

NAVAL AVIATION

NEWS

RESTRICTED



Reserve Breakout
Canadian Aviation
NavAer 00-75-R3

OCTOBER 1950
RESTRICTED





RESERVE FLEETS

PACIFIC FLEET ATLANTIC FLEET

CV

Ticonderoga
Hancock
Antietam
Princeton
Shangri La
Essex (conv.)
Yorktown
Intrepid
Hornet
Lexington
Bunker Hill
Bonne Homme Richard

Randolph
Lake Champlain
Tarawa
Franklin
Bennington
Enterprise
Wasp (conv.)

CVL

Belleau Wood
Cowpens
San Jacinto

Monterey
Langley

CVE

Commencement Bay
Cape Gloucester
Vella Gulf
Puget Sound
Rendova
Bairoko
Saidor
Point Cruz
Rabaul
Tinian
Fanshaw Bay
Sitkoh Bay
Slesmer Bay
Cape Esperance
Takanis Bay
Thetis Bay
Makassar Strait
Windham Bay
Lunga Point
Hollandia
Kwajalein
Bougainville
Matanikau
Munda
Bogue
Capehee
Cere
Massau
Alamaha
Breton

Block Island
Gilbert Islands
Kula Gulf
Salerno Bay
Siboney
Suwamee
Chenango
Santee
Anzio
Carragielar
Mission Bay
Goodenough
Manila Bay
Natoma Bay
Tripoli
White Plains
Kasaan Bay
Nehenta Bay
Haggott Bay
Kudashan Bay
Marcus Island
Sava Island
Petrol Bay
Rudyard Bay
Saginaw Bay
Sargent Bay
Shamrock Bay
Shipley Bay
Card
Barnes
Crotan
Prince William

ACTIVE FLEETS

PACIFIC FLEET ATLANTIC FLEET

CVB

Midway
F. D. Roosevelt
Coral Sea

CV

Philippine Sea
Boxer
Valley Forge

Leyte
Kearsarge (conv.)
Oriskany (const.)

CVL

Bataan

Cabot
Wright
Saipan

CVE

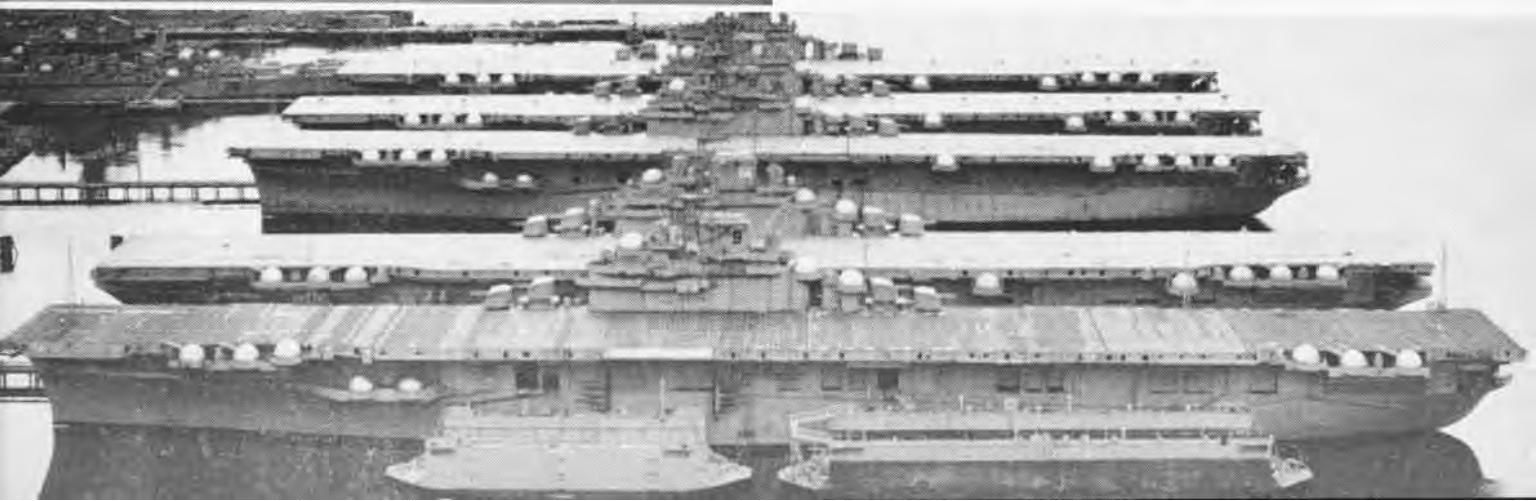
Badoeng Strait
Sicily

Mindoro
Palau



Where Are The Carriers?

IN PEACETIME, national defense takes secondary importance to economy. As a result, when the Korean war broke out, the United States Navy had three CV's operating in the Pacific where once 100 carriers fought. Compare the list of active carriers with the Reserve flat-tops laid up because budgets would not permit their operation. It takes time to reactivate ships but eventually some Reserve carriers will sail the oceans and fight again. (This compilation of Fleets as of 1 January 1950.)





CARRIERS, PLANES, GUNS!

ON THE last Sunday in June, the invasion of southern Korea instantly challenged the United Nations to action. The United States, as a member nation, committed its forces to repel the invasion.

While a general mobilization was not demanded, it was clear our forces in being were not enough. Of 17 active carriers, only one was in the west Pacific.

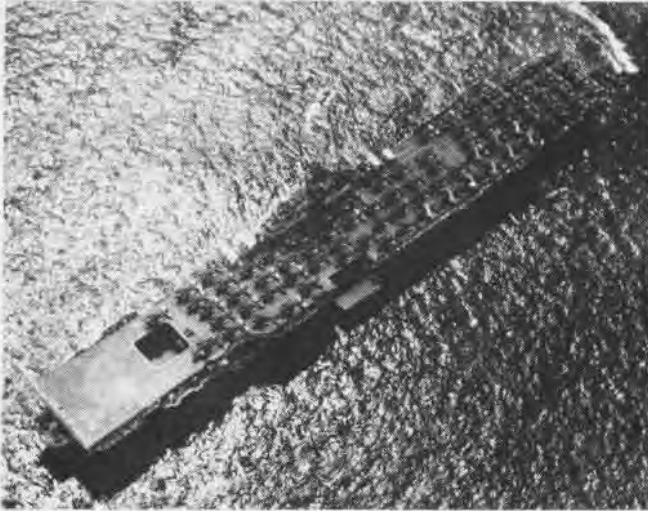
Fortunately we did have 86 carriers in the two reserve fleets, located at Bremerton, Tacoma, Boston, Philadelphia and other great ports on both coasts. Steady budget cuts had made it inevitable that the greater part of our naval power must be in the reserve fleets. We had approximately five times as many carriers in the "mothball" fleet as we had on active duty. Our carriers were giants awaiting a challenge.

In the old days, the Navy had stored its ships by almost completely dismantling them, but the end of World War II brought about a process called "mothballing," which put "ships on a leash."

Just as the carriers were protected in a state of readiness, so were the airplanes of the fleet. Exiled from the skies, thousands of aircraft were stored in such centers as Philadelphia, Norfolk, Cherry Point, Pensacola, San Diego and Alameda. Hundreds were sent to Litchfield Park, Arizona, for outdoor storage.

Ammunition depots all over the country were established to arm aircraft carriers and airplanes.

The billions saved by storing carriers, aircraft and ammunition were negotiable assets. We knew at once that we could write the check, and it wouldn't bounce.



ESSEX, PROUD CARRIER OF WORLD WAR II, IS SLATED FOR ACTION

Activated Ships Meet Present Commitments

THE GREAT test of the long range storage program was at hand. In July, additional fighting ships were ordered to active duty to meet our commitments in the Far East, and several of them were aircraft carriers.

Slated for active service were such great carriers as the *Essex* and the *Wasp*. The *Leyte's* conversion has been postponed so that she can reinforce our carrier strength. Certain CVL's and CVE's were ordered to supplement those already on active duty. Several cruisers, destroyers and submarines were also ordered de-mothballed.

Had the old process of dismantling decommissioned craft prevailed, the task of activating and arming our ships and aircraft would have been costly and time-consuming. The new process brought up reinforcements efficiently.

When the carriers were put in storage, all exposed surfaces were protected, and corrodible parts below deck were sprayed with plastic paint. Topside strippable hoods covered special gear and gun mounts.

As the de-mothballing process went into high gear, the Navy was confident, on the basis of experience in storing and reactivating the *Cabot*, CVL-28, that the carriers would be as ready for combat as the day they were launched.

This was the first carrier to be subjected to the modern



HERE ACTIVATION TEAM CLEANS UP AND PAINTS C.P.O. MESS ROOM



CVE CAPE ESPERANCE IS BROUGHT INTO DRYDOCK FOR REACTIVATION

method of inactivation. In battle array, the *Cabot* was given the full mothball treatment. And so were hundreds of other veteran ships of World War II from Boston to Bremerton.

In 1948, the Navy wanted to know what happened to carriers under these conditions? Was the preservation effective? Had it protected carriers against the ravaging elements? A good way to find out was to take one out of its zippered state. The *Cabot*, by then two years under wraps at Philadelphia, was selected to be the guinea pig.

So the Navy ripped off the wrappers and found out. It learned what to expect when carriers emerge from the mothball fleet. Packaged as fighting ships, they came out the same way. The *Cabot* settled the question.

Old salts who had activated secured ships in the days when dismantling, rather than mothballing, was the method, were delighted to find no livestock aboard the *Cabot*. No rats, no cockroaches, no standing aside for the exodus! It had been empty when sealed, and so it remained. Even a rat needs air, and one couldn't live in the sealed dried air of the *Cabot*.

In many ways, mothballing the *Cabot* in Philadelphia had been a challenge. The high humidity, corrosive air and frequent foul weather could do tremendous damage to the metal, engines, guns and delicate mechanisms of the ship. If the preservation were efficient under these conditions, it would prove that it was a method to be depended on.

A mothballed carrier is checked at regular intervals.



CREW RIPS OFF PRESERVATIVE COVER FROM CARRIER'S FLIGHT DECK



EM3/C'S ROWE, HOWELL AND SALDIVER INSPECT ELECTRICAL OUTLET

During the two years the *Cabot* was in storage, a six-man crew had gone the rounds weekly making an inspection on the basis of a 36-page check list. The crew checked the enclosures of each piece of equipment, the composition coating on the flight deck, the thin brown compound covering all bare metal. Three dehumidifying (D/h) machines kept air at a 30% humidity in three sealed zones of the ship.

ACTIVATION of such a ship as a carrier is no weekend task. It's fast, but not that fast. When one considers that it takes two to three years to build a carrier, a few weeks to put a stored one in commission is speed.

The size of the job of activation is apparent when one realizes that the instructions on the things to be done on the *Cabot* filled seven books. The engineering book alone was 1,000 pages and six inches thick.

The scene on the *Cabot* two years ago is being re-enacted again and again today. Off come the lids, the plastic coatings, the sealing compounds! Sealed places are aired, and gear stowed in them for maximum protection is cleaned and reassembled. Boats are filled with water to swell dry seams. Engines—hundreds of them—are checked and put into operating condition. The thousands of things to be done take time, but not nearly as much time as building a carrier.

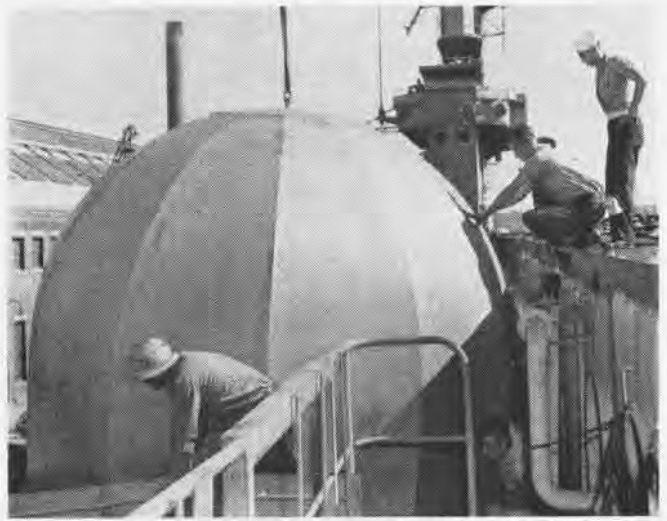
The metal igloos are taken off the gun mounts. When the *Cabot* was first mothballed, the gun mounts had plastic covers. Silica gel kept the interiors of the sealed hood dry, but the gel had to be removed occasionally for drying out. This meant breaking the shroud and resealing it. There was a better way to do it. Metal igloos sealed at the base were the answer.

By piping D/h into the igloos, a continuous flow of freshly dried air protected the guns. If any repair work were needed, it was easy enough to take off the metal cover. Activating teams are finding that guns protected in this way are in good condition.

In the D/h areas of the *Cabot*, not a speck of dust could be found, and other packaged carriers are likewise clean. Any inspector finds this cleanliness as dazzling as an admiral's white uniform, except that it's not quite believable. Of course, the hangar deck, where D/h is impractical is bound to have a dust cover, but this is no major problem.

While the dry air of the D/h system shrivels the gaskets in the fire main, a short period of soaking swells the parts and re-tightens them.

On any carrier preserved as the *Cabot* was—and it became a standard procedure—the ordnance men will find the guns in good condition, the engineers will find the engines ready, and the crew will find it is again aboard a fighting ship.



PREPARATIONS ARE UNDER WAY TO HOIST METAL COVER FROM AA GUN



REACTIVATION CREW GUIDES PRESERVATIVE COVER AS IT IS HOISTED



CREW FINDS GUN IN GOOD CONDITION AFTER THREE YEARS IN STORAGE

Airplanes In Storage Provide Ready Reserve

NO SOONER had we become involved in Korea than aircraft manufacturers began to plan to triple production. The speed-up was immediate, but it will be months before delivery.

Manufacturers calculate that if a rate of 50,000 planes a year is set, it will take ten months longer to reach that point than it did in World War II when it took two years. The reason is that planes are more complicated than they ever were, and it takes longer to build them. Not only are they more complicated but far more expensive.

Again foresight pays off. The Navy will simply take thousands of planes out of storage. These will not be obsolete crates, but up-to-the-minute combat and patrol aircraft, for the Navy has kept its "on hand" aircraft modernized.

The entire storage program was a dynamic one. Airplanes were activated at intervals and sent to the fleet in exchange for aircraft which were brought back for overhaul to keep them up to current standards. Once this was done, they were canned in turn. By rotating the planes in storage, the Bureau of Aeronautics kept them up-to-date.

In 1945, large scale, long term storage of aircraft was something absolutely new in aviation. For the first time, the Navy had more aircraft than it could continue to operate.

This meant a storage program extending far beyond the usual maintenance problems. The many different materials and metals in an airplane complicated the problem. The spectacular developments in aircraft design had not eliminated the ever-present problem of corrosion and deterioration. It was a problem when the aircraft was in commission; it increased when the aircraft was stored.

What would be the best method? Could we use gigantic bags? Spray on a plastic cover? Put the aircraft in a metal container? Park it in a favorable climate? Store the airplane as a whole or disassemble it?

THE LAST question was answered first. Studying every possible method of storage, the Bureau of Aeronautics came to the conclusion that the best plan was to preserve the plane intact. When laboratory reports based on tests over the complete range of humidity showed that 30% or less relative humidity protected metals against corrosion, it was clear that dehumidification was a must.

Right at the start, in December 1945, a TBM was wrapped in 65-pound Kraft paper and sprayed with 1/16" thickness of Protek-Coat, an asphalt base material. But this method was only a forerunner of the "cocoon."

The "cocoon" was a sprayed polyvinyl plastic strippable coat. At first, it seemed highly practical because it was easy to spray on and easier yet to take off. Two men could strip a fighter in jig time—seven minutes. Furthermore, it didn't cost much, it could be put on any configuration, and it had a low moisture vapor transmission rate.

Low or not, it was moisture that set up the destructive forces of corrosion. Even the use of dessicants did not reduce the moisture to the required 30%. "Cocoons" were out.

What became the chief method of tight storage was something that looked like a garage—a rigid metal container. Furnished in 10-foot sections of corrugated steel panels, the containers could be used in varying lengths as required by the size of the aircraft or the number of aircraft to be stored in the container.

As a result of experiment, two cans became standard: one 19' wide, 140' long and 17½' high; the other 25' wide, 130' long and 17½' high. Of course, any desired length



AT NORFOLK, F8F GRUMMAN BEARCAT IS PULLED OUT OF ITS CONTAINER



PLANE IS HOISTED OFF TRACK PREPARATORY TO MINOR ASSEMBLY WORK



WHEELS INSTALLED: PLANE IS READY FOUR HOURS FROM REMOVAL TIME



BOMBS FOR FRAY ARE STACKED ON FLIGHT DECK

'COCOON' METHOD FAILED AND WAS DISCARDED

MAINTENANCE CREWS WORK ON NAVY CORSAIRS

could be quickly assembled by simply adding on sections.

Canning airplanes really worked. Vapor tight access doors permitted entry, but that wasn't often necessary, for windows strategically located allowed exterior reading of temperature and relative humidity. The recordings were vital—and voluminous. On one 400-foot container during a 30-day period, 44,000 recordings were charted.

At various centers throughout the country, the storage program was put into effect. To ready an airplane for canning, it was overhauled so that it would be ready to fly when taken out. The last engine run was made on a preservative mix which was left in the engine. The tires were taken off.

In the case of trainers, the wings were taken off also and stored separately, but on the whole, aircraft were put into storage intact.

At Litchfield Park, Arizona, Navy's great outdoor storage facility, there are hundreds of Navy planes of all types. Six hundred men are working in Arizona's heat to prepare 500 of these planes for duty with reactivated carriers.

The surfaces of these aircraft were given a protective coat which can be quickly stripped. Canopies, windows, turrets and tires were covered. A steady round of maintenance has made sure that these eagles of the fleet will fly again.

WITHIN a few hours after President Truman ordered U. S. forces to meet the Communist threat in Korea, ships were standing alongside the docks of U. S. naval coastal ammunition depots and overseas bases to take aboard the bombs, rockets, projectiles and cartridges needed by ships and planes of the Fleet.

The fighting ships now being activated will be fully armed, for the Bureau of Ordnance has naval ammunition ready from its reserve stock worth approximately \$2,500,000,000

in serviceable condition. All this spells fighting power.

Since ammunition is a perishable commodity, and many factors cause the rate of deterioration to vary, BUORD quickly developed at the end of World War II systems of preservation to meet all requirements. Modern testing techniques made it possible for BUORD to determine the state of readiness of hundreds of thousands of tons of ammunition with an annual expenditure of well under one-tenth of one per cent of the material in reserve.

Reconditioning of ammunition has gone on continuously at all naval ammunition depots, located all over the country. Nearly 500,000 tons of ammunition have been reconditioned annually at a cost of approximately three per cent of its replacement value.

Obsolescent ammunition is being rapidly replaced with newer types to keep pace with modern weapons developed since World War II. This program will assure the fleet of the constant supply of ammunition it needs in order to meet the crisis in the Far East.

IN THE YEARS since VJ Day, the Navy has sought always to hold its power in a state of readiness which would enable it to increase its forces on demand. It was clear in 1945 that the great armadas of sea and air could not be kept in full commission, and it was equally certain that we could not risk any method of decommissioning which would rob us of the power to get into action quickly.

Every measure that was taken to ensure the effectiveness of naval air power held in reserve is netting us returns today. The careful preservation of our aircraft carriers, the efficient storage of all types of naval aircraft, and the thorough maintenance of huge reserves of ammunition were measures taken against a day of need. That day has come in Korea.



MEN REMOVE LIQUID ENVELOPE FROM PLANE WING AT LITCHFIELD PARK



PLANES ARE WASHED BY SOLVENT MIXED WITH WATER UNDER PRESSURE

GRAMPAW PETTIBONE

Night Ditching

The following statement is quoted from a pilot's account of a ditching on a dark, moonless, night in an F4U-5N:

"At approximately 0310 I received a 'Charlie' and broke off from the AD and started my pass for landing. On the upwind end of the pattern at about 140 knots, I completed my check off list for landing with the exception of full low pitch and opening the canopy. When abeam of the ship proceeding downwind at an altitude of 150 to 175 feet and a speed of 100 knots, I called Primary Fly giving wheels down, flaps down and hook down check and at the same time advanced the propeller to full low pitch. The propeller went into full low but immediately thereafter, there was a crunching sound accompanied by a terrific twist or jerk and the engine stopped.

"My first impression was that I had hit the mast of a ship. I immediately flipped the wheel lever to the 'up' position and held the attitude of the aircraft as it was until I hit the water. The aircraft hit in a flat attitude and I consider the landing to have been very smooth and easy. I immediately opened the canopy after experiencing some difficulty releasing the emergency canopy lever. I got out of the plane and before I could swim to the end of the wing, the plane nosed down and sank.

