NAVAL AVIATION NEWS

RESTRICTED

Antisub Warfare
Swedish Air Force
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HEAVIEST CARRIER-BASED PLANE

THREE views are presented here of the heaviest carrier-based plane in any Navy to date, the AJ-1 North American attack prop-jet aircraft. These newly-released photos show several unusual views of this plane. Although it has a J-33 Allison jet in the tail and an airscoop trap door atop the fuselage ahead of the fin, this is not apparent in the photos. Besides the jet the AJ-1 is powered by two P&W R-2800 reciprocating engines in wing nacelles. The AJ is heavier than the AD or AM but smaller than the P2V *Neptune* which has taken off carriers but not landed as yet. A high-wing monoplane, it carries a crew of three in a pressurized cockpit. Outer wing panels fold inboard and the vertical tail folds down to provide easier handling on hangar decks. It has not yet reached the fleet for operation.

SUB SNIPERS

MAMA SEAGULL has been winging her way over the briny deep all morning. She's out on her own, sulking because the old man beat her to a piece of garbage.

Come noon she figures on some rest and sits down on the choppy sea. The motion of the waves lulls her and she closes her usually wary eyes.

Suddenly there's a splash near her and a roaring noise rudely interrupts her reverie. With an unhappy squawk she jumps into the air and discovers, wonder of wonders, a buoy bobbing here far from shore.

Following the instinct of her kind she tries to alight on this pole sticking out of the water. To her annoyance it doesn't make a good perch because a metal rod juts from the top of it.

The roaring comes again and a dark shape swoops by. Again and again the monsters appear. With them is a less noisy grey shape which floats lazily about.

Then a ship heaves into view and mama is happy. Food! She joins astern, searching ever hopefully.

Suddenly there is a big boom and cans fly into the air from the ship and land on the water.

Ka-rump! The water jumps with a terrific shock and a few seconds later boils up in a huge geyser. Swallowing her heart, Mama Seagull picks up knots, heads for home. From now on its sitting on the eggs.

NO THIS isn't a parable about why wives should stay home. It's an illustration of how a Navy antisub exercise might appear to the uninitiated.

Mrs. Seagull's perch was a sonobuoy with its antenna; her annoyances were planes and a blimp; the ship was a destroyer which set off a hedgehog depth charge cluster.

The Navy's new ASW teams, composed of destroyers, planes, blimps, helicopters and small submarines little resemble the sub chasers of World War II.

Sub snorkels are now fair game for the ASW teams.

U.S.S. CUBERA, SS 347, TYPICAL OF NEW STREAMLINED SUBMARINES

THIS ISN'T THE NEWEST TYPE OF SNORKEL, IT'S THE GERMAN TYPE

WAY BACK before the days of fancy gadgets the crews who flew antisubmarine patrols were called the eyestrain boys.

No fooling about it, three to six hours sitting on a parachute developed lordosis (stenographers fanny). Staring at the sea produced a condition bordering on hypnosis, and that could lead to peculiar happenings.

About the only break in the monotony would come when, without warning, a dark shape would appear beneath the surface. An extra shot of adrenalin would enter the bloodstream of the pilot as he passed the word to his radioman.

Hand on the salvo lever, he would make his run from a thousand feet. Then, just as he released his depth charges a massive head would break the surface and a vaporous column would spout in the air. Regaining control of his sphincter, our hero could appropriately send this message, "Sighted whale, blubbered same." Thus many of our largest mammals met untimely ends because of their unfortunate resemblance to the man-made counterparts.

Air search against submarines consisted of looking good and hard, and discussions centered around how far down a sub could be spotted.

As the submarine and its operation has been improved, so has the fight against it assumed a modern scientific pattern. By guess and by gosh has been eliminated.

That's why Mama Seagull better stay away from the Navy. She will live longer staying at home.

FOR THE FINAL SUB KILL, THE DEPTH CHARGE DOES THE DIRTY WORK

In playing baseball or waging a war, it's a good idea to know your competitor or enemy. Likewise, in the business of antisubmarine warfare, it is a good idea to know how our underseas craft are constructed and operate.

When submarines first came into existence, they were small. But since the U. S. bought its first one in 1900, there have been many improvements in naval architecture and now there is no limit to the size a sub can be built. The ideal size, however, has been found to be about 1,500 tons.

While German subs in World War II had early successes, they soon became the victims of radar. Spotted in this manner at night and during bad weather, submarines went down, their losses mounting to such a figure that the Germans adopted an invention of the Dutch, the snorkel. This gimmick, applied to submarines, enables them to travel on their diesel engines while submerged.

THE SNORKEL is no more than a series of pipe-like breathing tubes which reach up about as far as the periscope. There is an intake pipe and an exhaust pipe. Most of the air taken in goes to run the engines while the rest is used for ventilation. If a wave washes over the intake, an automatic valve closes and prevents a shot of salt water from drowning the engines.

If in emergency it is necessary to go below snorkel depth, the sub can run on batteries as before. Speed on the batteries is much less than on the diesels.

Although the snorkel was first used to escape radar detection, it is no sure protection. They can still be smelled out, but how that is done is one of the secrets of combat we'll continue to sit on.

Why do we pay so much attention to the submarine?

One authority stated that if the Germans had had the snorkel earlier in WW II, we would have found it difficult to justify transporting an army overseas when our logistic support was so vulnerable to submarines. On such a thread the balance of conflict hung.

In wartime, submarines can be used for a variety of tasks. They are valuable as minelayers, for attacks on shipping and naval units; as radar pickets far ahead of a naval force to give advance warning of air raids; as troop carriers and guided missile launchers.

A fascinating new type of submarine is about to come into being in the U. S. Navy. It is the SSK—antisubmarine submarine. Here we have applied to underseas warfare the equivalent of the fighter plane of the air.

These ASW subs will not have names but will carry the designations SSK-1, SSK-2, and SSK-3. They will displace 750

BLIMP PILOTS MADE CARRIER QUALIFICATION LANDINGS ON USS MINDORO

REPRESENTATIVE OF ASW IS THIS SUB VIEW THROUGH BLIMP CABIN NOSE

tons and will be 195 feet long. Carrying advanced sonar and detection equipment, they will be adaptable to mass production.

Our own and enemy employment of subs would be about the same, although it is likely that the United States would have to be more concerned with combatting them because it would be involved in a war away from its own shores.

We must face the fact that we would have to contend with submarines prowling the seas looking for our ships and fleets and approaching our shores to launch missiles.

With this threat in any future conflict, much of our military thinking has gone into research aimed at minimizing the effectiveness of these undersea boats.

That's where naval aviation becomes a varied and important part of the antisubmarine team.

Before we talk about who makes up the ASW team and what they do to make life miserable for seagulls and whales, let's take a look at what has been developed to detect subs. Naturally, in an unclassified discussion we can't mention them all or in great detail, but we can get a pretty good idea of what is being used and what is being developed. You can be sure that the Navy has hundreds of research projects underway, working on new and novel ways of detecting the submersibles.

Ears still play the most important role in underseas hunting. The mainstay is sound. A sub's screws and machinery make noise. In recent years these noise makers have been made quieter, but they cannot be silenced altogether.

SOUND FALLS into two categories—passive and echo ranging. "By "passive," we don't mean simply doing nothing. It means listening. This principle is used by aircraft in connection with sonobuoy operations. A sonobuoy is a small expendable buoy-hydrophone-VHF transmitter combination which is dropped from a plane in an area where the presence of a sub is suspected. The sonobuoy picks up any underwater sound and transmits it to the ears of a sonarman aboard the plane. Passive listening otherwise is of dubious value. A destroyer carrying only listening gear makes too much noise of its own.

In echo ranging we have something else again. A sound can be generated by echo ranging apparatus and sent through the water. If it strikes an object, it is reflected back to the source as an echo. By timing the return of the echo and noting its direction, an underwater object can be located in a general fashion. Echo ranging gear is similar to the depth sounding machinery carried on most big ships which measures the distance to the sea bottom.

Sound travels at about 1,600 yards per second underwater. The speed varies with the temperature of the water. Unless the water is of uniform temperature—and that rarely occurs—the sound carries in a curved path. By taking advantage of different temperature levels, many U. S. submarines escaped attack in the Pacific during the war.

A solution to the problem of curved sound paths is being sought. If and when that occurs, the submarine might well become an obsolete instrument of war.

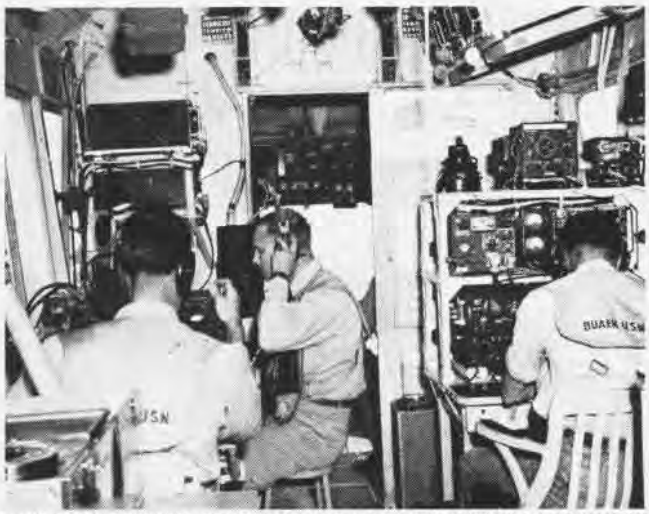
RADAR HAS had so much written about it we won't describe it here. For initial detection of submarines in all kinds of weather, it leads all methods.

In limited waters, such as the straits of Gibraltar, the English Channel or the entrance to New York Harbor, MAD (magnetic airborne detection) mounted in blimps and helicopters would be a means of locating a metal body under water. It is limited in range. Essentially, it is a magnetic needle which registers if a metal object is passed over. The apparatus is usually carried on a line below the blimp, plane or helicopter.

For the final kill, there's nothing better than alertness and a good pair of eyes. For search, however, the eyes can play too many tricks. In long searches, fatigue and tired eyes can make innocent splashes appear to be periscopes or snorkels. It was thus that many a whale, porpoise and shark became victims of modern war.

CONSTANT PRACTICE BETWEEN SUBS AND AIR UNITS IMPROVES ASW

HERE ARE OLD TYPE SONOBUOYS WHICH PICK UP SUBMARINE SOUNDS



BLIMP TEAM OPERATES SONOBUOY AND MAGNETIC DETECTION EQUIPMENT

SUBMARINE HUNTING may not be as glamorous as playing football, but takes as much teamwork and much more training—in deadly seriousness.

Teamed together to find a sub before a torpedo wake tells its sickening message are surface and air units, four in number. In the not-too-distant future an underseas member, the previously mentioned SSK, will join the group.

The destroyer, which was the standby in the first world war, has a pretty well set mode of operation. The *Sumner* class, for example, carry sonar, the echo ranging apparatus mentioned earlier, and a variety of depth charges. Prominent among its explosives is the hedgehog, which fires charges in a pattern, thus covering a greater area than just rolling them off the fantail.

Blimps are making a great comeback. In World War II their effectiveness was questioned when German submarines surfaced, or remained so, and fought back. A slow moving blimp isn't in a position to wage battle against antiaircraft fire. But now the "poofy bags" (as one aviation planner in Washington calls them) need no longer worry about the surfaced sub. With subs remaining down at snorkel depth, the blimp can carry its MAD gear and remain in the hunt.

This, combined with the ability to remain away from base for long periods, refuel at sea and take on new crews makes it a potent contender for a backfield position.

Although taking blimps aboard aircraft carriers and other ships is not new to the Navy, the actual carrier qualification of blimp pilots is a novel twist. Recently, blimps operated off the carriers *Sicily* and *Mindoro*. Pilot carquals were considered completed when each pilot had made three landings operating the rudder and three on the elevators.

Closely allied to the blimp is the helicopter whose potentialities are great. As now planned, the eggbeaters will operate from every Navy fighting ship and in time of war from platforms of merchantmen. With present aircraft, ASW work would be of an emergency nature, but the Navy is holding a competition to get a helicopter design for a high performance craft which will meet the demands of endurance and payload for antisubmarine work.

The helicopter is ideal in that it can remain motionless over one spot, pinpointing a submarine. If a sub surfaces the helicopter can take radical evasive action and get out in a hurry—if it hasn't blasted the sub first.

Helicopters require fewer flight crew and groundmen.

Yet to be licked in helicopters are low endurance and pilot fatigue. These problems are on the road to being solved through larger aircraft and automatic pilots.

BLIMPS, HELICOPTERS and planes doing research are concentrated at NAS BOCA CHICA, Key West, Fla.

Squadron VX-1 located there has been operating a strange looking HRP-1. This Piasecki helicopter, known popularly as the *Flying Banana*, has been stripped. It operates open to the breeze so that it can carry a bigger load.

The future member of the ASW team, the SSK killer sub-

THIS STRIPPED DOWN PIASECKI HRP-1 DOES RESEARCH WORK IN ASW AT DEVELOPMENT SQUADRON AT KEY WEST: CAN CARRY GREATER LOADS

marine, will be comparable to the fighter plane in the air, a dangerous adversary.

RAdm. C. B. Momsen, director of underseas warfare in OpNav, says, "I can say that no foe strikes more terror in the heart of a submariner than another submarine. It is somewhat analogous to two blindfolded antagonists armed with baseball bats waiting for the other to break silence."

A big submarine will be intent on reaching his hunting ground. The SSK lying in wait, will then strike. It will have the advantage of relatively silent operation.

Heavier-than-air planes at present form the most potent striking units of the ASW team. It was probably a TBM or a P2V-4 that scared Mama Seagull into going home.

Flying the antisubmarine way is not breathtaking or of the hot pilot variety. Each plane crew includes a radar operator who has been to numerous schools and spends his time aloft in the dark watching his scopes; a sonar man

THE AF-2W AND AF-2S FORM RADAR SEARCH AND ATTACK ANTISUB TEAM

who is an expert at listening to the sounds sent him by the sonobuoys which are dropped; a pilot versed in ASW methods and above all a perfect instrument pilot.

Operating from the carriers at present are two plane teams of TBM's. The *Avengers* are termed the TBM-3W and the TBM-3S. The "W" carries a radome under its belly which looks for all the world like a pregnant guppy fish. This plane does the radar searching.

Don't ask why submarines are called *guppies* too. Not even the submariners can give you the answer.

The "S" version of the TBM carries the wherewithal for killing a submarine—depth charges, rockets, etc. The planes operate as a pair—search and attack.

Coming soon to the fleet will be Grumman AF-2W's and AF-2S's. They are due in August.

Target for aircraft carrier design is a plane which will include search and attack in one package. This plane would probably carry the APS33 radar gear instead of the APS20.

In *Operation Portex,* landbased aircraft proved their worth in operating when sea conditions immobilized destroyers to such an extent that they were unable to fulfill their missions. P2V's completed 100% of their missions.

An ASW plane's job is routine search work. Suspicious waters are outlined and the subs are forced down. Controlling the searches are Combat Information Centers (see NANEWS, Jan. 1950, page 1) specialized in ASW work.

A pattern is flown until a target is picked up. Then sonobuoys are dropped in a pattern around the spot where the sub was last spotted. Then the sonarman does his part in reading the sonobuoy signals. When pinpointed, the submarine is attacked.

Whether it be a P2V or a TBM, the crew is the key to how well the plane does its work. The pilot is dependent wholly

TYPICAL OF 'GUPPY' PLANES CARRYING RADOME IS THE DOUGLAS AD-3W

on his crewmen for spotting a sub, guiding him on his run, laying sonobuoy patterns and contacting the ships.

One facet of ASW is its 24-hour nature. Much flying has to be done at night and in bad weather. For this reason at least a white instrument card is required. Day operation by comparison is easy.

At night when a target is sighted by radar, its position is first reported. Then a bombing run is started, and the searchlight operator turns on the light. He scans the seas, and, after sighting, he guides the pilot on the target, who, mind you, makes the entire run on instruments. Training of the whole crew pays off here.

Extensive training is necessary to maintain proficiency in ASW squadrons. Pilots go first to the Fleet Air Electronics Training Unit at Norfolk or the Fleet Airborne Electronics Training Unit at San Diego, depending on whether they are going to one of the six east coast squadrons or the two west coast outfits. There they are given a short course in ASW electronics. Instrument flying, bombing and field carrier practice follow.

Crewmen are given ground training on instrument procedures, ASW, and laying sonobuoys. After joining squadrons, crewmen often operate at sea with fleet submarines.

Ultimate goal it to utilize every member of the ASW team to the fullest extent. Depending on locale, weather and other conditions, the team composition will vary.

In any case Mrs. Seagull had better stay close to home.

P2V-4 NEPTUNES COMPLETED 100% OF MISSIONS IN OPERATION PORTREX

GRAMPAW PETTIBONE

Folks are Really Friendly

Civilian cooperation with lost aircraft seems to be the order of the day. In the past few months, reports have been received of civilians lining up cars to illuminate small airports, golf courses and even a football field in an effort to help lost pilots get down safely in darkness and bad weather. The most recent report, however, sets a new high for this sort of assistance:

A Marine pilot departed from NAS GLENVIEW in a *Corsair* on a cross country flight to Albuquerque, New Mexico.

Over Lebo, Kansas he ran into an upper storm front that had not been reported by any of the weather stations en route. His plane began to pick up ice on its wings and cowling.

The pilot reversed his course, intending to return to Kansas City to land, but soon discovered that his remote indicating radio compass would not pick up Kansas City or any other station. It had failed completely. By this time it was dark and the storm was increasing in intensity.

Spotting a hole in the clouds beneath him, the pilot dived through into a clear area and began to circle the lights of an unknown town at low altitude.

At this point the citizens of Lawrence, Kansas sprang into action. The pilot watched a parade of autos leave the town and surround a small grass emergency strip, lighting it with their headlights through the rain. One car in the lead attracted his attention with a spot light and indicated that the field was clear for a landing.

Meanwhile some other citizen had called the airport at Kansas City by phone. Kansas ATC called the Naval Air Station at Olathe and reported that a Navy flier appeared to be in trouble and was circling a nearby town at low altitude.

Just as the pilot was starting his approach for a wheels up landing on the grass strip, he heard Olathe tower call and tell him not to land. He continued to circle, but at the moment Olathe could not give him a steer as they did not know which town he was circling.

This time a Naval Reserve resident of Lawrence sprang to the rescue. He telephoned NAS OLATHE and informed the Navy that Lawrence was the scene

of action. Olathe's GCA crew was alerted.

Olathe tower then instructed the pilot to climb through the overcast and attempt to locate a *Constellation* which was approaching Kansas City on the Southwest leg of the Kansas City radio range.

To aid him in locating the big airliner, Olathe asked the commercial pilot to drop his landing lights. The *Corsair* pilot saw the bright beam, located the *Constellation* and flew parellel to it. At this time he was able to pick up an on-course signal from the Kansas City range and he set his gyro compass to coincide with the inbound beam heading.

He then took up a heading for Olathe and was picked up on the GCA scope about 25 miles north of the station. At this time, two radio contacts were established and the pilot was given headings to bring him over the field. After weathering a severe attack of vertigo, he broke into the clear at an altitude of 400 feet directly over the field and made a normal landing.

Grampaw Pettibone says:

They tell me that this lucky Marine has a good looking wife and a couple of mighty nice youngsters. You'd think that he wouldn't give his guardian angels such a rough time.

From what I can make out of the two reports that we got on this incident the pilot wasn't worrying too much about the surface weather until he began to pick up ice at altitude. Then the ceiling and visibility below and behind him became very important items. By the time he turned around, the weather back towards Kansas City was down to 400 feet, rain, and low visibility.

According to press reports, he sent the Mayor of Lawrence, Kansas, a real nice thank-you letter.

I'll betcha that it will be a long time before he gets into another jam like this.

Dear Grampaw Pettibone:

Your article in the January 1950 NAVAL AVIATION NEWS concerning the landing of PV airplanes by use of the elevator tab has just come to my attention. This was very interesting to me, because on Christmas night 1941, I made a single engine night landing in a PBY in Manila Bay using the tab for elevator control.

Later, while a PV instructor at Sanford, Florida, I often speculated as to whether the maneuver was possible in a PV. The point was proved by LCDR_____in the PV Squadron at Tarawa, who, returning from a strike, discovered that he had no elevator control. Rolling in a little up tab, he climbed to altitude, put down his flaps and landing gear and tested the stall characteristics of the airplane, then came in for a successful landing, using the tab for elevator control. It so happened that a news correspondent was aboard the PV and was so grateful that he wrote the incident up in the Saturday Evening Post, with a full page picture of LCDR_____ captioned "The Best Pilot in the Whole World." Lated when I had occasion to meet LCDR_____, I asked him why he elected to land rather than jump. His reply was that that was the easiest thing to do.

I hope this belated information will add to your file on PV tab landings.

Sincerely yours,

CDR, USN

Grampaw Pettibone Says—

Sorry I had to delete the name of the B.P.I.T.W.W. in accordance with a long established policy on this page.

Your letter does more than add to the file on PV tab landings. It really starts it, as the case you report is the first instance that has come to light wherein a PV was safely landed in an actual emergency using the tab for elevator control.

This should settle, once and for all, the question of whether or not it *can* be done. I was and still am of the opinion that under peacetime conditions, and over suitable terrain, a pilot should offer the rest of his crew (co-pilot excepted) the alternative of bailing out. A controlled parachute jump from the rear door of a PV flying straight and level involves very little risk of injury.

