapult, the USS *Hancock*, is scheduled for extensive modernization at the San Francisco Naval Shipyard, Hunter's Point. Commanded by Capt. J. D. Black, it was berthed at Alameda before getting underway for the shipyard.

The carrier will receive, among other innovations, an enclosed hurricane bow, an angled deck and the mirror landing system. It will also receive normal repairs and overhaul.

The ship is expected to be "ready for sea" by the latter part of 1956.

DEMONSTRATING *the unity of the Pacific Commands, this close formation of Navy carrier-based Cougar Jets (VF-191) and Air Force Sabre Jets fly over the Philippine Republic.*

BuAer Designs New Helmet

Gives Pilots Maximum Protection

After more than two years of planning and testing, BUAER announces the development of a new protective helmet, the APH-5. It is so designed as to insure comfort and close fit at the same time it provides the protection and functionability required for high speed flight.

Scientific progress now permits the incorporation into the laminated fiber-glass helmet shell of a rigid plastic foam material which yields at a given force. In crushing, it dissipates the force and protects the head. It offers far greater protection than the old suspension-type helmet.

It is cooler and more comfortable than its predecessors. Foam liners come with each headpiece, so that there will be little or no difficulty in fitting the pilot. Each helmet is equipped with a retractable eyeshield assembly which will accommodate either a clear or neutral gray filter lens. This was designed for maximum vision and wind-blast protection.

The helmet's earcup assembly reduces noise to a minimum. The chin strap and oxygen mask mounting tabs have been designed to retain the helmet and mask during emergency escapes at high speeds.

VX-3 at NAS ATLANTIC CITY, the Aero Medical Branch of Service Test

HELMET GIVES MORE COMFORT, PROTECTION

Division at NATC PATUXENT, Air Crew Equipment Laboratory, Naval Air Material Center, Philadelphia, and AirLant and AirPac Fleet units were among those who cooperated with the Airborne Equipment Division of BUAER in testing the gear.

The distribution of the helmets was begun in April, the first going to fleet squadrons as allocated by ComAirLant and ComAirPac. BUAER has announced that eventually they will become standard equipment in all fighter and attack squadrons.

TEMCO'S NEW *trainer, the Model 51, on the strip at Dallas, Texas, is awaiting take-off. Powered by a Continental YJ-69-T-9 turbo jet engine which supplies 920 pounds thrust at sea level, the trainer has an overall length of 30.6 ft., and a height of 10.82 ft. The wing area is 150 square feet; normal gross weight is 4137 pounds. Normal fuel load is 119 gallons.*

ARE OTHER FIELDS GREENER?

SOONER or later in the career of most servicemen, the freedom and the big money often associated with civilian life tempts them to quit the service. So if you are hanging on the fence about shipping over or taking a discharge with college or civilian employment in mind, this story will interest you.

Henry "C" Cole, AT1, returned to the States from a Far East tour with VP-48 last fall. With two years of liberal arts college to his credit, he was discharged in September and immediately enrolled as a college junior. With help from the GI Bill, his goal was a degree in electrical engineering.

Cole found some cold facts in the following weeks that sold him thoroughly on returning to the Navy. Civilian life was no soft-touch.

He discovered that in the field of engineering, he would have to start college all over again and spend four years working for his degree.

As a civilian, Cole learned a self-taught course in finance too. As a single student, he drew $110.00 per month under the GI Bill. Out of this he would have to pay a total of $72.00 per semester for student fees, books and services. Food, rent, clothing, entertainment, insurance and other necessities would have to come from the balance after school expenses.

His first joys of freedom somewhat dampened, Cole dropped out of college and searched for civilian employment. In the San Diego area, with its many aircraft factories, his top offer was $1.96 per hour as an electronics lab technician. The best he found with a private firm was $63.00 per week.

As a first class, Cole drew $195.00 monthly base pay which was considerably less than what was offered at the aircraft plant. However, this company could not match the Navy's so-called "hidden" benefits.

COLE SAYS, 'THE NAVY LIFE IS FOR ME'

In Cole's case, with a flying outfit, the opportunity for flight pay enlarged his Navy check by $80.00, and the risk involved was covered by a free $10,000 government insurance policy.