"I inflated my life jacker and attracted the attention of the USS *Bailey*, the rescue ship, by using the distress whistle attached to my Mae West and was picked up at about 0335. Prior to using the distress whistle, I attempted to use the night distress signal flare attached to my life jacket. After reading the instructions by the aid of the one cell flashlight also attached, I pulled the 'D' ring on the flare and held it over my head. When it ignited there was a flash of red light which temporarily frightened me to the extent that I dropped the flare in the water. Investigation disclosed that my life jacket did not contain a second flare."



Grampaw Pettibone says—

Congratulations! Your ditching technique under adverse conditions was excellent.

Now a word about that night distress signal flare—the time to learn how your safety equipment works is before you need it, not while you're bobbing around in the water hoping that someone will find you.



I imagine that there are a lot of pilots who have never actually fired one of these flares. If a squadron doesn't have enough spares for every pilot to practice firing one, then the aviator's equipment officer should get all the pilots together for a demonstration of how the flare works and what it looks like when it ignites.

Not long ago I read a report of a night accident in an AD-1Q in which the pilot and crewman were extremely lucky to get out after shearing a wing off on the carrier ramp and hitting the water inverted. The pilot was 30 or 40 feet under the water before he managed to extricate himself from the broken cockpit. When he got to the surface, he heard the crewman shouting his name and swam over to find that this fellow's life jacket wouldn't inflate.

In this case the pilot was able to support the crewman who blew his whistle continually until they were spotted by a boat from the plane guard destroyer. It was later determined that the crewman's life jacket failed to inflate because the cap was missing on one CO₂ cylinder release and too loose to function on the other.

Think how carefully you would inspect each piece of equipment if you knew in advance that you were going to have to use it. You never know when you may need your safety equipment, so inspect it and learn how it works beforehand.

Fatal Error

After failure of both engines while on an overwater flight, the PPC of a PV-2 told the two crew members to prepare for ditching. During the descent, the plane captain sat with his back to the closed radio compartment door. The other crewman, a Chief Ordnanceman, sat near the cabin exit and

held onto the life raft.

Neither man thought to provide for a quick escape after the ditching by wedging the cabin door open or by removing the astro-dome. A good water landing was made in the Gulf of Mexico, and no one was injured on impact.

The two pilots escaped through the cockpit hatch and right window. Meanwhile the two crewmen struggled unsuccessfully to open the cabin door. When the water was waist-high, the plane captain started forward to open the door to the flooded pilots compartment.

The Chief sat down on the floor under water, got his back against the radar station and kicked the cabin door until he could see a little light through the crack. He then came up for air and reversed his position. With his back against the door and his feet on the radar station, he managed to force himself out.

The plane captain went down with the PV-2.



Grampaw Pettibone says:

I wonder how long it had been since this crew held a ditching drill . . . or if these men had ever been instructed in the correct procedures. Certainly they forgot two very important items.

If you are a Patrol Plane Commander, make sure that everyone in your crew knows exactly what he is supposed to do in an emergency. Insist on the wearing of life jackets on overwater flights. Check your survival equipment frequently. You may fly for years without ever needing this stuff, but when you do need it, you'll need it bad—and you'll be too busy to give detailed instructions during the emergency.

Smoky Ride

The pilot of an F2H-1 had been airborne on an instrument practice flight for about an hour and was cruising at 31,000 feet. He was under the hood and had a chase pilot following when suddenly the cockpit filled with thick blue smoke.

The pilot immediately went contact and pulled his emergency oxygen bailout bottle to prevent suffocation. His instruments showed that his port engine had flamed out and his starboard engine had dropped to 70% power.

He cut all switches to the port engine and noticed that the smoke was pouring out of the throttle quadrant.

He then called the chase pilot and told him that he had a fire in the cockpit and asked the direction to Lake City, thinking that he might make an emergency landing there.

At this time the aileron boosts went out, so the pilot cut off all electrical circuits including the radio. He added throttle to the starboard engine but was unable to get an increase in power over 70%.

At this time he decided to shut down the starboard engine and cut all switches except the engine masters. He held an airspeed of 200 knots which gave him a relatively slow rate of descent.


After a few minutes the smoke began to clear up and at about 20,000 feet, the pilot turned the battery switch to "EMERGENCY" and started the starboard engine. After ascertaining that the starboard engine was functioning properly, he started the port engine. With both engines operating at about 70% power, he turned on the generators and the warning light showed that the port generator was not functioning. The gas gauges and wheel and flap indicators were fluctuating. By this time, the pilot was over NAS JACKSONVILLE and had reported a deferred emergency. After slowing down to 150 knots, he made repeated unsuccessful efforts to lower flaps. The wheels also would not operate normally, but were lowered by the emergency system.

The pilot requested permission to land on runway 9 which afforded him a better approach than runway 13 which was in use. The tower operator granted this request and noted that the wind was from the SE, 5 knots.

The approach was made at an airspeed of 125 to 130 knots. Both engines were cut just before reaching the runway and the F2H-1 touched down very close to the approach end.

At this point the pilot made the mistake of thinking that his troubles were over. When the jet crossed the hump at the intersection of runway 9 and runway 1, it bounced back into the air. The pilot pushed forward on the stick, reloaded the plane, and applied brakes, but the jet ran out of runway and the wheels were sheared off when a ditch was encountered about fifty yards off the end of the runway.

During the approach the wind had shifted so the landing was slightly down-wind.

 **Grampaw Pettibone says:**

This boy was really cooking with gas right up to the time he touched down on the runway. He handled the in-

flight emergency like a veteran, kept his head, and brought his plane safely back over the field. The tower operator contributed to the accident by not warning the pilot of the wind shift and suggesting that he try runway 23 or 27. The pilot admits that he thought he was "in" when he touched down and that he didn't have his brake pedals adjusted so that he could apply maximum pressure.

The Flight Surgeon tells me that he is right proud of this fellow for getting on 100% oxygen when the cockpit filled with smoke, but says that it would have been better for him to have simply closed the diluter valve on the main system rather than use the bailout bottle. Although the bailout bottle supplies pure oxygen under pressure, it only lasts about 10 minutes. If the fire had increased to the point where ejection or bailout was necessary and the pilot was still above 30,000 feet, he might have needed the emergency bottle in his descent.

It was determined after the accident that this plane had suffered an electrical fire in the same general area some months earlier while in the custody of another squadron. This occurred when an attempt was made to start the plane with an APU with reverse polarity.

Although the plane functioned satisfactorily after the repairs necessitated by the earlier fire, it is believed that some of the wiring insulation was weakened and that this contributed to the short circuits which caused the second electrical fire.



Perfect Balance!

The pilot of the plane pictured above was on his first flight in an F2H-2. Sometime during the flight his port tire went flat. When he came in for his initial landing, he noticed a strong steady pull to the left. The pilot applied opposite brake, but was unable to maintain enough pressure to stay on the runway. The *Bearcat*, however, had lost most of its forward speed by the time it turned off the runway and ran down a slight incline.

When the main gear hit a small ditch the plane nosed up and balanced on the prop which had almost stopped rotating.

FASRON-110 turned in a careful and expeditious salvage job and had the plane back in service the next day.

Toot Your Own Horn

Who is the Navy's safest pilot?

During the war years when we had over 50,000 pilots on active duty, it was necessary to suspend the recording of individual flight time. Under the new flight time reporting system, we will soon have information which will enable us to see who has piled up the greatest number of accident free hours.

In the meantime I'd like to hear from pilots who feel that they may be a candidate for the title of "U. S. NAVY'S SAFEST PILOT".

Do we have anyone, for example, who has flown over 6000 hours without a pilot error accident? Is there a pilot who has made over 500 carrier landings without a barrier crash?

If you have accomplished either of these feats, break out your fountain pen and write me a short note. Be sure to include some information about the different types of flying that you have been engaged in, and don't fudge on minor accidents.

We have 41,000 individual accidents recorded by name and date of occurrence. Of course, we may not have a card on that wing-tip you scraped 14 years ago, but some squadron mate may have a memory like an elephant—so be honest with me!

Which Way Is Up?

Who didn't get a copy of *Vertigo Sense*? Routine distribution of this safety pamphlet was made recently, but experience shows that some pilots get left out. This pamphlet is fun to read and contains some advice that may save your life.

If you would like a free copy just fill in the coupon below and stick it in an envelope or on a penny post card and I will see that you get one by return mail.

Grampaw Pettibone
Naval Aviation News, Op. 501D
Room 4D356, Pentagon Bldg.
Washington 25, D. C.

Dear Grampaw:

I want to live to be as old as you are.

Please send me a copy of "VERTIGO SENSE".

Name _____ Rank _____ Corps _____

Address _____

P. S.

Just to show you that I'm a right guy, I won't even stick my nose into instrument weather when on a VFR plan. I'll turn around or file IFR.

NAVY ROCKETS HIT REDS



AN EVEN DOZEN 5" HVAR'S STREAK TOWARD TARGET: NOTE DISPERSAL OF ROUNDS ON THE WAY

FOUR POTENT Navy-developed aircraft rockets are being used by Navy and Air Force planes to pulverize ground targets in the Korean war, including a new 6.5" anti-tank rocket.

This new rocket was designed and produced by the Navy in six weeks to smash North Korean tanks and is the first aircraft rocket to contain a hollow or shaped charge in the warhead. Shaped charges, which were used in both World Wars and date back to 1880, enable a rocket or bazooka charge to penetrate an armored tank like a hot needle through butter.

Other Navy rockets being used in the close air support work of *Corsairs*, *Panthers* and *Skyraiders* are the huge 11.75" *Tiny Tim*, the conventional 5" HVAR rocket and the 3.5" aircraft

rocket (see photo, top pg. 9). The only other Navy aircraft rocket, the newly-developed 2.75" *Mighty Mouse* has not seen action in the war zone, because it is primarily an air-to-air missile and BUAER is developing launchers for its use.

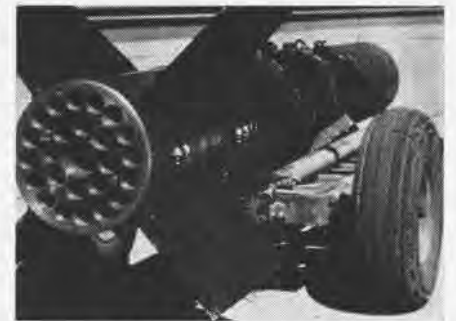
The new ATAR (anti-tank aircraft rocket) was produced as a crash project to meet the need for a tank-penetrating missile in Korea. Using the principle discovered in the 1880's by Prof. Charles E. Munroe while working at the Naval Torpedo Station at Newport, R. I., it is the first aircraft rocket to use shaped charges.

Essentially, it is a 6½" head filled with a shaped charge as illustrated at the bottom of the facing page. Powering it is the same 5" rocket motor used

on the HVAR *Holy Moses* projectile. It has far greater penetration power than the 3½" bazooka rocket which can penetrate 11" of armor plate.

First report on results from use of the *Ram* came from a Marine flying an F4U, although Navy, Air Force and Marines are all using it. The pilot knocked out the first enemy tank he hit, the missile boring into the tank and igniting the gasoline and oil inside. Unlike an explosive charge, the shaped charge squirts a stream of hot gasses and molten steel through steel plate. After it reaches the inside of a tank, it ignites inflammable materials, burns out the oxygen and scatters red-hot metal around the interior.

The Navy got urgent demands for a rocket which would stop the North Korean tanks, off which ordinary projectiles bounced. Chronology of its development reads like this:



TINY TIM ROCKET BLAST SHOOTS OUT 25 PORTS

6 July—CNO ordered BUORD to develop a 6.5" rocket for use against tanks.

7 July—BuOrd ordered NOTS INYOKERN to make a test of such a rocket.

14 July—NOTS INYOKERN informed BUORD it had completed the job.

18 July—Inyokern was directed to make more rockets for immediate shipment to Korea.

29 July—First shipment was dispatched to the war zone by air.

16 August—The Air Force used the new rocket for the first time in combat. The first ones were hand-made but the rocket since has been placed in production.

WHEN Navy *Corsairs* loaded with *Tiny Tim* 11.75" aircraft rockets plastered North Korean ammunition trains and bridges on 14 August, some authorities credited it with being the first combat use of the huge rocket.

The carrier-based planes destroyed 13 locomotives, damaged 23, blew up eight ammunition cars, set afire two fuel oil trains, and strafed seven cars loaded with troops. The rockets destroyed the highly-important Han river bridge. This was the first published account of the use of *Tims* against the Reds.



CORSAIR FIGHTER CARRIES TWO TINY TIMS, 5" ROCKETS, MANY ROUNDS OF 20 MM CARTRIDGES



OFF KOREAN COAST, ORDNANCEMEN LOAD 3.5" SMOKE-HEADED ROCKETS



NEW NAVY 6.5" RAM HAS SHAPED CHARGE IN NOSE TO KILL OFF TANKS

Contrary to some accounts, however, it was not the *Tiny Tim's* bow in combat. Aviation records show the Navy used the big rocket on numerous raids in 1945 during World War II after having developed it at NOTS INYOKERN.

First record of firing of *Tims* against the Japs was on 19 March 1945. VBF-10 flying off the carrier *Intrepid* used them against Okinawa and western Japan targets. The same squadron fired them on raids on March 24, 26, 27, 29 and 30 and on March 31, VT-10 took its turn using them against the Japs.

On April 1, the same fighter-bomber outfit flew ground support missions against the Japs on Okinawa. Next was aboard the *Lexington* when fighters worked over Marcus Island harbor installations with *Tiny Tims*. The *Wasp* sent VBF-85 against Wake Island on 18 July and against eastern Japanese airfields on August 13, carrying the 11.75" rockets.

Final use of the rockets in the war came on August 13-14 when PBJ-(B-25) Marine bombers from VMB-612 raided merchant vessels off western Japan using *Tims* as weapons. The next day the Japs surrendered. A squadron of *Corsairs* equipped with *Tiny Tims* was sent to England to hit V-2 rocket launching bases but no record could be found of their seeing action.

The *Tiny Tim* rocket is far larger than any other used by the U. S. forces. Its 11.75" diameter compares to the next in size, the 5" HVAR. It weighs 1173 pounds and is 114" long. Packed with 152 pounds of TNT in its warhead, the rocket's business end is essentially a 500-pound bomb with a rocket motor and fins attached to it for driving power.

Although shaped charges were used by the Germans and Japs, as well as the Allies during the last war, against pillboxes, tanks, fortifications and armor plate, many do not understand the principle on which they work. The "Mun-

roe Effect" was discovered by the George Washington University professor while he was experimenting with guncotton. He put dynamite sticks around a tin can, creating a cavity in the middle of a charge, and found this assembly would blow a hole in a heavy steel safe with less dynamite than was required if the explosive were placed flat against the safe.

The cavity in the nose of today's shaped charge is figured out scientifically so that it is not too shallow nor too steep. The inside is lined with a steel jacket which gives the explosive something to throw forward upon ignition.

The fuse is at the rear of the powder charge and burning progresses forward after ignition. As the explosive burning progresses it creates force, which moves outward at right angles to the surfaces of the charge. In the hollow portion of the shaped charge, this force coming from the sides of the cavity is concentrated into a jet of superheated gasses. It melts the steel liner and projects this straight forward, along with the gas, at terrific speed. If it should be shot upward at night, it would look like a searchlight beam.

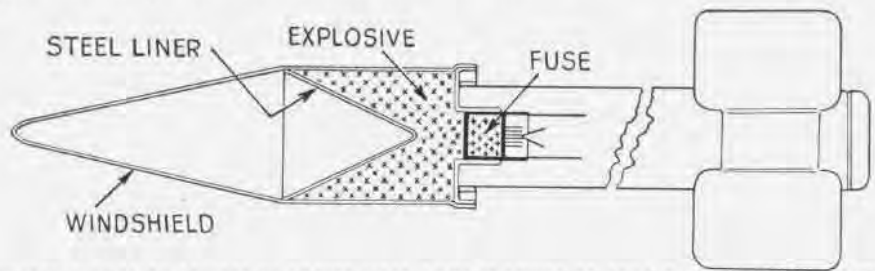
Linings were developed to go with the shaped charge to give the explosion something to project ahead, fragments leading the way for larger pellets of melted steel. To get the most good out of this white-hot arrow of steel and gas, the shape of the hollowed-out

charge and its distance from the side of the tank or fortification is carefully figured out.

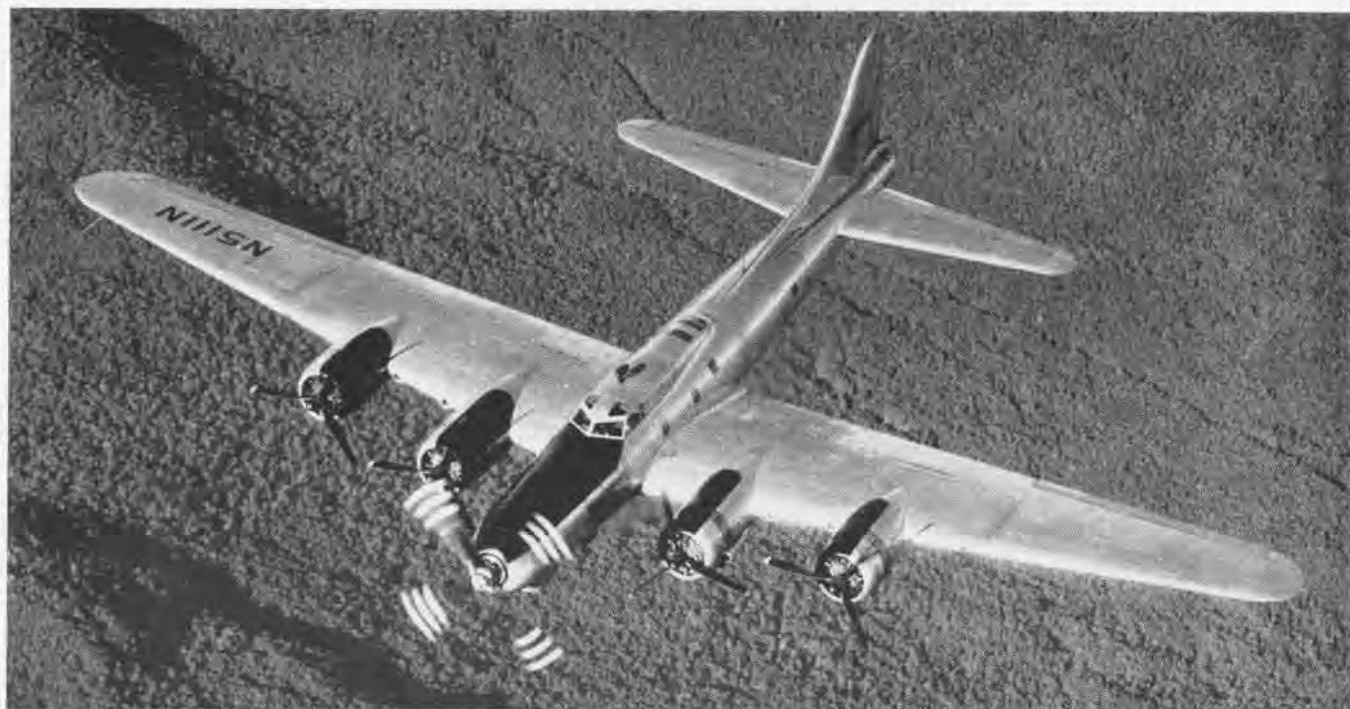
A shaped charge with a shallow hollow would give a wider hole but less penetration, while the deep notch gives a narrow shaft of fire and steel. Rifle grenades, bazooka shells and demolition charges all use the Munroe effect to good advantage, as well as artillery shells. Armor-piercing shells have a heavy steel nose, while shaped charge ammunition has the hollow nose and thin windshield that serves mostly to make it fly straighter to the target. The cone behind the nose focuses the explosive force against the armor.

THE PROCESS of penetration of a tank by a shaped-charge jet is much like that of a high speed jet of water from a fire hose nozzle penetrating a bank of soft mud. Target material is splashed out at high velocities radially from the point of impact. The strength of the armor plate is of little consequence because the pressures produced at the point of impact are far above the yield point of most materials.

Besides their regular grenades and projectiles, the Germans put shaped charges out with magnets to hold them to the sides of tanks until a time fuse set it off. The Japs, with their usual Kamikaze thinking, put them on the end of a long pole and expected a soldier to hold it against the tank until it went off.



SHAPED CHARGE OF POWDER IN ROCKET NOSE GIVES IT POWER TO DRILL THROUGH HEAVY ARMOR



5,700 Horses On New Propjet

NAVY LEADERSHIP in turboprop engines was further solidified recently when the 5,700 hp Pratt & Whitney T-34 Turbo-Wasp engine was unveiled for the first time.

The new engine, now flying in the nose of a B-17, is a single unit with ratings between 5,000 and 6,000 hp. It was developed by P&W in East Hartford under the auspices of the Navy's Bureau of Aeronautics. The Navy also supported the development of the twin unit Allison T-40 now flying in the Convair PSY patrol plane and the Douglas A2D attack plane.

It was the Navy alone which kept the turboprop program alive on this side of the Atlantic during the postwar period.

Experimental flight testing of the T-34 is now underway with one engine installed as the fifth engine in a B-17.