It seems to me that the important thing to remember out of all of this discussion

is this:

The first time is the hardest in almost any maneuver.

If you know before hand just what you and your plane can do in any emergency, you're miles ahead of the fellow who has to dope things out under actual emergency conditions. A pilot can discover a lot of things that may come in very handy by simulating various emergencies at high altitude.

If he knows the answer before the emergency occurs, his crew and his associates will know that he is one of the B.P.I.T. W.G.D.W. Gosh darned, if they won't!

Stop, Look, and Listen

Early this year an airman on a CVB was killed when he attempted to drive a tractor on to the deck edge elevator just after the warning horn had sounded. He was in the process of delivering the tractor from the hangar deck to the flight deck.

Witnesses state that he drove towards the deck edge elevator at a fast clip. A plane was turning up on the elevator, and this may have prevented him from hearing the warning horn. The safety man on the elevator had called out "Stand Clear" before turning on the current, but turned his back momentarily just as the warning horn blew. At this instant he saw the tractor out of the corner of his eye, but the elevator was already going up.

The timing in this accident was particularly unfortunate in that the driver just managed to get the front wheels of the tractor on the elevator as it started to go up. He made a desperate attempt to jump clear, but the tractor flipped over on top of him and crushed his skull.

Although existing safety directives were considered adequate to prevent an accident of this type, this CVB has added an extra safety man on the deck edge elevator. He is called elevator captain and will stand near the center of the inboard edge of the elevator to determine whether or not it is "all clear" for operation. The elevator will not be moved until the elevator captain has given a "thumbs-up" signal to the elevator operator and safety operator.

Grampaw Pettibone Says—

Despite all the warnings and advice given on this subject, experience shows that some men will attempt to jump on an elevator or make a run for it when they hear the warning horn sound. I think the extra safety man will do some good in stopping this practice. In the case above, the presence of a plane turning up and men standing on the elevator should have indicated to the driver of the tractor that the elevator was about to go up. His haste to make that particular trip cost him his life.

Wing Not Locked

The F4U-4 pictured below started a normal flyaway launch, but as the plane gained speed, the left wing commenced to rise to the fold position. Upon reaching the end of the deck, the left wing was up at an approximate 45° angle.

As soon as the plane became airborne, the wing continued folding and was torn off. The *Corsair* rolled to the left and hit the water off the port bow of the ship in a 35° nose down, inverted position. The plane sank immediately with the pilot apparently unable to get clear.

Grampaw Pettibone Says—

Tests on other F4U-4's in this squadron showed that it is possible for the manual wing locking control to be placed in the locked position by the pilot when actually *only one wing* is completely spread and hydraulically locked. No system is provided in the wing folding hydraulic system to keep the outer panels "in step." Varying air loads can easily cause one wing to reach the fully spread position slightly ahead of the other.

In all probability, this pilot was directing most of his attention out the right side of his plane. In spreading his wings, he probably observed that they were both moving down, but actuated the wing locking control after noting only that the right wing folding gap door had closed. He then saw the warning flag on the right side go down flush with the wing surface and assumed that he was ready to go.

As the plane commenced its take-off run, witnesses noticed that the wing folding gap door on the left side was still open, indicating that the wing hinge pin was not in the locked position. With normal hydraulic pressure on the system, the manual locking pin, if actuated first, can prevent the wing hinge pin from being driven home.

Standard operating procedures aboard carriers should provide for checkers on each side to give a positive shake-test on each wing before a plane is catapulted or deck launched. In this case the accident board was unable to find any individual who had made such a check of the left wing.

Even so, the ultimate responsibility rests with the pilot. After all, his life is at stake, and he is provided with a positive check if he looks at the wing folding gap door and warning flags on both sides before giving the ready signal.

This is an isolated case—let's keep it that way.

They Waited Too Long

A P2V-1 airplane in the vicinity of Cape Charles, Virginia, was observed to be flying straight and level at an estimated altitude of 4,000 feet with the right engine trailing smoke, indicating that the aircraft was on fire. Shortly afterwards ground observers saw the fire increase in intensity, and soon the right engine fell from the plane. The plane continued straight and level, apparently well under control, but fire was observed where the right engine had been. About fifteen seconds later the right wing fell from the plane hitting a marine railway boat-repair shed in the village of Oyster, Virginia. After the right wing fell from the plane, the fire appeared to spread to the rest of the airplane as it dove towards the ground with erratic and violent gyrations. An estimated 2,000 gallons of fuel were on board at the time the fire started. The plane exploded on impact, and wreckage was scattered over an area of 200 yards.

Evidently the crew did not realize immediately the seriousness of the fire, evidenced by the fact that in spite of the relatively long time available, no one resorted to use of his parachute even after the engine fell from the plane. It is considered that there was sufficient time between the fall of the engine and the loss of the wing for at least two enlisted crew members to clear the plane.

Examination of the right engine after recovery indicates that the fire was in the accessory section, origin unknown.

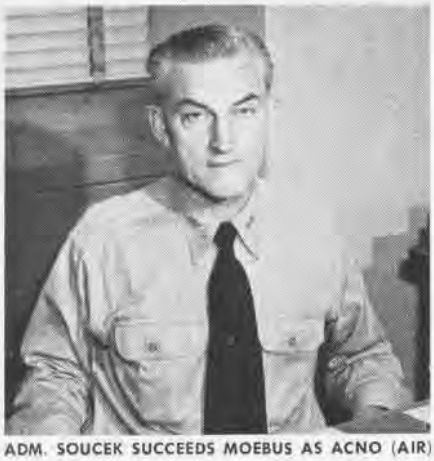
Grampaw Pettibone Says—

It appears that the pilot was either attempting to reach NAF Chincoteague, the closest large airfield in the vicinity, or planning to ditch in the large, flat, tidal area near Oyster, Va. The pilot may have been influenced in this decision by his familiarity with a similar accident. In that case, also a P2V, an engine caught fire in the air, fell from the plane, and the pilot flew for several minutes, finally making a wheels-up landing at his home airport with no injuries to personnel.

Crash records show that such good fortune is exceedingly rare. When a plane is on fire at altitude, the best advice that can be offered is:

1. **Be prepared to abandon the plane immediately.**
2. **Know and try emergency fire procedures.**
3. **If the fire persists, do not hesitate to jump.**

I know of no single case in which the slightest criticism has been directed at a pilot or crew for leaving a burning aircraft.



ADM. SOUCEK SUCCEEDS MOEBUS AS ACNO (AIR)

ADM. DUCKWORTH IS HEAD OF AVIATION PLANS

Air Admirals Change Posts

Soucek, Duckworth in DCNO Jobs

Two changes have been made in the high command of Deputy Chief of Naval Operations (Air).

RAdm. Apollo Soucek has been elevated to the position of Assistant Chief under VAdm. John H. Cassady, replacing RAdm. L. A. Moebus, who moved to Alameda to become ComFairAlameda.

Taking Adm. Soucek's place as head of the aviation planning division is RAdm. Herbert S. Duckworth. He comes to Washington from Maxwell Air Force Base in Alabama, where he was Chief of the Naval Division of the staff. Prior to that he was commanding officer of NAS JACKSONVILLE.

During his naval career, Adm. Duckworth has served on numerous carriers, including the *Saratoga, Langley, Lexington, Copahee, Cowpens* and finally winding up as skipper on the CVB *Midway* in 1946.

MATS Cuts Down Operations

Fewer U.S. Flights To Carry Military

Military personnel traveling around the United States on orders or "thumbing" rides on leave will get fewer chances to travel by air as a result of revision of peacetime operations of the Military Air Transport Service.

Instead of being a transport outfit, MATS now will devote its primary efforts to training a military airlift force. Scheduled transport service within the U.S. will be curtailed drastically or discontinued, except for air evacuation and trunk-line cargo services.

MATS current airlift will henceforth be limited to the by-product lift produced in carrying out the newly-assigned, expanded training mission. In general, MATS will maintain its schedule of overseas flights, and there will be no decrease in present ton-mile capabilities. However, the basis of all such flights in the future will be in conjunction with the training mission, and more aircrews will be trained.

The cutback in MATS is a result of a survey of its operations by the Management Committee of the Department of Defense. A cut of one or two percent in personnel in MATS will be made. The military has been criticised by commercial air lines for maintaining scheduled flights around the United States in asserted "competition" with them. There are three Navy squadrons in MATS, VR-3, VR-6 and VR-8.

As a result of this cutback in MATS and the prohibitive expenditures of recreation funds which would result if commercial transportation were used, the All-Navy Sports Program has been cancelled. Formation of district and area leagues and athletic programs is being encouraged to replace it.

Whidbey Rescues Civilians

Crew Picked Up After Plane Wreck

Aircraft, flight crews and a crash boat based at NAS WHIDBEY ISLAND, rescued a civilian pilot and his passenger.

The plane, a twin-float Taylorcraft, was seriously damaged when the pilot elected to land in the water off the west shore of the Navy reservation to avoid flying through a snow squall.

Within two minutes of the time the plane was wrecked, a fleet P2V, out on a training flight, dropped a life raft close aboard the wreckage after being notified of the situation.

A helicopter, a PBY and a crash boat were immediately dispatched to the scene.

Pilot and passenger were picked up by the helicopter, and the wreckage was towed to shallow water by the crash boat.

Plaque Honors Southerland

Naval Academy Teacher Wins Notice

NAF ANNAPOLIS—A memorial plaque honoring Cdr. James S. Southerland, the Naval Academy's first department of aviation instructor, has been dedicated at the department by RAdm. James L. Holloway, Jr.

Cdr. Southerland was lost at sea in October 1949 on a night flight from the CVB *Franklin D. Roosevelt*. He was assigned to the department of aviation on 21 December 1945. During the war he served on the *Yorktown, Langley, Essex* and *Saratoga* and took part in the battle of Guadalcanal.

Which side *is up? This line of Corsairs sitting on the apron at NAS Oakland presents a puzzling appearance thanks to the pond of water from a recent California "fog" in the foreground. So perfect is the reflection it is difficult to tell the top of the photo.*

Turboprop Power on New A2D

A NEW attack bomber, the second Navy combat plane to use a turboprop engine instead of the standard piston-type, has been flown by the Navy. Called the XA2D *Skyshark*, the Douglas plane is a successor to the versatile AD *Skyraider* attack aircraft.

Douglas El Segundo plant builds the new plane, powered by the same XT-40 turboprop engine which was put in the big XP5Y-1 seaplane. The engine is expected to give the A2D more speed and power, enabling it to carry a greater payload than any known jet bomber or fighter for the same fuel burned.

The engine will drive two counter-rotating propellers, as it does on the seaplane. Power from the props will be augmented somewhat by jet thrust through the tailpipe, about 10 percent of the total coming from that source. After the plane is airborne, either of the two jet turbine engines inside may be cut off for greater flight endurance. The J-40 turboprop is, in essence, two turbojets hooked by separate drive shafts to a common gearbox behind the propeller.

The A2D's rockets, bombs, mines or torpedoes could be used to support amphibious troops as well as attack targets at sea. It is equipped with folding wings and tail hook for carrier operations but has enough power to take off from short airstrips in forward areas.

Shortly after completion of the engineering of the basic AD *Skyraider* attack bomber in 1946, the usual effort was made to find ways and means of improving its tactical usefulness and extending its service life.

Many improvements were incorporated, resulting in the AD-2, AD-3, and AD-4 arranged for many special uses. It became obvious from these studies that the major increase in performance required to produce an airplane capable of operating unescorted and defending itself against jet fighters would require an increase in thrust far greater than could be obtained from piston engines.

All indications were that it would be necessary to double approximately the airplane's power with no appreciable increase in the airplane weight. This was a pretty big order and all known methods of propulsion were, therefore, methodically studied.

Turbojets appeared promising, but with available turbojets it was impossible to meet takeoff and endurance requirements. These and similar studies conducted by BuAer indicated that the best solution to the problem would be a turboprop engine, preferably one with a dual engine arrangement to permit single engine operation at low altitudes for greater endurance and equipped with a counter-rotating propeller to eliminate prop torque.

POINTED NOSE, STUBBY WIDE PROP BLADES, JET EXHAUST ON SIDE OF FUSELAGE FEATURES XA2D

The Navy Allison T-40 engine and Aeroproducts propeller met these requirements and were, therefore, chosen as the most suitable power plant for the A2D *Skyshark*.

It was originally intended that the A2D *Skyshark* incorporate as many parts of the AD as possible, but it soon became apparent that the ever-changing strength, stability and equipment specifications affected almost every part of the XA2D airplane.

The wing area and span were held, but the wing and tail surface thicknesses were decreased, landing gear strength and stroke were increased, and so forth. Nevertheless, the family characteristics of the AD can be seen clearly in the wing planform, tail configuration, landing gear and cockpit.

In the arrangement of the A2D, every consideration was given to safety and efficiency of operation. The pilot's cockpit was located as far forward as possible and in such a manner as to provide exceptional downward vision. The cockpit contains additional strength to increase its resistance to crash loads. An upward jettisoning seat was chosen for high-speed escape as the presence of the engine under the pilot did not permit use of the bottomside bailout chute as in the F3D which, otherwise, would have been preferable.

While the cockpit canopy does not have the aesthetic appeal that the blown bubble type canopies have, its lines were determined by the use of single curvature laminated plate glass. Glass rather than plastic panels were considered necessary to meet hot day, sea level, full throttle speed requirements. Double curvature glass was not available at the time.

Cabin pressure and cooling are provided by an AiResearch expansion turbine-type system.

The engine starting problem of the A2D, as with all jet-type engines, was a difficult one. It was further complicated by the requirement that the airplane be capable of starting its own engines without the assistance of an external ground supply. Electrical batteries for this purpose proved to be too heavy and an airborne self-starting unit, commonly referred to as an APU unit (auxiliary power unit) was therefore design and developed.

This unit is a combination small gas turbine and air turbine starter. It provides the pilot with a push button automatic starting system, greatly reducing engine starting time so important in combat.

While security regulations do not permit divulging performance details, the bomb load per mile per hour of the XA2D is almost 50 percent greater than that of the AD, while fuel consumption per pound of bomb per mile is substantially the same as that of the AD piston engine airplane. This comparison is considered of significance inasmuch as it indicates a great improvement in performance efficiency. A similar comparison with jet engines indicates that contemporary jet engines consume four times the amount of fuel in accomplishing a typical A2D mission.

NEPTUNE FROM VP-8 MAKES JATO TAKEOFF AT MCCALLA FIELD, GUANTANAMO, DURING CARIBEX

VP-8 Claims Patrol Mark

Neptunes Fly 1076 Hours In March

VP-8, QUONSET—Back from *Portrex* and *Caribex* exercises in the Caribbean, VP-8 can point with pride to a record of 1,076 flight hours during March, believed a new peacetime record for a patrol squadron.

While six of the squadron's P2V's were flying from Guantanamo, Cuba, three were operating in cold weather at NAS ARGENTIA, Newfoundland. The squadron made no effort to set any flying records but achieved the mark anyway. The Argentia detachment got in 235 hours despite bad weather, subzero weather and fog.

Pointing up VP-8's busy month of March, the squadron records show the six planes at Guantanamo made 12 JATO takeoffs by prospective PPC's, qualified 18 pilots in GCA. Five pilots qualified for standard instrument cards, two qualified as PP1P's, and 25 combat aircrewmen were qualified.

The *Neptunes* at Guantanamo got in 207 hours of gunnery training, 110 hours of instrument flying and 53 hours at night, for a total of 841 hours. Up in the frigid north, the three P2V's were equally busy getting in their 234 hours, including 130 instrument and 30 of night flying. Skipper of the squadron is Cdr. H. F. Lloyd.

VP-8, ARGENTIA — Newfoundland weather rivals the Aleutians for its ruggedness but this squadron's detachment here, with three planes, flew 235 hours during March, believed to be a record for a winter month at Argentia.

Argentia weather always has been an aerologist's bugaboo. Being a consistent bad weather area, it is a sinkhole for low pressure cells and a development center of the worst North Atlantic storms.

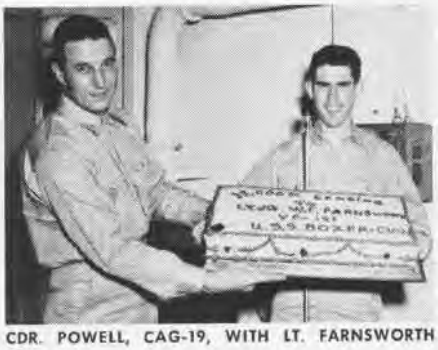
In addition to this, fog rolls in at a 60-knot clip from the southwest and air mass snow storms vary the field conditions from CAVU to zero-zero quicker than you can say GCA. LCdr. E. H. Austin, Jr., was in charge of the detachment here, with 12 officers and 58 enlisted men under him.

When the *CVB Midway was in the Mediterranean, Air Group Four's VA-45 spent six days ashore on the famous battle-scarred island of Malta. Operating off Halfar field, the squadron sent 12 AD-1's ashore to do gunnery practice. As a result all pilots qualified in the succeeding competitive exercises. In the photo they are, front row: Ens. J. M. Harrell, Lt. J. S. Marrow, Lt. E. E. Ludeman, Cdr. L. V. Swanson, CO; LCdr. F. C. Kidd, exec; Lt. P. P. Hambsch, Ens. W. L. Russell, Lt. (jg) W. F. Bennet, flight surgeon; Second row: Lt. (jg) W. W. Tilghman, Ens. H. M. Puckett, Ens. J. M. Brozena, Ens. J. B. Morin, Lt. (jg) W. F. Kostik, Lt. (jg) W. R. Mathews, Ens. R. C. Boyd, Lt. (jg) S. W. Callaway, Ens. R. T. Holmes, Ens. A. D. Burkett, and Ens. W. L. Mumma.*

Pilot Wins Cake Two Times

Farnsworth Cops Trophy Twice

USS BOXER — Lightning may not strike the same place twice, but Lt. (jg) William D. Farnsworth of VF-191 is



CDR. POWELL, CAG-19, WITH LT. FARNSWORTH

probably the only Navy pilot to win a thousandth-landing cake twice aboard the same carrier.

He came in for the 35,000th landing on the *Boxer* on 13 April off Subic Bay, P. I. Previously he had made the 33,000th landing en route to Japan.

Fires 45.3%—Not Counted

Candidate For Most Frustrated Pilot

VF-64, ATLANTIC—Lt. J. A. Crocker is one of the most frustrated fighter pilots to peek through a fixed sight.

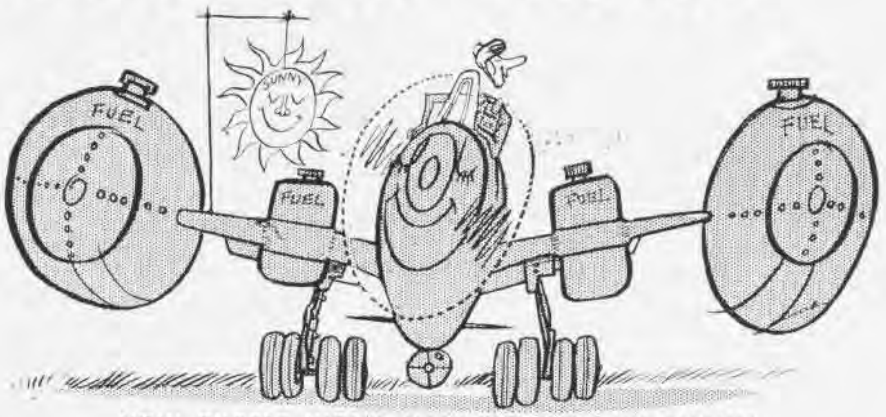
While making competitive overhead runs in his F8F, Crocker ran up a respectable score of 17 hits out of 150 rounds. He felt, however, that this was in the category of the legendary plumber's ability and so asked for and received permission to go out as a spare pilot on the next flight to get more practice.

Squinting carefully he plastered the banner with 68 hits for 45.3% as compared with the original 11.3%. Although near a record, it failed to count because he was the spare pilot.

As of last report, Crocker now bumps his head against the bulkhead only occasionally, so he is called "Flat Top" and "Desk-Type Head" less often.

CROSS COUNTRY BUSTS

IN ONE respect, gasoline is just like money. It isn't so very important as long as you have plenty of it. But once you discover that you are a little short, the needle on the fuel gage seems to move towards zero at an unusually fast rate. The case histories printed below have one error in common. The pilots didn't start worrying about fuel supply early enough to avoid an accident.



NOW DILBERT WON'T HAVE TO PLAN HIS FLIGHTS

Case #1

Two pilots departed on a cross country flight from NAS SAN DIEGO to NAS OLATHE, Kansas in AD-3's. Each plane was carrying one external fuel tank which should have provided an endurance of approximately seven hours at best cruise power settings.

The flight departed San Diego at 0821 local time. Evidently the flight leader was intent on setting some sort of speed record for AD's on this flight half way across the United States. The two planes passed over Wichita, Kansas, just 4 hours after take-off, having made good a ground speed in excess of 300 statute miles per hour.

At this point the wingman noted that his fuel supply was down to 400 lbs. The distance remaining to Olathe was 136 nautical miles. The pilot states that he had been watching his fuel supply and had been burning about 116 gallons per hour (696 lbs/hr). He decided that he could just make it without stopping for gas at Wichita.

Twenty minutes later it was apparent that he was not going to have enough gas to get to NAS OLATHE, and he turned towards an airport at Ottawa, Kansas, 30 miles closer than Olathe. Four hours and twenty seven minutes after take-off his fuel was completely exhausted while flying at an altitude of 1200 feet over level terrain. As he turned into a field for an emergency landing, he decided at the last minute to put his wheels down, hoping to avoid damage to the plane.