In civilian life this same policy would cost Cole about $15.00 monthly and a health insurance program to provide medical care comparable with the Navy's would run near $13.00. A retirement plan to equal the benefits offered by the Navy would cost $141.62 a month.

Now back with his old outfit, VP-48 NAS SAN DIEGO, Cole is a contented man. He will have enough years of service to retire when he is only 42. Through his own experience, he has discovered that the Navy life has its advantages. Its "hidden" benefits are no longer hidden from Henry.

Henry Cole's story is not a unique one. VP-11, at NAS BRUNSWICK, Maine, reports a 51% reenlistment rate. Navy reenlistments are on the upswing. Many more men are appreciating the benefits of a Naval career.

New Bomb Release Tested

To Be Used in High-Speed Aircraft

A Naval aircraft, employing a small, lightweight explosive bolt developed by Modern Metal Crafts Co. of Philadelphia for BUAER, has successfully released a bomb while flying at Mach 1.2, the fastest speed ever recorded for such a drop in level flight.

Tested at NATC PATUXENT, the device enables the bomb to take a routine trajectory, overcoming tendency to remain with the aircraft in supersonic releases.

During WW II, gravity was counted upon to bring the bomb away from the aircraft in a smooth and efficient manner. However, as aircraft speed increased, the released bombs, affected by the force of air moving at high speed, tended to turn tail up. High speed air has been known to lift the tail of the bomb so far and so rapidly that it collides with the plane.

To overcome this problem, a bomb-ejector was devised which operated like a pilot's ejection seat. Owing to the ever increasing speed of flight, this device has become heavy and cumbersome, weighing seven times as much as a WW II standard bomb rack.

BUAER is currently testing the explosive bolt which is cut in half when a self-contained powder charge is ignited. It offers excellent possibilities of ejecting as well as releasing bombs. The explosive bolt is simpler, lighter and easier to streamline than standard bomb racks.

COMPOSITE SQUADRON *62's new F9F-8P Cougar photo planes fly in echelon formation near their home base at NAS Jacksonville. The new planes are equipped with inflight refueling probes which extend their reconnaissance range. Cdr. M. P. McNair commands the squadron.*

Old Process: New Twist
Plastic Used in Stress Studies

Although photoelasticity is a relatively new process used to analyze the stress and strain that develops in machine parts or structural members, it was actually known as early as the turn of the century. In a photoelastic study of stress, a plastic model of the part to be analyzed is constructed, heated, subjected to a stress and then allowed to cool. Fosterite, developed in 1947, is proving the right plastic for this use.

The procedure freezes the stress in the material, and then the engineer may view the model through polarized lenses that reveal colored bands. Concentration of colored bands indicates the place of greatest stress.

Progress in the photoelastic method has been rapid since the development of Fosterite. This material can be cast in part replicas 10 to 20 times as large as any cast previously. Fosterite is about 35% more sensitive than the usual plastics and allows many more stress lines to be apparent in the model.

'Hams' in the Antarctica
Talk to Wives at Quonset Point

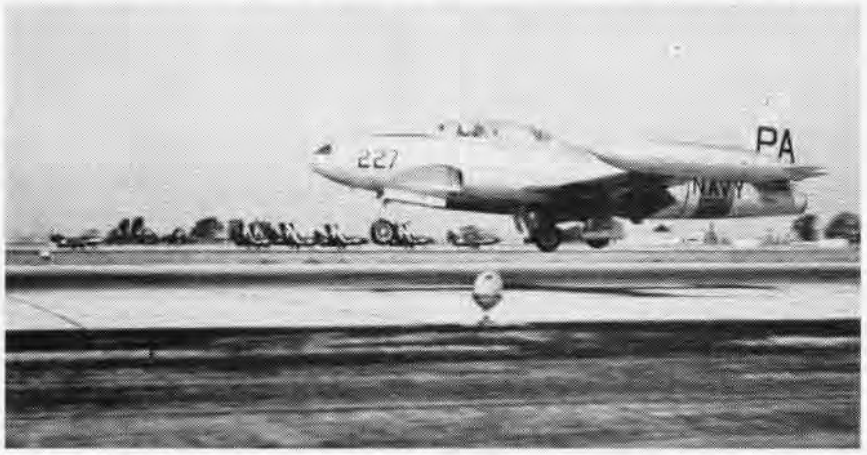
Five Navy men with Operation *Deepfreeze* in Antarctica had a chance to talk to their families at NAS QUONSET POINT. The "long distance" calls were made over the station's "ham" radio system during early morning hours, when reception is best.