It is powerful enough to keep the plane flying with all four regular engines inoperative with props feathered. (See photo above) P&W chief test pilot Harold Archer has accomplished this feat many times.

The T-34 becomes the most powerful turboprop announced by either the U.S. or Britain and takes its place alongside the P&W T-40 three jet engine with 6,250 lbs. of thrust dry without afterburner.

This new turboprop is a single unit high pressure axial flow gas turbine engine that is coupled through a reduction gear to a propeller. The reduction

ratio is 11 to 1 through two stages.

To keep propeller stresses from being transmitted to the compressor-turbine drive shaft, there is a flexible coupling between the compressor and the gear box. There are 13 stages to the axial flow compressor and three stages in the turbine. The burner is the annular type.

Stainless steel was used almost exclusively in the construction of the T-34, increasing its ruggedness. Basic weight of the engine is 2,550 lbs., a ratio of more than two hp. per pound of weight.

Control of the T-34 is simplified by having only one handle for controlling its operation as compared with the three for the conventional reciprocating engine. The single lever is linked so that it automatically controls fuel flow to coordinate it with prop speed and altitude for a given power setting.

The T-34 is 155 inches long and has a diameter of 30 inches. In the test program it has been hitched to a four-

bladed Hamilton Standard integral oil system propeller similar to those used on Pan American Airways *Stratocruisers*. Under construction for use later with the engine are high speed propellers. When cruising with an engine stopped, a special propeller brake is used to keep the engine from turning over because even a slight force on the feathered propeller can turn the shaft on turbo-prop engines.

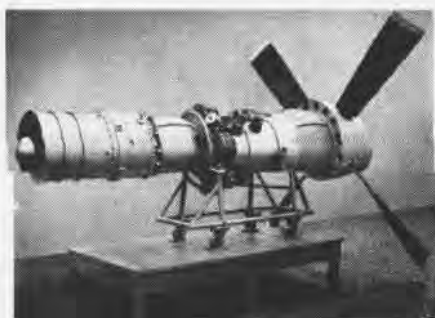
DE-ICING of the air inlet area is done by hot air bleed.

As for fuel, the engine can operate on either high octane gasoline or special jet fuels. Its specific consumption was .62 pounds per horsepower hour during the 50-hour tests. This compares with specific consumption of high powered piston engines when operating at highest power ratings. As with all turboprops, this leaves something to be desired in cruise fuel consumption.

More than 20,000 hours of component testing have been logged on the T-34 turbine, compressor and burner, with 14,000 hours on the compressor alone. On complete engines, 1,400 hours have been run.

Engine testing began in August. The T-34 project was begun in June of 1945. As it stands now the engine has exceeded its original requirements by 1,600 horsepower.

As a single unit engine, it promises to simplify installation in big planes.



T-34 IS SINGLE UNIT AXIAL FLOW TURBOPROP



CANADIAN'S NEW CF-100 TWIN JET LONG RANGE FIGHTER HELD SPEEDY



DEHAVILLAND VAMPIRE IS BACKBONE OF CANADA'S ROYAL AIR FORCE

Royal Canadian Air Force

Survival in the Arctic, Search and Rescue are Special Tasks for Jet-Conscious Canadians Building Up Forces

BUILDING igloos out of ice blocks in the frozen Arctic, eating raw fish and boiling field mice may seem a strange occupation for aviators, but today's Royal Canadian Air Force pilot is learning to do just that.

In peacetime, naturally, an air force like the RCAF which acquitted itself so valiantly against the German *Luftwaffe* turns to other activities and survival in the Canadian northlands is one of them.

Its primary occupation is building up the operational element of the force, of course, but it also finds time to launch a tremendous aerial mapping program for the whole of Canada, operate Arctic survival schools and set up a widespread search and rescue network for the nation.

Canada's RCAF is not large, judged by U. S. standards, with only nine squadrons and 17,300 officers and men. But it operates such planes as the de Havilland jet *Vampire*, the F-86 *Sabre*, now being built in Canada, and the new CF-100 twin-jet all-weather fighter which has received excellent advance notices. The latter is powered by a Canadian-built jet engine, the *Orenda*.

Besides these fast jets, the Canadians have their quota of *Lancaster* bombers, now famous for their aerial photographs of the frozen northlands; *North Star* transports, *Dakotas*, *Canso* flying boats similar to *PBY's*, and the ubiquitous *Norseman* floatplane. For strategic reasons and economics, the peacetime RCAF has concentrated on jet-fighter

interceptor squadrons, the first one being formed in 1948 and the second in 1949.

Interceptor aircraft require more skilled pilots and trained ground personnel. They need ground radar and communications to guide them to approaching enemy bombers. Work is underway on these necessary facilities, and also on renovating wartime flying stations now required once again, and on extending wartime runways, originally built primarily for light trainers.

BESIDES the regular Air Force, Reserve auxiliary squadrons are active, and stand as a first-line reinforcement for the nine active units. There are 10 of these Reserve outfits, six of them equipped with *Vampire* jets. Training is on a part-time basis, as in the Naval Air Reserve, and the squadrons include groundcrewmembers in addition to aircrew. First of the projected Reserve ground units was formed in 1949, with others to follow.

Aircrew training has been in full swing for a considerable time. The aircrew recruit is selected at a classification center as a potential pilot, navigator or radio officer. Those picked as pilots are posted to a base where they fly in Canadian versions of the *SNJ*, *R-10* and *JRB*. Upon completion of basic training, the pilot gets his wings. He then goes to Air Armament School and then, about a year after having entered the service, he is posted to an Operational Training Unit or to a squadron for advanced training.

Groundcrew training includes tech-



RCAF NORSEMAN BEACHED AT SAWMILL BAY GETS GASOLINE FROM A CACHE ALONG THE SHORELINE



PARA-RESCUE TEAMS JUMP IN RUGGED ROCKY MOUNTAINS FOR PRACTICE



SIKORSKY S-51 HELICOPTER PLAYS BIG PART IN RCAF RESCUE WORK

nical schools for aero-engine mechanic and air frame mechanic, radar and signals specialists, armament and clerical trades and a school of photography, all located at various places about the Dominion.

Unique in the RCAF training program is the Survival Training School, which operates at Fort Nelson, B. C., and Cambridge Bay, N.W.T. Here service aircrew learn how to live in the bush and Arctic zone, getting training from experienced RCAF men, with Eskimoes and Indians assisting.

This school is plenty rugged and deserves special mention. For three weeks, the aircrew live in bush shelters or an Eskimo igloo they built themselves. They take along emergency rations but they get pretty thin if they are not smart enough to live off the country by fishing, hunting game, cooking lichens and moss, seaweed and small rodents. A sample meal might be boiled mouse and lousewort, a horrible-sounding affair that is described as the most tasty food plant found in the North if you eat the root.

Thirty types of edible plant life exist in the Arctic and sub-Arctic and the

men learn what they are and how to cook them. A crew of a service aircraft forced down in the Arctic—and it happens every so often—might starve to death, not knowing that edible sustaining food might be had for the taking. They find out all salt water fish are edible except sharks but that many northern fresh water fish contain parasites that will sicken the eater if the fish are not well cooked.

Some "graduates" of the school come home with clothing sagging after losing as much as 15 pounds. As one of the more than 250 officers and men graduated from the school put it, "If you're still alive at the end of the course, you know you've passed."

IN ADDITION to fitting itself to serve as an efficient defense force, the RCAF has various peacetime tasks which serve the public interest and give personnel training of military value. Largest of these, in planes and men, is the aerial photographic coverage of Canada, being carried out by three photo squadrons.

The work of covering Canada by aerial camera began in 1921 and that

year 280 square miles was photographed. In 1948 a total of 911,000 square miles was covered. The squadrons operate the length and breadth of Canada.

Military and civil maps are produced from the aerial photos, and the pictures are used in many other ways. They serve as the basis for geologic maps, opening up new mining areas. They are used for forest inventories, in irrigation projects and hydro-electric development.

About 40 planes carry on this world's greatest aerial photo program, using trimetrogon and vertical cameras. Shore stations aid them in getting exact position lines. Photo operations provide a constant battle between the planes and the weather, for areas to be photographed must be free from ice and snow. Planes follow winter northward and start shooting on the heels of melting snow and ice. In some areas, however, convection cloud forms as the land warms, and it is not unusual in certain regions to find only a few days during the entire season suitable for operations.

To obtain coverage of these regions, the RCAF must be on the spot, ready to fly 15 to 20 hours a day, while conditions remain good, a feat made possi-



RCAF PHOTO PLANE LOST PROP IN ARCTIC, REPAIRED ON THE BEACH



TO PROBE AIRCRAFT ICING, SHARK-LIKE FIN IS PUT ON NORTH STAR



LANCASTER BOMBER PLAYS PART IN HELPING RCAF MAP THE ARCTIC



PHOTOS TAKEN BY RCAF LAID OUT FOR MOSAIC FOR MAP OF COUNTRY

ble by near-round-the-clock daylight conditions during summer months.

It is in the Far North that aerial photographs reveal startling inaccuracies in existing maps. It was found from photos that Akimiski island in James Bay was practically upside down on the maps. In another case, a hamlet was found to be several miles from its proper location, and another photo plane rediscovered the "lost" Spicer Islands north of Hudson Bay. One Lancaster photo plane discovered two uncharted islands in Foxe Basin, covering 5,500 square miles. *Lancasters* and *Dakotas* do the photography, with *Norsemen* seaplanes, *Canso* amphibians and *Dakotas* flying in supplies to remotely-located photo units in the wilds.

IMPORTANT too are the peacetime responsibilities of the RCAF's Search and Rescue organization, a permanent agency since the war. This outfit carries out Canada's commitments under ICAO which state that the Dominion will maintain an organization capable of giving aid to aircraft in distress on the East and West coasts.

Search and rescue planes also help

planes in inland areas, such as the case when a U. S. Navy plane was lost in the wilds of Manitoba recently. The RCAF does not run a free ambulance service for bush dwellers but where the job is a life or death matter and can not be handled by private agencies, it will step in. Some of its most spectacular missions came as a result of "unofficial" calls for help.

Five major centers around Canada coordinate search and rescue work—Halifax, Trenton, Winnipeg, Edmonton and Vancouver. Planes for mercy flights are widely scattered in northern and coastal areas. High speed launches are stationed in some ports and specially-trained para-rescue men, ready to drop by parachute to lend aid, are stationed at various points across the country. These men are fully-qualified woodsmen, trained in first aid.

During 1949 the RCAF handled 213 search and rescue operations, flying more than 3,600 hours. Incidents ranged from an air drop of insulin for a passenger stranded in a snowbound train in British Columbia to parachute jumps to aid distressed flyers. Forty two of the flights dealt with planes in distress and

35 with marine craft requiring assistance, plus 116 "mercy flights." Out of all this, RCAF rescuers cite the Golden Rule for lost pilots in the wilderness—stick with your plane, it is larger and easier to find than you are, wandering among the trees.

CONSTRUCTION engineers of the RCAF have to use ingenious methods occasionally to combat Arctic conditions. Seemingly carrying coals to Newcastle, construction men brought refrigeration equipment into the north to fight the permafrost which affected their work. Perma-frost is a year-round condition of the ground, which keeps it frozen a few feet below the surface.

In making excavations this frozen ground is exposed to the atmosphere and becomes mushy. If concrete runways are poured on mushy ground, the foundation is affected when the ground refreezes. To counteract this, RCAF engineers attach copper tubing to a refrigeration unit and place it at the base of the excavation. The copper keeps the ground frozen while the concrete is being laid and solid foundations are the result.



TWO RCAF MEN IN SURVIVAL TRAINING COURSE FISH FOR THEIR MEAL



HOUSING COSTS HAVEN'T CLIMBED MUCH FOR RCAF SURVIVAL SCHOOL

Helicopter Is Busy at Sea

Coral Sea Plane Guard Flies 118 Hrs.

HU-2, LAKEHURST—Claimant of a record for utilization is a trusty HO3S-1 helicopter from this squadron which flew 118.7 hours in 33 days while doing plane guard duty for CVB *Coral Sea*.

The carrier was engaged in qualification and refresher operations along the Atlantic coast. Each of the two pin-wheel pilots was able to rescue a downed pilot from the ocean during the tour.

Maintenance, as usual, was accomplished at night to avoid missing any scheduled flight. Also noteworthy is the fact that the helicopter had exactly 120 hours to go for a major overhaul and engine change, when it started on the cruise, yet was operating perfectly upon return. The post-cruise check showed no discrepancies except a burned out rotor brake.

Danes Hold Fete For U. S. Marine Guard At Aalborg Ceremony

VR-24, ENGLAND—Duty with this European squadron is not always routine. One of the jobs of this squadron is to furnish transportation for a Marine color guard to Aalborg, Denmark.

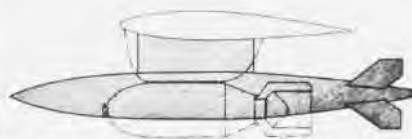
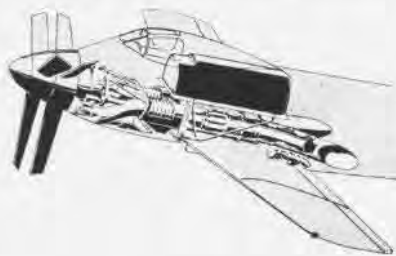
Several decades ago Danish-Americans purchased a large tract of land outside the city and presented it to the King of Denmark. It was to be made into a national park commemorating the pioneering spirit of early Danish emigrants in the U.S.

A large log cabin in the center of the park serves as a museum and is filled with relics of early American life including Indian headresses, bows and arrows and tomahawks. The park is named Rebild National Park after an early Danish settler in Minnesota.

Every year since the end of the war the Navy has furnished a Marine color guard for the special Fourth of July celebration conducted at the park and presided over by the King of the Danes.



Chief L. Moeble and C. Erickson TD2 of NAS MINNEAPOLIS examine illuminated 12' by 3' glass case, recessed in a passageway bulkhead of the pilot ground school building, they designed and built to display all ship and plane recognition models clearly



Newly-released photos of the Navy's new attack plane, the A2D, a big, heavy fighting aircraft powered by an Allison turbo-prop engine. The second photo shows how the engine is installed. The fuel tank is carefully isolated from the engine by a fire-proof bulkhead provided with overboard drains to cut fire hazard. The lower photo shows a streamline bomb design developed by Douglas El Segundo for high-speed planes. Using this shape, the A2D is 50 knots faster than with three standard 2,000 pound bombs.



More accustomed to driving tanks than aircraft, General Omar N. Bradley, chairman of Joint Chiefs of Staff, tries his hand at the controls of a Navy blimp flying several hundred feet over Key West. With him is Lt. Arthur C. Wiesemann, USN, airship pilot

Jet Training Has New Idea

Dilbert Shows Pilots Wrong Technique
NAAS WHITING FIELD—Here's a new approach to a training problem that helps to indoctrinate student pilots and give them greater confidence.

Each new class reporting to the jet training unit gets a flight demonstration prior to taking its first hop in the IO-1. That's nothing new, but the way JTU-1 does it, is unique.

Two planes are scheduled for the demonstration. One plane pulls out of the chocks and onto the runway, makes

a normal takeoff and normal landing. The second pilot playing the role of *Dilbert* does just the opposite.

Usually *Dilbert* will pull out of the chocks with his canopy open, blast the line with his throttle, wing flaps up, dive flaps down and, in the process of turning, invariably will cock his nose wheel.

Instructors point out the mistakes *Dilbert* makes. After the planes taxi out, students and instructors move to the runways and observe landings. *Dilbert* always manages to make a high fast approach followed by a low slow approach. Early and late waveoffs demonstrate how nicely the plane responds.

Alameda Ready for A Bomb Station Trains 636 In Atom Defense

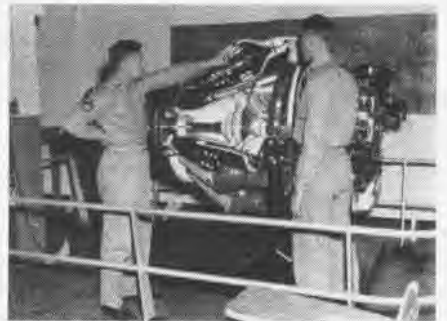
NAS ALAMEDA—Taking the mystery and fear out of atomic energy is the object of this station's radiological defense course, recently completed by 636 military and civilian supervisors, monitors and leaders of decontamination units.

The five-hour indoctrination course is designed to promote understanding of atomic energy on which to base intelligent and coordinated action in event of atomic attack and to teach students their responsibilities for radiological safety and defense.

Meanwhile, a disaster bill, including radiological defense measures, went into effect at Alameda the last of July. The officer-of-the-day is the local coordinator. His office also is disaster control center for the vast Alameda and Santa Clara counties.

- VP-28—Want to see the World? Area familiarization flights have been made from our base on Guam to Manila, Singapore, Hongkong, Tokyo, Hawaii, Truk, Peleliu and Saipan.

- MCAS CHERRY POINT—As part of the interservice exchange policy, a night fighter team of the Royal Air Force will be assigned in the near future to Aircraft, Fleet Force, Atlantic at this station.



A \$100,000 cutaway model of the J-42 jet engine which powers F9F Panthers is put to good use by MCAS Cherry Point Marine pilots and mechanics who learn about the insides of jets from it. The engine will visit other bases of the country which also have planes using that P&W jet engine.

AND THERE I WAS



The Deep Six

THERE were seven men in the JD-1 as she warmed up on the ramp at NAS GUANTANAMO, Cuba. It was still dark, it was that early in the morning.

Their bags were all packed with their best blues, civilian sport clothes and the usual five bottles of legal Cuban rum which U.S. Customs allows them to "import" to the United States. It was going to be the long-awaited trip "out" to the states and the men were really eager—who would get up at 0245 to get ready for the trip if he wasn't?

The pilot LCdr. J. N. Fitzgerald, revved up the engines, then satisfied with their purr, he gunned the throttles and took off into the darkness.

As the plane passed the end of the runway and soared into the early morning blackness, a grinding noise could be heard below and behind the cockpit. Now what!

The bomb bays opened and out dropped seven suitcases loaded with nice new uniforms, shoes and stuff. They disappeared in the darkness and fell unseen in the deep water somewhere off the end of the runway.

It was an unhappy bunch of boys from VU-10 who landed their JD-1 again at Gtmo and went back to their quarters to gather up new suitcases and what clothes they could find for a new start.

Human Compass

A Chinese bomber crew of the 14th Air Force became separated from its formation while returning from a mission. After losing contact with other bombers, the crew eventually found a familiar landmark—the Yangtse river.

This proved useless, however, when the navigator confessed he was too confused to determine the direction of their base.

But shortly afterward the bomber changed course and went straight home—without the navigator.

When the latter gent arrived, weary and footsore some days later, he explained: "The pilot made me bail out and ask somebody. Then I made markers on the ground. Then I had to walk home".

W. R. BARTOSH, MAJ.
USMC, PENTAGON

Fast Ride

TWO NURSES from the Chance Vought medical section at Dallas were walking past a guided missile factory was developing for the Navy. They stopped to admire the product, but a note of puzzlement permeated their compliments.

"It's obviously an airplane," one of them said, "but where does the pilot sit?"

Closer inspection provided no answer, so one of the nurses approached a Texas guard and put the question to him.



He smiled tolerantly. "Why, ma'am," he replied, "that's just a Texas airplane. When they get it finished, the pilot will just throw a saddle on it and ride 'er!"

If I Knew You Were Comin'—

THE DAY before the open-house for Armed Forces Day in Westover AFB, a standby crew was waiting for the Quonset planes to arrive when the call came from the tower, "The planes are landing now." Two F8F's landed and were directed to the VR-6 hangar area for parking.

Chief Carpino "spotted" the planes inside the hangar and had a crew on the aircraft with the "spit and polish" kit before the props quit turning. The pilots climbed out of their cockpits warily while the planes were taking on an inspection gleam. One of the pilots spotted the Chief directing the show and complimented him.

"This is really efficient service, Chief. What outfit is this?"

"VR-6, sir."

"Well, we certainly appreciate the attention. Takes me back to pre-war days. Please convey our compliments to your skipper."

"Certainly, sir, but you'll surely see him tomorrow at the show."

"Show, Chief? What show?"

"Why, the Armed Forces Day show. That IS what you came up for, isn't it, sir?" The last was a little desperate.

"My gosh, no, Chief. We're just a couple of transients on our way to Norfolk."

Land With Caution

WHILE he stopped over at Barksdale Air Force Base in Louisiana one day, Midn. A. L. Eisenhower went to a Bingo game to break the monotony of his ferry mission.

After an evening of play, he ended up winner of the \$500 Bingo Jackpot. Now



in the mill is an official memo to other officers of VR-31: "Pilots are advised to use extreme caution, courtesy and common sense in approaching base officers at Barksdale."

Drafty Ride

THIS STORY is sworn to by a naval officer and a gentleman who now labors in BUAEF maintenance division.

Before the war his squadron was doing some air-to-air gunnery against target sleeves, using the SBC as the firing plane.