After a ground roll of about 450 feet the wheels dug in flipping the AD-3 over on its back, as shown in the picture at the bottom of the page. The flight leader, who was also very low on gas, zoomed the wreckage long enough to attract the attention of a highway workman who came over and dug the pilot out. A few minutes later the flight leader made a successful forced landing on U.S. Highway 50.

As a result of this accident both pilots received letters of reprimand from Commander Air Force, Pacific Fleet.

The following order was issued by the squadron commander to prevent a recurrence of this type of accident: "Any future cross-country training flight will be approved only when a satisfactory preflight planning chart, covering routes, power settings, fuel consumption, fueling stops, and alternate fields in such a manner as to provide for landing and refueling with at least 25% of total take-off fuel remaining, has been submitted and approved."

Case #2

Pilot was assigned to ferry an F4U-5N from Quonset Point to San Diego as a single ferry pilot after having made two trans-continental trips as a follow pilot. The first leg of the flight was uneventful. The plane was refueled at Anacostia and a VFR clearance secured for the second leg to Spartanburg, S. C.

Passing over Charlotte, N. C., the pilot noticed an SNJ landing at Douglas Airport. He circled the field and observed that a National Guard Unit was established there, and decided to land there and refuel, figuring on making Atlanta before dark.

At Douglas Airport he found that 115/145 octane fuel was not available, and he was uncertain as to the advisability of refueling with 100/130 fuel. Since Spartanburg was only thirty minutes away, he requested a clearance stating that he had sufficient fuel for 1 hour and 15 minutes. After getting his clearance, he folded his Charlotte sectional chart and put it in the knee pocket of his flight suit. (This chart was subsequently found on the steps of the operations office).

After take-off and climb to 2500 feet, the pilot shifted to cruise settings, reached for his map, and found it to be missing. Thinking that he should be able to find Spartanburg without a chart, he proceeded on a heading of 270°, expecting to intercept the NE leg of the Spartanburg range. Visibility to the west was restricted by haze and sun position. When the pilot was unable to locate Spartanburg, he called Spartanburg Radio and reported that he was without a map, low on fuel, and thought he was north of the town.

He described a small town that he was flying over and was given a heading of 150 degrees. This heading did not seem right to him, and he decided that his best bet would be to return to Charlotte where he was more familiar with landmarks. Visibility to the east was excellent and the pilot soon saw Charlotte about 15 miles ahead.

Unfortunately, by this time his fuel gage was reading zero. Rather than risk running out completely on the last few miles to the field, he decided to make a power approach, wheels-down, and land on a highway.

He was unable to keep one wheel from running off the edge of the highway and the F4U ended up in a four foot ditch, suffering strike damage. The pilot was uninjured.

The Accident Board noted that current instructions permit the mixing of 115/145 and 100/130 octane fuel in circumstances such as this, and was of the further opinion that the pilot should have returned to Charlotte immediately after discovering that he had lost his chart. The Board felt that the damage to the plane would have been far less had the pilot landed wheels up in an open field. May he not have to check this!

AIR MEMENTOS GO TO MUSEUM

A collection of aeronautical mementos covering 33 years of flight was turned over to the National Air Museum of the Smithsonian Institution recently.

It was the priceless accumulation of Mrs. C. A. "Mother" Tusch of Berkeley, Calif., whose "hangar" had been visited by many famous airmen.

"Mother" Tusch, who is recovering from a partial paralysis suffered last October, started her collection because

'MOTHER' TUSCH WITH PART OF HER COLLECTION

she was "interested in the idea of flying." Through the years she assembled items from flyers of her acquaintance and their friends.

A four bladed, halved together wooden propeller hub of the type used

PROPS, FLIGHT GEAR, PIX FEATURE EXHIBIT

on the NC-4, pictures, models, flight gear, models and parts used in World Wars I and II are to be found there. There are many autographed photographs.

Among the Navy men who contributed to the museum are Adms. C. W. Nimitz, R. E. Byrd and S. E. Moses.

One problem in moving the collection was the extreme care needed to remove autographs from the walls. A precaution in the event of damage was taken by having Lt. E. O. Sanders, Photo Officer at NAS ALAMEDA, take detailed photographs which could be reproduced. Ninety shots were made in two days.

Bataan Joins Fleet Again

CVL Out of Reserve; For ASW Work

Survivors of the Bataan "death march" and men who served aboard the CVL *Bataan* during the war helped recommission the flattop as an antisubmarine carrier at Philadelphia Naval Shipyard on 13 May.

After a shakedown period on the east coast, the *Bataan* will join the Pacific fleet as part of Carrier Division 15 and will base at San Diego. Her skipper is Capt. Edgar T. Neale, former CO of the Naval Air Reserve station at Atlanta. Cdr Reginald Rutherford is executive officer of the carrier.

The *Bataan* was put in the Reserve fleet at Philadelphia in February 1947. During the war, as part of Task Force 58, the carrier participated in the Marianas conquest and initial raids on Iwo Jima with the fast carrier task force. Its planes also raided Kyushu to neutralize air power before the Okinawa campaign. It was on this raid the CV *Franklin* was grievously hit. The *Bataan's* air group made 145 strikes against the Japs, shooting down 138 and destroying 122 planes on the ground.

Before being recommissioned, the *Bataan* was converted for ASW, receiving reinforced flight and hangar decks, larger portside catapult, revised magazines to accommodate ASW munitions, and new radar.

Daughters Give a Watch

High Grades Win Ensign Honor

VP-6, WHIDBEY ISLAND—A shiny new precision pilot's watch glistens on the wrist of Ens. Robert A. Greenkorn today but it took a lot of searching on the part of the Daughters of American Colonists and some naval commands to put it there.

Greenkorn graduated with the highest of the 1949 pilot flight training class as Pensacola, which won him the right to the watch. However, he disappeared into the whirlpool of Navy transfers before it could be presented to him. Nearly nine months later the DAC, with the aid of ComAirPac, found Greenkorn attached to this squadron and made the award. Mrs. M. T. Dalton of Seattle, state regent of the women's national society, made the presentation after arrangements with Cdr. E. W. Bridewell, squadron skipper.

Jet Noises Licked By P&W

Workers And Local Residents Benefit

A jet engine in itself emits enough noise to be highly irritating.

Add an afterburner, and the result is ear-splitting.

Activities testing these Navy engines have a continuous problem in abating this nuisance. One of the commercial outfits concerned with this problem is Pratt and Whitney Aircraft division of United Aircraft Corporation.

To muffle the unpleasant sounds coming from its test stands, P&W has installed 2,000 tons of soundproofing equipment.

Complaints regarding noise concern not only the workers but the residents of neighboring communities. In some instances when there are low-hanging clouds, the sounds bounce off and are heard with great force in concentric circles around the test location.

The company has 70 engine test cells, one-third of which are in use at any given time. This produces in volume a noise equal to a squadron of B-36's or several squadrons of jet fighters using Navy J-48 *Turbo-Wasps*. The noise level occurs at a frequency of middle C on the musical scale, and that frequency also travels farthest. Most soundproofing efforts concentrate on this area.

At test stands, pre-cast concrete blocks made of sound-absorbent material and metal containers filled with rock wool or glass wool are used for construction. With jet stands one type of silencer was designed by the Maxim Silencer Co., using the principle made famous in connection with guns. A more recent development would utilize a labyrinth principle.

In the Andrew Willgoos Turbine Laboratory on the west bank of the Connecticut river, noise-filled gases bounce their sounds off absorbent walls and finally wind up in an expansion chamber where the velocity is reduced.

MAXIM SILENCERS AT TURBINE LAB KILL NOISE

'Dog Tags' and Dungarees

Reserves Give 'Em to 'South Pacific'

When the road company of "South Pacific" rolled into Kansas City, Reservists at NAS OLATHE almost got into the act. And their dungarees did!

On the prowl to find salty, well-worn and faded dungarees for the play's "Seabees," the stage director paid a visit to the naval air station. Seeing just what he wanted on one or two of the men, he offered to trade brand-new dungarees for the worn article.

But he was totally unprepared for the avalanche of ripe old dungarees that were offered by all hands. In fact, he had to limit the trade to one set from each man. Even at that he collected about a truck-load or roughly-speaking about a ten-months supply of the desirable (?) items.

While the stage manager was work-

MISSES WYATT AND HEATH & OLATHE RESERVES

ing his old work-clothes routine, Florence Wyatt and Dody Heath, who play Navy nurses in the popular musicomedy, were busy getting a few pointers about the island locale of the play from Reservists who had been there. They also collected a set of "dog tags," which were presented by Marine Captain John Henderson, "to make their roles more authentic."

Army to Share in Program

Will Get Devices from Navy Center

The defense economy program gets another shot in the arm from the new agreement under which the Army will participate with the Navy in the activities of the Navy Special Devices Center, Sands Point, Long Island.

The training aids developed for the Army at the center will be similar to such devices now in use as the remote electronic scoring device used on rifle ranges to score automatically each shot fired into distant targets, or the radar device recording hits and misses on planes by antiaircraft gunners without any missiles actually being fired. These devices have proved highly effective training aids.

Not only is duplication eliminated by the joint participation program, but unified development and issue system for all types of training aids is insured.

READERS IDENTIFY NAVY FIELDS

ENIWETOK FIELD NAMED FOR JOHN H. STICKELL

WHEN NAVAL AVIATION NEWS ran a list of Navy and Marine Corps air station names and the heroes for whom they were named, it was unable to give any history on Stickell field on Eniwetok island.

When the article appeared in print, a number of readers wrote in to supply details on it. They also supplied information on three other air fields not included in the list.

Stickell field was named for Lt. John Harlan Stickell of VB-108. He flew 48 missions over Europe with the Royal Canadian Air Force, including 15 as a "Pathfinder" dropping incendiaries to light up targets. He won the DSO and DSM for his exploits.

He then joined the Navy as a lieutenant and was assigned to fly *Liberators* at Kaneohe. He was largely responsible for the inauguration of low-level attacks on the Japanese installations in which VB-108 was so successful. During the Gilbert and Marshall islands campaigns, his plane destroyed a *Betty*, two *Zekes*, bombing and sinking two ships off Jaluit and damaging two others and bombing oil storage tanks on Jaluit. He suffered a minor wound, a Jap .50 cal. machine bullet through his foot, on the last raid and died five days later.

In signing a commendation for him, Adm. John H. Hoover declared "I consider him the outstanding aviator in this area during the Gilbert and Marshall operations." Adm. Hoover named the field on Eniwetok after Stickell. Old squadron mates and others who supplied information on Stickell included Capt, J. T. Hayward, LCdr. J. D. Ifft of FASRON-5, LCdr. Frederick T. Pierson and LCdr. A. Smyer, LCdr. Theodore Steele, and Horace S. Bowman, ADC VR-31.

Adm. John H. Towers, who also reported on data regarding Stickell, supplied information on Waldron field, Corpus Christi, which was omitted from the NEWS' original listing.

The Texas field was named for LCdr. J. C. Waldron, famous skipper of Torpedo Squadron Eight, killed in a gallant torpedo attack on a Japanese carrier off Midway on 4 June 1942. H. J. Lewis of West Newton, Mass., also furnished data on Waldron field.

Two other fields named for heroes also were reported to the NEWS. They are Bordelon field, Hilo, named for Sgt. William J. Bordelon, Marine killed in the invasion of Tarawa, and Pershing field, Lincoln, Nebr. Naval Reserve pilots fly from the latter municipal field, named for General John J. Pershing.

WALDRON WAS HEAD OF FAMED VT-8 AT MIDWAY

New Reserve Competition

CNATra Trophy Spurs Improvement

The 27 stations and units under the Naval Air Reserve Training Command are now in competition for a new trophy. This "Chief of Naval Air Training Trophy" will be awarded annually to the station or NARTU which has shown the greatest improvement in annual competitive training during the past year.

Rules governing the awarding of the CNATra Trophy parallel those for the Conway Trophy, which is awarded each year to the outstanding Reserve station, except that emphasis will be primarily placed upon improvement shown.

The basis for computing the CNATra trophy point score is the proficiency of the various departments and the safety records at each station or unit.

BURNEY, AD1, HELPS LT. LYGO, RN, INTO CHUTE

RN Officer Flies Banshees

US-British Exchange Pilot Is Actor

Lt. Raymond D. Lygo, Royal Navy, is a *Banshee* pilot. He's flying them in Fighting Squadron 172 sometimes at sea and sometimes at NAS JACKSONVILLE.

He is one of the pilots and line officers picked to serve for a period of one year on exchange duty between the U.S. and Royal Navies.

Lygo's duties follow those of any regular officer in a squadron. He takes his place in the tactical organization in the air. On the ground he holds down the job of structures officer as collateral duty.

During the recent combined *Operation Portrex*, Lygo operated with the squadron and the rest of Carrier Air Group One from the carrier *Philippine Sea* furnishing air support to invasion forces and surface units.

Lygo's second profession is acting, which he has been doing since his early school days. His grandfather was associated with the Drury Lane Theater, memorable in the cultural history of London. His father appeared in many London presentations before the war, and his uncle was manager of the Prince of Wales Theater.

For a time he was director of a repertory company that played throughout west England and for awhile managed a concert troupe that toured Australia. After coming to the U.S. and on a visit to New York he was featured in the production, *Stars and Stripes*.

Last November Lygo appeared in the NAS Jax stage show *Kongo* and stole the show with his Cockney accent in the role of *Whippy*.

He entered the Royal Navy in 1942 after being employed by the *London Times*. He received his flight training both in England and Canada. His combat record includes the Atlantic, Burma and Pacific stars.

Shortly after his arrival in Jacksonville, Lt. Lygo met and married Pepper Van Osten, further strengthening the ties between the U.S. and Britain.

Navy Cuts 1200 O&R Jobs

Six Air Stations, Factory Get Slash

Reduction of 1,200 civilian billets at six naval air stations and the Naval Aircraft Factory, Philadelphia, has been put into effect to bring employment levels in line with 1951 fiscal year budget figures.

Operational cutbacks in the number of squadrons and carriers in the aviation Navy already have been announced. This reduction has made possible the elimination of the civilian jobs in O&R shops at the various Naval air stations.

Much of the reduction was taken care of by not filling vacancies which arose and by releasing temporary employees. The following list shows the cutback at each station and the total civilian employees on board as of 1 April:

San Diego, 300 and 5441; Norfolk, 300 and 5689; Alameda, 200 and 5334; Jacksonville, 100 and 2791; Quonset Point, 100 and 2027; Pensacola, 100 and 3370; Aircraft Factory, 100 and 1650.

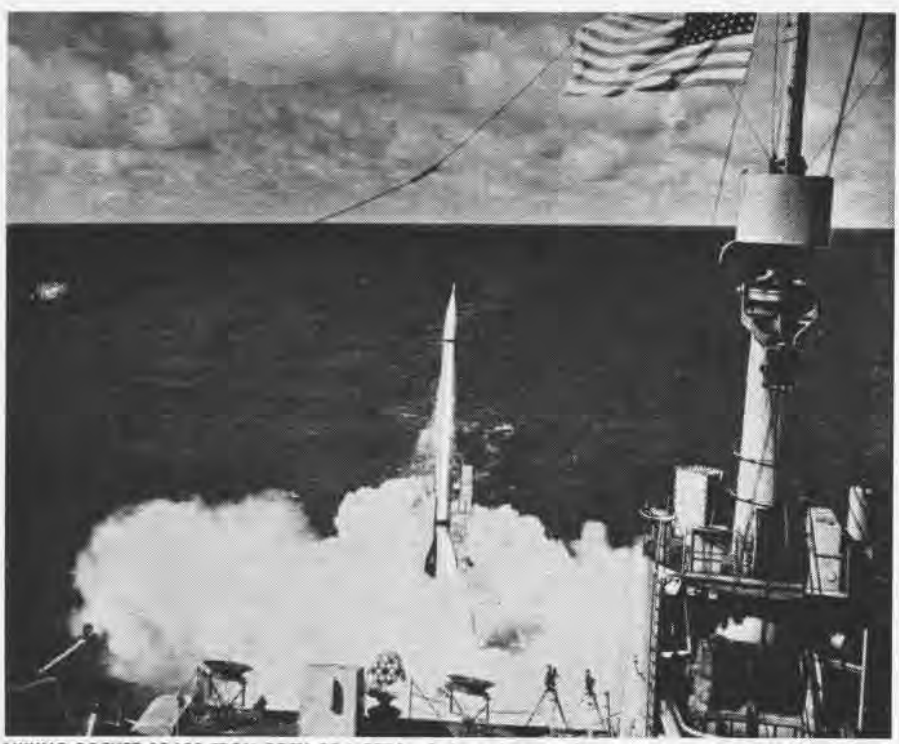
Navy Flies Serum to Sea

VR-24 Helps Save Englishman's Life

In a nice piece of international cooperation, the Navy came to the rescue of an injured British merchant ship captain who needed tetanus antitoxin after being burned in an accidental explosion of a star shell.

Shortly after the accident he was transferred to the USNS *General Rose* where his hand was amputated. Since the *Rose* lacked antitoxin, an emergency call was sent to the Navy's air operations office in London. Ten minutes after the serum was delivered to VR-24's offices it was taken aboard a JRB heading 300 miles to sea to deliver it.

When the JRB, flown by Lt. P. P. Byrd, reached the ship, a stout line was tied around B. O. Johnson, AD3, at the door of the JRB. Byrd lowered wheels and flaps to cut airspeed to 90 knots. Three runs were made and three direct hits were secured with the serum, three being dropped in case one was damaged. Others in the crew were Lt. John Dick and R. S. McCluer, ALAN.



VIKING ROCKET SOARS FROM DECK OF NORTON SOUND AT EQUATOR SOUTH OF HAWAII, GOES 106 M

Viking Sets A New Record

Rocket Reaches 106 Miles from Ship

Feasibility of firing long-range rockets from shipboard was established when the Navy *Viking* ascended 106.4 miles from the deck of the USS *Norton Sound* in mid-Pacific, setting a new altitude record for an American-built, single-stage rocket.

The *Viking* is the largest rocket fired from the *Norton Sound*, which previously had sent an *Aerobee* rocket up 78 miles. A V-2 rocket was launched from the carrier *Midway* but did not reach great altitude.

A V-2 rocket reached an altitude of 114 miles when fired at White Sands, New Mexico. With another rocket, a *Wac Corporal*, riding on its nose and firing after the V-2 was high in the air, an altitude of 250 miles was reached.

The *Viking* is manufactured for the Navy by Glenn L. Martin Aircraft Co., and is powered by a rocket motor built by Reaction Motors, burning liquid oxygen and alcohol. The rocket is 50 feet long and 2½′ in diameter.

CDR. YOUNG, PATUXENT ALCOR, FILES A CARGO REQUEST WITH TRYBALA

LCDR. ALLMAN AND CHIEF COLEMAN LOG SPECIAL FLIGHTS AT PATUXENT

AIR WING BRAIN CENTER

DURING the war and postbellum days of NATS, scheduled flights of the big transports and seaplanes covered the United States and the two oceans like a spiderweb.

Came the cutbacks and the schedules were decreased. NATS was replaced by Fleet Air Logistic Support Wings. Airlines complained of duplications and still further cuts were made, until today the new Fleet Logistic Air Wing flies only a few minor scheduled hops. Navy transports still carry men and cargoes to answer the fleet's needs, but few persons know just when and where a flight in the future will be made.

The job of getting together the people who want to make flights, the cargo that is urgently needed somewhere and the transport planes to carry them is done by a new organization within FLAW. Two Air Logistic Coordination Centers were set up last winter, one at Patuxent River, headed by Cdr. J. C. Young and the other at Moffett Field under Cdr. W. H. Weston, who was replaced in June by Cdr. R. L. Eldridge.

ALCORs as they are called, were set up to get the maximum economy in equipment and personnel when the shift was made from scheduled flights to special passenger and cargo hops. Centralized clearing houses were needed to replace the many local terminal space control activities maintained by the two predecessors, NATS and FALSW. This is how they operate:

A naval activity finds that it requires air logistic support to maintain its combat readiness and operating efficiency. This air lift requirement might be moving a whole squadron, where invaluable time and man-hours would be lost if slower transporting was utilized. It might be an urgent requirement for essential parts or supplies needed to maintain a proper state of readiness.

Or it might be the transfer of hospital patients whose very lives depend on swift and immediate air transportation. By telephone, dispatch or letter, the lift requirement is directed to ALCOR Pax River or ALCOR Moffett, whichever is appropriate. Requests submitted via respective fleet or type commanders, bureau chiefs, or district commandants receive precedence over requests direct from an individual unit.

Individuals may request space through ALCOR or the nearest FltLogAirWing unit. Space on non-scheduled transcontinental flights should be requested from BuPers 812 or Air Traffic Control Center, 12th Naval District, San Francisco. Dependents may travel on overseas flights when authorized by BuPers. Passengers, like cargo, are carried on a strict priority basis and a "no show" often results in waste of valuable air lift space.

If an air lift request complies with the policy concerning aircraft use contained in CNO letter, serial 53P53, of 20 January 1950, ALCOR first endeavors to meet the request on one of the few scheduled flights still operated by the Wing. If a scheduled flight is not suitable, ALCOR must originate a special flight, and it is in this category that the centers are so effective.

When a lift request proves valid and within capabilities of Wing operating squadrons, it is confirmed by ALCOR. Then it is combined with other requests, if necessary, to bring about the maximum use of all available air lift space.