Deepfreeze's ham station uses the call sign KC4USA. Lt. E. T. Pendleton, Quonset's communications officer and officer-in-charge of the Amateur Radio Club, said the club hopes to establish a schedule of three contacts a week for Rhode Island dependents of sailors on *Deepfreeze*.

The air station's first contact with Antarctica came on 9 April, when Mrs. Victor Young and Mrs. Caroline Hubbell, spoke to their husbands. Mrs. Mary Campbell, wife of Duane Campbell, a Seabee steelworker, talked to her husband on 13 April. Mrs. George Puriton and sons also talked to daddy.

Mrs. George Moss, wife of chief surveyor Moss who escaped injury in the December crash of an *Otter*, spoke to her husband on April 11 and was told the temperature was a —40° and daylight was only six hours long.

SAFETY IS GOAL OF FAWTUPAC



A FAWTUPAC *TV-2 jet trainer hits the final leg of a perfect three-point landing. This Lockheed jet is the primary instrument trainer for the Unit. It flies from NAS Moffett Field.*

PILOTS at FAWTUPac's Detachment Baker have racked up a year's intensive flying without a single accident. Although this achievement is not claimed as a record, it points up what a command can do from the standpoint of safety when "heads-up" flying is given top priority.

The detachment logged an impressive 14,047 accident-free hours. This was only accomplished by highly concentrated effort on the part of all hands.

The All-Weather Training Unit, whose mission is to train pilots of operational squadrons in the Moffett Field area in instrument flying, averages 25 flights a day in all types of weather. They fly the two-seated TV-2 jet trainer, the T-28B prop trainer and the SNB-5.

The officer-in-charge of the detachment, LCdr. E. N. C. Thompson, emphasizes flight safety to all pilots and particularly the emergency procedures. Simulated flame-out approaches are made frequently by all jet pilots, and an accurate record is kept of all the results to insure proper and safe handling of the aircraft under emergency conditions.

The maintenance department, headed by LCdr. R. O. Reich, has a crew of well indoctrinated and highly trained petty officers to keep aircraft in an 'up' status to meet each day's demands. The work during the day is supplemented by a check crew which works at night to prepare the aircraft for the following day's operation.

Reich declares that a large part of the credit goes to his maintenance men for their splendid record of safe maintenance practices in the task of keeping the aircraft flying.

Study Made on Randolph
For Aircraft Lighting and Marking

An extensive study of the exterior lighting and markings for naval aircraft is being conducted on board the USS *Randolph*. Sponsored by BUAER, the study is being carried out by Mr. D. Y. Cornog, a research psychologist for Courtney & Co. of Philadelphia, and coordinated by the Human Engineering Branch, Medical Science Division of AMEL.

Some naval aircraft have as many as eight colored lights and various markings in different locations on the wings, fuselage and tail assembly. These markings serve as safety precautions for pilots, aircrewmen and ground personnel. By eliminating some of the lights and markings, the Navy hopes to take some of the strain off busy flight personnel and still increase the safety factor.

In addition to carrying out an extensive survey of jet aircraft aboard the carrier, Cornog will interview about 150 flying and non-flying personnel.

Other units participating in the study are the USS *Valley Forge*, USS *Tarawa*, CVG-8, Naval Aviation Safety Center, Norfolk, VP's 44 and 56, as well as VS-22, VS-26, VS-27 and 36.

BLUEPRINTS BY THE MILLIONS

BEHIND EVERY sleek, jet-propelled aircraft that flies is a stupendous amount of research and paper work. The offices and files of Navy's Technical Records Division may appear dull and uninteresting, but in a very real sense, they are the heart of the matter. Without intricate and detailed data and plans in the jet age, Navy aircraft would not be streaking through the skies breaking records that years ago would have seemed unbelievable.