One day the tow target plane dragged the sleeve off the runway at NAS SAN DIEGO. It dragged the silk tube out to sea and six planes took turns peppering it with bullets.

Following this, the plane returned to base and released target over the field. Ordnance-men picking it up to count the bullet holes in it found inside a dead rabbit, unmarked by bullets. It apparently had died of too much air or some such ailment.



No Squawks

AN INSPECTION was being held at VR-2, NAS ALAMEDA. The party got to the recreation office and to get an unbiased opinion of its work, a passing seaman was hauled in and questioned.

"Do you like Alameda?" he was asked.

"Yes, sir!"

"Do you have enough squadron dances?"

"Yes, sir!"

"Do you have sufficient squadron parties?"

"Yes, sir!"

"Do you have access to and use athletic equipment?"

"Yes, sir!"

"Do you have enough recreation equipment?"

"Yes, sir!"

"Well, everything seems to be fine," the inspecting officer said to the beaming recreation officer, "By the way, son, how long have you been in VR-2?"

"Oh sir, I'm not in VR-2. I'm from FASRON-8. I just came down to this hangar to see a buddy of mine!"



ASST. SECNAVAIR SULLIVAN AWARDS CAPT. VOSELLER NAVY AIR MEDAL



NICKLE BOAT' MEN: GREEN, COLE, HILL, BURLESON, STOTTS, MATHEWS

ATLANTIC HUNTERS

WHEN U-boats were making the Atlantic a track of death, one of the opposing forces that played a role in balking their course was Patrol Bombing Squadron Seventy Four. A veritable trail-blazer from Iceland to Rio, VP-74 sank six German subs in its wartime patrols.

The squadron was commissioned at Norfolk 1 August 1940 originally as Patrol Squadron 55 under the command of LCdr. A. B. Vosseller. By early December, it was at full strength with 12 *Mariners* on hand. From then on, the squadron trained and trained and trained.

During the fall of 1941, detachments of VP-74 operated out of Argentia and Reykjavik. For the first weeks, the planes carried no bombs, but merely reported submarine contacts. That system was abandoned 15 October when a new destroyer, the USS *Kearny*, was torpedoed not far from Iceland. From then on, it was "Sink on Sight," and VP-74 carried bombs and depth charges.

From December 1941 to September 1942, the squadron operated off the east coast with a detachment at Bermuda. The U-boat campaign was at its height. There were so many actions that men in the squadron a few months afterward no longer remembered them distinctly.

Evidently, for example, about 9 February 1942, a plane must have driven off a submarine that was making an attack on a merchant vessel. All that remains of this action in the squadron files is an enigmatic dispatch: "The master of the SS *British Corporal* on arrival expresses gratitude to VP-74, Lt. Thorn, for saving him from further at-

★ THIS IS the thirtieth of a series of short sketches of squadrons in World War II. It is based on reports filed with Aviation History and Research in DCNO (Air)

tack." Two days later, on 11 February 1942, there is another equally shadowy message: "For pilot 74-P-12 from captain and crew *Pan Halcyon* deepest gratitude for your assistance in our rescue."

Again, on 11 February, there was another rescue. The SS *San Arcadio*, a 7,000-ton British tanker with 50 officers and men, loaded with oil from Texas and bound for Halifax, was torpedoed. After 15 minutes of effort to make radio contact, the ship had to be abandoned. Lt. J. A. Jaap found nine survivors, landed at sea, took them aboard and returned to Bermuda.

Not all the planes that flew the Atlantic patrol returned. Ens. John H. Cushman departed from Bermuda on a search mission 3 June and was last heard from at 1330. It was the opinion of pilots who engaged in the search that Cushman's plane had been caught in a violent down draft, probably while Cushman was circling at low altitude.

The first submarine kill was made 30 June 1942. Lt. Richard E. Schreder was on a ferry flight when his radioman, Wrencie Vickers, obtained an accurate fix on a U-boat. On the run, Schreder dropped one bomb which exploded directly under the stern of the surfaced submarine; the second bomb struck the deck and exploded when the submarine carried it to fuse depth. Final assessments established this attack as a certain kill.

On 20 August, the Bermuda detachment moved back to Norfolk, and a

month later, on 22 September, six planes left under the command of Lt. Cdr. Thorn for Trinidad. Once established there, a two-plane detachment was sent to San Juan.

Hunting in the Trinidad area was good, but somehow the sly denizens of the under sea managed to make their getaways, shaken but undestroyed. Typical of the frustration of not getting the sub is illustrated in the event of 5 October. That night Lt. Davis discovered a submarine shelling a ship. He instantly began to attack, but the enemy escaped. The ship's survivors took to the lifeboats and were later picked up by a freighter.

In November, scores of victims of submarine warfare owed their rescue to VP-74 which spotted their distress signals and sent surface craft to their rescue.

Natal was the next duty station for the roving *Mariners*, and LCdr. J. C. Toth was their new skipper, succeeding LCdr. W. A. Thorn. Of their new station, VP-74 wrote a limerick, as was their regular custom:

Natal is a land where we take our last stand,

The climate is simply just grand;

We live in a stable

And fly when we're able

To dig our planes out of the sand.

APPARENTLY their digging was efficient enough to free them for action. On 6 January 1943, Ens. Herbert P. Boyce sighted a submarine wake at six miles distance. Reaching the head of the wake, Boyce observed the outline of the submerged U-boat. Four depth bombs were released. Air bubbles ap-

peared just ahead of the bomb turbulence for one and a half hours afterwards. The assessment was "probably damaged."

On 24 February, the squadron had its first experience with "stay up and fight" tactics of U-boats. Ens. W. J. Barnard sighted a submarine at periscope depth in the act of torpedoing a ship. During the attack run, the submarine surfaced and returned accurate AA fire. Four depth bombs were dropped, but they fell short. The pilot retired beyond AA range, planning to use his remaining depth bombs when the submarine submerged. But he got behind a cloud, and the U-boat got away unnoticed.

On 18 March, a three-plane detachment was ready to depart for Aratu, Brazil, which was to be the new base, the remainder of the squadron to come later. Meantime patrols were flown from both Natal and Aratu, a favorite spot:

*Aratu is one stop in our tour of S.A.
Where we found our good neighbors okay.
The swells were most wavy,
But the duty just gravy,
And we plan to return there some day.*

In May "hunter-killer" tactics were initiated. Lt. Howard E. Gibbs took off from Aratu on the 16th, and at 1161 spotted a submarine awash 15 miles away. About half way to the target, he saw the U-boat beginning to submerge. In a few minutes, he reached the swirl and dropped six depth charges, the last two being 120 feet beyond the leading edge. There was no sign of damage to the U-boat.

LT. VOORHIS arrived in the area and maintained a hold-down until evening when Lt. Esch took over in a radarless *Catalina*, used because its endurance was greater than that of the PBM. At 2347, a V-shaped wake was seen in the moonlight, but a flare dropped from

1200 feet revealed only white caps.

At 0843 the next morning, Lt. Howland Davis sighted a surfaced sub 18 miles away. At the same time, Lt. Carey who was in the vicinity made the same contact. Both started to attack. Lt. Davis' plane dropped six depth charges 15 seconds after submergence. The drop straddled the submarine's projected course. Both planes maneuvered for five minutes and then sighted the 740-ton U-boat breaking the surface. Lt. Carey who had climbed to 1,500 feet, now dove at an angle of 45°. He crossed the fully surfaced submarine at 100 feet, and his bomb straddled the conning tower, obliterating all view of the submarine from either plane. When the column of water subsided, the victim lay helpless.

Carey and Davis made strafing runs, pouring .50 caliber slugs at the U-boat, its guns, and crewmen who were attempting to man them. The U-boat managed to get under way, but it couldn't submerge. VP-74 had blasted that chance.

Destroyers *Moffett* and *Jouett* arrived, directed by Lt. Davis to the scene, and opened fire. After the crew abandoned the submarine, the destroyers fired, and the U-boat, bow first, slid into the deep.

Less than two months later, Lt. Carey and his crew were lost as a result, it later appeared, of a successful counter-attack by a U-boat.

ON 19 July, the "Nickel Boat" commanded by Lt. (jg) Roy S. Whitcomb struck pay dirt. Lt. Whitcomb found a fully surfaced submarine that foolishly elected to stay up and fight. The attack run was pressed home in the face of heavy AA fire, and six depth bombs spaced at 65 feet straddled the U-boat, two of the bombs actually striking the deck. After a low skidding getaway, all that was visible on the surface were survivors, among them Kapitan Leutnant Guggenberger, the skipper.

He was the one who had sunk the English carrier, the *Ark Royal*. Lt. Whitcomb's attack was officially assessed as class "A", known sunk.

Twelve days later, Lt. W. F. Smith, shared honors with a Brazilian PBY in sinking another German submarine. Sighting a surfaced submarine, he dropped six depth bombs on his first run, two on his second. Both drops enveloped the submarine in spray and so crippled it that it couldn't submerge. Smith made strafing runs until a Brazilian PBY appeared and made two runs. The U-boat sank immediately. Twelve survivors were rescued.

ANOTHER surfaced submarine met its doom 27 September when Lt. (jg) Harry B. Patterson's crew demolished it with depth bombs. On the second run, one contact fused shell exploded, wounding Ens. O. J. Brett and Radioman D. A. Bealer severely.

In October, the squadron went to NAS FLOYD BENNETT. Two months later, it moved to Elizabeth City, N. C., where it remained on patrol duty until November 1944. But VP-74 was not allowed to remain home long. As patrol experts, its pilots were needed elsewhere.

After going to Coco Solo, C. Z., the squadron moved on to Galapagos Islands, Ecuador, early in 1945. Regular patrols were the order of the day, but the squadron was in an area where duty was rarely punctuated with excitement.

*Now the Rock is the home of us all,
So lift high your drinks and cuss all.
We're stuck in the land
Of bugs, lizards and rams,
And women we hardly recall.*

But the end was in sight. Shortly after the release of the bomb on Hiroshima, hostilities ended. Heralded with joy, victory meant for VP-74 an end of wartime patrols. It was more than ready for a peacetime beat, it was really eager.



LT. H. C. CAREY DEPTH-CHARGES AND STRAFES GERMAN SUBMARINE



DICK SCHREDER AND E. P. AURAND RECEIVE NAVY CROSS AT NORFOLK

FERRY HOP PROVES HAIRY

NAS QUONSET POINT—Ferry pilots always seem to have more fun than anyone, and two Quonset men who ferried a couple of helicopters from here to San Diego were no exception.

The eight-day trip was brought on by the need of the Pacific fleet for more search and rescue helicopters. Flying 75 miles an hour through high winds, hot temperatures and high mountains in a temperamental flying machine like a pinwheel is not exactly a Cook's tour.

Pilots were Lt. (jg) Joseph Reilly and Lt. George W. Seay. Each carried mechanics, Robert N. Bell and H. E. Farnham, AD3.

Flying over hot western farmlands, the helicopters would dip up or down at 1,000 feet a minute. Both aircraft nearly overturned a couple of times. Crossing a deep mountain pass near El Paso, both nearly washed out. A thunder squall caught them, and the pilots decided to make emergency landings.

Because of the thin air they had to make glide landings. Reilly aimed his nose along a highway. When the helicopter was about three feet from the pavement, an automobile suddenly shot

over the crest coming straight toward the plane at 70 mph. Reilly zoomed his helicopter and the car went under him.

Seay set his helicopter down in brushland. Because they feared the local rescue unit would be looking for them, he hiked 30 miles to the nearest weather station to report. He nearly drowned in the thunderstorm but succeeded in halting a search party about to start out.

After the storm, Reilly taxied down the highway and took off. Seay had it rougher. The thin air would not enable him to take off, so he hedge-hopped over the brush in a dozen jumps until he came to the highway and could make a run for it.

At El Paso the two pilots befriended another Navy helicopter flier who had run into engine trouble on the way to the West Coast. The Quonset mechanics fixed his engine for him, and the three planes made the rest of the flight to California in formation.

Most of the flight was made at 75 mph and about 500 feet altitude, whether over mountain peaks or Arizona deserts with 103-degree temperatures.



WINNER SMITH WITH HIS CARRIER-LANDING AD

Dallas Has National Meet Model Airplane Bugs Swarm to Station

NAS DALLAS—Daily rains and sudden mobilization of Naval Reserve pilots for war duty failed to halt the National Model Airplane Meet at this station the last of July. Up to 100,000 persons attended the five-day meet to see amateur modelers fly their tiny planes and see the Navy's *Blue Angels* make their last jet exhibition flight before going to war.

A new feature of this year's meet, held previously at Olathe, Kansas, was actual take-off and landing on a small carrier deck on the field. The tiny wire-controlled power models came in for landings and their arrester hooks caught wires on the deck the same as on big seagoing carriers. Winner of this event was S. Calhoun Smith of Asbury Park, N. J., with a model AD. (see photo).

Despite the bad weather and mobilization going on at NAS DALLAS, the meet drew some 800 entrants from all over U. S., Hawaii, Mexico and Canada.

Helicopter in Fast Rescue Picks Up Coral Sea Pilot in Minute

U.S.S. CORAL SEA—One of the fastest rescues in carrier operation history was made recently when Midn. A. R. Ashworth received an incomplete catapult shot on takeoff with an F4U-5.

He was unable to attain flying speed and landed off the port bow of the ship. The plane guard HO3S-1 helicopter piloted by ADC A. F. Kakol, picked up Midn. Ashworth and landed him back aboard the *Coral Sea* in 60 seconds.

• NAS ATLANTA—During its cruise at Miami, VF-671, under LCdr. Ken Price, set a new record for gunnery and bombing and maintained high aircraft availability. When VA-671 was abroad for its cruise, personnel maintained and operated their *Able Mabels* with almost no help from station keepers.

P2V GOOD PHOTO PLANE



PLENTY OF ROOM FOR MOVIE MEN IN FUSELAGE

VP-3, JACKSONVILLE — Dissatisfied with existing Navy photo planes available for shooting a training movie on fighter intercept problems, the Navy converted a P2V for the job and won praise from cameramen and jet fighter pilots alike.

The slow speed of standard photo planes brought complaints from pilots of VF-171 and VF-172, while movie cameramen complained of cramped working space, excessive vibration and restricted visibility.

Use of a P2V for the job was approved and conversion made after conferences with Don Cameron, project supervisor from the Naval Photo Center, Anacostia, and representatives of the company making the picture. It was determined best results could be obtained by re-

moving the life raft from its position midway in the fuselage.

Removal of the jettisonable cover gave a working area of more than nine square feet which provided excellent visibility. Space inside was adequate for mounting a camera and still allowed freedom of movement for the cameramen. W. H. Spencer, AMC, added to their comfort by designing a plexiglas cover which kept out cold air and still did not hamper operation of the camera. Made of scrap, the "window" was bolted to the fuselage so that its removal during shooting was not necessary.

Because of the roomy interior, a Mitchell 35 mm camera with 1,000-foot reels could be mounted on a standard tripod and still leave unrestricted working space. Jet pilots liked the P2V because it would fly faster than 200 knots at 10,000 feet, providing an excellent speed and altitude for jet intercept problems.



ISN'T A PLANE SUPPOSE TO HAVE ITS WHEELS DOWN WHEN TAXIING?

Squadrons Win E Pennants Four Ships Get Efficiency Recognition

Four ships and 12 Navy and Marine squadrons were among the 74 units awarded Battle Efficiency pennants for 1950, as announced by Admiral Forrest P. Sherman, Chief of Naval Operations.

Awards were based on over-all performance in all forms of exercises, in assigned duties and in materiel and organizational readiness during the 1950 fiscal year. The red triangular pennant is carried on the fore truck of ships and on each plane assigned to a winning squadron. Enlisted men assigned to ships and squadrons will wear an "E" on the upper right sleeve.

Winners in the aviation Navy were the carriers *Midway*, *Palau* and *Badoeng Strait*, the AVP *Floyds Bay* and these squadrons: VA-55, VA-65, VF-24, VF-52, VF-43, VF-62, VMF-212, VMF-214, VP-8, VP-49, VP-22, and VS-22.



'All right, now sign me up'—Professional wrestler George Temple, former Marine sergeant and brother of Shirley Temple, tries to persuade First Marine Air Wing Sgt. Maj. Mike Cervin to let him enlist with the Flying Leathernecks at El Toro, but he had to be directed to apply at the NAS Los Alamitos Marine Air Reserve Detachment

Constitution Flies the Pacific First Water Hop For Giant Transport

NAS MOFFETT FIELD—The R60 *Constitution* made its first trans-Pacific flight on 31 July when it flew from here to Barbers Point, Hawaii. First of a regular schedule between the mainland and Hawaii, the flight saw the big plane lift 50 passengers, a cargo and crew of 11. Capacity load is 180 men.

The *Constitution* planes, of which the Navy has two, were built during closing days of the war by Lockheed Aircraft Co., to provide greater air transport as required by war needs. In peacetime the planes were assigned to Fleet Logistic Air Wing and kept busy hauling large numbers of naval personnel about the country. Just recently the Navy tried to lease them to private companies without success, because their operation costs were too high for the Navy budget.

Navy Gets P4M Mercator



LONG WING, TWIN NACELLES HOUSING TWO ENGINES EACH FEATURE NAVY'S NEW PATROL BOMBER

VP-21, PATUXENT—The Navy's newest patrol bomber, the P4M-1, featuring combination jet and conventional engines, made its debut recently into active duty when this squadron received its first *Mercator*.

The P4M replaces the PB4Y-2 *Privateer* which previously had been on duty with the squadron. It is the fastest patrol plane in the fleet, with speeds in the 400 mph range. Although it looks like a twin-engine plane, it actually has an Allison J-33 jet and a P&W R-4360 in each of the two nacelles.

The fighting name of *Mercator* dates back to the 16th century when a cosmographer was arrested for heresy because of his radical theories about the world and the skies above it. The cosmographer was Gerardus Mercator, who is listed in the encyclopedia as a Fleming mathematician, geographer, and astronomer born more than four centuries ago in 1512. He escaped after being imprisoned for heresy, but 42 others taken at the same time were burned at the stake.

Mercator's name is well-known as applied to a certain type of projection in making global maps. The plane takes its name because of its long-range navigational patrol characteristics.

Charles L. Clark, field representative for Glenn L. Martin company, is temporarily attached to VP-21 as technical adviser while the squadron checks out in the new aircraft. The plane contains the latest type of radar, radio and other electronic equipment.

Long before the wheel of the first P4M touched the deck at Patuxent, VP-21 was busy preparing to receive the new planes. On arrival of the *Mercator*, an intensive training, indoctrination and

familiarization program for all officers and men got into full swing. Skipper of the squadron is Cdr. R. Semmes.

Under direction of Lt. J. V. Hart, squadron flight officer; Lt. C. Donahue, gunnery officer, and Lt. (jg) J. H. Wirth, mine warfare officer, the training program was divided into four divisions—pilot, flight crew, ground crew and departmental instruction. Only one phase of the training is given at one time.

Daily classes for squadron pilots were held, with two or three crews being instructed at the same time. VP-21 uses as instructors its own personnel who completed courses at the Martin company's P4M school at Baltimore and those who attended the J-33 jet school at the Allison factory, Indianapolis.

As each P4M class is completed, graduates become instructors for the next class, giving all hands a chance to learn, not only by being instructed, but by teaching others. Joint instruction periods for pilots and flight crews were held to stress teamwork so necessary to patrol plane operations.



A new student gunnery record was established at Pensacola recently by Midn. Vernon L. Fitch, attached to NAAS Corry Field. Fitch fired 192 rounds of ammunition into a sleeve out of 866, an average of 22.17 percent.



Tools of war go west! F9F Panthers are loaded aboard CV Philippine Sea at San Diego for transportation to the Korean war zone



Navy Corsairs loaded with eight HVAR rockets prepare to take off and hit North Korean positions in close support of our soldiers

AIR WAR IN



First naval aviator shot down by Korean AA, Lt. (jg) Muncie was saved by British carrier



South Korean soldiers look at North Korean YAK-9 propellered fighter, shot down near Suwon; note red star insignia on white field, with red and green rings; an F-80 made the kill



Bomb trailer load of HVAR 5" rockets soon will be loaded on the wings of F9F jets, Skyriders and Corsairs to hit targets of Reds



Seventh Fleet 20 mm anti-aircraft gunners polish up their marksmanship at sea, even though fleet thus far has no air opposition



Wounded Marine in carrier on helicopter gets plasma transfusion while he awaits evacuation; carrier cover is on ground to left



Two Marine helicopters in Korean hill terrain evacuate wounded fighters; handy pinwheels can go anywhere and do myriad of jobs

KOREA

NAVAL aviation is playing a big part in the Korean fighting, with jet *Panthers* teaming up with F4U'S and AD'S to furnish close air support to Army and Marine ground troops. Operating from carriers close offshore, the planes also range far behind the North Korean lines to find targets, hitting bridges, factories producing war materials, railroad trains, trucks and tanks.

Marines went to Korea with their own HO3S-1 helicopters to evacuate wounded men from the battle front, the first time in warfare that this has been done. Many lives have been saved by this new technique of fast evacuation. The pinwheels are a big morale booster.