Frequently it is necessary to work out a compromise between several desired departure times and dates to satisfy two or more requests with one special flight.

Shortly before the special flight ALCOR issues a flight advisory to the operating squadron, specifying the type plane to be used and the times of arrival and departure for all stops on the flight. The timely release of the advisory makes possible the greatest combination of lift requests with the least change in the advisory. All potential "customers" are informed of any space available on the flight.

The advisory serves as an operational order and on its receipt the operating squadron schedules an aircraft and crew to make the flight. Once again ALCOR has done its part to maintain the operating efficiency of the Navy.

ALCOR's work it often world-wide in scope, for units of the Wing extend from the Philippines to Europe. VR-21 with headquarters of Barber's Point and detachments at Clark field, Guam; and Kwajalein operates R5D, PBM and R4D aircraft throughout the Pacific.

VR-5, Moffett field, and VR-1, Patuxent River, are concerned with West and East Coast operations and continental flights. VR-24, London and its detachment provide air logistic services for naval forces in the Eastern Atlantic and Mediterranean.

VR-2, operator of the famous JRM *Mars*, has been providing scheduled lift between Alameda and Honolulu. On the first of May these huge seaplanes began operations on a non-schedule basis to meet air lift needs of the fleets and naval establishment.

The procedures followed by the Air Logistic Coordination Centers in serving as clearing houses for air lift requests is permitting the maximum use of air transport operated by the wing and at the same time increasing fleet combat readiness and mobility.

Is Sailor an Airman? Sure!

Unification Deep in Heart of Texas

A sailor on duty with the Air Force deep in the heart of Texas has his troubles.

It's all due to unification.

The sailor is Personnel Man First Class James A. Williams, assigned to the headquarters of the Continental Division, Military Air Transport Service, located at Kelly Air Force Base, San Antonio, Texas.

Williams' problem has been to convince the authorities that he is not an automobile thief and that it is perfectly proper for a sailor to be driving a car with an "airman" identification tag on it.

A climax brewed recently when Williams was driving his car in San Antonio. An alert policeman in a patrol car observed the sailor in whites and decided to follow him. It just wasn't according to Hoyle for the sailor to be driving an airman's car.

Williams noticed the "tail" and thought it best to stop and see what the score was. He wasn't speeding, he hadn't been drinking; in fact, he had just made a donation to the blood bank.

Sure enough, the policeman was convinced it was a stolen vehicle. "What are you doing driving that car, sailor?" he asked.

Every bit of identification he possessed was produced by Williams, including his class "A" pass from Kelly. The cop was soon convinced that the sailor legally displayed an airman's tag from the base.

But that wasn't the end of the trouble. The routine was repeated with a civilian guard at the gate of Kelly field. A sailor in whites just didn't look like an airman.

Everybody's happy now. A little publicity did the trick, and unification is a proved accomplishment way down deep in the heart of Texas.

Constitutions May Lie Idle

Airlines Fail to Bid on Leasing R6O's

The two R60 *Constitutions,* largest landplane transports in the services today, will remain in the Navy, but study is being given to the question of operating them or storing the big planes.

The Navy asked for bids from private airlines to lease the two *Constitutions,* but none was received. In view of curtailed Navy budget funds, the impending overhaul needs on the planes and other considerations, the Navy may not be able to afford to continue operating them.

★ ★ ★ ★

GCA BOX SCORE

April Instrument Approaches	613
April Total Approaches	12,326
Total Instrument Approaches	14,278
Grand Total Approaches	349,062

★ ★ ★ ★

Search and *rescue equipment from Bureau of Aeronautics, the Air Force, and airlines is featured by an exhibit at Floyd Bennett Coast Guard Air Station. The exhibit has been used to present survival training to nearly 2,000 pilots and airmen of the Navy, Coast Guard, Marines, Air Force and domestic and foreign airline pilots. Prepared by Cost Guard ordnancemen, the exhibit is being viewed by members of the Naval Air Reserve who fly from Floyd Bennett. Actual "wet drills" are scheduled to be held this summer.*

New High Speed Drone Out

Martin KDM-1 Replaces Old Drone

First models of a new pilotless target drone, the KDM-1 manufactured by Glenn L. Martin company, have been delivered to NADC JOHNSVILLE for fitting on the "mother" airplane which will carry them aloft for launching.

The new drone is a modification of the *Gorgon IV* "bird" with longer range and better performance. It has a 10′ wingspan and is carried aloft on a special pylon near a wing tip.

Power is furnished by a Marquardt ramjet engine suspended under the fuselage. As the engine tends to build up speed, the bird is provided with drag brakes to maintain subsonic speeds during firing tests. After launching from the plane, it is controlled by radio while being watched on a radar screen. Controls can be preset before launching, but these may be overridden by radio at the will of the control officer.

Assistant *Secretary of the Navy For Air John F. Floberg flew a several times as "rear seat man" with LCdr. O. J. Donahoe of* VC-24 *during Portrex, including a night ASW sortie and a daylight hop that marked the 5,000th landing on the Palau. Helping him cut the cake here are Capt. T. O. Dahl of the Palau, Cdr. H. S. Jackson of* VC-24, *Donahoe, J. L. Yocklovich,* AO3, *G. D. Brown,* AL3, *E. C. Padgett,* AD2, *and W. S. Wiley,* AN.

Safe Fliers Given Pennants

Dive Bombing Champs Win Honors

NAS SAN DIEGO—Two fleet air units have been awarded safety pennants for being the safest squadrons in the Pacific fleet—VA-115 and VS-25.

The attack squadron is commanded by LCdr. R. W. Fleck and the antisubmarine squadron by LCdr. J. G. Williams. The pennant is awarded quarterly to the type squadrons flying the most accident-free hours. VA-115 flew 2,000 hours without incident. Its safety officer is Lt. (jg) S. G. Gorsline. The squadron holds the 1949 annual carrier-type safety trophy and the ComAirPac dive bombing championship.

VS-25 flew nearly 3,000 hours during the quarter to boost its string of accident free hours to more than 5,000. Lt. (jg) A. C. Le Fevre is its safety officer.

F6F COMMITS HARI KARI

GRUMAN F6F-5 *Hellcats* did a lot of damage to the Japanese during the recently ended melee . . . but it is doubtful if any of those veteran "6's" ever dreamed that they would come back to the states, be rejuvenated by an overhaul and repair activity into an F6F-5K target drone, and proceed to try to commit suicide by means of the same type of gun with which so much misery was dealt the Japs. But that is precisely what some of those valiant "war-wearies" are doing in Air Development Squadron Two (VX-2) at the Naval Air Facility, Chincoteague, Virginia.

AirDevRon Two, commanded by Captain A. S. Heyward, Jr., is a unit of the Operational Development Force and is engaged in testing and evaluating various types of aircraft equipment assigned for investigation by the Commander, Operational Development Force, including all project tests requiring the use of pilotless drones. It is within the latter category of tests that the heroic *Hellcats* have been required to attempt "hari-kari."

Project *Hotwing*, as the project is humerously referred to locally, requires that an F6F-5K drone be flown NOLO (No Live Operator) at altitudes above 30,000 feet where a gun installed in the cockpit of the drone is remotely charged and fired into fuel containers located in the wing of the drone.

When that sequence of events has been completed, anything can happen . . . and often does, according to the pilots engaged in controlling the drone during the tests. The only thing that has not happened to date is the sighting of a "flying saucer" by the control pilots; and that occurrence is expected momentarily as each event progresses.

Although the operation of F6F-5K target drones in the NOLO condition at altitude is not a new experience for VX-2, it is the first time since the 1946 atom bomb test at Bikini that the squadron has conducted any substantial number of the operations. At the earlier atomic bomb tests, VX-2 launched the F6F-type drones from an aircraft carrier, and flew them through the atomic cloud and landed them on a nearby island. Twenty-seven of the *Hotwing* flights have already been conducted from the Chincoteague base and tests are scheduled to continue.

As during the war, the dependable *Hellcat* cannot always be counted down and out, even after considerable damage from gunfire at close range rendered some of the more conventional properties of the aircraft, such as the landing gear and landing flaps, inoperative. Many is the carrier VF pilot who can attest to that fact.

EVER SEE A COCKEYED .50 CAL. POINTED THIS WAY? CHINCOTEAGUE DRONE SHOOTS ITS OWN WING

This ability of the F6F to take punishment as well as dish it out, combined with the skill of the ground control operator in landing the damaged aircraft by remote control, allowed one of the suicidal drones to fly six flights before finally giving up and going to a watery grave. Not the least of the factors allowing such a performance was the skill of electronic and maintenance personnel in repairing internal gunfire damage to allow the radio control equipment and the aircraft to fly again.

As is the usual experience when operating radio-controlled pilotless drones, several incidents of outstanding interest or humor present themselves. One such event involved the photographic plane assigned to photograph the drone during its death throes. On this particular occasion, the control pilot lost sight of the drone during a turn at high altitude . . . thereby effectively losing control of his airborne charge.

But the photographic plane maintained sight of the drone. By means of VHF communications with the control plane, it directed the control pilot to send such maneuvering signals to the drone as were necessary to allow a subsequent rendezvous of the drone and the control plane. Although the pilot of the photographic plane has not remotely controlled airborne drones on the "buttons," he is now considered fully checked out for air control of F6F target drones.

Another such event, although humorous, was of such potential danger that all hands shudder when the occurrence is mentioned. As is the normal sequence of events on the east coast during the winter months, Old Man Weather moved into the airfield one day while the F6F drone, the control aircraft, and the photographic plane were engaged in a test at altitude.

Upon return to the field under conditions of low visibility, the control pilots made a normal approach to the field and told the ground control operator to "take control." The ground control operator abstained with the remark, "I can't see the — — — thing!" Whereupon the control pilots answered, "Neither can we!" and all hands headed for the double bottoms.

But all turned out well. The drone staggered merrily over the air station buildings, including the hangars, at a low altitude, low speed, and low power settings . . . under the control of nobody . . . and subsequently crashed into the oyster beds of Chincoteague Bay, causing only bivalve damage.

● NAS KEY WEST—The tired old wooden bridge connecting the naval air station and the boathouse finally fell down, marking the passing of the only connecting link between the seaplane base and Fleming Key. The same day the station JRF pulled a beautifully-executed double water loop. Failure of the shear pin on the landing gear caused the wheels to drop in the water.

● NAAS WHITING FIELD—A model railroad has been built in the station hobby shop complete with grade crossings and overpasses.

CREWS OF FIGHTERS AGAINST JAP FLEET CONFER ON CARRIER DECK

TORPEDO PILOT FORCED DOWN AT SEA IS RESCUED AND RETURNED BY DD

TORPEDO SQUADRON 28

★ THIS IS the twenty-seventh 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)

TORPEDO Bombing Squadron TWENTY EIGHT, successor to Escort Scouting Squadron 28 which had performed valiant service at Guadalcanal in 1942, was originally commissioned as a composite squadron 30 September 1943. By January 1944, VT-28 became its permanent designation.

Upon completion of its training, VT-28 arrived in the Pacific in time for some of the biggest sea and air offensives of World War II. Based on the carrier USS *Monterey*, VT-28's first strikes in the Marianas operations were made against Tinian on 13 June 1944.

There was plenty to do, and VT-28 plunged into the Pacific fray with gusto. From the day of their first combat to 21 July, the squadron made 17 strikes involving 95 sorties against ground targets on Saipan, Tinian, Guam, Pagan, and Rota. They were there to operate on Japs, and they did. VT-28 struck heavily and steadily at service installations, buildings, disposal areas and runways.

On 16 June, VT-28 gave direct support to the troops on Saipan, attacking machine gun positions which were holding up the advance.

In the Battle of the Philippine Sea 20 June, Lt. Ronald P. Gift, leading a division of four VT-28 planes, accompanied air groups of the USS *Bunker Hill* and *Cabot* in an attack on a Jap task force. VT-28 scored a number of hits on a 12,000-ton CV of the Ryuho class. When last observed, the entire after end of the carrier was burning, and it was listed as "probably sunk."

Three of the pilots came back safely to the *Monterey*, but the fourth pilot, Burnett, ran short of gas and planned to land on the first large carrier he encountered. He was waved off because of a deck crash and proceeded toward what he thought was a carrier. He made three passes before his motor cut out, and in the dim light, he landed near the "carrier" which turned out to be a destroyer. The pilot and his two crewmen acted so quickly and efficiently that they hardly got wet as they boarded their rubber raft. They were quickly rescued by the destroyer.

Meantime, the *Monterey* believed it had lost one crew. Five days later, without notice, the DD pulled alongside the *Monterey* and transferred the three survivors to their home ship.

For their successful attack on the Jap carrier, Lt. Gift, Lt. (jg) Paul G. Penoyer, Lt. (jg) Robert W. Burnett and Lt. (jg) Thomas G. Dreis each received the Navy Cross. Their crewmen, Kenneth H. Mast, Richard P. Goerlitz, Allen J. Rogers, William E. Trego, Donald A. Raulston, David F. Riley, James P. Mitchell and John C. Cason, were each awarded the DFC.

THE GREATER part of August the *Monterey* was at Pearl Harbor for repairs and its crew for respite.

Then the *Monterey* was ready to do battle again, and so was its Air Group. On 3 September, in company with a cruiser division, Air Group 28 carried out a full day of strikes against Wake, first silencing the coastal defense guns to allow bombardment by the cruisers, and then hitting available targets so that Wake would no longer be a pleasant island stronghold for the Japs.

From Wake, the *Monterey* went to Eniwetok for a week, and then to a point off Palau where the task group with which it was to operate was conducting strikes and flying patrols above the battle force. The *Monterey* with the *Wasp*, *Hornet*, and *Cowpens* constituted Task Group 38.1.

On 21-22 September, the first carrier air strikes against the Philippines were launched. This opening aerial onslaught was later to be recorded in "The Navy's Air War" as follows: "The first strike by Group 38.1 arrived over Manila Bay at 0930 and found at least fifty worthwhile ship targets, but the Jap warships were not present. One notable feature of this strike was the effectiveness of our torpedo attacks, seven out of eight torpedoes running hot, straight and normal."

THE JAPS lost that day 16 freighters, one large oiler and two destroyers to T. G. 38.1 alone. And the losses inflicted by Task Group 38.2 and 38.3 were comparable. The attack on this strong enemy base was worth the risk!

One of the first objectives in the Philippines operations was the Nansei Shoto, a chain of islands which were strongly defended by the Japanese and could be used by them to bring up reinforcements. VT-28 was part of the

VT-28 FLIGHT OFFICER POSTS ONE OF THE BIG DAYS ON THE BOARD

PILOTS HOLD INFORMAL BRIEFING BEFORE GOING OUT ON GUAM MISSION

aerial armada which attacked Okinawa 10 October at the same time lesser strikes were being made against Amami Shima, Daito Jima, Kume Shima and nearby points. On Okinawa, VT-28 made the hangar and building area at the airfield take the brunt of its attack. It also participated in the attack on Naha City and strafed shipping. No longer could the Japanese effectively use Okinawa as a staging base.

Three days later the first carrier air strike against Formosa took place. Administration buildings and installations at the Reigaryo airfield in the Takao area were seriously damaged by VT-28.

Throughout November, the squadron struck the Japanese again and again. On 5 November, in support of the Philippine invasion, strikes were made on Luzon where grounded aircraft on Tarlac airfield were heavily bombed.

NOVEMBER 13th marked a day when VT-28 made nine sorties against shipping in Manila Harbor. One plane failed to return. The next day another five-plane strike was made against the same harbor. On November 19, VT-28 made an attack on shipping in Subic Bay and off Bataan Peninsula.

The climax of the cruise aboard the *Monterey* came 18 December when fire broke out in the midst of a hurricane which was the immediate cause of the disaster. Had it not been for the heroism and concerted action of the damage control crews, the ship might have been lost. Many officers helped to jettison the contents of the magazines near the flight deck and manned the fire hoses. The courage and cool thinking of Lt. Norman E. Berg meant that several men trapped below were able to reach the flight deck.

The *Monterey* was so badly damaged that it could not continue in further operations and so returned to Hawaii.

THE KNOWN damage inflicted by VT-28 was approximately 18,000 tons of shipping sunk, 40,000 tons probably sunk, and 34,000 tons damaged. Estimated destruction to ground installations included 57 buildings destroyed or seriously damaged, four fuel storage areas demolished, 10 runways damaged, 5 AA batteries destroyed and 32 put out of commission, and tremendous damage to coast defense positions. The squadron also put out of commission 13 Japanese aircraft.

In all its operations, the squadron suffered the loss of four pilots and eight crewmen, all in combat. Two planes failed to rendezvous for the return to the carrier and two crashed into the sea within sight of the attacking group, one as the result of anti-aircraft fire, and the other as a result of an explosion believed to have been caused by an armed bomb colliding with another in mid-air.

The squadron's accident rate was low. In 876 landings aboard the carrier, only occasional and minor damage resulted. The excellent and careful training of pilots paid off in an excellent record.

On 15 January 1945 with its Air Group aboard, the *Monterey* left Hawaii for the United States. Six days later, land was sighted and the carrier dropped anchor off the Bremerton Navy Yard for the night.

On the 23rd, a dance with the girls from the University of Washington celebrated VT-28's return. Gaily they danced the hours away. There was no place like home.

VT-28 OFFICERS AND MEN WHO POSE IN THEIR HAPPIEST MOOD HAD A GRIM LOOKING SKULL AND SINKING SHIP AS PART OF THEIR INSIGNIA

LOST? THEN FILL THESE OUT!

VC-11, SAN DIEGO—When two *Skyraider* pilots ran out of gas, with no field in sight, while cross-country flying from San Diego to Olathe, Kansas, squadron wags had a field day.

One pilot landed safely on a highway, the other ended up on his back in a wheatfield. Immediately after the incident the local *Beaver* patrol met and dreamed up the following forms for inclusion in the squadron cross-country packet. They are published herewith for the use of any squadron desiring (and unlucky enough) to utilize them.

FORM ONE

(Necessary for information as to pilot's whereabouts)

A CHANGE OF ADDRESS CARD

FORM TWO

(To be sent airmail special delivery on postcard)

From: .....
(name and former rank)

To: The Commanding Officer

Subj: Cross-country flight, position report

1. I am out of gas at.....
(Name of place. Describe:

.....
field—wheat, corn oats, etc.)

With great humility,

Signed.....

FORM THREE

(This is an amplifying report for Form Two)

Ref: My airmail postcard date/time....

.....

PLEASE SEND (check desired items)

GAS..... OIL..... ROAD MAP.....

CHANGE OF SKIVVIES.....SOILOFF

.....HOW TO FIXIT BOOK.....

..... AAR BLANK..... PLOW.....

GUIDE TO VETERAN'S SERVICES

..... TENT..... OTHER.....

Your humble servant,

SIGNED.....

FORM FOUR

(Preliminary pilot's report—checkoff type)

From:

To: The Commanding Officer

1. I have checked the applicable spaces below:

a. Please send me:
   1. Train ticket
   2. License plates (for highway use)
   3. Resignation blank
   4. Disguise
   5. Wheat seed (or hay, oats etc., as required)
   6. Air Force Career Information
   7. A new airplane
   8. An air-to-gas converter

b. You (will) (won't) see me:
(Cross out one)
   1. If they catch me
   2. It can't be avoided
   3. Without my airplane
   4. Carrying my airplane
   5. In the payline

It is believed that by use of the enclosed forms, squadron personnel may better keep the squadron informed of their farming activities. An incidental sidelight is the inspection made by Kansas police to assure themselves that the airplanes actually were out of gas. There is a $500 fine for pilots of airplanes who land on highways in other than dire emergency. Kansas pilots note.

A conference *to discuss the contents of a proposed NAVAER handbook entitled "Preservation of Uninstalled Aircraft Engines" was held recently at NAS Norfolk. Forty-six representatives of the Navy and the manufacturers attended the meeting, and the handbook which will be out this year will contain the most up-to-date procedures for preventing engine corrosion. Capt. T. B. Haley, USN, who called the meeting is at the extreme right, front row.*

Marines Return from China

Communists Free Pair After 2 Years

Back in the U.S.A. after months of imprisonment in communist-held China, Marine MSgt. Elmer C. Bender kissed his wife and child, whom he had not seen for almost two years, and admitted it was good to be home. He and Navy Chief William C. Smith, CEM, had been captured by the Chinese Reds near Tsingtao in October 1948. They first reached U.S. at NAS LOS ALAMITOS, where Smith's wife and children greeted him.

On hand at NAS GLENVIEW to greet him on his arrival from the west coast via Navy plane besides his family were BGen. William O. Brice, Commander Marine Air Reserve Training, and a group of military dignitaries as well as a swarm of press and radio correspondents.

After interviews, Bender was rushed to downtown Chicago to lead the Armed Forces Day parade and to have lunch with Secretary of the Navy Francis Mathews.

Looking none the worse for his grueling experience, Bender said that the treatment accorded him and Chief Smith by the communists was "good—

SMITH'S FAMILY GREETS HIM AT LOS ALAMITOS

by their standards" but poor by ours. Their diet consisted almost entirely of starches and rarely included any vegetables. For exercise they did calisthenics—lifting Chinese stones. Except for washing their own clothes, they performed no labor.

Besides their meagre diet, Bender and Smith were fed a regular ration of propaganda to the effect that an economic crisis was imminent in the United States.

As to his future plans, Bender plans to ship over in the Marine Corps for another tour of duty.