NEARLY ALL DRAWINGS ARE MICROFILMED

Formerly located at NADC JOHNSVILLE, Pa., the Technical Records Division was transferred in March 1956 to NASD PHILADELPHIA. The functions of Technical Records and the NASD Publication Division are now combined under the title, Aeronautical Publications, Drawings and Specifications Division.

The basic contribution of this organization to the Navy's air program is to serve as the central service facility for the specialized collection and reproduction control of Navy and industrial aeronautical drawings and specifications. The agency is also responsible for distribution of material on a world-wide basis, to government and commercial activities involved in maintenance, development and manufacture of naval aircraft.

The scope of this operation is wide. All drawings entering the Naval aviation supply system must be screened and inspected to make sure that they meet contractual requirements. The organization now controls more than 2,000,000 drawings, and some 250,000 more are received annually. As progress in aerodynamics increases, engineering problems also grow. A modern night interceptor requires 25,000

A SECTION OF THE FILE ROOM AT NADC

drawings, 20,000 more than a pre-WW II fighter.

Distribution of aircraft specifications and drawings has grown in proportion to the advanced technology of modern aircraft design. More than 500 requests a month are received from government and industrial organizations for drawings. This means that NASD reproduces and distributes more than 45,000 individual drawings per month. To the NASD Duplicating and Photographic Branch falls the gigantic task of this large-scale reproduction demand.

NASD plans to establish, under the direction of BUAER and BUSANDA, a pilot installation which will substitute microfilm entirely for vandykes and blueprints of engineering drawings. Instead of drawings, the microfilm, mounted on electric accounting machine cards, will be distributed to customers. Copies of drawings will be reproduced from the film as required. If this installation proves successful, the system will be implemented on a Navy-wide basis.

NASD PHILADELPHIA is an essential cog in Naval Aviation. It is a clearing house of technological information, past, present and future. It is a unique "library" which distributes the facts and figures to insure top performance in Naval aircraft.

Warning Comes in Time

Saves VP-48 Maintenance Man

Quick thinking of Gilberto Castaneda, AN of VP-48, NAS NORTH ISLAND, was credited with saving another member of his squadron, Billy B. Dean, AN, from certain death.

While Dean was working between the bomb bay doors of a P5M *Marlin*, which close in less than two seconds with 3,000-lb. force, another maintenance man inadvertently activated the door switch.

In presenting Castaneda with a letter of commendation, Cdr. J. F. Davis, CO of VP-48, said that Castaneda's warning to reverse switch came just in time. Dean escaped with minor bruises to his chest and back.

New Device to Test Rubber

Unit Capable of Use Up to 1000°

In their fight against heat, the most destructive enemy of rubber products, scientists of the Firestone Tire & Rubber Co. have developed a new weapon. It is an electrically powered machine that tests the strength and elasticity of various rubber materials at higher temperatures than have ever been measured before.

The machine is being used in the search for new synthetic rubber capable of performing satisfactorily at temperatures that presently burn or melt most rubber products. The new heat-resistant rubbers will be used for high-speed aircraft and missiles traveling at such ultrasonic speeds that the friction of the air against them generates tremendous heat.

Firestone's research men built the tester for the company's use in developing rubber for commercial high-speed tires and other products. However, its importance in the field of aeronautics is growing.

COCOONED F-86 *Sabre jets and T-33's line the flight deck of the USS Tripoli for overseas shipment. MSTS ships pick up readied planes at Brookley AFB in Alabama for trip.*

ARTIST'S CONCEPTION OF NEW CAPSULE

New Navy Cockpit Concept

Dual Purpose Cockpit is Feasible

The Navy has announced the development of a standard ejectable cockpit capsule. This model, a result of Douglas Aircraft Co. studies for the Office of Naval Research, was displayed publicly during the Aeromedical Association's meeting in Chicago in April.

It is envisioned that the capsule will be so constructed as to be interchangeable with other aircraft. When separated from the aircraft, it provides a recoverable escape device for pilot and electronic equipment which could be re-wed to another single or dual engined plane.