Although few photographs were received in the U. S. from our carrier forces in the Pacific the first two months of the war, those on these pages show that the flattops have been busy rushing planes to the warfront, supporting ground troops and hammering the Reds wherever they could be found, day and night.



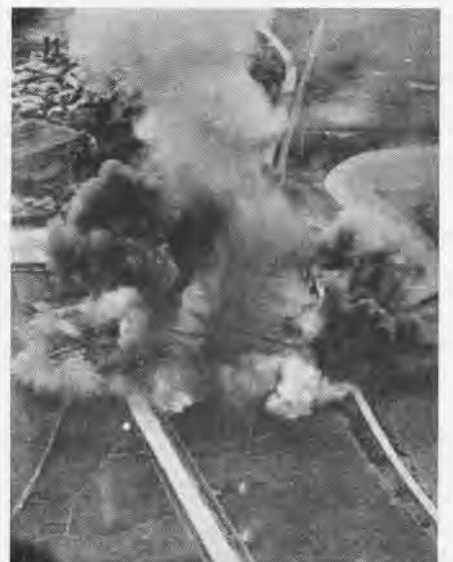
When this peaceful picture was taken back in April, showing AD's off Boxer over Pusan, now major war objective, things were quiet



Rockets from carrier-based planes blast a factory in North Korean zone during strike



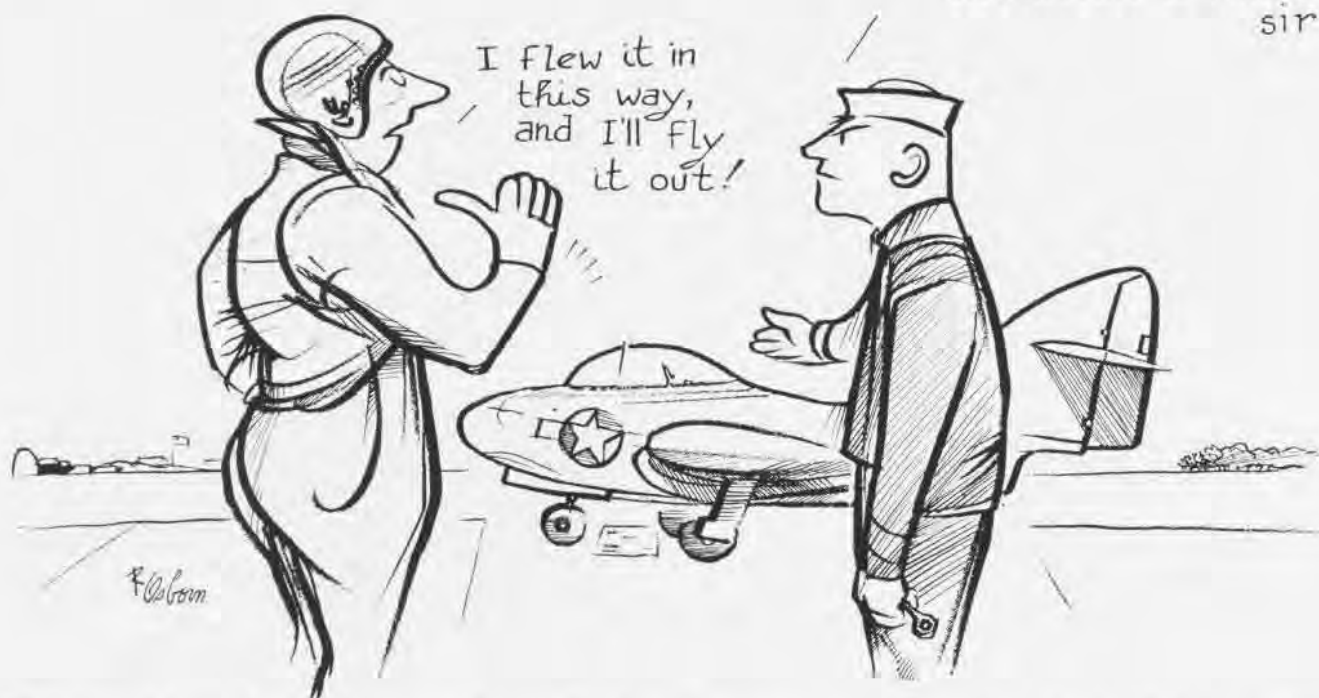
Rocket-firing Navy fighters set fire to a train in Korea, smoke indicates it had oil



Navy pilots hunting rear-area targets hit big railroad bridge near the 38th parallel

FAMOUS LAST WORDS

I wouldn't fly it until that
INVERTER IS FIXED!
sir



THE LIST of famous last words grows and grows. To the old standbys like "YOU JUST PUT THE WEATHER ON IT, BUB, I'LL FLY IT" and "I DON'T NEED A CHECK-OUT; I CAN FLY THE CRATE IT CAME IN", we must add another.

In this instance the pilot was ferrying an F9F-2 from the Grumman factory on Long Island to San Diego. On the first leg of his flight, the pilot noticed that his G-2 compass, gyro horizon, and fuel quantity instruments had failed. When he landed at MCAS CHERRY POINT, inspection revealed that the inverter which supplies power to these instruments had burnt out.

The pilot was informed that it would take four or five days to procure a replacement through normal channels, but was offered an SNJ for a short flight to NAAS OCEANA, Virginia where an inverter could be obtained. He declined this offer with the statement: "I FLEW IT IN THIS WAY, AND I'LL FLY IT OUT".

He then directed the mechanic to reinstall the burnt out inverter and to tape off the electrical leads.

While checking the weather for the next leg of his flight he encountered another pilot who was also ferrying an F9F-2 to the West Coast. The two pilots filed on the same VFR flight plan direct to St. Louis, Missouri, since the weather was unsatisfactory along the usual southern route.

The jets departed from Cherry Point at 1203 estimating St. Louis in an hour and forty minutes. At 35,000 feet they leveled off. Scattered clouds were noticed near Louisville, Kentucky with the tops estimated at 10,000 feet. This cloud layer became a solid undercast between Godman AFB and Evansville, Indiana.

With St. Louis 120 miles ahead, a let-down was started. Prior to entering the clouds at 18,000 feet, the lead pilot called and asked if it would be better to let down singly. The pilot with the burnt out inverter replied in the negative, saying that he would fly a wing position as his flight

instruments were inoperative. As the flight entered the clouds, he was flying about 75 feet to the left and slightly aft of the lead plane. The lead pilot reduced power settings to 75% and maintained a rate of descent at close to 1500 feet a minute. The air speed during let down was 250 knots.

At about 15,000 feet, the lead pilot glanced back and noted that the wingman was maintaining a good position. As he shifted his eyes back to the instruments he was startled to see that his gyro indicated that he was in a 15 to 20 degree right bank. He started to correct and noticed that his needle indicated that he was going into a left turn. Realizing that his attitude gyro was defective, the lead pilot corrected the attitude of his plane and continued the let down on needle-ball. Owing to his concentration on instruments he did not look back again until he broke through the overcast at about 5,000 feet. As his wingman was not in sight, he began making "S" turns and calling him on VHF. At this time, he noticed that his fuel gauge was stuck at 2100 pounds. When he landed at St. Louis, inspection showed that his inverter had also burnt out.

MEANWHILE the owner of a small airport near Lebanon, Illinois, heard the other jet traveling at high speed and attempted to track the plane by following the sound. As he did so, he saw the F9F-2 break out of the overcast in a spin, effect a partial recovery on a southwesterly heading, and crash into a hillside about 3 miles away. Another witness said that the jet appeared to be bucking as if in a high speed stall just before it hit the hill.

The jet exploded on impact and left a crater about 20 feet deep and 20 feet in diameter. Wreckage was strewn over an area of about 400 feet.

The pilot apparently made no attempt to use the ejection seat. Perhaps he kept on fighting to regain control of the plane, because he knew he should never have taken off his most important flight instruments inoperative.

Middie Sets Some 'Firsts' Korea Action Sees First Midshipman

VF-54, KOREA—It was the customary cutting-of-the-cake ceremony aboard the carrier *Valley Forge*—but with a difference this time.

Pilot honored on 22 July was Midn. G. E. Strickland. His was the 24,000th landing, but he was the first midshipman to make a thousandth landing on the *Valley Forge*. It was his first flight with VF-54. It also was his first combat flight. By this action, it is believed that



STRICKLAND WIELDS KNIFE ON CARRIER CAKE

Strickland became the first midshipman to take part in combat action since the Spanish American War, thus making another "first" in 20th century U.S. naval history.

Shown with Strickland in the cake ceremony picture are LCdr. Compton and LCdr. D. K. English, skipper.

Hobbyists at Memphis Busy Build CV Model to Exhibit at Shows

A full-fledged model of a standard CV type carrier was recently constructed at NAS MEMPHIS as part of a recreational project for enlisted men. Already "launched" at an air show at the municipal airport, the model is on its way to becoming a popular display.

Although 600 man-hours were required to build the model, it was completed in less than two weeks. Non-appropriated funds were used to finance the project which was promoted through the hobby shop.

The model is 17'8" long, 27" wide, and 40" high. Armament includes four 5" twin mounts, four 5" single mounts, ten 40-millimeter double mounts and 32 20-millimeter single mounts.

There are two main deck elevators and one side elevator. Squadrons of F9F's and F2H's, constructed to scale and made of plastic, are spotted on the flight deck. An air-sea-rescue helicopter completes the aircraft group.

The entire model is mounted on a four-wheel cart, 5'6" wide and 20' long.

A schematic drawing, showing a cross section of the carrier, was prepared in 221 man-hours and is displayed with the model to the public.



Pilots of the South Korean Air Force got their first look at folding wing aircraft when carrier-based Skyraiders and Corsairs landed at a Fifth Air Force fighter strip in Korea. Carrier planes have been flying many close support missions for ground troops, taking off the decks of Navy flattops cruising a few miles off the coast of South Korea.

Long Distance Hitch Hiker Reserve Travels 1500 Miles to Drill

University of Miami student and Organized Reservist William B. Love spends his summers at his Manhasset, Long Island, home except for two week-ends each month when he dons his naval uniform and hitch-hikes 1500 odd miles



'GOING MY WAY?' SAYS AERIAL HITCH-HIKER to NAS MIAMI to drill with VA-801.

Record hitch-hiking time for Lt. (jg) Love was eight hours from home to station, but sometimes it takes him as long as 36 hours for the trip.

Alaska Rescue by Pinwheel Point Barrow Helicopter Saves Worker

In what may be the northernmost helicopter rescue on record, a H03S-1 helicopter from Point Barrow, Alaska, farthest north city in North America, rescued a worker lost on the vast Arctic tundra.

An employe of United Geophysical Company was traveling by weasel across the tundra north of the Brooks Range when he became lost in a dense fog. When his vehicle ran out of gas, he wisely chose to stay with it and await rescue rather than exhaust himself slog-ging through the mossy swamplands.

As weather improved, bush planes started searching from the Navy-operated camp at Point Barrow. The days in the far north region were 24 hours long during July and when the weather is not foggy the hunting is good.

However, there was no sign of the missing man for more than 36 hours. It was decided to call in a Navy SNB-3P from Umiat, piloted by Lt. Torrey A. Newton, and a helicopter from Point Barrow flown by Lt. Robert D. Carleton. Ten minutes after Newton arrived in the search area he spotted a man standing on top of a weasel (mechanical variety) frantically waving his arms. This probably was to beat off the hordes of giant Alaska mosquitoes as well as to attract attention.

Unable to land, Newton circled overhead and broadcast the good news that the lost had been found. About 10 minutes later Carleton landed the Navy helicopter on the tundra and picked up one hungry, mosquito-bitten, but overjoyed individual. News of the rescue was reported by Cdr. Joseph R. Wood, aviation technical advisor with Naval Petroleum Reserve #4 at Fairbanks.



VAdm. T. L. Sprague, ComAirPac, took time out from a spring trip to NAS Kodiak to try his luck fishing in Karluk Lake. This photo shows his catch of sockeye salmon.



Seeing naval aviation from the bridge of the *Cabot* are midshipmen students from Universities of California and Missouri



Parachute harness befuddles Midn. Nerheim of University of Utah as his mates, Williams, Kasakoff and Horrocks, look on

College Men See Aviation



Princeton men, Nakervis and Nalen, disembark after a day's cruise on CVL *Cabot*

THE NAVY'S Annapolis of the Air, Pensacola, was swarming with college men during the summer when 1800 midshipmen from the Naval Reserve Officer Training Corps, representing 52 colleges, spent four weeks studying how pilots are trained to fight.

The program was called a second year cruise and gave the sophomore midshipmen an overall picture of how the Navy's air arm works. Supervisor of the program was Capt. E. T. Eves, Professor of Naval Science at Tulane University.

During their month at Pensacola, the midshipmen flew with VP-45 ASW P-boats and observed the pilots and crewmen at work. They saw pilots qualify for carrier work at auxiliary fields and spent a day aboard the training carrier *Cabot* to observe actual carrier landings. The middies were from all over U. S., as well as from Alaska, Guam, Puerto Rico, Canal Zone and the Philippine Islands.



Two men from University of California on summer cruise were Midn. McManus, Warren



Wave Sandra Murphy, Link trainer operator at Pensacola, is giving the word to a group of Villanova men during cruise



Four Iowa State midshipmen, Harris, Fowler, Schauer and Jones, check the java situation while on a flight in a Navy P-boat

WELCOME ~~WEEK-END~~ WARRIORS

PARTIAL activation of the Organized Naval and Marine Air Reserve was an accomplished fact by the beginning of September and the nation was able to see its Reserve powerhouse working out in the Regular line-up.

One thing stood out sharply—the Reserves were not only able, they were more than willing to take their places on the Navy and Marine air combat teams.

Despite the suddenness of the call which allowed little time for settlement of civilian affairs, requests for deferment were at an all-time low. Squadrons arrived for active duty with the Fleet with their full complements and within the minimum time allowed.

Take the NAS NEW ORLEANS squadron that was called up for example. At 1600 on Thursday, Capt. Harris, station CO, sent out the dispatches notifying squadron members to report. By Friday night, three-quarters of the officers and men were aboard. By Saturday evening, all but three of the remaining members, who had received their dispatches late because they could not be reached by telephone, had reported in. One of these, a college student, was flying in from Michigan and another, also a college student, was enroute from California.

On the next Friday, one week later, the squadron reported to ComAirPac at NAS SAN DIEGO with all of its members aboard except for one high school student and three medical students for whom the station had requested deferment. And replacements for these men, of course, were on the roster.

Included in the group were two other high school students. Told to drop out at final muster because word had just



MARINE AIR RESERVISTS MARCH DOWN THE LINE TO TAKE OFF FOR ACTIVE DUTY AT EL TORO

been received that Reserves in this category were not to be called, they raised a minor ruckus. This was ended, when their parents, aboard to see them off, not only gave their permission but actually requested the CO to send them with their squadron, otherwise "there would be no living with them."

First to be activated were certain Reserve attack, fighter, anti-submarine and fleet aircraft service squadrons from stations and units throughout the country. Many of these had just returned from two-weeks active duty cruises. These squadrons were assigned to ComAirPac and reported in at NAS SAN DIEGO.

Then certain patrol squadrons and their fasons were called. Those assigned to the Pacific Fleet reported in at NAS

WHIDBEY ISLAND or NAS SAN DIEGO, while those assigned to ComAirLant were to report at NAS NORFOLK or NAS JACKSONVILLE.

Also called to supplement these squadrons were groups of rated enlisted men, selected from squadrons not slated for immediate recall.

MARINE Organized Air Reservists met their schedules with the same ready-to-go attitude. Fighter personnel were to be integrated into Regular Marine fighter squadrons, while ground control intercept personnel were to be formed into new control groups.

First Marine Air Reservists to be alerted were from fighter squadrons, which were fresh from two-weeks of combat training maneuvers at Cherry



PILOTS SCHNEIDER, WOELM, SCHOKNECHT, RODD, DAGON, REPORT IN



RESERVES FROM DENVER 'TRUCK' TO THEIR BARRACKS AT SAN DIEGO



RADM. EWEN, COMCARDIV ONE, TELLS PILOTS HE KNOWS RESERVE UNITS WILL DO A GOOD JOB

Point. Assigned to ComAirPac, their first stop was MCAS EL TORO.

WITHIN a short period from the time they reported at El Toro, a large number of these Reservists were on their way to combat units operating in the Pacific—a telling commentary on the state of Marine Air Reserve readiness. Pilots who were qualified in jets were slated for Regular jet squadrons.

Also alerted at this time were Reservists from Marine ground control intercept squadrons, who reported in to El Toro.

Later Reservists from other MGCI squadrons were called. Those assigned to ComAirPac reported in at El Toro or while those assigned to ComAirLant reported at Cherry Point.

Finally the Marines activated two Reserve fighter squadrons, which were slated to go to El Toro.

Once at their active duty stations with the Fleet, the Reserves were given a rousing welcome by Regular units. Here the "invasion" of NAS SAN DIEGO by the Reserve squadrons assigned to ComAirPac provides a good example.

The initial scene was one of intensive but orderly activity.

First squadron to arrive—to the satisfaction of the Texans already aboard—was the one from Dallas. The date had particular significance for LCdr. S. C. Seagraves, its CO, for just five years previously he had helped sink the Japanese cruiser *Aoba* during a carrier strike.

On hand to greet the newcomers were staff members of both Air Force, Pacific Fleet, and Fleet Air Wing 14.

Hordes of trucks and buses were standing by and as fast as the Reservists were unloaded from the swarm of RFD's flying them in, they were met by FASRON-7 personnel and transported to their quarters.

A large banner bearing the well-known legend *Welcome Week-End Warriors* was strung in greeting across the top of one of the hangars to be occupied by the Reservists. The punch was administered by the large cross which blocked out the "Week-End."

Adm. Arthur Radford, Commander-in-Chief, Pacific Fleet, sent this dispatch: "Once again we in the Pacific Fleet are

proud to welcome aboard former ship-mates who have dropped everything to lend a hand when their help is most urgently needed. Well done to the personnel of these combat-ready squadrons who have reported and my congratulations to the Training Commands who have enabled them to keep ready."

AirPac's public information officer lost no time in compiling stories of as many men as possible.

Prize story of the Texans came from John H. Evans AOC. He had been out of



VADM. SPRAGUE GREETS RESERVES FROM DALLAS

the Regular Navy, after ten years of service, for only seven weeks before receiving his orders. To make it worse, he received his notice at his wife's birthday party, directing him to report at 0800 the next morning.

Lt. (jg) Frank Ferguson of NAS NEW ORLEANS, though, went him one better. Released from active duty with the Fleet only a few months previously, he had joined the Reserve squadron only the day before orders for recall went out.

In one case, the Nebraska State Police gave the Navy an assist. They hunted out and flagged down a Reservist from NARTU SEATTLE, who was innocently touring in their state, to give him word.



LCDR. ROBERTS GIVES WORD TO NOLA PILOTS



HARRIS, CALLENDER, CRAWFORD GET TO WORK



OLATHE RESERVES FORM A BIG 'K' FOR KANSAS



GRID STARS SISSON, HARRISON, HEFFINGTON, TODD JOIN NEW TEAM



CHIEF GORWOOD EXPLAINS F4U-4 HYDRAULIC SYSTEM TO E. LIPTRAP

A POLITICAL life was budding for Chief Howard S. Massey of the Memphis group. He was running for election to the State assembly in Tennessee. (He has since heard that he was not elected.)

First man in the New Orleans squadron to report had been W. S. Harris, Jr., AA, 18, son of the commanding officer of the NAS. Hearing rumors about the recall, he had dropped into his father's office to track them down and found that he was on active duty.

Then there was seaman Eddie Liptrap who was trying to figure out if he was promoted or demoted. Only 18, Eddie still could look back on life as a lieutenant-colonel and also as a 2nd lieutenant. The former was earned in the California Cadet Corps and the latter is a commission he held in the California National Guard.

Laying claim to the title of "the most educated squadron in the Navy" was the group from NAS OLATHE. About 75% of the enlisted men had been enrolled either in Kansas University or in Kansas State University.

The Reservists were from all walks of life. One CPO, now acting as leading chief, was formerly the general supervisor for a national farm machinery company. Another chief, a technician, was comfortably established as the chief radio engineer of an Arkansas radio station. Other men were farmers, aircraft workers, laborers and some owned their own businesses.

In experience, the men ranged from veterans with years of combat duty to a few raw recruits. Each squadron promptly saw to it that those men new to the Navy were placed with old hands to learn a rating and become familiar with Navy life.

Proof that there was enough know-how to go around was furnished by the Reserves in the first-arriving Dallas squadron. They reported in late Friday

evening. Monday, their first plane was delivered to the hangar, fresh from "mothballs". By Wednesday it was in the air.

All along the line, Reserves have made the transition from civilian to military life with a minimum of confusion and have gotten back in the groove in double-quick time. They are determined to do a 4.0 job and to finish it as soon as possible. On the basis of the fine performance they turned in in World War II, you can be sure the Reserves will deliver.