In the accompanying photo, standing behind Bender, is Capt. Michael H. Kernodle, commanding officer of NAS LOS ALAMITOS, and to his right Cdr. E. C. Ingraham, station PIO. The pair were met at that California station by six newsreel cameramen, three wirephoto photographers and about 30 radio and press representatives of the area.

TEAMWORK PAYS OFF

RESERVE units of the Navy, Army and Air Force are setting new records for interservice cooperation and joint utilization of facilities, which are paying dividends in money-saving and mutual understanding.

In December 1949, no less than 734 facilities, owned by military departments, states, federal agencies or private concerns, were being jointly used by from two to six different Reserve components of the three services. And the drive to effect maximum joint utilization of facilities and equipment, wherever such joint usage will allow the individual units to carry out their specific missions is still going strong.

The Naval Air Reserve, committed to the policy of getting the most from every defense dollar, is cooperating 100% in these joint service activities.

Latest naval air station in the Reserve chain to adapt its facilities for joint utilization is NAS OLATHE. The 2472nd Air Force Reserve Training Center, located at Fairfax Field, Kansas City, Kansas is now in the process of moving to the NAS.

For the exclusive use of the Air Force Reserve, the Navy is turning over aircraft parking area facilities, one hangar, a barracks and one assembly hall.

Base operations facilities, gas and oil storage, enlisted and officers' messes, fire station, dispensary, and all recreational facilities will be used jointly with both services sharing the expenses of upkeep and maintenance.

The naval air station at New York presents a top example of joint utilization of facilities.

Seven other units now share the naval air station facilities at Floyd Bennett Field. They are the Marine Air Reserve, a Naval Reserve Construction Battalion, the Air Force Reserve, a Coast Guard Air Station, the Air National Guard, a National Guard Aviation Engineering Unit and a New York City Police Department Unit. There is little space to spare.

On the southwest side of the base is located the Air Force Training Center, complete with operational and personnel space, as well as the hangars and administrative buildings utilized by 13 different units of the Air National Guard.

Naval and Marine Air Reserve facilities are located on the east side of the station, where public works, supply, medical, fire protection and base administration functions are concentrated.

Joint maneuvers at NAS NEW YORK—LCol. Hane USAF points out the target to Navy and AF pilots Murray, Burgi and Smolerof

'Dock' Aaron HM2 of the Navy-Air Force medical department at NAS BIRMINGHAM measures the blood pressure of SSgt. J. H. Greenmyer

ALSO on the east side are the structures assigned to the Coast Guard, which provides search and rescue for all activities. Space is also allocated here for a Coast Guard Reserve unit whenever it is activated.

The Navy, with some assistance from the Air Force, operates the control tower at Floyd Bennett Field. The NAS dispensary, jointly manned by the Navy and Air Force, provides medical service for all hands. Structural and crash-fire protection are also joint activities. They are under the supervision of the NAS CO with the AF furnishing certain items of equipment. The Navy operates the sanitary disposal plant and provides a station bus for all personnel during mess hours.

Cost of maintenance and operation of the jointly-used operating area is borne on a 50/50 basis by the Navy and Air Force. Navy public works personnel perform maintenance for all units on a reimbursable basis.

Members of all services give the full joint usage treatment to all the outdoor and indoor recreational facilities at the station, including the officers' and enlisted mens' clubs, the movies and playing fields.

Coming aboard for drill—Reservists get joint check-in at the Floyd Bennett gate

A recent survey of NAS NEW YORK conducted by the Civilian Components Policy Board in the Department of Defense, concluded that "all components were cooperating and living together at the station in an extremely harmonious and efficient manner, and it was the consensus of all present that the informal local planning group of local commanders, coupled with the complete cooperation of all hands, was responsible to a great degree for the outstanding success of joint utilization which has been achieved here."

THE COMMITTEE'S conclusions were underscored by a recent joint air training problem, undertaken by Navy, Air Force and Marine Reservists at Floyd Bennett, known as "Operation Uni-Force."

The Reservists' job in this problem was to "recapture" Gardiner's Island, off the end of Long Island, which had been "captured" by paratroopers from a large "enemy" task force ranging the Atlantic, and "deny it further use to the "enemy." To give training to the maximum number of Reservists, the operation was carried out on four consecutive weekends.

Naval Air Reservists furnished fighter cover for the 63rd Troop Carrier Wing, which had been given the mission of transporting airborne infantry and recapturing the island. Navy jet fighters were also used as enemy interceptors to "attack" the large formation enroute to the target.

Officers, airmen, sailors and Marines carried out their assignments as if they were actually going into combat. Intelligence officers of the Navy teamed with those of the AF at the briefing and pilots of both services sat together as the situation was outlined and flight conditions were described in detail.

With the Navy top cover weaving back and forth over the transports, the formation made its run on the dropping area, and, on each of the four weekends, returned home with a successful mission accomplished.

NAS DALLAS and NAS DENVER are two other stations on the Reserve circuit that share their facilities. Dallas is jointly used by the Air Force Reserve, the Texas Air National Guard and the Naval Industrial Reserve. Denver plays host to the Colorado Air National Guard.

THE NAVAL Air Reserves are also forging a pattern of cooperation at municipal airports, where various service units have major installations.

The story of NAS BIRMINGHAM, a naval air station set down at the municipal airport almost on the doorstep of an established Air Force Base, shows how two Reserve units build up successful working relationships.

By an arrangement between the City of Birmingham, the Navy and the Air Force, the NAS was allocated space in

At Coast Guard Ediz Hook station, Wave Kirk directs planes from NARTU SEATTLE

Another unified activity at Birmingham is the base library—here Karrh, Daly, Hall and Link give it the joint usage routine

'Good weather ahead for Birmingham's AF and Navy Reservists—Chief Cronise gives the word to Lt. (jg) Garrard and Lt. Leak

the former B-29 Modification Center at the airport, a portion of which was occupied by the 2587th Air Force Reserve Training Center. Immediately the CO's of both units got together and started a process of cutting duplication and pooling their resources that is paying off for both groups.

IN THE beginning, all weather briefing was handled over the flight service interphones from Maxwell Air Force Base at Montgomery. This was unsatisfactory in that it not only tied up the interphone for long periods, but pilots did not have access to weather maps and teletype weather sequences. An aerological unit was badly needed, but neither unit could staff it alone.

First joint enterprise, therefore, was the setting up of an Air Force-Navy aerological unit. Personnel and equipment are supplied by both services and the unit is under the direction of an AF officer.

Now, although visiting AF pilots are sometimes startled, when they receive their weather briefiing from the Navy's chief aerographer who has been qualified to issue IFR clearances, they soon take it right in their stride.

Another example of the "give and take" is the fact that the Air Force has adopted Navy weather bulletin form, NAVAER 447, as the standard for use in their own operations.

The critical shortage of AF flight surgeons and dental officers, which precluded those billets even being assigned to the local AF command, brought about the next joint project.

Just as soon as the Navy flight surgeon and dental officer reported aboard, the AF CO was advised that if the AF medical personnel and equipment were combined with the Navy's in the Navy dispensary, the services of the Navy doctor and dentist would be made available to AF personnel on an equal basis with naval personnel.

This offer was accepted with alacrity since the AF system of hiring a civilian doctor and dentist to perform routine treatment for their personnel was proving not only costly but generally unsatisfactory as well.

Today, the joint Navy-Air Force dispensary serves Army, Navy, Marine and Air Force personnel stationed in the Birmingham area and everyone is satisfied.

The gas storage farm and mess are operated by the Air Force for the benefit of both services. AF pilots receive instruction in Navy Link trainers, since the Navy's equipment is more modern than that assigned to the local AF base.

THE SINGLE telephone service is operated by the Navy with Navy, AF and civilian personnel. Now, when the operator answers "Armed Forces," the public gets an immediate impression of unification according to the Birmingham pattern. Rental of installed equipment is shared by the two services.

Shortly after the Navy arrived on the scene, a joint operations office was set up which effected a 50% saving in the time required for separate operations. Although this enterprise was recently discontinued because of distance factors, it was otherwise satisfactory.

Capt. W. L. Schafer, who heads Birmingham's medical department, examines Sgt. O. Gibbons with the assistance of J. Faircloth HM3

And at meals it's the same story—Wood, Garrison, Hayes and Ludwig are regular 'chow hounds' at the 2587th Air Force mess

NAS Los Alamitos ordnancemen help men from the Air Force Reserve 452nd bomber wing load their plane for rocket firing drill

Preparing for Armed Forces Day—AF's Owens and Los Alamitos' Stoddard (on wing) brief White, McMillan, McKee and Barry

Naval air Reservists have also developed close working relationships with Reserve components of other services at five other municipal airports where naval air stations are located. At Lincoln, Niagara Falls, Spokane and St. Louis, they cooperate with members of the Nebraska Air National Guard, the New York Air National Guard, the Washington Air National Guard and the Missouri Air National Guard respectively.

When flames swept the Air National Guard hangar at Lincoln, Reservists from NAS Lincoln rushed to the scene, bringing along the Navy fire fighting equipment. With volunteers and station fire fighters working as a team, the Navy men managed to drag six National Guard planes from the hangar and prevent the raging fire from spreading to other structures on the field.

NAS Minneapolis, which is located at Wold-Chamberlain Field across from the 2465th Air Force Training Center, has built up the same record of cooperation. In fact, when the first CO of the NAS, Capt. Cameron Briggs, left for his present assignment, he received a letter of commendation from the Air Force. This letter stated that Capt. Briggs had "consistently offered the resources of his station . . . and helped us work out matters of joint interest . . . [and] upon our request never hesitated to give us sound advice and help on matters peculiar to the Air Force."

Latest links in the inter-service cooperation chain at Minneapolis are the plans for forming a combined Air Force-Navy crash crew and the arrangements whereby the new AF chaplain, who found himself without a chapel, now has the use of the NAS welfare and recreation building in which to conduct services for both Navy and AF personnel.

In addition, some 25 Associated Volunteer Units, such as AVUA-2 Milwaukee and AVUA-2 Baltimore, are located at municipal fields, which are also used by Air National Guard and Air Force Reserve units.

Two AVUA's in Florida, AVUA-1 Tampa, and AVUA-2 Orlando operate from McDill Air Force Base and Orlando Air Force Base respectively and utilize facilities made available to them by the Air Force. Recently 27 members of AVUA-1 Louisville, who participated in a cross-country training flight with VR-691 of NAS Columbus, remained overnight at McDill Field.

The joint-utilization business on a part-time or occasional basis is also booming. The weekend warriors from NAS Columbus, for example, use the Army's Camp Sherman rifle range at Chillicothe and the AF facilities at Lockbourne for bounce drill and bombing practice. Dallas Reservists utilize the Fort Sill bombing area and Lincoln squadrons utilize the impact area at Fort Riley, Kansas.

NARTU Anacostia "borrowed" AF's Andrews Field one afternoon for extra field carrier landing practice when their pre-carrier cruise drill was rained out. Denver Reservists, who have not rocket facilities at their station, sharpen their firing at Kirtland AF base facilities. Contrariwise, Reserve AF pilots from Long Beach utilize the NAS Los Alamitos firing ranges.

Pilot L. B. Goff USAF files flight plan at Birmingham while B. Bibb AC1 stands by

Out on the West Coast, NARTU Seattle Reservists conduct advanced base operations at the Coast Guard Air Station at Ediz Hook off Port Angeles. They bring along their own ground personnel as well as their control tower operators for this training.

Inter-service cooperation also shows itself in many other ways—to the mutual benefit of all Reservists. Take this story from the ordnance division of the aircraft maintenance department at NAS Birmingham for example.

During the early days of the station in 1949, the ordnance division found itself with aircraft armament to maintain, but without the necessary tools, equipment or supplies on hand to accomplish the work. When the Navy ordnance crew called on the Alabama Air National Guard ordnance section for help, the response was an immediate assist.

"One day, while on a 'requisitioning tour', the Navy ordnancemen noticed that the Air Guard ordnance crew was having trouble with the gunnery tow gear used with the F-51's. The gear was laid out along the runway and pulled fully streamed into the air on take-off.

"They then invited the Guardsmen to the Navy side to inspect the F6F tow arrangement, which utilized the *Mk. 1 Mod. 3* tow can, nylon line and shackle sway braces. The outcome was the adoption of the Navy arrangement modified for use on the F-51 with Navy tow equipment being utilized on a loan basis.

"When the Air National Guard went

Studying hard for off-duty course at NARTU ANACOSTIA are LCdr. Laake USNR, Capt. Leonard USAF and Sgt. Roberts USMCR

Volunteer Naval Air Reservists in VAU 11-13 play host to members of the 9353rd AF Volunteer squadron at their regular meeting

on maneuvers last summer, the commanding general was so pleased with the Alabama Air National Guard tow arrangement that he had pictures and diagrams made and instructions written up so that other National Guard squadrons might benefit by use of the Navy methods of carrying and streaming tows."

And the story is the same everywhere. At Denver, when the naval air station's flight surgeon was transferred, the facilities at nearby Lowry AF Base were made available to Naval Reservists. And when 20 aircraft from NAS NEW ORLEANS were flown to Craig AF Base to escape an approaching hurricane, AF personnel aided the Navy crew in securing and servicing the aircraft; chow and quarters were provided at the base for all hands.

ON THE other side of the ledger, Chief Photographer J. S. Kelly of NAS WILLOW GROVE recently used his Navy-acquired know-how to help the 9545th Photographic Group of the AF Reserve solve their problems. And Naval Air Reserve units often serve as hosts to visiting firemen from other services who want to observe the Navy way.

At NAS ATLANTA, for example, 26 members of the Civil Air Patrol came aboard one evening to learn about the various phases of Reserve technical training and to get a first-hand look at the wide variety of training equipment and devices utilized by Naval Reservists.

Similarly, BGen. E. A. Molthan, commanding the 512th Troop Carrier Wing, a Reserve outfit at Reading, took his staff to NAS WILLOW GROVE to watch the regular Sunday training activities of the weekend warriors.

At NAS ST. LOUIS, AF officers attending service schools at Scott AF Base, now visit the naval air station GCA unit for briefing and operational demonstrations. And in a typical month, 126 Air Force and 13 Missouri Air National Guard planes made GCA approaches at St. Louis. GCA works for everyone.

Out on the West Coast, NAS LOS ALAMITOS and the Air Force Reserve Training Center in Long Beach do a brisk business exchanging information and instruction. Air Force pilots, who have no rocket facilities available, utilize the Navy's firing ranges, while Navy pilots are always welcome at the AF base for a check-out in the B-26.

AF pilots from the Long Beach base regularly make practice runs utilizing Los Alamitos' GCA, while pilots from March Field AF base are scheduled for practice in the near future. One AF aviator flying a B-26 was recently brought in safely under instrument conditions by Los Alamitos GCA, when he had insufficient gas to reach the nearest contact field.

Another example of Reserve cooperation at the local level was the joint operation which VF-694 and VF-695 at NAS COLUMBUS scheduled with the Ohio Air National Guard Unit at Lockbourne AF base. Or for a joint Reserve maneuver, undertaken on a large scale, consider the combat problem which units of the Air Force, Navy, Marine Corps, Army and Air National Guard staged last year in Memphis.

WHEN THE Air Force needed additional classroom space for University of Maryland extension courses, given under the auspices of the educational center at Bolling Field, NARTU ANACOSTIA offered its hangar classroom facilities. Now some 200 Air Force, Army and Navy personnel attend the classes held at the NARTU.

LTA Reservists at NARTU LAKEHURST recently furnished a somewhat unusual example of inter-service cooperation. They took officers from the 1306th Provost Marshal's Section (Army Organized Reserve Corps) on a regular airship training flight so that the latter could make an air traffic control survey of the crowded highways of New Jersey.

These, of course, are only a few examples of what Reserve units in the field are doing today in the way of pooling their resources. But they definitely show that Reservists of all services are pulling together to effect economies and to assure unity of defense.

CCPB representatives line up with NAS NY officers—from l to r are Lynch, Ward, Lanigan, McQuiston, Thompson, Whittington, Barcus, Smith, Wilcox, Elliott, Copsey, Pallousas, Curtiss, Scharz, Stonemetz, Levy, Harry, DeJoy, Kraft, Zane, Lord and Nichols

600 MPH. WITH PROPS?

When jet aircraft first began spurting across the sky, forward-lookers began predicting the graveyard for airplane propellers.

Today, five years after the war, the propeller is still in there pitching, and the 450-mph limit for prop-driven aircraft soon may be increased to 600 miles an hour. Authority for that prediction is the Hamilton Standard division of United Aircraft Corp., where prop engineers say new square-tip propeller designs can operate efficiently as high as 600 mph.

In their efforts to come up with new designs which could drive planes faster than World War II limits, engineers tried out a number of weird shapes, some of which are pictured at the bottom of this page. None worked out so well as the square-tipped one illustrated first. This blade can be found on today's P2V, P4M, AJ-1, AM-1, R4Q-1, XP5Y-1 and other modern aircraft. It boasts an efficiency of 80%.

Sweep-back in the design of the propeller did not seem to increase its efficiency, although swept wings boost the speed of aircraft. The answer was found in the hollow steel, square-tip blade with extremely thin leading edges that could almost be used for shaving.

So the propeller hitched to the turboprop engine may someday be driving aircraft at speeds up to and beyond the speed of sound, say Hamilton Standard engineers in the company's house organ, *The Beehive*.

Use of propellers on high speed aircraft would make possible shorter takeoff and landing runs, and give the aircraft longer range or higher payloads. As an example of this, the XP5Y-1 Convair seaplane got off the water in its maiden run in less than 20 seconds with its turboprop engines and counter-rotating propellers.

Background of research for the superhydromatic propeller was gained on two early gas-turbine powered American fighters, the Convair P-81 and Ryan XF2R-1.

The company has put more than 2,000 hours of testing on turbine engines with Hamilton Standard turbine propeller designs, with an additional 400 hours on piston engines. In the high-speed tests in the wind tunnel, it achieved airstream speeds up to Mach .92, equivalent of 700 mph at sea level.

The high speed work was conducted with four-foot scale models, driven by a specially-developed dynamometer. Full scale power loadings, tip speeds and forward speeds are duplicated in an eight-foot diameter section of the wind tunnel. Since models are precisely built, test results can be applied directly to full-scale performance.

In a recent speech at the Institute of Aeronautical Sciences, RAdm. C. M. Bolster, assistant chief of research in BuAer, declared: "Even at Mach 1, the turboprop could compete with the turbojet if the propulsive efficiency of the propeller is equal to or greater than about 55%."

He said the inherent limitations of jets can be accepted only to a certain point. High fuel consumption is only balanced by the lighter weight of the jet engine up to the point where range requirements make it necessary to carry so much fuel that the weight advantage is lost.

"Our solution to this problem is the turbo-propeller engine. . . . The same thrust horsepower and specific fuel consumption can be obtained from a turboprop engine as from a turbojet. When cruising at lower speeds, the efficiency of the turbojet decreases, while that of the turbo-propeller increases, so that the two engines show a wide divergence in specific fuel consumption in this speed range. A further advantage of the turboprop is realized in naval aircraft for carrier operations where short takeoff run and low 'power on' stall speeds are required and not readily obtainable in turbojet planes."

Engine Trouble Hits VP-34

Same Crew Forced Down Two Times

VP-34, Norfolk—It never rains but it pours, in the opinion of one PBM crew in this squadron.

While participating in ASW patrols in *Operation Portrex*, the plane lost an engine while 300 miles out at sea. The pilot feathered the prop and broadcast their emergency condition. This broadcast was acknowledged by a carrier plane from the *Palau* and all units were alerted to the PBM's condition.

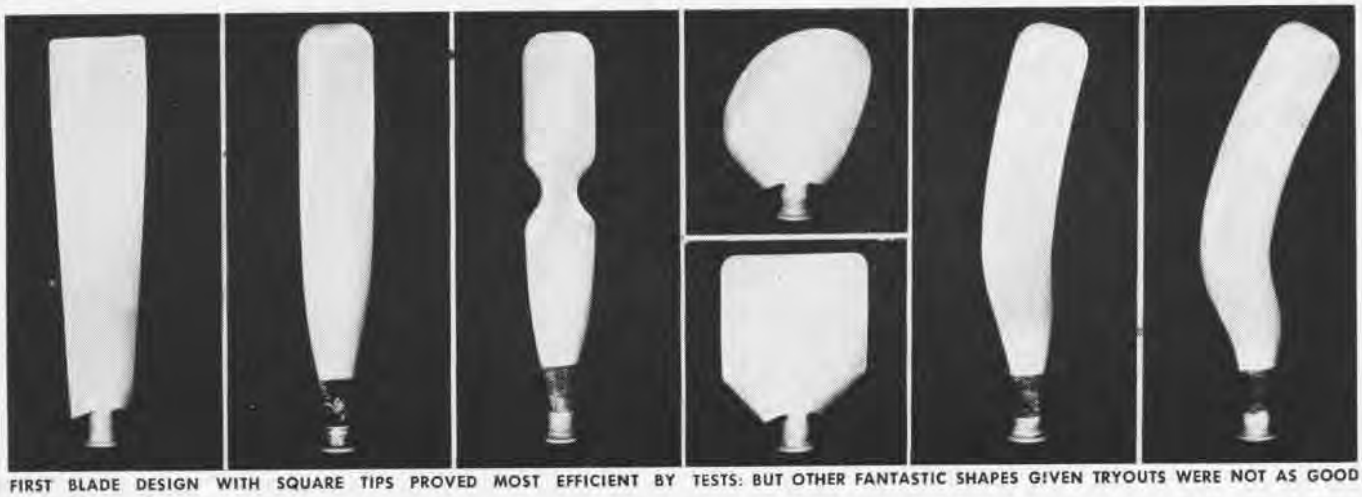
The *Mariner* was unable to maintain altitude on one engine and was successfully ditched even though it was night and in heavy seas. The plane was damaged and soon sank, but all crew members escaped into life rafts.