It will be produced in either one or two-place units, and will allow a variety of design combinations. Standardization of the cockpit will permit a large number of identical parts and thereby lower the basic cost of manufacture and repair. It will also reduce design time and cost for the cockpit area of various types of new aircraft.

The standard ejectable cockpit will provide all-weather and all-mission capability; improved presentation, which will increase pilot efficiency; basic design for advanced aircraft; pilot escape; briefing and operational flight trainer; water-survival-enclosed flotation and all-weather protection after landing.

Mobile Control Tower

Aids Pilots at NAS Cherry Point

At NAS CHERRY POINT, good use is made of a mobile control tower. It is designed to prevent "wheels-up" landings and to aid pilots in avoiding dangerous situations during the landing phase of the field flight operations.

The mobile control tower unit is mounted on the bed of a truck, and is powered by an auxiliary power unit. An officer and enlisted rates man the tower which is located near the approach end of the runway. Field glasses, LSO paddles, radios, Aldis lamp and flares are standard equipment.

During night operations, the green light is given only if the duty officer can positively check the aircraft's landing gear in the down position. This check is made by an approach light on carrier type craft and by visual means on other aircraft.

In addition to preventing landing accidents, the duty officer observes landing patterns and landings and records them in a log. The mobile tower also monitors familiarization landings and flame-out approaches for tactical squadrons.

The Cherry Point mobile control tower operators have been credited with saving countless lives and thousands of dollars worth of aircraft.

Acoustic PA Box Designed

Reduces Noise and Reverberation

Excessive reverberation of voices caused by "squawk boxes" and loudspeakers in large hangars is virtually eliminated by an acoustic PA box designed by LCdr. James V. Coleman, Electronics Officer, NAS SOUTH WEYMOUTH, Mass.

This simple $\frac{5}{8}$-inch plywood box with three speakers is so placed that the sound is projected down and out. It is equipped with a sound absorbent top and two baffles. Tests show that the PA system reduces reverberation from 1560 to 80 decibels.

The box is easily constructed. Its top is 3′ x 2′, bottom and two sides are 2′ x 2′, and the two remaining sides are 3′ x 2′, angled to fit. Glue and screw all joints. Connect the three 8″ dynamic speakers by straight parallel-phased wiring.

Design the two baffles so they will be the same height as the highest point of the magnets of the two side speakers. The inside of the top is covered with $\frac{3}{4}$-inch thick soft cotton and linen. Connect a $1\frac{1}{4}$″ x $\frac{1}{4}$″ web strap to each corner and secure the other ends to a ring over the center of the box.

The unit, weighing about 65 lbs., is suspended in an overhead position to project sound down and lengthwise of the hangar. Cost is about $50.

MEMBERS *of VC-62's Detachment 42 check camera gear before going aboard the Forrestal for a two-month shake-down cruise in the Caribbean. O-in-C is Lt. George D. Hudson.*

'TRODI' For Navy's Pogo

VTO Fighter Gets Radar Assist

A new electronic rate-of-climb/descent device is helping solve some of the problems for the pilots of the Navy's XFY-1 *Pogo*. The vertical take-off fighter, first of its kind in the world, was built by Convair and flight tested by engineering test pilot, LCol. J. F. "Skeet" Coleman, USMCR.

The new device is essentially a doppler radar operating at "x-band" which uses the ground below the aircraft as a reflecting surface.

Since there are only 10 wave lengths per foot at 10,000 megacycles in the doppler system, the radar will work at zero altitudes and the frequency of a signal is not altered by amplifier distortions.

POSITION OF ANTENNA SHOWN AT LEFT

The electronic unit weighs 23 pounds and the complete microwave unit tips the scales at eight pounds. A polystyrene-rod antenna protrudes from the rear end of the wing pod and points at the ground when the plane is vertical in flight.

The rate-of-climb system was extensively flight tested in a helicopter prior to use in the XFY-1.

LETTERS

SIRS:

The staff officers in this division were extremely interested in the article, "Soviet Polar Operations in the Arctic," in your March issue of the *Naval Aviation News* . . .

Would it be possible to obtain reprints of the article, or even ten extra copies of the March issue? We want to have this article read in every fighter interceptor and aircraft control and warning squadron in our Division. . . .