THE FOLLOWING dispatch which VAdm. Sprague, Commander Air Force, Pacific Fleet, sent to the Chief of Naval Air Reserve Training sums up the Navy's viewpoint: "I have been privileged to see with my own eyes a most heart-warming example of superb martial spirit. The initial movement to active duty of units of your command was completed on 4 August. The efficient precision of the airlift and the fine appearance and high morale of the officers

and men of the Naval Air Reserve squadrons who have reported to me have been a source of deepest satisfaction to all of us in the Fleet. My one regret is that all the citizens of our country could not see these well-disciplined, well-trained and combat-ready squadrons report to the colors so promptly from their businesses and homes. 'Well Done' to the Chief of Naval Air Reserve Training and to every officer and man of his Command."

Reserve squadron CO's shown in the picture with Capt. Frederic W. Priestman are: *1st row*, Lt. J. Sipprell; LCdr. S. C. Seagraves; LCdr. H. W. Wiley; *2nd row*, LCdr. E. R. Swanson; LCdr. G. F. Carmichael; LCdr. J. B. Kisner; LCdr. W. E. Woodman; LCdr. R. F. Edmundson; *3rd row*, LCdr. J. O. Anthony; LCdr. D. Watts; LCdr. W. E. Harrison; and LCdr. C. E. Oveland. The picture was taken when Capt. Priestman, Coordinator to DCNO (Air) for the Naval Air Reserve, made a special trip to the West Coast to observe the Reserve squadrons operating with the Fleet.



DURING HIS VISIT TO SAN DIEGO, CAPT. PRIESTMAN LINES UP WITH RESERVE SQUADRON C.O.'S



At NAS Los Alamitos, Lcdr. S. C. Jackson walks down the line with movie star Betsy Drake in whose honor one of the station planes was christened "Pretty Baby," which is the name of Miss Drake's current picture.

Hobby Shoppers Build Own Part-time Work Yields Plane for \$400

NAS MEMPHIS—There is nothing new about building model airplanes in a hobby shop, but two petty officers here assembled from scratch a full-fledged, flyable aircraft, using facilities of the shop.

Arthur B. Hagler, AMC, and James F. Kight, AM1, acquired a fuselage from one source, engine from another, parts here and there and with much ingenuity and considerable plain hard work produced in a little more than four months a two-seater Silvaire Luscombe 8-A, all metal with fabric wings, that would pass for a factory job.

Both men hold private flying licenses and for some time had the yen for a plane of their own. Lacking the cash, they tried to get one by other means. They bought a fuselage from a private party, overhauled it and re-covered the wings with new canvas.

The engine and other parts were ordered from various sources about the country. Landing gear, cowling, fairings, wing ribs and other parts were



HOBBY SHOP HELPED MEN BUILD THIS AIRPLANE

improved by the builders. Taxi tests have been completed and the CAA has certified it airworthy. The two men now possess a plane valued at about \$2,800 which was assembled for only \$400. They are instructors in the airman school of the technical training command here.

Hollywood Works At Corpus Film on Instrument Flight Being Made

Part of the glamour of Hollywood has been transplanted to the All Weather Flight School at NAS CORPUS CHRISTI.

The school is currently playing host to Polaris Pictures, Inc., of Hollywood, Calif. This company has a Navy contract to make a new training film on basic flight instruments. Entitled "Flight Through Instruments," it went into production on June 5, 1950 and is scheduled for Navy-wide release by January 1, 1951.

The film is shot almost entirely within the cockpit of an SNB type aircraft which has been modified for ideal camera installation. The camera is installed so as to shoot exactly what the pilot sees in flight.

It is necessary to do much of the actual flying and filming at night so that there will be no outside light reflections. The illumination for the shooting is supplied by 24-battery powered floodlights.

Project Officer on the film is Lt. P. Lanham of the Naval Photographic Center, Anacostia, D. C. Air Force Advisor is Captain Robert E. Dinwiddie, USAF, Training Officer of 3502 Training Squadron at Tyndall AFB, Panama City, Fla.

The pilots of the modified SNB are Lcdr. H. E. Belew and Lt. B. B. Smith of the All Weather Flight School. Director is Juan Hutchinson, a commander in the Naval Reserve, who has a background of 20 years in photography.

The script was written in conjunction with the Air Force, and narration for the film will be added in Hollywood.

• VR-31—Ferrying of airplanes is still going on in this man's Navy. During May this squadron and VR-32 delivered 73 new planes and 447 used aircraft, including everything from jets to helicopters.

Not a Scent in a Carload Facility Officer Depickles Polecats

NAF LITCHFIELD PARK—Not only does the preservation department of this facility depreserve aircraft as required by the Navy but it renders a humanitarian service to residents of the area in reducing some of the offenses of nature.

Backed by experience gained as officer-in-charge of NAAS EAGLE MOUNTAIN LAKE, Texas, Lcdr. Leo A Flynn,



QUICK, FLYNN, TO WORK! AVERT THE SQUIRT!

preservation officer of the NAF, applies his veterinary talent to deodorizing skunks, civet cats and polecats, captured by local small fry, in the interest of domestication and reduction to pet status.

It seems that during the recent war, with time weighing heavily during off-duty hours, the hunting and capture of this particular species was developed to a high degree at Eagle Mountain Lake. Upon capture an immediate decision was required—death or deodorization. Already a preservation officer in spirit if not in fact, Lcdr. Flynn chose the latter course.

After reading extensively on the matter and recalling the lore of his Boy Scout days, he borrowed scalpels and iodine from the medics and proceeded to accomplish a series of minor (major to the animals) operations which were successful in every respect in each instance.

It is this experience that enables him today to contribute materially to the pet population of Arizona. And his operations are recognized as the most economical in their field—not a scent in assets or liabilities.



The long and short of it is the tallest Navy man and the shortest Wave aboard NAS Alameda. Bob R. Moody, YNSN, is 6' 6" and little Maxine Notson, SN, barely made the minimum Navy height, standing five feet.

Reserves Gear For Action

NAVAL AIR Reserve training cruises got off to a record-breaking start this summer, with the Marine maneuvers at Cherry Point highlighting the July picture. Then the Korean crisis snowballed and threatened to disrupt the elaborate cruise program.

The Naval Air Reserve quickly revised its plans to meet the changing conditions. And the cruises went on at an even more intensive pace.

Organized squadrons, unable to take refresher training aboard Fleet carriers because the carriers were needed elsewhere, set up advanced base operations and concentrated on combat tactics and ASW tracking and trapping. Eastern Marine Air Reserve squadrons, forced to cancel their maneuvers at El Toro, trained at their home bases at the appointed time and packed in two weeks of solid work in close air support and interception problems.

Stations and units, under pressure to get alerted squadrons off to active duty with the Fleet, still kept their cruises going on schedule. And the Reservists themselves, realizing that their turn to be called up might come next, went at their training with unprecedented vigor and purposefulness.

The Marine Air Reserve maneuvers at MCAS CHERRY POINT involved the greatest mass flight from coast-to-coast ever undertaken in peacetime. Twenty-one squadrons, comprising some 2600 Organized Reservists, from stations and units located at Seattle, Oakland, Los Alamitos, Denver, Olathe, Dallas, New Orleans, Lincoln, and St. Louis, converged on Cherry Point via Marine transport squadron air or flying their own fighter planes on 8 July.

They were met with lashing rain and near zero visibility. Despite these haz-



NARTU ANACOSTIA PILOT GETS READY TO TAKE OFF DURING REQUALIFICATIONS ABOARD WRIGHT

ards, the transport planes, fully loaded with some 1100 troops and their equipment, managed to land without a single accident with the aid of the Marine ground control approach unit at Cherry Point. It took 7 hours and 44 minutes to "talk" the transports down safely. At one time, 11 planes were stacked above the field waiting instructions to land.

The fighter planes came in later and then all hands got down to business. Flying approximately 3000 sorties, Reserve pilots logged more than 5100 hours in tactical flights, as well as more than 400 hours in instrument flying. Ground crews worked day and night keeping availability at 85%.

Climax of the Marine maneuvers was the "short war" held at Camp Lejeune, during which the fighter squadrons furnished close air support to Reserve ground troops during a mock amphibious assault.

Other highlights of the cruise were the radar networks set up in the field by the Marine ground control intercept squadrons to direct interception of "attacking" planes and the checking out of Reserve pilots in jet planes.

Although Fleet carriers were not available for Reserve requalifications, fortunately those Naval Air Organized squadrons slated to take refresher training aboard the carrier assigned to the Naval Air Training Command (as well as a few others) were able to complete their schedule.

Typical of these cruises were the ones taken by squadrons from NAS GROSSE ILE, NARTU ANACOSTIA, and NAS NEW ORLEANS.

Twenty-one pilots from VF-735 and VA-731 of Grosse Ile requalified aboard the *Wright*, making an average of 15

landings. The 80 enlisted personnel who accompanied the group did much to make the cruise a success.

Approximately 300 weekend warriors in Anacostia's VA-669, VF-664, VF-663, FASRON-661 and WS-66 also took carrier refresher training aboard the *Wright*. Fifty percent of the enlisted men were operating aboard a ship for the first time and two pilots qualified in carrier landings for the first time. Forty other pilots requalified.

The three New Orleans squadrons that operated aboard the *Wright* were VF-823, VS-822 and FASRON-821. Familiarization of ground personnel in shipboard routine was also a feature of this cruise.

FORCED TO cancel their carrier requalifications, VF-891, VF-893, VS-891 and FASRON-891 of NARTU SEATTLE still went to NAAS EL CENTRO and spent the full period operating under a blazing desert sun. They completed the gunnery, rocket and night flying portions of the syllabus and the VS squadron worked in a short course in ASW trends at FAETUPAC, NAS SAN DIEGO. Highlight of this cruise was the fact that the squadrons were almost 100% self-supporting.

Other squadrons, which took two-weeks cruises at EL CENTRO, included VF-874, VS-871 and FASRON-871 of NAS OAKLAND. Their line and check crews kept aircraft availability at 86% and pulled 63 checks during the two weeks.

On the East Coast, it was the same story. Unable to requalify aboard carriers, VF-922 and VA-923 of NAS ST. LOUIS and VF-821 and VS-821 of NAS NEW ORLEANS set up advanced base operations at NAS QUONSET POINT and concentrated on syllabus training. Here



ANACOSTIA RESERVES LOAD PARTS ON WRIGHT



WEEKEND WARRIORS FROM ANACOSTIA GET BRIEFED ON HANGAR DECK



OFFICERS HALL, YATES, ROPP, AMRINE TALK WITH REPORTER KLOEPFER

again the O-2's in the squadrons handled their lines and kept availability high.

When VF-791, VA-799 and FASRON-791 of NARTU MEMPHIS were at NAS PENSACOLA for part of their cruise, the fighter squadron emphasized air-to-air gunnery and worked several CIC problems with the *Cabot*, while the attack squadron concentrated on bombing and overwater navigation flights. O-2's served as plane captains.

VA AND VF squadrons taking cruises at their home bases managed to work in some interesting variations. VF-911, VF-914 and VF-917 of NAS SQUANTUM, for example, coordinated a phase of their training with the Reserve Wing of 89th Troop Carrier Wing of the Air Force. Naval Air Reservists provided fighter cover for the airlift of National Guard troops between Bedford and Falmouth and conducted simulated strikes on a designated target near the site of the National Guard troop maneuvers. Air control over the combat air patrol was maintained by the CIC team of the air wing staff.

The exercise marked the first time the Reserve forces of the Air Force, Navy and Air National Guard in the

New England area combined phases of their summer program. A letter commending the naval units for their precision, timing and coordination of fighter formation was sent by the CO of the Air Force Reserve group.

During the cruise of VF-812, VA-816, FASRON-812, of NAS MINNEAPOLIS at Bemidji, the station was unable to transport ground personnel because of other airlift requirements so it called upon the local Air Force squadron for an assist. A C-46 was promptly dispatched and the round trip lift enabled the squadrons to maintain full-scale operations at Bemidji. Pilots averaged 40 hours on this cruise.

VF-651 and VF-654 of NAS AKRON, which trained at their home station, went to NAS GROSSE ILE to complete the gunnery phase. Pilots in these squadrons also averaged about 40 hours.

During the cruise of VF-831 and VF-836 at NAS NEW YORK all pilots not previously qualified in jets completed the jet training course and made their first flights in the FH-1.

Pilots in VF-931, VF-934 and VS-932 at NAS WILLOW GROVE averaged 56.7, 48.4 and 46 flight hours respectively during their two-weeks.

NAVAL AIR Reserve patrol squadrons and their fasrons also made a good record. VP-772 and FASRON-775 of NAS LOS ALAMITOS concentrated on ASW training during their cruise at NAS WHIDBEY ISLAND.

And on the East Coast VP-791 of NARTU MEMPHIS spent nine days of their training at NAS MIAMI. Pilots averaged 48.9 hours of syllabus flying; 15 pilots qualified for instrument cards; seven PBV-5A's took part in ASW exercises with Fleet submarines based at NOB KEY WEST; three PBV's flew to Guantanamo Bay and remained overnight; two simulated submarine con-

tact problems were worked out enroute; six enlisted men completed all practical factors for advancement in rating; two 30, four 60 and two 90-hour checks on aircraft were pulled at Miami; and there were no accidents or major maintenance difficulties during the period.

Fifty-one officers and more than 100 men of NAS AKRON's VP-651 and FASRON-655, which had only been commissioned for six months, completed a successful cruise at NAS QUONSET POINT. Work with live submarines was also a feature of this cruise. Enlisted men got in 2288 hours of ground training and pilots racked up about 1000 hours of flight time.

The excellent support given VP-911 by FASRON-915, both of NAS SQUANTUM, enabled the pilots to log a high average during their cruise at NAS NORFOLK.

TYPICAL VP squadrons which operated from their home stations were VP-811 of NAS MINNEAPOLIS, VP-891 of NARTU SEATTLE and VP-661 of NARTU ANACOSTIA.

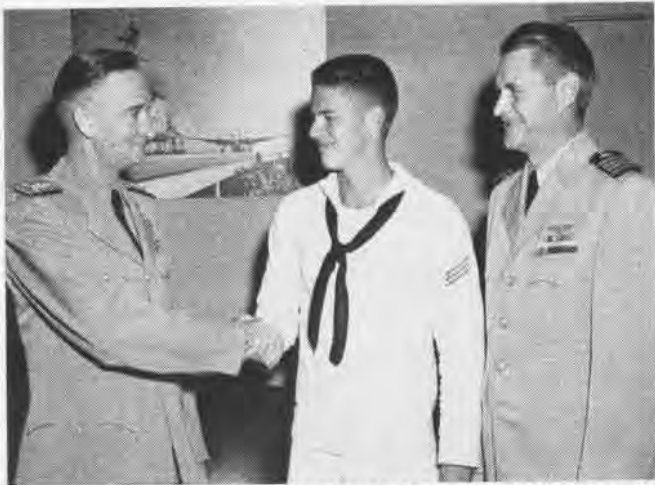
Flying PV-2 type aircraft, VP-811 pilots averaged 39.6 hours in 11 days of good weather. A feature of this cruise



VP-661'ERS VISIT DRUM BEFORE ASW EXERCISE



CREWMEN FROM ANACOSTIAS VP-661 GAS PBY



VADM. CASSADY CONGRATULATES TOM AS CAPT. PRIESTMAN LOOKS ON



AIR BOOT PLATOON LEADERS AND DATES AT ATLANTA'S MILITARY BALL

was the intensive course for combat aircrewmembers which emphasized ordnance problems. Two men, A. H. Borer ALAN and F. J. Brinkman AOVAN, were completely checked out as CAC's and 14 other men completed more than 80% of the CAC requirements.

Our in Seattle, VP-891, conducted a novel program. It operated a 36-hour continuous battle problem with a Fleet submarine in an area 50 miles off shore. A "battle" plot was established, communication system set up for CW traffic on all weather, position and contact reports, and the squadron functioned exactly like a Fleet ASW squadron.

VISUAL contacts were made, until adverse weather necessitated instrument flight clearance and radar contacts from the regularly scheduled patrols. Information brought back by a wing staff officer and five men from the squadron who were aboard the submarine for the exercise proved valuable.

VP-661 of Anacostia also concentrated on ASW operations, conducting exercises with submarines off the coast at Norfolk.

At Niagara Falls, VP-851 and FASRON-

855 undertook their first cruise successfully with VP pilots averaging 44.8 hours. Most of the gunnery syllabus was completed at NAS GROSSE ILE.

And the record of achievement was underlined by the job done by Reserve transport squadrons. Pilots of VR-921 ST. LOUIS, for example, took over many VR-5 runs during their cruise with the Fleet Logistic Air Wing at Moffett Field and won this comment from their hosts, "Their contribution to the West Coast air lift was a very great help and their assistance came at a time when it was urgently needed. We feel that VR-921 is an A-1 outfit and one of the best we have observed on training duty."

Similarly, VR-871 of NAS OAKLAND on its cruise at that station operated independently. Not one scheduled flight was missed due to excellent maintenance and planning of squadron personnel. VR-651 of NAS AKRON was another squadron that literally flew around the clock to meet commitments.

These, of course, are only a few of the many cruises undertaken this summer by Reserve squadrons. They indicate the practical scope of the Organ-

ized Naval Air program and they underscore the teamwork that exists between Reserve and Regular Navy units, whose full cooperation, particularly in the away-from-home cruises, helped make the program a success.

Reservist Becomes NavCad

Recently selected for the Naval Aviation Cadet Training program was Reserve Airman Fred Thomas Priestman, son of Capt. Frederic W. Priestman, Coordinator for Naval Reserve for DCNO (Air). In becoming a NavCad, Tom Priestman was following in his father's footsteps, for just 25 years previously Capt. Priestman began his career in the Naval Air Reserve.

When he received his appointment to the program, Tom Priestman was serving as a Reserve stationkeeper at NARTU JACKSONVILLE. He had joined the Organized Reserve as a seaman recruit on his 17th birthday. He was then a member of the football team at Bolles Military Academy and nine of his teammates were sworn in at the same time.

For the past two years, he has been a student at Lake Forest College and this June completed his sophomore year.

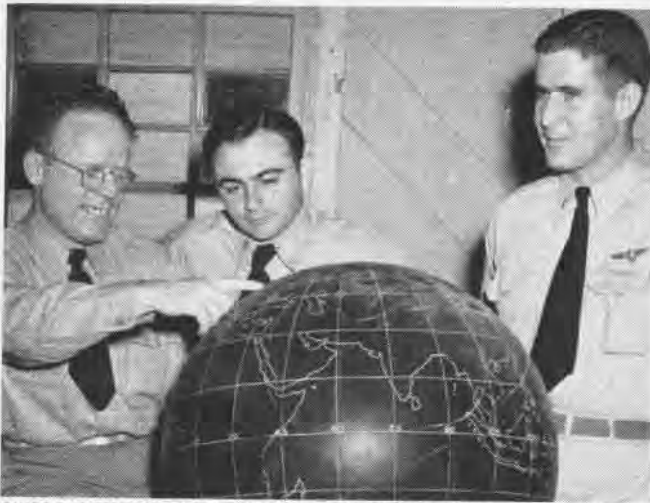


NAVY AIR BOOTS COME ABOARD FOR TRAINING AT NAS NEW ORLEANS



BIRMINGHAM BOOTS LINE UP FOR AIRLIFT VIA R4D BACK TO ATLANTA

STARS OVER THE ATLANTIC



CHIEF PHILBY, NAV INSTRUCTOR, CHECKS OUT DEGENNARO AND LINCOLN



BINGHAM TELLS HARRINGTON, MCLAUGHLIN ABOUT VR-6 ASTRO-COMPASS

VR-6 WESTOVER—This squadron regularly operates a trans-Atlantic flight a day, which places considerable emphasis on navigation. When a new pilot reports to VR-6, he can look forward to refreshing his navigation techniques and to putting in his fair share of time at the navigation table.

Even in this bright new world of electronics and technology, celestial navigation is still the number one method of getting across the ocean—just as in the days of yore and Columbus. So, navigation school takes up the first two weeks of one's tour in VR-6.

The first week is devoted to refreshing one on the niceties of the sextant, plotter, chronometer, E6B and a variety of charts. A few MATS regulations are injected and one learns a little about MATS flight plans. Fuel analysis charts, Pomar, logs and navigational aids also are introduced during the first week.

The last week is devoted to actual route problems, and the final examination involves navigating a typical trip from Westover to Rhein-Main. This desk trip will include sending out hourly Pomars, taking half-hourly pressure readings and working out a drift, working out hourly three-star fixes and filling out the hourly half-dozen forms, charts and graphs.

Later, when the new navigator goes on his first trip, he will find that the leg from Westover to Stephenville to Torbay, Newfoundland is duck soup, primarily radio range navigation. The leg from Torbay to Lagens—1200 miles of over water navigation to a very small island in Azores—is apt to be just soup. Two things the new navigator will learn to love: one, the weather ship halfway across which gives passing planes radar and radio fixes as they go

by; two, the R5D's secret weapon, two automatic direction finders. The plane's two "bird-dogs" are about the finest pieces of equipment to be found on a dark rainy night an hour out of Lagens.