A Pan American Airways plane sighted the flares of the survivors and directed Navy units to the scene. Four hours later the *Hobson* picked them up.

On their way home to Norfolk, the same plane crew ran into more trouble. They had to make a forced landing in Pamlico Sound after going on single engine operation. A Coast Guard boat towed the plane with some difficulty owing to high winds to Elizabeth City where an engine was changed and the plane returned to Norfolk.

The squadron, incidentally, is proud of its record in antisubmarine training during *Portrex*. Umpires credited it with 12 submarine "kills" and one "probable". Many of these subs were the modern schnorkel type.

● NAS Willow Grove—To get its men acquainted with various types of naval aircraft, the line maintenance department transfers them from one line to another.



FIRST BLADE DESIGN WITH SQUARE TIPS PROVED MOST EFFICIENT BY TESTS: BUT OTHER FANTASTIC SHAPES GIVEN TRYOUTS WERE NOT AS GOOD

After The Crash Bell—What?

THIS WAS ALL OF THE WRECKED PLANE THAT REMAINED ABOVE GROUND

THROUGH TOUGH, SWAMP TERRAIN, RESCUE WORKERS PURSUED THE TASK

NAAS WHITING FIELD—The crash bell rings. Fire engines and crash trucks rush down the runways to put out the fire and rescue the crew.

That's the way it works when a plane gets into trouble on a landing field, but it isn't the way it works when one comes to grief in one of Florida's numerous and broad swamps a long way from the air station.

After a 15-month period of good accident records, Whiting experienced three mishaps in one day. The story of what happens after a plane wreck is reported is typical and interesting. This was a bad day, for within two hours three accidents occurred.

At 1020 several planes reported an SNJ had disintegrated in midair two miles from Choctaw field. That was the first crash. The BTU-1A ready plane, two search and rescue PBY's and a helicopter were sent to search the area.

At 1155 Lt. J. F. Crider, piloting the SNJ ready plane, proceeded to Choctaw field to get more dope on the crash location. Following standard procedure, he retarded his throttle as he lowered the landing gear to use the warning horn as an additional check on his gear being down and locked. On adding throttle again he could get but 20" of manifold pressure; he was unable to reduce or increase the setting from this point.

Crider, unable to maintain altitude to reach the field under these conditions, made an emergency landing in a clearing south of Choctaw. He made a good full flap, wheels up, landing among the scrub trees that resulted in major damage to the plane but no injury to himself. It was found later a broken throttle arm caused the trouble. That was crash #2.

One of the search PBY's landing at Choctaw to find out what assistance it could give had its nose wheel collapse when it hit the runway. The forward hull sustained minor damage. The pilot, however, knew his PBY-5A's for he "two blocked" his throttles and pulled the plane into the air. But he caused a great deal of consternation on the part of all others involved and became #3 on the accident parade.

The searching planes finally found scattered bits of broken wreckage in an inaccessible swamp along Weaver river, three miles northwest of Choctaw. The planes and helicopter failed to find any trace of the main parts of the plane. Recreation department sent all available small boats with river-wise sailors aboard to search the myriad waterways in the area. Sundown halted operations with no trace of the occupants or main crash being found.

The air search was launched again bright and early the next morning, and a foot search party was sent to the area in small boats. The party on foot was directed to likely areas by message drops and voice instructions from the helicopter.

The going on foot was tough. The swamp was a jungle-like tangle of downed timber, briars, vines, swamp grass and the like. Under foot, the muck and water sucked and gurgled and snakes were an ever-present hazard. Progress was measured in yards an hour.

Shortly afternoon, the first break came. A 6" square piece of shattered plexiglas was found and the search was concentrated in that vicinity. A half hour and a scant 100 yards later, the crash was located. A broken tree top let small sunlight through to a deep hole and shattered bits of metal below. Seventy feet away lay the body of the instructor, his chute unopened. Sundown halted operations as the litter bearers completed slithering and hacking their tortuous way half a mile back to the boats.

The next morning, portable hand tools and tackle were lugged over the widening, deepening trail to the crash scene. All day men dug at the stubborn tangled roots and heaved on the tackle to pull shattered bits of plane from the clinging muck. Bailing would not gain on the ooze of the swamp water into the hole and it became evident that a pump must be brought in to drain the hole. At quitting time, still no trace of the student in the front seat had been found.

Daylight hours were not long enough, so equipment was assembled and preparations made to haul it to the scene at night. The lightest pump capable of handling the job weighed more than 500 pounds. In the wee hours of the morning, it was loaded into a skiff and towed up the river. From there it was hauled, skiff and all, into the swamp by 15 sweating sailors chanting "Mule Train". Trees were felled, brush cleared, and logs cut out of the trail. The trail was churned hip deep, but sunrise saw the pump in position.

After the water level was lowered, it became apparent that the plane had burrowed its way at an angle under a 12" cypress tree. It was buried 12' in the ground under a tangled tenacious mass of roots. The tree was pulled over with a chain fall, and the after section of the plane torn from the swamp piece by piece.

Roots were pulled out one by one, the smaller by hand, the larger by block and tackle. A bucket brigade kept the muck that was too thick for the pump to handle, bailed out. Eight hours later the body of the student was recovered.

BIG BOATS STILL FLY FOR NAVY

CAMP PENDLETON MARINES BOARD PBM FOR A RAID ON SAN NICHOLAS

USING JATO, MARINER RISES FROM THE BAY WITH SAN DIEGO BEHIND

NAS San Diego—When the war in the Pacific was over and the jet air age dawned, aviators began to wonder what the future was for the big flying boats that had patrolled the wide ocean, bombed the enemy and rescued personnel.

Now, five years afterward, the Navy is still flying its *Lumbering Lulus* and their stock in the antisubmarine warfare picture is rising, just as is that of the blimp. The Navy's number one mission today is to seek out and destroy enemy submarines and in these slow, long-range combat planes it still finds plenty of use.

Cdr. Robert L. Mastin, skipper of VP-46 at North Island, indicated this when he explained that Navy flying boats have a definite place in future Navy operations and that full development and exploitation of the seaplane's potentialities will prove it to be another effective weapon in global warfare.

The practicability of maintaining seaplane squadrons not only for ASW operations but for reconnaissance, search and rescue and transporting troops as well is recognized, he said, but it hasn't been developed to full capabilities.

Another *Big Boat* fan, LCdr. Maurice Weisner, squadron executive officer, feels there are many types of operations which a large seaplane is ideally suited for. For example, where enemy airfields or port facilities are heavily defended, seaplanes may be employed to land forces in isolated bays and harbors or even inland lakes or rivers.

Troops so landed could be used either in "commando raids" or as a means of starting an offensive, or to get considerable forces ashore in enemy territory before defenses could be concentrated.

An operation of this type was effectively demonstrated recently when patrol planes of VP-46 landed a company of Marines off San Nicholas island in an attempt to bolster a group of Marines which had mythically landed earlier by helicopter. It not only demonstrated feasibility of landing troops ashore in any part of the globe but substantiated the claim by flying boat men that this type of operation could be very effective whether it be for occupation, reinforcement or supporting purposes.

To train for their jobs, patrol plane squadrons twice a year have operational readiness inspections. This entails moving the entire squadron to a remote atoll or inlet where a seadrome is laid down for the planes. Then the squadron conducts gunnery, tactics, bombing and ASW search.

During these operations, the planes are supplied by an aviation seaplane tender which serves as an operating base and supplies fuel, spare parts and maintenance work for the planes. If need be, the seaplanes can be hoisted aboard the tender for major repairs.

MIDN. MANTZ, VP-46'S SKIPPER, CDR. MASTIN

Lt. John A. Dingle, squadron operations officer, was a Russian internee during the war, being forced down in Russian territory after his *Ventura* bomber had been crippled by Japanese fighters while on a scouting-bombing mission in northern Japanese waters. He was flying out of the Aleutians at the time.

Another squadron member with international experience is Lt. (jg) John H. Henson, squadron ground training and ASW officer. He spent 2½ years in the RCAF as a sergeant pilot and did 26 missions in *Wellington* bombers. After the U. S. entered the war, he switched to the U. S. Navy, enlisting in London.

VP-46 also has an Air Force captain serving in the squadron who was assigned under the joint Navy-Air Force officer exchange program. He is Capt. March L. Pengue, who was attached to the AF Air Sea Rescue command at McChord Field, Washington. He is studying the Navy's methods of doing search and rescue work, and holds down an officer billet as squadron training officer for VP-46.

Although he is not following in the footsteps of his famous father, Midn. Roy T. Mantz just grins and bears it when his flight school buddies who fly jets at North Island kid him about flying the big boats. His father, Paul Mantz, is the internationally known speed flier who holds the transcontinental speed record for propeller-driven aircraft.

● Hedron 2, Cherry Point—The photo unit had a busy day recently. One day its record read as follows: 8 flights, 5 rolls of aerial film developed, 2 air drops, 1 air delivery, 3,645 prints made from the negatives.

VF-24 CLAIMS GUNNERY MARK

VF-24'S FIVE HOTSHOTS POSE BEFORE BANNER INTO WHICH THEY PEPPERED 232 .50 CAL. BULLETS

VF-24, NORFOLK—This squadron lays claim to what may well be an unofficial fixed gunnery record.

Using .50 cal Mk 2 guns, Mk 8 Mod 6 gunsights, reclaimed ammunition, and last, but certainly not least, slightly "fatigued" F4U-4 aircraft, five pilots fired 963 rounds at a standard 6x30' banner, resulting in 232 hits for an average of 24%.

Flying from Oceana, the five pilots were led by LCdr. E. R. (Slim) Coffman, CO. They were Lt. W. J. Hendrick, Ens. R. T. Kirchhoff, D. G. Thomas, and K. R. Knott. Ens. H. J. Radtke towed the A6A banner at 15,000 feet indicated and 135 knots indicated.

Overhead runs were used exclusively throughout the exercise. Statistics elsewhere might reduce this performance to a "so-so" category, but the squadron still has an ace in the hole in its bid for a fleet record. Lt. W. J. Hendrick, a former flag waver and attack pilot, mercilessly unlimbered on the target for an individual average of 45.5%, getting 91 hits out of 200 rounds fired.

Pilots were not pre-selected for the flight, with a gunnery record in mind, but were assigned at random for a routine gunnery flight. Not a single stoppage or malfunctioning of guns or aircraft occurred. A total of 963 rounds was fired rather than the 1,000 available because two pilots failed to expend their full allowance on the 10 runs authorized.

¶ *Editor's Note:* Best individual record NANews has uncovered was set in 1930 by Lt. (now Admiral) C. R. Brown who got 120 hits out of 120 rounds for 100% with his twin .30's in an F3B. Best record made recently was Lt. (jg) Harlan R. Cheuvront of VF-2A, who got 174 hits out of 200 rounds on an A6A banner for an 87% score. To prove it was no fluke, Cheuvront shot 934 hits out of 1996 rounds, for a 47.3% average on 10 different hops. He flew F4U-4's.

Best squadron mark reported to the News was VF-2A, aided by Cheuvront, scoring 638 hits out of 2,278 rounds for 28% (NANews, June 1947). In a league where 10% hits is good, VF-24 still rates applause for its feat of 24%. Any other squadrons equal their score?

● VR-3—Mary Tighe, AD1, a flight orderly, is the first Navy Wave to set foot on Adak.

Bird Flies Before Hatching

El Toro Marines Rate an Assist

Can a bird fly before it is hatched?

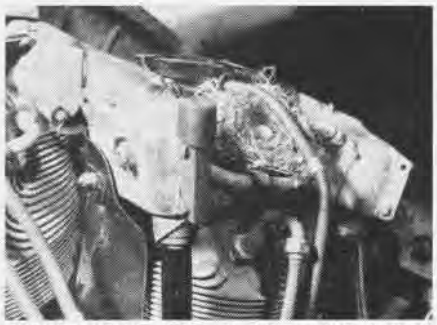
El Toro Marines located one that had—in a little blue egg resting snugly in a well-secured nest atop an engine of a transport plane just in from a round trip flight to San Diego.

The nest was discovered after the plane had taxied to its position in front of MAG-33 headquarters building and crewmen noticed a sparrow perched immediately on the propeller blade. While they were watching the bird, they were startled to see another fly from beneath the cowling.

Upon closer inspection, they located the nest in a slight depression on top the #14 cylinder, partially protected from the slipstream by a half-inch "lead" line. The birds had made their home of straw, medical gauze, aircraft safety wire, cord and small pieces of Marine dungarees.

The nest was carefully removed and placed under an eave of the headquarters building, where the anxious parents could raise their wandering future-fledgling in comparative peace.

In selecting the original homesite, the birds had shrewdly picked a plane which was grounded for two days for minor repairs. While the Marines worked on one engine, the birds had worked on the other. Counting in the test flight, it is assumed that the nest, complete with egg, made at least three flights.



MUCH-TRAVELLED EGG IN NEST ATOP ENGINE

Many aviators have boasted that they could set a plane down on a runway without breaking an egg, but Col. W. H. Miller, pilot of the nest-bearing plane, is one who can really prove it.

Bureau of *Aeronautics has an official flag today, the last bureau in the Navy Department to acquire one. Designed by Gordon P. Angle of the electronics division, the flag features a deep blue field, outer white ring, inner red ring and gold aviators' wings. In the photo Eunice Chastain holds the new flag up for a better view. The flag was approved by the Secretary of Navy on 5 May and dedicated on Armed Forces Day, which was 20 May.*

CORPUS CHRISTI 'COPTERS

PILOTS MONTGOMERY, KUBICKI, SCHMUCKER, CREW DAHL AND SADLER

KUBICKI, MONTGOMERY, SMITH, SCHMUCKER SIMULATE SLING RESCUE

IT'S JUST a little over a year since the first helicopter arrived at NAS CORPUS CHRISTI for duty with rescue forces there. It was on March 25, 1949, that an HO3S with a ferry pilot at the controls made its approach to mainside with a mission already in the making.

While he was making his approach, a drama was being enacted over Padre Island, the sand spit which encloses Corpus Christi bay.

An instructor was "talking down" a student aviator to an emergency landing on the beach. The student's *Corsair* had developed an oil leak which had covered his windshield with the sticky mess, completely obstructing his vision. With careful coaching, he made a wheels-up landing which the instructor promptly reported by radio.

With a timing more appropriate to a Hollywood production than advanced flight training, the ferry pilot was back in the air in 20 minutes, taking the HO3S on its first rescue mission.

In another 20 minutes, the crash victim had been picked up by a helicopter that hadn't yet been delivered when the student had started his training flight.

That demonstration was a preview of the year of operations to come.

A few weeks later a second helicopter was delivered, and the two craft supplemented the regular plane and crash boats of the air-sea rescue unit under the operations department of NAS CORPUS CHRISTI.

IN THE year that followed the activities of these two rotary wing aircraft were typical of their type rescue work. In all they effected 15 rescues of downed aviators, recovered six bodies from fatal crashes, rescued a fisherman, a woman and a dog.

The versatility of the helicopters was proved in the salvaging of a crashed plane. The scene was inaccessible by land or water. By shuttling between the plane and a truck nearby and using light gas loads, the plane was brought out piece by piece.

September 1949 was the busiest month for the 'copters. When a hurricane approached the area, they were called upon to evacuate 10 naval personnel from Padre island when the seas became too rough for evacuation by boat.

On the same day a fisherman, his wife and dog were picked off a mud flat in Laguna Madre after their boat had been washed aground. Immediately after this pickup, one of the craft was dispatched to Matagorda peninsula to search for a crashed National Guard plane. Later this same helicopter proceeded to Palacios to search for the body of a drowned fisherman.

AFTER A prolonged search at Palacios, the pilot landed to refuel there and discovered that, owing to excessive hovering operations, the main transmission grease was dangerously low. The pilot, having performed many missions of mercy for others, found himself in an ironical position. He was stranded with an unflyable helicopter with a hurricane breathing down his neck. The crowning blow was that his home field was closed to flight operations.

No grease was available. It was imperative to get out of there to avoid the fury of the hurricane. A little ingenuity took care of the situation. The transmission was filled with heavy engine oil.

The pilot took off in lowering ceilings and proceeded to San Antonio through heavy rains and bucking winds of 35-40 knots. Altitude for the flight ranged from 10 to 40 feet.

Pilots of the helicopters are Lt. Edward Kubicki, Lt. (jg) M. D. Montgomery, and Lt. (jg) S. K. Schumacker. Lt. Kubicki operated at Antarctica and during the Bikini A-bomb test.

34 NROTC'ers Visit Capital

Penn State Group Sees D.C. from Air

Trying the Navy on for size, in the air and on the sea, 34 prospective ensigns from the NROTC Detachment of Penn State College spent an action-packed weekend in Washington, D. C.

Accompanied by LCdr. Harold W. Johnston, OinC of the detachment, the group was brought to the capital by special Navy bus for a tour that included an unofficial inspection of the Naval Gun Factory and the Naval Air Reserve Training Unit at NAS ANACOSTIA. They were billeted at the Navy Receiving Station.

LCDR. JOHNSTON BRIEFS NROTC'ERS BEFORE HOP

Highlighting the trip was a 45-minute flight over the capital area, arranged by the NARTU, and a visit aboard the *Drum*, a Navy submarine docked in the Anacostia River.

Middies Tour Air Stations

Second Annual Cruise Circles Nation

Four 16-day cruises around the United States to indoctrinate midshipmen in naval aviation have been announced for this summer by the Naval Academy.

The first group of 100 men left June 3 to tour the nation, flying in *Mars* and R5D planes. They visited Patuxent, Olathe, Hamilton AFB, Calif.; Los Alamitos, Corpus Christi, and Jacksonville. Another group leaving at the same date visited Patuxent, Miami, Pensacola, Eglin AFB, Florida; Corpus Christi, March AFB, Calif.; and Glenview.

Additional air cruises were scheduled to depart from Annapolis on June 21, July 8 and July 26, visiting the same places listed above. This year's indoctrination tours mark the second year that this system of cruises by air have been held, the program being launched in 1949 for the first time.

● MCAS EL TORO—The entire staff and student body of the Army Command and General Staff College at Ft. Leavenworth, Kansas, flew to El Toro in 21 transports from VMR-152 and VMR-352. While here they watched the joint Navy-Marine Corps maneuver known as *Demon III*.

CORRY CENTER FOR AIR SEARCH

FREQUENT DRILLS KEEP RESCUE TEAM ON ALERT

NAAS CORRY FIELD—When a plane goes down in the Gulf of Mexico or crash-lands in the Florida swamps, the first place to do something about it is the newly-established coordination center for search and rescue operations, located in Corry's field operations office.

The search and rescue unit here plays a big part in the operations of this area with its two PBY's and two helicopters. Three boats belonging to NAS PENSACOLA are also held in readiness at all times for exclusive use of Corry's rescue unit. Two are 63-foot crash boats and one is an ARB, a regular air rescue boat.

The rescue unit is not restricted to Pensacola area alone but can be called to any part of the area which covers that section of the Gulf of Mexico north of Tampa, Fla., westward to Port Arthur, Texas and triangularly southward for 350 miles into the gulf.

Bolstering the Navy are four Coast Guard stations at Mobile, Gulfport, New Orleans and Panama City. All of these have cutters and patrol boats in operation at all times.

For searches and rescues inland, Corry's unit is aided by two Air Force rescue units, one at Tampa, the other at Maxwell AFB, Montgomery, Ala.

April 5 marked the first anniversary of the helicopters in the local unit. Lt. W. H. Shawcross, R. C. Hamilton, ALC (NAP), and J. M. Lieske, ALC (NAP), the three pilots, have flown 42 rescue missions and 26 searches for men and planes lost in the area of the Training Command during the year. Of the rescues made, three were directly over water.

FLIER CUTBACK HITS VETERANS

ZP-1, WEEKSVILLE — Three officers of this airship squadron, whose aeronautical careers totalled 70 years of naval service, have closed their flying service and been transferred to submarines and communications.

They are Lts. P. M. Jackson, J. F. Todd and C. R. Roof. Between 1928 and 1933, Roof was a crew member of the airships *Los Angeles* and *Akron* and was an eye witness of the burning of the zeppelin *Hindenberg* at Lakehurst. He followed this up with heavier-than-air duty. He was a member of the trial board to develop and test the Navy's first four-engine patrol bomber, the PB2Y-1. He was a crew member of this plane from 1938 to 1942.

During this time, by special request, they often flew such distinguished personages as Franklin D. Roosevelt, Winston Churchill, Frank Knox and many others. In 1940 they flew Admiral Greenslade and his party along the entire Atlantic seaboard from Argentia to South America, inspecting bases to be used by the U.S. in connection with the historic "50 Destroyers Pact." In 1941, they flew Averill Harriman on a lend-lease mission to Russia.

JACKSON, TODD, ROOF ADVISE YOUNG PILOTS

In 1942 they evacuated Francis B. Sayre, then commissioner of the Philippines, his family and staff, to safety in Honolulu. The same year they made an open sea landing 35 miles off Java and rescued 27 survivors from the sunken aircraft carrier *Langley* and additional survivors from the sunken fleet tanker *Pecos*. In 1943 they flew Sumner Welles and other dignitaries to the signing of the Atlantic Pact.