JAMES M. FRIDMANN
MAJOR, USAF

Headquarters
31st Air Defense Division
Snelling AF Station, Minn.

SIRS:

Naval Aviation News has become a prime work on my reference shelves. It is a fine publication of which you can well be proud. I wouldn't be without it. The answers to many questions that arise in my work are often to be found in its pages.

WALTER M. JEFFERIES, JR.
Technical Aviation Illustrator

★ VC-3 Rates Pat on the Back

★ The editors and staff of NANEWS wish to pass a "well done" to the officers and men of VC-3. The squadron has consistently forwarded usable stories and pictures in sizable quantity to NANEWS. Thanks, fellows! ★

LOVELY SHIRLEY *Sieb, YNSN, makes receiving mail all the more pleasant for the flag administrative unit of ComFAirJax. She frequently substitutes for the regular mailman.*

1956 Wave Reunion

All Waves, ex-Waves and Yeoman (F) are invited to this year's Reunion to be held at the Hotel Chase, St. Louis, Missouri, July 27-29. Theme of the 14th Birthday celebration is "Meet Me in St. Louis." For further information, write Wave Reunion Committee, Room 403, 911 Locust Street, St. Louis, Mo.

Pilot Wins British Award

Lt. Moore Given McKenna Trophy

A U.S. Navy pilot has become the recipient of the coveted McKenna Trophy at the British Empire's Test Pilot School. He's Lt. Robert E. Moore, who has joined BUAER's Fighter Design Section after a tour of exchange pilot duty with the British.

The McKenna Trophy is presented to the outstanding student in the Empire Test Pilot's School and is named in honor of Group Capt. McKenna, RAF, an early British test pilot.

Air Chief Marshall Sir John Baker, GBE, KCB, MC, DFC, ADC, Controller of Aircraft at the Ministry of Supply, made the presentation at a dinner held for the graduating class.

Class 14, of which Moore was a member, consisted of 38 students from Italy, France, Sweden, the Netherlands, the U.S., the British Commonwealth, the Royal Navy and the RAF.

In addition to being checked out in several U.S. Navy prop and jet-type aircraft, Moore has flown the British *Chipmunk, Provost, Devon, Pembroke, Varsity, Gannet, Vampire, Meteor, Hunter, Canberra* and the *Sea Hawk.*

Rotary wing checkouts included the *Sycamore,* HTE-2, *Sedbergh,* and *Olympia.* In the course of instruction, Moore also flew a glider, called the *Sky.*

IFR-IQ?

According to OPNAV Traffic Control Facilities Section, the answer is: "Level off at 200 feet. If he reaches the ½ mile point and is still on instruments, he is required to take a mandatory wave-off, and execute his missed approach procedure."

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● COVER

A deadly Sparrow I trails smoke after being fired from an F7U-3M. The aircraft flew through smoke trail to keep target in sight.

● SUBSCRIPTIONS

Naval Aviation News is now available on subscription for a $2 check or money order made payable to Superintendent of Documents, Government Printing Office, Washington 25, D. C.

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SQUADRON INSIGNIA

TWO MARINE and two Navy squadrons are featured in the insignia this month. Marine All Weather Fighter Squadron 513 leads the way with its night-flying owl, with symbols of all types of weather. FASRon-118 chose a Cobra, or Habu snake, shaped like a wrench, symbolizing the Far East location and the maintenance mission of the squadron, and crossed it with the Navy's fouled anchor. VA-86 also chose a vicious, attacking snake to represent its attack mission. The rocket-bearing tiger, on the lucky shamrock, decorates the flight suits of VMA-333's pilots and crew members.

VMF (N)-513

FASRon-118

VA-86

VMA-333

★ ★ ★

Air power is the sum of speed, altitude, fire-power, and skilled pilots. Some of the new Navy entries shown here are, top to bottom, A3D, F3H-2N, F4D, FJ-4, F11F, and A4D. The pilots of tomorrow need the best training possible. NavCads get it. You can get that training. Inquire at the nearest NAS or Recruiting Office.

★ ★ ★

NAVAL AVIATION

NEWS