Loran is fairly good around the Newfoundland area anywhere along the east coast of the U.S. These electronic lines become long and thin before one gets into Lagens, and are of little value during the latter half of this trip. Most trips are flown during darkness and a low-level cloud layer almost invariably covers the surface, so drift readings are seldom possible. The answer can be read only through a sextant, in an Air Almanac and an HO 218 or 219. It's amazing how proficient one can become with this equipment when he realizes proficiency means the difference between a cold swim and an ETA right-on-the-nose.

On the trip from Lagens to Orly (Paris), everyone feels a bit more secure—it would be difficult to miss Europe. On the other hand, not too far to the right of course lies a nice mountain-chain and not too far to the left, of course, is plenty of open water right on up toward the Arctic circle. Loran and Consol stations in England provide on-course information.

Weather on the North Atlantic route offers plenty of instrument flying. Nevertheless, even in the worst weather an occasional celestial shot is usually possible. There are times of course when this is not true, and then the weather ship, the "bird-dogs" and pressure pattern are often the only way to stay on course.

Pressure pattern is a relatively recent innovation and may not be familiar to the older generation. This "pattern" is obtained by charting the barometric

changes occurring as the flight progresses. Barometric changes are measured by taking regular pressure altitude readings and true radar altitude readings and noting the variation between the two.

Since direction of rotation around a pressure area is known, by charting the rapidity with which an aircraft is entering or leaving a high or low pressure area, a simple formula will show the amount of right or left drift being encountered.

The trip back from Rhein-Main so far as navigation is concerned requires more exact navigation going from Orly to Lagens, and the trip from Lagens to Stephenville remains about the same. However, Loran going into Newfoundland is usually good, and of course the large land mass is easier to hit. Weather over Newfoundland is likely to be bad and gas grows critical, so it is hard to relax before the needle swings over Torbay and picks up Stephenville dead ahead.

Occasionally the northern route is flown, via Iceland and Greenland, and though the flights are shorter, the weather is apt to be bad. In the extremely high variation areas a wrong application of this factor can mean heading for Chile instead of Massachusetts. And the water is reputed to be mighty rough.

A direct flight from Lagens to Westover usually offers excellent Loran for ETA and course en route, but exact position and precise gas analysis must be maintained due to the greater distance and more critical gas load.

• VA-75—Flying 1464.6 hours during May 1950, VA-75 commanded by LCdr. J. E. Kennedy, smashed by a wide margin their old record of 1000.1 hours established in July 1948. During this record-breaking month, VA-7 made 124 landings on the *Coral Sea*.

★ ★ ★ ★ ★ ★

GCA BOX SCORE

July Total Approaches	11,385
July Instrument Approaches	536
Grand Total Approaches	385,525
Total Instrument Approaches	16,091

★ ★ ★



This isn't a cove or mail line. Men of NAS Birmingham donated blood for 2½-year-old Irene Waters who suffers from an incurable disease. They beat a quota of 41 points by 7.

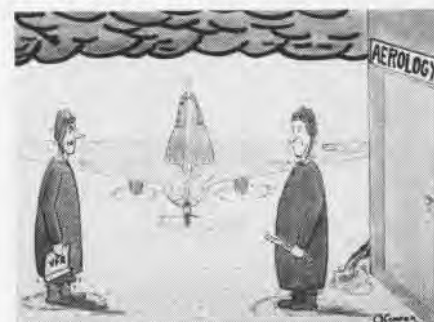


LT. GEORGINI DELIVERS TWO PINTS OF BLOOD

**Air Reservist Saves a Life
Flies Rare Type of Blood to Mankato**

When the St. Peter, Minnesota, Community Hospital contacted the St. Paul Red Cross Blood Center for the rare type of blood urgently needed for a Mrs. Everett Crymble, who was to undergo surgery, the Center asked NAS MINNEAPOLIS for an assist.

Lt. M. C. Georgini volunteered for the mission and flew the two pints of B negative blood as far as Mankato, where the Minnesota State Patrol took over. The blood arrived in time.



VFR, BAH! HOT AND DUSTY, HE SAYS!

**Reservist Goes Manhunting
NAS Atlanta Pilot Spots Getaway Car**

1st Lt. Paul E. Dennis, Marine fighter pilot with VMF-351 at NAS ATLANTA has laid the groundwork for a new chapter in the organized reserve training manual to be entitled "Manhunt'n."

It happened this way. Lt. Dennis, veteran of the South Pacific and holder of the DFC and numerous Air Medals, is a Tennessee State highway patrolman in civilian life. On the Thursday before drill, he was in a stolen car chase.

Two men and a woman, who had been stopped by a local patrolman, had shot at him and managed to steal the patrol car. Later they "swapped" this for a '41 Chevrolet which they abandoned for a blue Dodge pick-up. Last seen they were head'n for the "hills" of North Georgia.

Patrolman Dennis recovered the patrol car and on Friday stood a 24-hour tour of duty on a roadblock in North Georgia. On Saturday, he reported aboard NAS ATLANTA for weekend drill and immediately requested permission to make several search flights in an SNJ over the area where the fugitives were believed to be hiding.

On the second search, he spotted a blue Dodge pick-up, which, however, turned out to belong to a farmer.

Sunday morning both the Georgia and Tennessee authorities called off the search because the area was too large to effectively control. But Lt. Dennis, in true Marine-bulldog fashion, hung on

**A 4.0 TIP!
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and persuaded the authorities, via long distance telephone, to allow him to continue the search.

This time he took Lt. "Luke" Green along as aerial observer. They reported spotting a blue Dodge pick-up around Fairmount acting "mighty queer" and then seeing two men ditch the truck for a red pick-up. And sure enough, several days later, when one of the fugitives was captured in South Carolina, he was driving a red pick-up.

All of which explains why Lt. Dennis is now an authority on aerial manhunt'n.



Times were more peaceful aboard the carrier Valley Forge when this photo was taken of the flatop, now with the Pacific fleet in action. In this shot, it was in Hong Kong's beautiful harbor with a deck load of F8F's and dive bombers before the war. Also in the photo are two British cruisers and several light fighting units of the British Asiatic fleet.

HIGH SPEED PULL-OUTS

WITH NAVY and Marine fighters and dive-bombers swarming from carriers close off the Korean shores to support hard-pressed Army and Marine ground troops, interest in high speed pull-outs and G forces has risen.

Close air support, long a strong point of Navy and Marine pilots, requires fast low-level maneuvering which puts heavy strains on the pilot and plane alike. Problems of helping the pilot combat G pull (gravity) were discussed in NAVAL AVIATION NEWS last month (*Anti-G Suits*, pg. 14).

Questions arising out of the effect of high speed pull-outs on planes will be discussed in this article, drafted by LCdr. John E. Lacouture, commanding officer of VA-15, who recently completed an investigation of that type of maneuver.

The problem revolves around how much load an airplane's wing can support before it shears off the plane during the pull-out. All Navy aircraft are assigned a maximum load which is not to be exceeded. In the case of carrier aircraft, this load is usually seven or eight G's, or seven or eight times the gross weight of the aircraft. These lifting loads are imposed primarily on the wings, since most of the plane's lift comes from the wings.

Taking, for example, the case of an airplane that has a limit load factor of seven G's, the following questions arise:

1. What happens if the limit load factor of seven G is reached on numerous occasions?

The answer based on experience to date is that repeated imposing of six or seven G pull-outs will have no effect on the structural integrity of the airplane. In all probability, several thousand seven G pull-outs could be made before there would be any danger of fatigue failure.

2. How does the gross weight of the aircraft affect the figure of seven G?

The figure is determined for most aircraft for a weight that usually is near the middle of the range of the plane's permissible weights. Therefore, if the gross weight of the plane is increased, the value of seven G must be decreased so that the product of G and gross weight remains constant, since it is the product of G's time gross weight that is approximately the load being imposed on the wing of the aircraft.

If the gross weight of the aircraft is less than that specified for a permissible acceleration of seven G, the wing will be able to take accelerations greater than seven G. However, in some planes,



ROLLING PULLOUT FROM DIVE PUTS HEAVY STRAIN ON ONE WING OF FIGHTERS OR ATTACK PLANES

some of the fixed load items such as engine mount fittings and bomb racks are designed for a limit of seven G and will not take increased loadings as the airplane gross weight is reduced. Therefore, seven G should not be exceeded at lower than normal gross weights and should be reduced at greater than normal gross weights.

3. How do gusts affect the figure of seven G?

The acceleration of an aircraft produced by a gust is approximately proportional to the speed at which the plane is traveling; therefore, in a pull-out, gusts can be an important factor, since at the high speeds encountered in a pull-out gusts can impose load factors of three to five G's. Hence, for the example aircraft in rough air, the pilot should not pull more than two to four G in a pull-out.

4. How do rolling pull-outs affect the figure of seven G?

In a rolling pull-out the wings are no longer loaded symmetrically. In other words, speaking of the wing as a semi-span, one wing is carrying more load than the other. In aggravated cases this may reach to 70% to 30% ratio. Therefore, the maximum allowable G for the example aircraft should not exceed five G in a rolling pull-out.

5. How do snap pull-outs affect the figure of seven G?

As far as the wing is concerned, the wing will not be loaded more in a snap pull-out than in a regular pull-out pro-

vided the seven G figure is not exceeded. However, it must be remembered that it is extremely difficult to regulate the amount of G applied in a snap pull-out. Also, it will be seen that the tail load is much larger in a snap pull-out. Finally, it will be seen that current Navy accelerometers are almost useless in a snap pull-out. Therefore, avoid snap pull-outs unless necessary for safety reasons.

6. How does altitude affect the seven G factor?

At higher altitude, the permissible G is reduced, owing primarily to factors of stalling and buffet.

7. How large a load can be imposed on the wings before they will fail?

Most airplane wings have a built-in safety factor of 1.5 to 2. This means that for this example airplane, a load factor of 10 to 14 G can theoretically be imposed before failure. This may very well be true the first time the plane is stressed over seven G. However, if the plane has been stressed more than seven G previously to such an extent that permanent deformation has set in (i.e. past the elastic limit of the metal), it is conceivable that the next pilot to fly the plane could cause the wings to fail by imposing loads of four to seven G.

8. How accurate are the accelerometers currently used in naval aircraft?

If the accelerometer is in good condition and has been calibrated properly, it will produce excellent readings in

slow pull-outs. A time to reach maximum acceleration of from $\frac{3}{4}$ to 1 second still is being considered a slow pull-up. It must be noted, however, that it is possible for a pilot to reach full deflection of the elevators in about $\frac{1}{10}$ of a second. Therefore, readings reached in landings, snap pull-outs, and sudden gusts will have no physical significance whatever.

In conclusion, pilots must realize that under combinations of some of the adverse factors previously listed, it is impossible for them to attempt a seven G pull-out safely even though under normal conditions a seven G pull-out would be perfectly all right.

Under no circumstance should a greater than seven G pull-out be attempted on this example plane, unless it is absolutely necessary for safety of flight purposes. If a pull-out in excess of that figure were to be made, it certainly should be reported by the pilot on landing and a thorough check of the plane should be made before the next flight. Even then it is hard to tell whether the plane has been deformed dangerously.

PBM-5A's To Be Remodeled Transport Configuration Authorized

After many years of military service the Martin PBM-5A amphibian is due for demilitarization. A prototype plane is being worked on by NAS NORFOLK.

In demilitarizing a plane, all armament equipment listed in the standard inventory is removed with the exception of pyrotechnics. All armament operating systems are removed except that required for the droppable fuel tank. In place of the nose turret will be a metal transport nose.

NAS SAN DIEGO has been authorized to convert one of the planes to the transport configuration. Also prior to the order to convert all the planes, 35 in number, FASRON 110 has been authorized to convert three airplanes.

When the Norfolk prototype has been approved, the Bureau of Aeronautics will issue an aircraft service change for demilitarizing all of the PBM-5A's.

In making the change, most radio and radar gear will be retained.

With much of the military weight removed, these planes will be excellent utility amphibian planes. They will have a large pay load, long range and be able to operate in fairly rough water.

• NAS NEW YORK—Thirty-five National Guard officers of the 1352nd Anti-Aircraft Battalion of Fort Tilden recently attended a special class in 50 cal. machine gun training given by A. Reese AO2 at this station. The officers used the Navy's 3-A-2 gunnery trainer. In a letter of appreciation, the instructor and the course were both graded "excellent."

DF NAV GETS EYE APPEAL

NAS CORPUS CHRISTI—Inbound bearing? Outbound bearing? Geographic position? Add, subtract, turn left, right, intercept, are some of the standard jargon used in familiarizing students with problems of omni and DF navigation at All Weather Flight School.

Based on the premise that most people think in terms of mental images, and that one special device or picture is worth a few thousand words, Lt. R. R. Vancil designed and built what he calls a bearing problem display.

The device stands almost seven feet high and circular sections are approximately four feet in diameter. This generous size insures readability for at least 35 assembled students. The device graphically portrays all problems encountered in radio bearing navigation and can demonstrate radio magnetic indicator type dial being procured for omni range navigation.

It should be pointed out that no problems are solved on this demonstrator, they merely are displayed, thereby requiring student participation and promoting learning.

The display is made of three circular,



VANCIL SHOWS HIS DEVICE TO BROWN, SWOPE

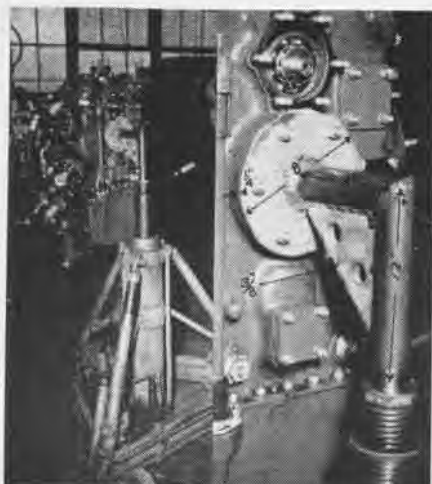
revolving discs of plywood. The largest disc gives relative bearing of the station from the plane. The middle disc shows the plane heading as read on the directional gyro. The front disc contains the airplane silhouette and window through which the plane heading is read. The plexiglas arrow represents the direction finder azimuth indicator pointer. Students report the device useful.

• NAS MINNEAPOLIS—Lowell G. Stewart ADAN has won a station award for developing a new method for cleaning and sterilizing garbage disposal cans.

• NAS MINNEAPOLIS—In the recent squadron contest to bring in new recruits, VB-812 took top honors with Don Kreckow AMSC leading the way.



Bureau of Aeronautics' new official flag was hoisted for the first time at NAS Alameda on 5 August when Capt. John B. Moss took over as commanding officer, but it took some cooperation to get the flag. After reading of the new colors in Naval Aviation News, station personnel got the Mare Island Naval Shipyard's sail and flag shop to make one of the emblems in two days, in time for the ceremonies. Capt. Moss stands at attention on the right as Marine color guardsmen hoist the blue-and-gold standard up the flagpole



ANGLE IRON HOLDS ACCESSORY CASE FOR WORK

Angle Arm Holds Jet Case

SMS-15, CHERRY POINT—Confronted with the problem of handling the accessory case of the J-42's P-4 and P-6 jet engine, shop personnel developed a small, effective attachment for holding the case while mounting accessories.

By securing this attachment to the six mounting studs of the power take-off mount and placing the tapered upright in the jack pad opening of a hydro-mechanical jack (R-41-J-96), the case is held in a safe and easily accessible position.

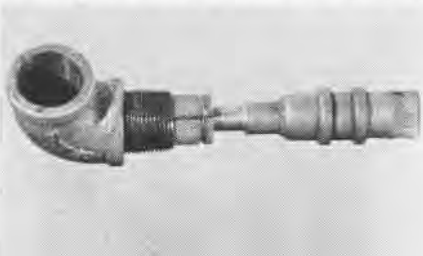
Material used was 4130 steel. Two pieces of plate were employed one $\frac{3}{8}$ " for the gusset, and one $\frac{1}{4}$ " for the round pad to secure the accessory case. Two pieces of round $1\frac{1}{2}$ " stock were used, one for the vertical bar and one for the horizontal. The round pad to secure the accessory case is 8" in diameter. The horizontal bar of round stock is 8" long and the vertical bar is 12" long.

Engine Flange Work Wrench

A special tool designed for removal and installation of intake flanges on R2600 engines has been designed by William X. Young, NAS CORPUS CHRISTI. It was developed under the Navy Beneficial Suggestion Program.

When Wright Tool Part #910009 was used, the three rubber washers which were designed to expand in flange to create sufficient grip on the flange inner wall became oil soaked. This slowed operation and required frequent renewal of the washers.

Young has in use a tool of his own de-



TOOL DESIGNED FOR ENGINE FLANGE MECHANICS

sign. This wrench is comprised of two solid half-round shoes made of steel, either knurled or serrated, actuated by a cam in the center of the shoes, which expands the shoes against the walls of the flange with sufficient grip for fast removal.

The body of the tool is made of two pieces of kirkcrite castings $1\frac{1}{16}$ " x $1\frac{9}{16}$ " x $3\frac{3}{4}$ "; one heat-treated cam $\frac{3}{4}$ " x $1\frac{1}{8}$ " x $1\frac{1}{2}$ ", 4-8-32NCX 1 $1\frac{1}{16}$ " bolt and nut, two dowels $\frac{5}{32}$ " x $\frac{3}{8}$ ", 4 Gibs $\frac{3}{32}$ " x $\frac{3}{8}$ " x $2\frac{3}{8}$ ". One stem (heat treated) 1 $\frac{3}{16}$ " x $4\frac{1}{8}$ " and one Woodruff key No. 6.

Activities interested in obtaining additional details should write the Commanding Officer, NAS CORPUS CHRISTI.

K CORRECTION FACTORS FOR TAS

PRESS. ALT. FEET	CALIBRATED AIRSPEED KNOTS							
	200	250	300	350	400	450	500	550
10,000	1.0	1.0	.99	.99	.98	.98	.97	.97
20,000	.99	.98	.97	.97	.96	.95	.94	.93
30,000	.97	.96	.95	.94	.92	.91	.89	.88
40,000	.96	.94	.92	.89	.87	.85	.83	.82
50,000	.93	.90	.87	.84	.82	.79	.77	.74

DIRECTIONS

In order to obtain true air speed properly corrected for compressibility effects, the pilot will follow these steps:

1. Obtain indicated air speed from the air speed indicator.
2. Obtain calibrated air speed corresponding to indicated air speed from the air speed correction card mounted on the instrument panel.
3. Obtain "true air speed" (incompressible) from the Mark 6, E6B or similar speed-time-distance computer, by entering with calibrated air speed, pressure altitude, and free air temperature.
4. Multiply TAS obtained with the computer by the K correction factor to obtain TAS corrected for compressibility.

NavAer 05-35-560
15 March 1950

Figure 1

As long as aircraft flew at speeds well below the sonic range, airspeed correction included only pressure altitude and temperature. Now the compressibility factor "K" must be used. Table from T.N. 3-50. Formula is $TAS=KY'$. $TAS=KY'$.

Whiting Mechs Are Speedy

NAAS WHITING FIELD—This may not be a record for pulling a 120-hour check on a TO-1 jet engine, but JTW-1 thinks its four-man crew headed by Chief N. E. Spies did all right in doing the job in four hours.

This does not include time for pulling the engine out of the plane. For the 120-hour engine check, the turbine blades are inspected for proper clearance, warping and cracks; exhaust cone is removed; oil is drained and refilled; oil strainer cleaned; fuel manifold, drain manifold and air adapters are removed; compressor casing is checked for cracks or metal fatigue; combustion chambers are checked for cracks and burned spots; inner liners, fuel nozzle, domes and fuel filters replaced.

This may not sound like four hours work per man but it must be remembered each bolt must have the correct tension, all filters must be cleaned and turbine blades clearances rechecked after installing the exhaust cone.



MAGNETO TESTER ISOLATES BALKY CYLINDERS

Device Spots Mag Troubles

VMR-252, CHERRY POINT—A device to check magnetos of the complex R-4360 Wash Major engine has been developed by T/Sgt. Robert T. Larsen for squadron R4Q's.

The master magneto switch in the cockpit cannot accurately locate engine mag drop for the seven banks' dual magnetos. When trouble showed up as a mag drop, hours were spent changing plugs and leads. Using Larsen's device, the trouble can be spotted in a matter of minutes.

It consists of seven single pole, double throw toggle switches and a sensitive tachometer built into it. From this portable unit extend about 25' of lead wires which plug into the mag test circuit in the engine firewall. Enough of these units have been constructed to carry one in each of the Packets.

Leads are plugged in at the firewall, each switch is toggled in both left and right positions at the normal 30" hg setting and the drop off is read on the tachometer. Thus the crew chief can isolate the mag drop to either the front or rear plugs in four of the 28 cylinders.

► BuAer Comment—This equipment is considered a very good idea as a time-saver for trouble shooting in maintenance activities. Some aircraft with R-4360 engines installed use an engine analyzer which will find the trouble during flight.