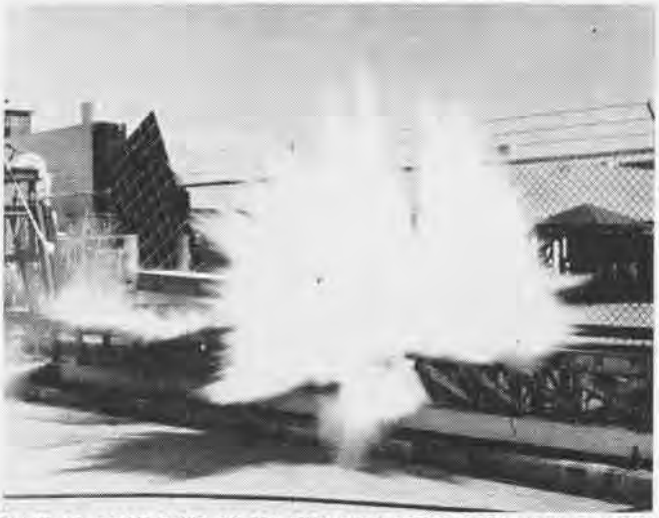
Lt. Todd was a crew member of the airship *Macon* when she crashed in 1935. During the war he was with VS-42 on the *Ranger* and then returned to airships. Jackson also was a crew member of the *Macon* and served at LTA bases in the U.S., Carribbean and in South America during the war.

● NAAS SAUFLEY FIELD—Forty gunnery training planes of BTU-3 now have VHF to handle heavy communications traffic while on gunnery hops.

● NAAS WHITING FIELD—Two fire trucks from this station helped firemen at Brewton, Ala., fight a $190,000 blaze that threatened the town—the third time in two years station firemen have helped civilian fighters.

Plane Hook Gets Rugged Test

HIGH SPEED 'DECK' TEST HOOK: CHECKERBOARD AIDS MOVIE ANALYSIS



BLAST OF SPRAY RISES AS 110 MPH CART STOPS AFTER HITTING HOOK

THE NAVY carrier-based plane's arresting hook is undergoing a rigorous examination at Chance Vought Aircraft company's Dallas, Texas, plant.

Landing hooks of various manufacturers are being tested, in a unique research program under contract with the Navy, to find out more about hook bounce.

Importance of arresting hook research became apparent to engineers in 1943, when a survey showed that about 50% of barrier crashes could be blamed on the landing hook. Either it bounced over the arresting cables, or it broke on contact with the deck or the cable. Hooks have been known to bounce over not one but five wires.

How high does a hook bounce? How long does it stay in the air? What are the critical loads encountered when it hits the deck? These are the questions Chance Vought engineers are seeking to answer in the tests.

The tool of the research program is an ingenious catapult designed by CVAC and built by the Navy. Instead of hurling the hook at the deck, Vought's catapult throws the deck at the hook. Propelled down 60′ of rail by a compressor, the 400-pound cart which acts as the "deck" reaches speeds more than 100 mph at the test stand where the hook hangs. It comes to a dead halt in 4½′.

The sudden stop is achieved by adding to the cart a water-filled cylinder which is penetrated by a pistol just after the deck hits the hook, filling the air with a burst of spray.

Marks in a coating of lime on the "deck" show where the hook hit, how long it stayed on the deck, and any later contact it made with the deck. A movie camera, shooting the hook against the black checkerboard, shows the height of the bounce.

The test stand is equipped with wires connected to an oscillograph to record stresses on the hook, and the speed of the cart is double-checked by wiring in the tracks and by a photocell attachment.

The key to hook bounce is the dashpot, a hydraulic damper similar to the device which keeps a screen door from slamming. Allowing the hook free sway coming down, the damper checks its upward motion.

Goal of the research program is to design a dashpot which will permit a hook to rise to exactly the right height after hitting the deck at various horizontal and vertical speeds. The Vought catapult provides horizontal speed by acceleration of the "deck" down the tracks, and it can control vertical speeds by changed angle of the "deck." Further, the engineers hope to assist other manufacturers, evolving a standardized design of a hook of the proper weight, shape, length, size of dashpot and hold-down spring to insure that the arresting hook is no longer a hazard factor in carrier landings.

Paint Balks Barnacle Crust

VP-47, PHILIPPINES—Barnacles, than which the Navy probably has no more bothersome natural enemy, plague the aviation Navy as well as ships.

When operating with the tender *Salisbury Sound* at Sangley Point, PBM's acquired thick growths of barnacles on the hulls. While the tender was operating in Shanghai area, one plane was acting as SAR ready plane for two weeks and was in the water for that period without flying, acquiring a heavy layer of barnacles.

The best means of preventing the growth is periodic applications of chromate to the bottom of the hull. A plane treated thus was exposed to the water for two weeks. Upon hoisting the plane aboard the *Salisbury Sound*, it was found that the bottom was completely free of marine growth.

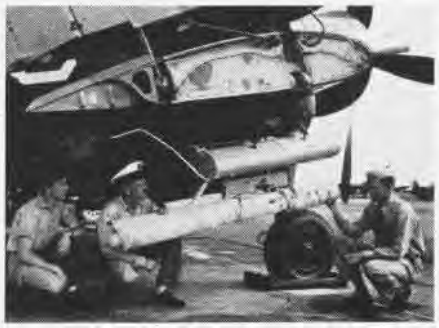
During VP-47's stay at Hong Kong, the tender hoisted planes aboard during their stay there, ending the salt water corrosion and barnacle problem. British in Hong Kong leave their *Sunderland* flying boats in the water for long periods with no apparent harmful effects.

AD Carries Gunnery Banner

VA-15, ATLANTIC—To simplify air-to-air gunnery tow operations, to cut down time delay of tow plane arriving at the gunnery area, and to use tow planes for more than one operation, this squadron converted a Mk 1 Mod II tow can for banner release in flight.

With the can, a Mk 51 Mod 12 bomb rack, 26″ of elastic cord for banner slings, 6′ of strip run 1″ by 3/16″, an electrical jumper lead 22″ long and two man hours, this tow can be converted for banner release in flight. Aircraft can be rigged for towing in less than 10 minutes.

The tow can is packed the same, but in addition, 30′ of ½″ elastic cord is installed to take up the shock of release. To eliminate possibility of the tow line hanging up on the center bomb rack of the AD, a tow line guide ring was developed, utilizing the sway brace holes in the underside of the fuselage. For best results, a maximum speed of 80 knots at time of release of banner is recommended.



GUNNERY BANNER ATTACHES TO RACK AND CAN

LINE MAINTENANCE REQUIRES CAREFUL ADJUSTMENT OF HOUSING NUTS

P&W'S AL YACAVONE INSTRUCTS NAVY CHIEFS IN JET MAINTENANCE

KEEPING JETS ROARING

TAKE THE jet as an example of scientific achievement. Yes, take it, but after that you will have something more than a mechanical toy, no matter how simple a jet may look as you see its power released in a flight of fighters in an air parade. It may be glamorous in the air, but on the ground are the maintenance men who are finding it something less than romantic to work and fuss, fiddle and fix this wonder engine of today.

The minute a jet engine leaves the contractor's plant, it is the property—and the problem—of the Navy. How to operate it with maximum efficiency and safety, how to extend its life and usefulness, how to insure that it does all that it was originally designed to do is, in the last analysis, a problem in maintenance.

Jet line maintenance is as new as the jet itself. Fortunately, the design of the jet lends itself readily to this type of maintenance, because it is essentially an open-type engine with only one rotating assembly, and the engine itself is an easily changeable unit.

Just analyze a jet. It has three sections: an accessories section, a cold section, and a hot section. In general, all accessories can be replaced as units even when the engine is installed in an aircraft. The cold section, as its name suggests, operates at relatively low average temperatures which mean a long life and a low rate of deterioration.

But the hot section is different. It is the joker in jet design; here are the parts which limit jet useful life. Here metals are stressed close to their absolute limits, the life expectancy of the parts is low, and the rate of deterioration is high. Jet line maintenance quite naturally directs its main efforts to keeping this hot section at peak efficiency. If line maintenance is effective at this point, the rate of overhaul maintenance will be substantially reduced.

The hot section is normally out of tolerance limits first. Fortunately, its location in the aircraft provides a fair degree of accessibility.

In this section, where up to 10,000 shaft horsepower is developed and velocities approach sonic values at extreme temperatures, it is little wonder that maintenance of a high and thorough order is required. By regularly and frequently inspecting this hot section, not only failures within it can be determined, but malfunctioning of the other sections may also be detected. However, today there is very little, other than line maintenance inspections, which can be performed.

But BuAer Maintenance has not been content to let it rest at that. There must be a way to expedite line maintenance of the hot section. Obviously, if some method could be devised by which field activities could safely replace hot section components, the life of the jet engine between overhauls could then be extended to those limitations imposed by the cold section. That program is now being developed by BuAer in conjunction with jet engine manufacturers.

Basically this program, called "Extended 'C' Line Maintenance," will allow, to varying extents, disassembly, parts replacement and reassembly of the jet engine hot section by Class C activities—FASRons and Marine Service Squadrons. Of necessity, each type engine has to be considered separately because of its differences in design. While one series of engines may require calibration of the temperature recording system after repair, others may not. On the basis of preliminary field experience, some such differences may be eliminated, or again, there may be still others with which to deal. There is no crystal gazer who can foretell the trend.

At present, perhaps the biggest problem in the field is replacing turbine rotor blades. Unless the blades are right, the whole engine can be out of balance. In addition, if a blade has failed, it isn't enough just to replace the blade; the whole engine must be carefully inspected to make sure that the failed blade has not damaged other parts. For example, it has been found that limited operation with a broken turbine blade has caused vibration and resultant cracking of the accessory mounting brackets on the forward part of the engine.

FIELD tests have further indicated that a definite limit must be placed on the number of blades replaced in the field. Once this limit is reached, the turbine rotor assembly must be replaced.

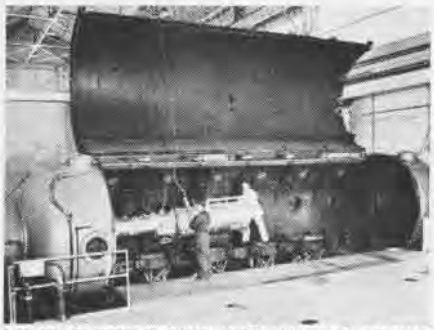
In addition to technical problems, there are, of course, the usual ones related to administration and supply. The entire program will increase the availability of engines in operating activities, and will, by making line maintenance highly effective, reduce the number and cost of engines required to support the jet program.

For the next few years, jet line maintenance programs will in all probability, be rapidly expanded. But the primary goal of flight safety, effective operation, economical maintenance and absolute readiness, will continue to be the major concern of BuAer Maintenance.

NAVY, AF EXCHANGE O&R IDEAS

THE NAVY and Air Force have exchanged 25 pilots with each other, to serve a year with active squadrons of the other service. Both services hope to gain new ideas by this "trade" and to further unification.

Not to be outdone, NAS SAN DIEGO and the Sacramento Air Material Area at McClellan AFB got together and decided the idea would work also in the repair field. So the two activities sent officers to visit the



LARGE RAMJET ENGINE INSTALLED FOR TESTING

other's plants to learn what they could about ways to save money and improve maintenance of planes and engines.

Not only did the overhaul of aircraft and engines provide a common meeting ground, but the respective Navy TO-1 and AF F-80 aircraft programs brought the kinship into sharper focus. The experience was valuable to both organizations. Among other things it was discovered that different words were used to indicate basically the same operation of procedure.

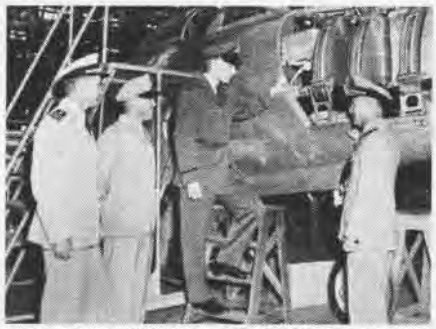
When the Navy visitors left they took with them written material of value to them, including definitions of terminology to establish unification of expression. The AF accepted the Navy's invitation to return the visit and paid a call on the O&R department at San Diego, where they found much to consider.

Of particular interest was the O&R's method of using burr tags for routing parts through processing. The "burr tag" method greatly simplifies the troublesome problem of identifying and routing parts through processing as well as conveying information as to what was done previously. (NANEWS, April, pg. 34)

It is inexpensive to use. No writing is required as the metal strips are prestamped by machine with the coded information to be conveyed. It is safe because the tags are wired to the part and are not damaged by cleaning chemicals.

Through the use of different designs and codes, a group of these "burr tags" on a part will indicate the type of work, model of plane on which it is used, the month it was inducted, the assembly into which it will be installed, the interchangeability of the part, whether an unusual process is involved, the source and priority of the part and to whom it shall be sent and what they should do to it.

The Air Force men expressed a belief that with some adjustment this method might reduce one of their most vexing problems.



CAPT. BAIRD EXPLAINS JET WORK TO AF MEN

Another item in which they evinced interest was the removal of inserts from badly dented metal containers without further damage to the container. This is accomplished by cutting half-moons on opposite outer edges of the insert. By turning the insert until the cut-out portion is in alignment with the dent, the insert can be removed readily and the container then repaired. Without the half-moon, the container would have to be torn apart to remove the contents, thus destroying the container for future use.

In the administrative field, the visitors were impressed by the make-up and scope of the O&R department's manuals. Lacking anything of like nature, they realized the value of a consolidated and concise method of giving supervisory levels the latest information on organization, policy, procedures and methods.

The mutual experience exchange resulting from the visit of San Diego O&R personnel to SAMA and the return visit of AF personnel to San Diego has done much to open the door to the hundreds of ideas developed in each service.

In the accompanying photo, Capt. A. L. Baird, O&R officer at North Island, (right) and his assistant, Cdr. J. R. Arnold, explain the Navy jet overhaul system to Col. R. O. Butler, and Capt. R. H. Ruick of McClellan AFB.

Axman Helps Repair Plane

VP-4, PACIFIC—It pays to be able to do a little thinking when an emergency arises that is not covered by anything in The Book.

When the gear was raised after a normal touch-and-go landing on a squadron plane, a loud snapping noise was heard. Inspection showed that the fitting on the forward end of the nose wheel extending strut was broken, so, although the nose wheel was down, it could not be extended forward by the hydraulic system far enough to lock.

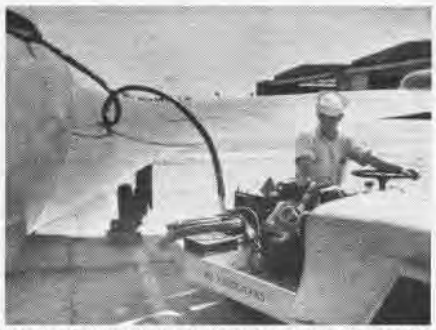
Negative G's were applied to no avail. The plane captain, George C. Denton, ADC, went down to the tunnel compartment in the nose section, chopped a 6" hole in the bulkhead, reached through and picked up the dangling extending strut. He held it in place on the nose gear while the first mech actuated the emergency nose gear extension system. To insure the lock, Denton chopped another hole below the small check window and put the stiff-knee in place. By doing this, he made the subsequent landing extra smooth and uneventful.

Blue Angels' Hydro Test Unit

NAAS, WHITING—A combination mobile hydraulic test unit and power supply for starting was a crying need of the maintenance unit taking care of the *Blue Angels* exhibition team which flies F9F's.

Answer to this problem was found by modifying a type A-1 mobile power unit to provide the hydraulic test facilities also. It was designed by personnel of the maintenance unit.

The modification consisted of attaching a Vickers AA-20334E hydraulic pump to the unused generator mounting pad by means of a



HYDRAULIC TEST UNIT ATTACHED TO F9F PLANE

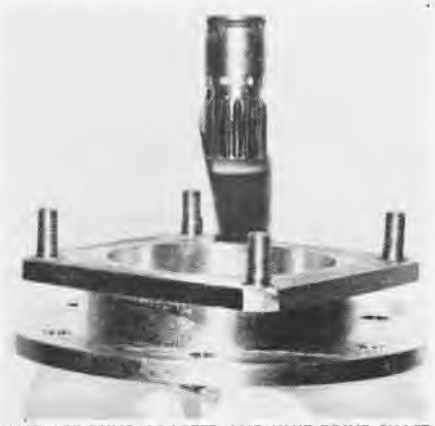
simple inexpensive pump adapter and drive shaft. The pump rpm is kept within prescribed limits by the power unit engine governor.

The pump inlet and outlet ports are connected to the aircraft ground test connections by means of flexible hydraulic hose. The aircraft hydraulic reservoir, filter and pressure gauge provide a fluid source, filtering medium and pressure indicating apparatus.

Since the power unit accompanies the *Blue Angels* on all trips, its use as a hydraulic test unit as well as a source of power for starting increases its versatility.

The maintenance unit believes that this conversion would be especially suited for fleet activities operating from carriers.

▲ ***BuAer Comment*—All type A-1 power plants may be so adapted. A-2's have an AC generator mounted on the upper pad, thereby preventing such adaptation. It is recommended that filters be provided at intake and output ports of the pump. Means to observe intake pressure are also desirable in order that cavitation of the pump does not occur. It is further desirable for the A-1 operator to know the output pressure of the pump.**



HERE ARE PUMP ADAPTER AND UNIT DRIVE SHAFT

Truck Protects Sonobuoys

VS-25, PACIFIC—In past squadron hunter-killer exercises aboard ship, the need for an effective means of transporting sonobuoys from the locker to the flight deck and from one plane to another became apparent.

On the average, a sonobuoy was handled 12 times before it reached its final destination in the bomb bay of the aircraft. It is felt that this repeated handling materially decreases the sensitivity of the unit, thereby limiting its operational effectiveness.

To overcome this undesirable condition, a sonobuoy dolly was developed by T. J. Farrell, AO2, to be used aboard ship in future exercises. It was constructed of light weight tubular steel mounted on pneumatic tires to absorb the shock of crossing flight deck pendants. (See photo, pg. 4).

A rubber cushion, located on the platform on which the sonobuoy rests, will also absorb additional shock. Sonobuoys are held securely in place by bungee straps. The dolly will accommodate 12 buoys and can be handled by one or two men. This carrier helps safeguard the buoys and saves time and manpower.

▲ *BuAer Comment*—**The use of a sonobuoy dolly appears to have considerable merit. However, activities who may want to construct similar devices should bear in mind that new sonobuoys will be slightly larger in diameter (4⅞") with an overall length of 36 inches.**

BuAer is developing a collapsible basket container or adapter for handling sonobuoys. This equipment will be transported on the Mk 4 Mod O bomb and torpedo truck. The container holds 36 AN/SSQ-2 sonobuoys and six AN/SSQ-1 sonobuoys. The advantage of this type of container is that it lends itself to ready service supply and when not in use and in its collapsed state it occupies the minimum of space and can be stacked.

'LINE' SYSTEM SAVES DOLLARS

NAS SAN DIEGO—This station regretfully watches the diminishing overhaul requirements for the Chance Vought *Corsair*. For more than three years, this plane has been the "guinea pig" for experimental processing methods and overhaul procedures here.

Originally the production line technique was held impractical for aircraft overhaul because of the difference in work requirements between groups of planes. The potential savings, however, were too large to ignore the idea without a trial. The *Corsair* was selected for the experiment, in that it provided the greatest range of variables with adequate quantity for experience.

Adopting the technique first to the quick engine change assembly, it proved so effective that in a short time the plan was extended to include the assembly of the plane. More and more improvements were made; operations became better synchronized until today, with the experience of hundreds of planes behind us, the assembly cost is one-half the 1947 figure.

As is usual with the change in production technique, changes in organization and administration became necessary. Accurate sequencing of operations became mandatory, which in turn requires the prototyping of all types of aircraft prior to quantity scheduling.

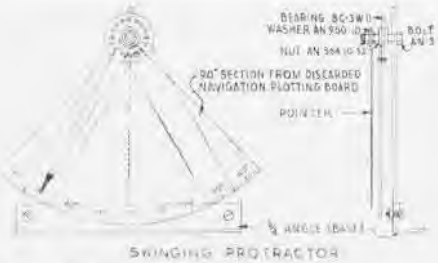
It soon became apparent that the shop control of personnel specializing in one or two types of work, i.e. hydraulics, rigging or fuel installation, was rather cumbersome and difficult to supervise. Personnel of all supervisors were distributed throughout the assembly line, intent on their own particular phase of the work, sometimes to the detriment of more important jobs.

To overcome this condition, stations were set up, comprising one or more spots of the assembly line. These are indicated by schedule requirements, unit of work per spot, and operational sequence sheet. Personnel and supervision were assigned each station to accomplish all of the various types of work assigned.

Improvements resulting in less rework, fewer discrepancies and lower personnel requirements, improved control of sequencing and statistical data soon were apparent. Faster development of personnel with a wider, more comprehensive range of experience also was made possible. Resulting morale and adoptability gave to assembly operations the extreme flexibility needed to meet constantly changing requirements of present schedules.

After the *Corsair* proved its worth, production line methods were expanded so that today's TBM's, SB2C's, PB4Y's, TO's and large component assemblies have added proof that it is the better, more economical system of overhauling aircraft. It also has been adapted to the disassembly of aircraft, turrets and the like with gratifying results.