Rig Aids in Gun Removals

VF-61, OCEANA—An effective rig for removal of M3 20 mm cannon from the F9F-2 has been developed by G. A. Dowling, AO2.

It consists of a ball bearing roller mounted on a bracket with a flat bottom. The roller is $2\frac{1}{4}$ " high, 3" wide and 4" long. To remove the guns, the roller is placed just aft of the front mount and the guns are rolled out. The reverse procedure is used to install the guns. This rig saves many skinned knuckles and much damage to equipment.



BALL-BEARING ROLLER CUTS DAMAGE TO CANNON



CHIEF CONKLIN SHOWS OFF USEFUL TAIL JACK

Salvaged Parts Make Jack

A portable hydraulic jack which will raise the tail of an F4U has been designed and built by Chief Aviation Metalsmith E. G. Conklin of VF-54. It is made of salvaged materials.

The jack facilitates changing tail wheels, drop tests and other maintenance, especially aboard ship. Its portability and ease of operation makes the jack constantly in demand by Corsair squadrons.

The vital parts of the jack are two TBM bomb bay door actuating cylinders, one TBM bomb bay door selector valve and one hydraulic handpump.

Air Pressure Gun Designed

Under the Navy Department Beneficial Suggestion Program, Howard R. Bowman and Donald J. Franklin of NAS ALAMEDA have developed an air pressure gun, designed especially for applying quick-drying putty and rubber compounds during sealing operations on R3D tanks at the station.

The gun consists essentially of a floating type case-hardened piston operating in a honed cylinder. The cylinder is threaded and capped at both ends to permit ready access when it becomes necessary to clean. A quick, steady and controlled flow of sealing compound is assured by the trigger type valve provided in the pistol grip handle. Thus the pressure on the sealing compound is released at the end of each application.

Prior to the introduction of this suggestion, the use of the conventional air-operated gun proved impractical because the quick-drying compound gummed up the moving parts.

NAS ALAMEDA reports that the suggested injector gun operates efficiently and can be cleaned with ease, thereby providing a convenient method of applying T.C. 48 putty and T.C. 23AS rubber compounds.



FRANKLY, MR. DINGLEBERRY, I DON'T THINK YOUR IDEA WILL REPLACE WING DE-ICERS!

Pinball Idea Cuts Bounces

VP-4, PACIFIC—Those pilots who push, pound, shake and jar the pinball machines to keep the ball where they want it will feel right at home in one of this squadron's planes if they use the same technique in flying.

Still, it is quite a surprise to some to see a flashing red "TILT" light up on the instrument panel after a hard landing or exceptionally erratic maneuver in this plane.



HARD LANDING BRINGS 'TILT' ON THE PANEL

Plane Captain George C. Denton, ACD, is responsible for design and installation of this experimental "de-bouncer and flight-smoother-outer." Perhaps he has found a nice way to remind the pilots to handle these flying machines with care.

Photos Save Drafting Time

Hours of tedious drafting are saved by a method using photography in the aeronautical engineering group at the O&R department, NAS SAN DIEGO.

In making installation and assembly drawings by this method, up to 90% of drafting time and cost are saved. It affords an illustrative clarity not possible with standard drafting methods. It is especially useful when a large amount of reference material must be shown with a relatively simple drawing.

A photograph is taken of the assembly or installation and from the negative a contact positive is made or an enlargement. On this positive film all further drawing is based.

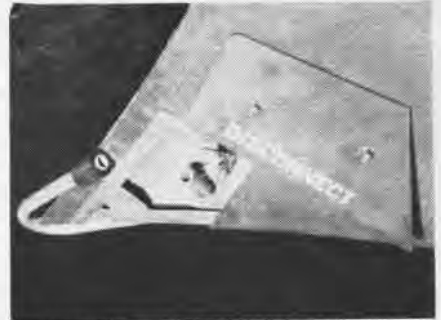
The preferred method of producing the finished drawing is to first locate the positive in the desired position on a standard drawing sheet. For best results the paper should be cut away over the film.

The second step is to reproduce a sepia line print. The third step is the actual drawing which is done on the sepia line print. For best results, lines and lettering should be carbon backed or a very soft pencil used. Prints from this sepia line tracing are superior to prints produced from an inked tracing.

An alternate is to accomplish all drafting on the drawing sheet in step one. This process is satisfactory for most usage, but prints are inferior to those of the sepia line tracing.

If an entirely photographic process is desired, the original negative should be used with a transparent plastic overlay on which all drafting should be done with an opaque photographic ink.

Photographic reduction for enclosures to BUAER changes, etc., normally requiring an ink drawing can be readily accomplished from any of these processes by photographing black line Ozalid reproductions. Such reproductions can be made equal or superior to an ink tracing.



SHARP CORNER ON F9F COVERED BY BENT PIPE

Guard Covers Tail Corner

MCAS EL TORO—This squadron has devised a simple method of protecting personnel from head and eye injuries incident to bumping into the outboard corners of the disassembled tail section of F9F's.

T/Sgt. Robert R. Buckner came up with the idea shown in the photo. By bending a piece of scrapped SO tubing and fitting a small length of hose on one end, an adequate guard and one very difficult to knock off accidentally has been developed.

Plane Gives Some Trouble

VR-5, SEATTLE—BuNo. 56541 is now on its way to heavy maintenance. Here's why:

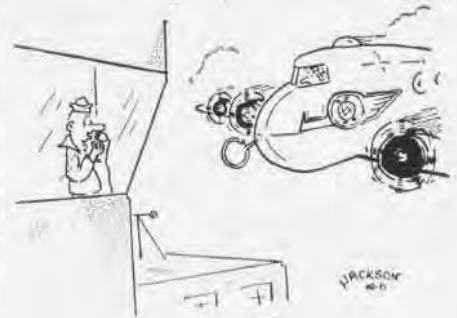
Lt. (jg) Summers, that veteran of Alaskan flying scrapes, was taking off from Kodiak when the tower called him up: "Navy Nan 541, your #4, I mean, #1 engine is trailing smoke and appears to be—by golly it IS ON FIRE!"

The firewall shutoff valve was pulled, and the engine feathered bringing the oil fire quickly under control without use of the carbon dioxide. Five minutes later Summers had landed the plane. During that time Kodiak tower had alerted the crash crew. By the time Summers landed, 11 pieces of equipment, including seven fire trucks, were en route.

After the engine was changed by the VR-3 MATS detachment in Kodiak, the flight proceeded to Adak as planned. On the return trip from Kodiak to Seattle, a complete loss of fuel pressure and power hit #4 engine. The flight continued the remaining four hours on three engines with a P2V and two PB7 search and rescue planes acting as escorts the last two hours.

BuNo. 56541 is now on its way to heavy maintenance.

• NAS MINNEAPOLIS—Seventy-seven O-2 personnel have passed physical requirements and are in training to qualify as air combat crewmen. The syllabus of study is set up so that a man can qualify in six months.



I SAY, OLD BOY, AREN'T YOU A TRIFLE LOW?



AVIATION ORDNANCE



MISSILE TRACKING STATION—LAUNCHER, BARRICADE AND DIRECTOR CONTROL QUONSET—SHOWN

MISSILE PLOTTING BOARD

The combination of Mk 37 Director, Mk 25 Radar, and Mk 8 Plotting Board forms an important part of the instrumentation on the Wallops Island test range at the Naval Aviation Ordnance Test Station, Chincoteague, Virginia. This system tracks an object in flight and records the path so that the performance characteristics of a missile can be determined. By incorporating a special type of computer as an adjunct to the director tracking equipment, this system can transmit signals to missiles equipped for command guidance control.

Mark 37 Director: The Mk 37 Director, ordinarily used on naval vessels for controlling gun fire against aerial and surface targets, is the key component. It is mounted on a concrete pedestal base with the radar antenna on top. The Mk 37 Director has a revolving dome in which is mounted an optical range finder which can be made to point in any direction. It automatically indicates on scales the bearing, elevation, and range of the object under surveillance. These readings are duplicated by selsyn indicators at other locations including the adjacent control station.

Mark 25 Radar: The addition of the Mk 25 Radar to the Mk 37 Director increases the tracking range of the system beyond the limits of optical tracking under most conditions. The use of radar provides a means of automatically tracking a target once it is brought into the line of sight of the director and increases the versatility of the system, since a radar tracking system is more reliable than optical methods in clouds, haze fog, darkness, or rain.

The radar is electrically connected to the director drive controls in such a manner that once a target is "locked on", the director can be trained and elevated automatically to follow the motion of this target as long as it is within the operating range of the radar. The Mk 37 Director can be trained and elevated manually with the optical range-finder to follow a target or can be operated manually or automatically with

radar so as to keep a target at the axis of the radar antenna.

Mark 8 Automatic Plotting Board: A Mk 8 automatic plotting board has been connected to the output (bearing, elevation, and range) signals from the director and gives a continuous trace of the missile's flight path on any one of six scales ranging from 400 to 13,900 yards per inch. Once this board has been set into operation, no further adjustments are necessary to keep the board continuously drawing a horizontal projection of the missile's flight path.

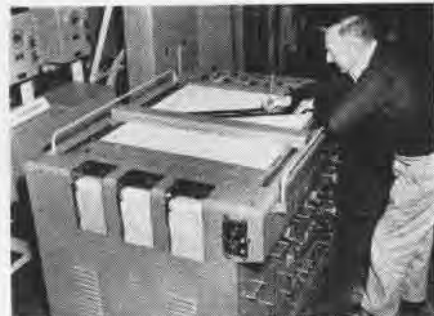
The automatic plot enables a guidance operator in the control station to make any corrective adjustments in the control equipment without having to calculate and plot points on the flight path from dial readings of bearing, elevation and range. The operator can therefore make such adjustments more quickly after the need for such adjustment arises and he is able to see the effects of these adjustments more readily with the automatic plot. In addition to a horizontal projection of the flight path, a recorder on the side of the board continuously indicates the altitude of the target, thus providing a 3-dimensional picture.

Date Panel Illuminated: In the control hut and near the plotting board is a data panel on which are mounted two dials graduated into one-half minute divisions to read bearing and elevation and one dial divided into five-yard units to read range. Several devices are used to synchronize the data taken on the board with those taken at other stations tracking the same target. The bearing, elevation and range dials are driven by selsyn repeaters actuated by signals received from the director. The panel is illuminated by gas-discharge flash bulbs, and is photographed by a 35-mm camera, the shutter of which is synchronized with these bulbs.

The flight path of an object tracked by the Mk 37 Director system may be calculated from the photographic record of the dials on the data panel.

Since an automatic radar tracking device

is always one which hunts across the target, alternately below, above, in front or behind in a random manner, the dials on the data panel are always in error by the amount that the axis of the radar is off the target. To measure and record this error so that an appropriate correction can be made in the evaluation of the tracking data, a 35-mm movie camera with a 40-inch lens is mounted on the radar antenna, as close to the axis of the antenna as practicable. The axis of this camera is boresighted so that it is virtually parallel to the optical axis of the radar antenna. With the shutter of this antenna camera synchronized with the opera-



MISSILE FLIGHT IS PLOTTED IN CONTROL SHED

tion of the shutter of the camera at the data panel, a measure of the tracking error is recorded for every data frame and a corresponding correction introduced.

Only Shore-based Installation of Its Kind: The Mk 37 Director, Mk 25 Radar, Mk 8 plotting board combination, and associated equipment, is the only known combination at a test range of these components used to provide an extremely versatile and accurate system for tracking and recording the flight paths of aerial targets. Located on the ocean's shore, it is capable of keeping low-flying missiles in sight over a large angle of bearing and out to the range limits of the equipment on the horizon.

Rocket Motor Requisitioning

The new launcher, the Aero 14A, which is becoming available on fleet aircraft, requires 24" suspension of rocket motors. Accordingly, activities having the new launcher should request 5.0 Rocket Motors Mk 10 Mod 5 which have lug bands for use on this launcher spaced 24 inches apart in addition to locating holes spaced six inches apart for use on the Mk 9 launcher.

Specify Mark and Mod: In view of the several types of rocket launchers in use by fleet aircraft, activities requesting motors should specify Mark and Mod of launchers on which rockets will be used. Sufficient advance notice should be given issuing activities to permit positioning of lug bands for use on particular launchers.

Rocket Motors, 5" Mk 10 Mod 4 and Mk 2 Mod 4, and 3.25 Mk 7 Mod 4* have lug bands positioned for Mk 5 (Zero Length) launchers. For quick transfer of bands for suspension from Mk 9 launchers, a second button-type lug band is provided which can be located and installed in the position indicated by the two locating holes which are longitudinally spaced 6 inches apart.

* When used on Mk 9 launcher this motor is restricted from training use; it is acceptable for emergency use only.

LETTERS

SIRS:

Please consider the United States Naval School, All Weather Flight, hereby dethroned!

Air Transport Squadron Three requests the pleasure of throwing its hat into the ring and presents the following list of seven lieutenants and three lieutenants (junior grade), our top ten for flight hours as of 31 May 1950.

Lt. J. R. Bourchier	6518
Lt. (jg) D. J. Sirdevan	6236
Lt. (jg) J. A. Weisinger	6128
Lt. D. H. Sanders	5968
Lt. P. H. Vaughn	5688
Lt. J. L. Scroggin	5621
Lt. (jg) D. L. Mullin	5366
Lt. J. Sahnida	5227
Lt. C. C. Orton	4079
Lt. C. E. Rodgers	4058
Total	54,828

VR-3 is one of the Navy's MATS squadrons operating under the operational control of Commander, Continental Division MATS, Kelly Field, Texas, and based at NAS MOFFETT FIELD, Cal. Normal schedules compose air transport for the Alaskan area in R5D aircraft.

W. T. SHELTON, LCDR.



SIRS:

The enclosed picture shows a tie clipping ceremony which follows a checkout in the F9F Panther.

This quaint custom is practiced in Fighter Squadron Twenty Two where the pilots are in the process of switching from F4U Corsairs to the jets.

In this instance the squadron's Executive Officer, LCDR. William E. Ely, is being given the treatment by his skipper, Cdr. R. M. Bruning. Despite the slightly worried look engendered by the sharp scissors, the recipient is happy.

In this black and white picture, the blue tie of Major James B. Raebel, USAF, an exchange pilot, appears black. It hangs in the upper left hand corner of the picture



under a snar with the designation first prize. It is with mixed feelings that this squadron says goodbye to the old F4U-4 and begins operations in the air-conditioned jets.

R. M. BRUNING, JR., Cdr., USN

COMMANDING OFFICER

NAVAL AUXILIARY AIR STATION
OCEANA, VIRGINIA



SIRS:

In the July issue appears a letter regarding a weather balloon picture. I would like to inform you that this type of balloon is a ceiling balloon and the ascension rate is very important.

These balloons are weighed off very carefully when inflated and when released are timed with a stop watch to determine the ceiling. As you can see, if the ascension rate was not known, the ceiling could not be determined.

However, this type of balloon is not released in rain as the water collected on it would slow its ascension rate, thereby giving a higher ceiling. This is rather important as the height obtained often determines whether a field is IFR or VFR.

R. M. RAMSEY, AGC

NAS ATLANTIC CITY

† T. S. Stull, AG2, of NAS Willow Grove also picked a flaw in our answer. We were advised that the balloon being released in what looked like rain was to measure cloud ceiling height. However, we found our advisor was at fault. The phone to aerology was busy and the girl was advised by the janitor who was cleaning the windows at the time. The only thing we can think of is that it was a publicity picture only, not to be used for demonstrating technique.



SIRS:

In your July 1950 edition of NAVAL AVIATION NEWS, you stated that Lt. (jg) Farnsworth was probably the only Navy pilot to win a thousandth-landing cake twice aboard the same carrier.

Proof to the contrary can be secured by checking the plaque aboard the USS *Philippine Sea*, which bears the inscription of Lt. (jg) (then Ens.) F. R. "Knobby" Walsh for the 1,000th and 6,000th landing. Lt (jg) Walsh at the time was attached to the bombing squadron of the now defunct Air Group Nine.

LT. (JG) J. L. WILLIAMS USNR
NARTU ANACOSTIA



● NARTU MEMPHIS—To lubricate properly the two small grease fittings on each of the landing gear legs on SNB aircraft, Chief C. R. McEwen found a small tip for the grease guns which does the trick. Obtained from a local automobile supply firm, the tip costs 60 cents.

● NAS PENSACOLA—How's this for a speed-up? O&R had 1152 aircraft scheduled for processing in fiscal 1950. Due to shortages and schedule changes, only 473 were processed the first six months. The second half the shop ran through 679 planes.

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● THE COVER

This is an air view of mothballed fighting ships—carriers, battleships and cruisers—of the U. S. battle fleet at Bremerton, Washington. The Navy is taking some of them out of mothballs for service to the Korean front. Photo courtesy of International News Photos, New York City.

● PHOTO CREDIT

Mothball carriers at dock at Naval Shipyard, Bremerton, Wash., on lower inside front cover, courtesy of Seattle Times.

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SEAFIRE 47



SEA FURY F



FIREFLY Mk 4



● SEAFIRE 47

Don't Shoot!

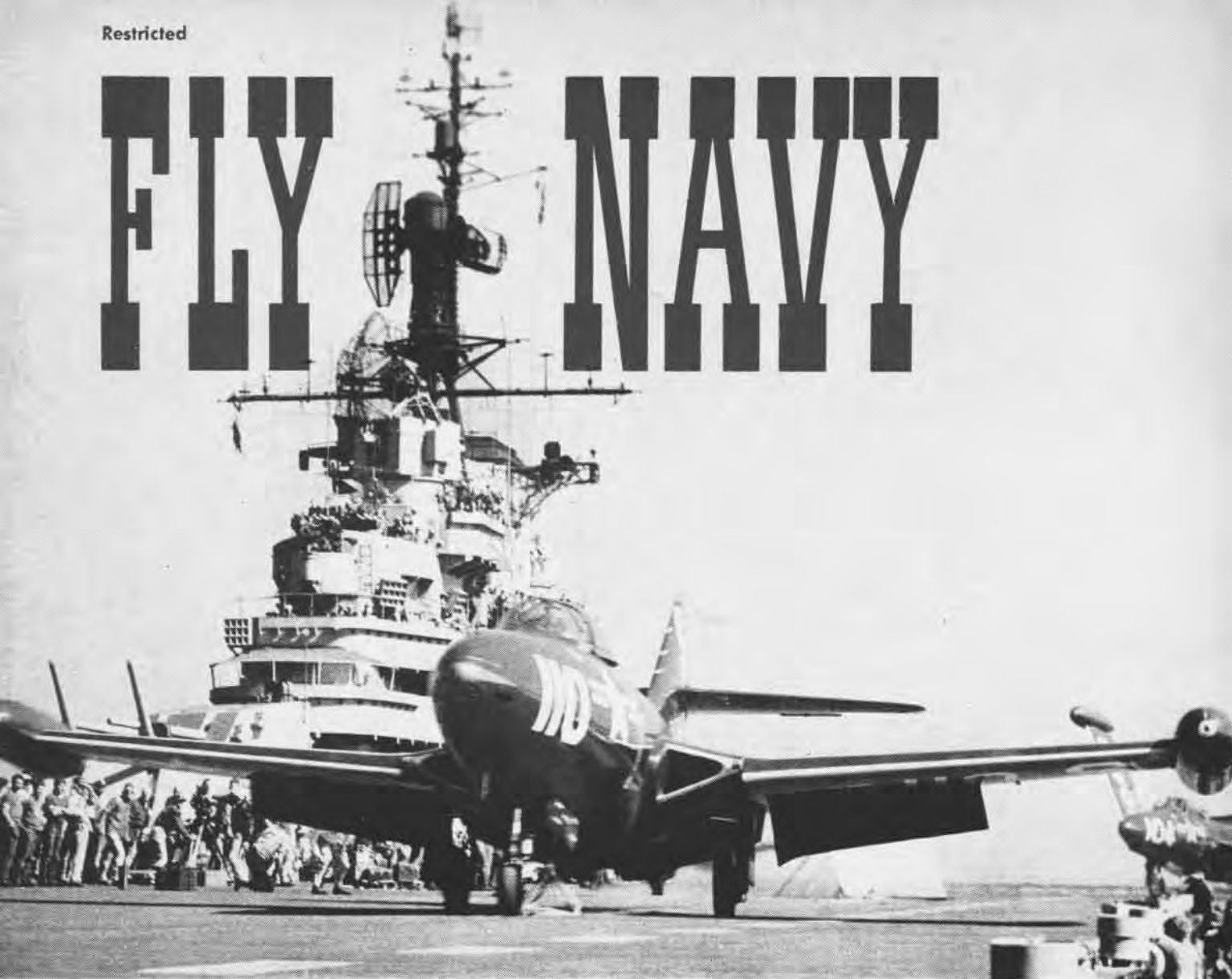
Don't shoot your friends! It happened scores of times during World War II and it's happening again. A B-29 off Korea mistook a British *Seafire* for a *Yak* and shot it down July 28. The planes on this page are fighting with us today—Recognize them!

● SEA FURY F

● FIREFLY Mk 4



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