When the *Navy and Chance Vought Aircraft Co., had a joint ceremony on 18 May to celebrate opening of the new 7,500-foot runway at NAS Dallas to permit the Navy's new F7U jets to take off, they got hold of a 100-year-old Turkish cutlass to officially cut the ribbon. Shown holding it here is Maribell Tharp, of CVAC, with a Cutlass in the background. At the ceremony were many notables, including VAdm. J. D. Price, chief of Naval Air Training Command; Capt. A. C. Olney, BAR at Vought; Capt. M. A. Nation, CO of Dallas, LCol. William N. Hensley, after whose father the field was named, and Dallas Mayor W. Savage.*



Rig By Pendulum Protractor

MCAS, EL TORO—A pendulum protractor for use in rigging aircraft which more than cuts the time required in half has been developed by R. C. Higgins and L. A. Silva of the Marine Corps Air Station, El Toro.

The method and device were developed under the Navy's Beneficial Suggestion Program.

Most common method has made use of a bubble protractor which required two men for two hours, or four man-hours. With the pendulum protractor, the rigging can be accomplished in ½ hour.

"Rigging" as applied to present day aircraft applies to adjustment of movable control surfaces since wings and empennage are not adjustable. To insure the proper amount of travel for all control surfaces spirit levels, protractors, jigs and templates can be used. The pendulum protractor has been in use in O&R departments and Air Force depots for some time. Its advantages are light weight, handling ease, fast reading and versatility in types of planes.

At El Toro it was estimated the device would save 90 man-hours a year based on present overhaul schedules.

SERVICE Test INTERIM REPORT DIGEST

This digest covers the 15 May Interim Report of Service Test, NATC PATUXENT, and does not necessarily reflect BUAER policy.

(HRP-1 (110 Hours)

Test was resumed on 21 April, but the project is now inactive because of the failure of the forward rotor transmission oil pump. This failure occurred 17.1 hours after installation. The failure is under investigation.

F2H-1 (418 Hours)

Engine Report. The port engine has operated a total of 322 hours; the starboard engine, 230 hours.

Turbine Blade. A routine inspection after 238.2 hours of port engine operation revealed a 1/16" crack on the inner half of the trailing edge of a first stage turbine blade. Another blade failure was found after 250 hours of operation; there was a 1/16" crack on the trailing edge and a ¼" crack on the leading edge, both on the inner half of the blade. *Recommendation:* Return the blades to the contractor for investigation and correction.

Arresting Gear Valve. The arresting hook would not retract after an arrested landing was made. Investigation revealed that the solenoid valve was leaking internally. This valve had been operated approximately 50 times. The valve was replaced, but the new valve also leaked. It was found that the new valve had a damaged plastic seat under one of the ball check valves. *Recommendation:* Provide a satisfactory arresting gear actuating solenoid valve.

Turbine Rotor. During inspection of the port engine after 269 hours of operation, it was found that the radial clearance of the first stage turbine rotor was below the allowable limit (.060"). Although the radial clearance was below the limits, the total growth of the blades and disc in the first stage was only .030", which is well below the .050" specified as the allowable limit of growth. *Recommendation:* Decrease the "replace" limit for the first stage turbine radial clearance to .050 inch.

F9F-2 (490 Hours)

Engines. J42-P-8 engine serial #P-400731 was removed after 14 hours of operation because of excessive turbine outlet temperatures. At altitudes over 35,000 feet at 100% rpm, the temperature varied between 800°C to 820°C. This engine is being returned to the manufacturer for investigation. With the installation of another J42-P-8 engine, tests were resumed.

P4M-1 (42 Hours)

Modification. The test aircraft is undergoing modification of engine mounts and incorporation of outstanding factory changes at the Glenn L. Martin Factory. The aircraft is scheduled for return to the Service Test division shortly.

Escape Hatch Coaming. The coaming around the escape hatch in the radar countermeasure compartment has been damaged. Since this hatch is the only access to the top of the wing from inside the aircraft, it is used frequently by personnel in servicing the aircraft. It is difficult for personnel to avoid stepping on the coaming. *Recommendation:* Reinforce or provide protection for the coaming on the escape hatch in the radar countermeasure compartment.

AJ-1

Delivery of the aircraft is awaited.

AD-4

The final test report is being prepared.

F2H-2 (84 Hours)

Ignition System. A Scintilla low voltage, high energy ignition system has been installed on the starboard engine of this aircraft, and an air start evaluation is being conducted during routine project flights. A modified R-46 Holley fuel control, which gives more positive control of starting fuel flow, has also been installed on the starboard engine.

Canopy Mechanism. During flight, in an effort to determine whether or not the canopy was fully closed, the pilot moved the canopy control switch to the "close" position. When the switch was actuated, the canopy blew off and damaged the horizontal stabilizer. Investigation revealed that the canopy actuator chain pin had broken loose from the canopy actuating mechanism assembly and traveled approximately four inches forward and around the canopy actuator forward sprocket. It is believed that this was caused by failure of the canopy closed limit switch to operate properly.

Replacement of the canopy emergency track assembly requires replacement of the entire upper fuselage door and canopy emergency control. The time required for replacement of these parts is excessive because no holes for the hold down screws are drilled in doors furnished as spares.

Recommendations: (1) Determine the cause of this failure and take steps to remedy it. (2) Modify the canopy emergency tract assembly to permit removal and replacement.

Quadrant Assembly. When starting one engine, it is possible to move inadvertently the throttle of the other engine into the start detent. As soon as the starting cycle of the engine being started is completed, or if the cycle is interrupted, the starter on the other engine will begin its cranking cycle if the master switch is on. However, if the first engine starts, the noise may cause the pilot to overlook the fact that the second starter is cycling. Since there is no timer in the starting system of the F2H-2, the starter will continue to run and possibly burn out if the engine fails to start. *Recommendation:* Modify the engine power quadrant assembly to prevent accidental engagement of the starters.

Center Wing Fuel Cell. During a routine inspection of the aircraft fuel cells, it was found that the wooden stiffener in the right hand center wing fuel cell had failed. *Recommendation:* Provide satisfactory stiffeners for wing fuel cell installations.

Turbine Nozzle Blades. Inspection of the port engine revealed that five first stage turbine nozzle blades were cracked on the trailing edge about ¼ of the length of the blade from the outer end. *Recommendation:* Contractor should investigate and correct the cause of these failures.

Discrepancies. The altitude low limit indicator light is excessively bright.

The bakelite retaining fixture of the gyro horizon warning light breaks when the instrument panel is removed.

AM-1 (253 Hours)

Status. The project is completed, and the final report is being prepared.

Brake Assembly. During a ground check of this aircraft, the starboard brake assembly was found to be leaking hydraulic fluid. Investigation revealed that the synthetic cap seal had failed.

Cowl Flap Control Unit. Operation of the automatic cowl flap control unit has been unsatisfactory. Erratic operation has necessitated repeated inspection of the control unit box, removal of dirt and oil, and frequent adjustment of the sensitivity points. No improvement in operation has been noted since the incorporation of the weather proofing change recommended in GLM FCR 79B. Because of the inaccessibility of the control unit box, excessive time is required to service this unit. *Recommendation:* Provide a satisfactory and reliable automatic cowl flap control unit.

UF-1 (153 Hours)

Supplementary Project. A supplementary project, involving a comparative evaluation of erosion resistant qualities of Hamilton Standard modified (nickel plated) and nonmodified propeller blades, has been established. The modified propeller blades will be installed by the manufacturer at an early date. De-icer boots have been installed.

Exhaust Stack Clamps. An exhaust stack clamp on the outboard group of exhaust stacks on the port engine failed. Inspection of the other three sets of exhaust stack clamps disclosed slight chafing but no cracks. Total operating time—86 hours.

Remedial Action. An exhaust stack clamp was constructed locally and installed. An exhaust stack clamp, modeled after the F8F-1 exhaust stack clamp, is being con-

structed and will be installed on the outboard side of the port engine for evaluation.

Landing Gear Indicator. The window, which allows the pilot to check visually the nose landing gear indicator, was torn from bottom to top when it caught on the indicator plate moved from the nose-down indication to the nose-up indication. There are no snap fasteners provided in the bottom of the covering adjacent to the window and covering. The window was repaired and provisions were made to hold the covering in place. *Recommendation:* Install an additional snap fastener at the bottom of the covering adjacent to each side of the nose landing gear indicator plate window.

Hydromatic Propellers. Water operations caused excessive erosion on the blades and anti-icing elements of the Hamilton Standard Reversing Hydromatic Propellers Model. The anti-icing elements were cut back to 50% of the propeller radius, which has been determined to be the maximum allowable in order to maintain satisfactory anti-icing performance. Water operations have been discontinued, pending the receipt of new propeller blades.

Recommendations: (1) Replace the present anti-icing elements with an anti-icing system that does not require the use of an external blanket on the leading edges of the propeller blades. (2) Provide more durable propeller blades.

P2V-4 (83 Hours)

Brake Debooster Cylinder. A hydraulic leak in the brake debooster cylinder was discovered during the acceptance check of the aircraft. Disassembly of the cylinder revealed that the "O" ring packing was damaged. It is believed that this damage was caused by improper technique or carelessness in assembling the piston within the barrel of the unit.

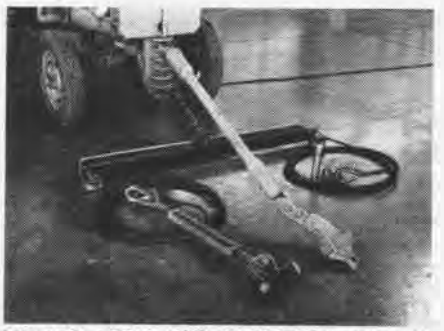
Braking System. The starboard brake had apparently locked prior to a landing. During the first part of the landing run, ten of the 20 plies of the tire were ruptured. Prior to the landing, the emergency brake system was cycled twice in an effort to build up emergency system pressure which was low (700 psi). Operation of the brakes by the main hydraulic system was also tested prior to landing. The cause of this failure is undetermined. *Recommendation:* The contractor is to investigate the cause of this failure.

Weld Assembly. The exhaust weld assembly connecting cylinders 8 and 9 on the starboard engine failed. A similar failure was found in the weld assembly on the port engine.

AF-2S (38 Hours)

Under Investigation. The following discrepancies are under investigation: chafing between the ring cowl rear support ring and the junction of the No. 14 and No. 16 exhaust stacks; the pilot's microphone wires chafe against the throttle quadrant friction control bolt.

● NAAS WHITING FIELD—BTU-1 set an all-time record for flying hours in one day. On April 19, the unit flew a total of 764.4 hours, which is far more than the average fleet squadron flies in a month.



P2V TOW BRIDLE WITH NOSE WHEEL TOW BAR

Heavy Towing Gear Devised

To overcome the difficulties encountered in towing P2V aircraft in snow or under other heavy towing conditions, FASRON-114 has developed a more suitable towing arrangement than the conventional manila line towing bridle. The new bridle grew out of experiments conducted with VP-4 and VP-6.

The P2V towing bridle has proved its adaptability, particularly to cold weather or heavy towing. It is used in conjunction with the nose wheel tow bar and eliminates the need of personnel for steering the aircraft as must be done when the conventional type manila line bridle is used.

The turning radius of the P2V bridle is approximately 30° to right and 20° to left. This may be increased by lengthening the spreader bar.

The bridle consists of a snubber made from a surveyed tow bar, a spreader bar 5'10" long, shives (5" and pin size 1-15/16"), a 1-15/16" bolt snubber to spreader bar, an 11/16" wire cable 57' long, a turnbuckle for regulating load to main gear, 2-1/32" x 6-1/4" adapters, and size 2" adapter pins.

The P2V towing bridle is more than a hundred pounds lighter than the conventional manila line towing bridle.

The new bridle was developed under the supervision of Lt. F. Lofgren, maintenance officer, assisted by D. E. Pegler, ADC; R. J. Look, ADC and D. D. Weeley, AMC. Mr. Leo Hiddie, Lockheed representative, also assisted.

▲ ***BuAer Comment*—The proposed towing bridle arrangement appears to be an excellent means for towing P2V aircraft in heavy towing conditions. However, extreme care must be exercised when rigging this arrangement by carefully determining the length of cable on the bridle in order to assure that the full load will be exerted on the bridle and not on the nose gear.**

Brush Wear Indicator Line

NAS PATUXENT RIVER. An electrical engineer, T. R. McKee, of the Electronics Test Division, has submitted a suggestion under the Navy Employees' Suggestion Program, which is a simple means for indicating the point of wear at which brushes should be replaced. It will eliminate the expense of replacing brushes before it is actually necessary. It will also prevent the use of brushes which have worn to the point where permanent damage may be done the equipment.

Brushes for electrical equipment will be sprayed with copper to represent the 75% point in the life of the brush, and inspections will be set for 25% of brush life.

Turbo-Cyclone Engine Flies

First flight of a plane powered by a combination turbine-piston engine—the P2V-4 with the Wright turbo-cyclone 18 compound engine—has been announced by the Navy.

Two compound engines, each developing 3,250 horsepower on takeoff, were installed in the *Neptune*, giving more power for takeoff, with less engine noise. The extra power is achieved by attaching three small turbines to the engine gases and using this exhaust to develop more power through

LOCKHEED TEST PILOT BELTS VIEWS TURBINE

gearing to the crankshaft.

The first *Neptune* with the new engines was flown by Lockheed and quantity installations in other P2V-4's and later versions is planned. The extra power can be used to give the already-long-legged *Neptune* still further range as an antisubmarine warfare plane. The P2V holds the world's distance record of 11,236 miles.

The Navy has 150 P2V's in service and has made more than 100 takeoffs from aircraft carriers with the huge planes. One was followed by a nonstop flight of nearly 5,000 miles.

Seattle Secures Its Air Clocks

NARTU SEATTLE—To insure aircraft clock security, this unit has installed a quick connect bracket on the instrument panel over the clock hole to receive the clock. Now clocks are kept in a safe place. Before flights, they are issued to pilots, who then are responsible for them until they return them for safekeeping.

Two brackets are required for the installation. The bracket that is secured to the instrument panel is a flat piece with a hemmed edge on top and a dzus hole and spring near the bottom.

The other bracket is a simple inverted box with a hole in the front the same size as a clock front. It has a flange on top and bottom. The top flange fits into the base plate hem. The bottom flange has a wing dzus button installed to secure to the spring in the base plate.

This unit has made and installed brackets for FG-1D aircraft and plans to install brackets in other types. To adapt the installation for other aircraft, the base plates may have to have the top corners cut off diagonally or to fit the angle of the instrument panel.

An advantage of this system is that the base plate is secured to the instrument panel by the original clock mounting holes and hence does not alter or damage the panel.

AVIATION ORDNANCE

Oversize Bombs Jam Rack

BuOrd has received numerous reports from field activities indicating that some of the *AN-MK 23 Mod O and AN-MK 23 Mod 1 Miniature Practice Bombs* do not conform to proper measurements. This has resulted in oversize bombs jamming the bomb rack upon release. At other times when oversized bombs were forced into the bomb container Aero 4A, the guide plates were deformed so that bombs of correct measurement did not fit properly and also jammed. It was noted that some bombs had sharp edges or heavy casting burrs which were a source of possible hang-ups.

OMI-V3-50 of 15 March 1950 contains information for the selection of bombs and for the reworking of rejected bombs as soon as practicable. This OMI is applicable to all AN-Mk 23 Mod O and AN-Mk 25 Mod 1 Miniature Practice Bombs that are greater than 8.25" in length, 2.18" in diameter (at the point of maximum diameter), or that have heavy casting burrs.

The modifications to rejected bombs are to be performed by authorized personnel of the activity using them. Instructions for accomplishing the work follows:

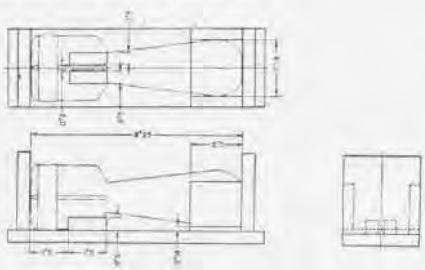
1. A simple Go-gauge as shown in accompanying figure may be made up from the material available.

2. Prior to loading bombs in bomb racks, each bomb should be placed into the Go-gauge in such a manner that a pair of in-line fins shall be vertical and shall engage the positioning slot.

3. Bombs successfully passing the above shall be rotated 90° so that an adjacent fin is engaged in the slot.

4. Only bombs that pass this gauge and visual inspection for freedom from sharp edges or heavy casting burrs should then be loaded into the bomb racks.

5. The forward (nose) end of oversize bombs with respect to length should be ground down on an abrasive wheel until the bomb does pass the Go-gauge for length. No attempt should be made to grind the bombs to reduce the diameter at the point of greatest diameter. Bombs failing to pass the gauge for oversize diameter should be set aside for disposal as unserviceable bombs. Any sharp corners resulting from grinding should be rounded off, as well as any burrs or edges caused by casting.



GO-GAUGE FOR MINIATURE PRACTICE BOMBS

Disposition: Disposition of unserviceable bombs should be requested from the Bureau of Ordnance.

New Contact Extracting Tool

The Naval Proving Ground, Dahlgren and the Naval Gun Factory have devised a very useful tool for removing the firing pin contact from the bolt body of the 20mm Automatic Gun M24. The tool, in position for extracting the contact from the bolt, is shown in the accompanying photograph.

Contact life is short and without the tool, removal was difficult. Maintenance personnel usually resorted to the use of pliers to extract the contact from the bolt body, and very frequently, this resulted in breakage of the wire conductor .

Maintenance: During routine maintenance, care should be exercised in the disassembly and assembly of the breechblock assembly to prevent damage to the electrical components.

TOOL READY TO EXTRACT CONTACT FROM BOLT

Before installing the bolt in the receiver, the electric firing system should be checked as outlined in paragraph 9, TM 9-232. Replacement parts are contained in the Line Maintenance Spare Parts Set, 20mm Automatic Gun M24. Stock No. J941-S-9684-115. Contact Extractor Tools are furnished in the Gun Tool Set, Stock No. J941-T-1792-710. Refer to NavOrd List 21416, Rev. B dated 1 November 1949.

Modification: Bolts assembled to early production guns, serial number 3270 to 3317 inclusive, were not machined by the gun manufacturer to accommodate the tool. The modification is simple and consists of drilling a ¼ inch hole through the bolt body in the contact recess. An *Ordnance Material Letter* outlining details of the modification will soon be issued.

New Ammo Rounds Electric

A complete new series of rounds of *20mm Aircraft Ammunition* is in the making. The new rounds are electric, rather than percussion primed, for use in the M24 gun. These rounds are not interchangeable with present ammunition for the M3(T31) gun.

Identification: The electric primed ammunition is readily distinguished from percussion primed ammunition by the letters "ELEC" stenciled in black letters ⅛ inch high across the base of the cartridge.

Distribution: Initial deliveries of electric primed practice ammunition for use of Air-Lant Units at Quonset Point have been made. Owing to production difficulties and last minute design changes, deliveries of *Incendiary* and *AP* types will be delayed. Information will be furnished when these types become available for general distribution.

148A Annual Report is Due!

Attention, fellows! The 148A annual report of Aviation Ordnance Equipment is due in BuOrd. If you haven't submitted your annual stock status report, get hep on it.

In case you've overlooked it and wonder what's due, refer to OP 1820, "Supply of Aviation Ordnance Equipment, Class J94," pages 29 and 30. The reports of all vessels tending aircraft, FASRons, and Marine Service Squadrons is due in BuOrd 10 July. The annual report of Naval Air Base Commands is due 25 July. Reports are to include equipment issued on temporary custody cards.

M8 Link Will Be Improved

The present M8 Link is being improved to provide for greater flexibility in loaded ammunition belts for turret installations.

Modification includes a change in shape of the single loop of the link plus certain changes in manufacturing procedure to eliminate brittleness of the "ears." Using the M8 Link, the single loop of the link of belted ammunition is usually inserted into the feeder. Limited tests indicate the possibility that the double loop of the M8E1 Link should be fed into the gun rather than the single loop.

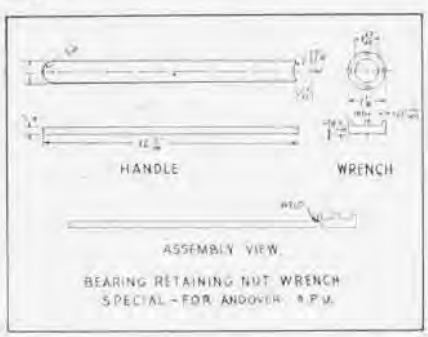
The improved links, M8E1, modified as indicated above will not be available for at least six months.

Special Wrench Devised

Two aircraft mechanics at NAS Coco Solo, Lawrence J. Daugherty and W. W. Long, have devised a special wrench for removing or installing the crankshaft timing gear retaining nut. The design of this wrench was submitted under the Navy Employees' Suggestion Program.

The old procedure was to use a single tooth spanner wrench, as recommended by the Overhaul Manual, which has only one point for holding the nut. Slippage resulted, causing damage to the nut and wrench grooves.

The new tool is a four point spanner wrench made especially for the crankshaft timing gear retaining nut and reduces danger of slippage and possibility of damage to the nut. The tool is easily manufactured from scrap metal.



SUPPLY NEWS
FROM ASO AND SUPPLY DIVISION BUAER

New ASO Training Film

To keep pace with the rapidly changing picture of aviation supply, a new 15-minute, non-classified sound film, MN-6776, "Aviation Supply System," was recently produced to replace the training film, "Logistics: Aviation Supply," which is now obsolete. The new film may be obtained through normal film procurement channels.

From the opening scene which shows a plane taking off from the deck of a carrier, the film moves along smoothly to give a panoramic view of the Aviation Supply Office while the narrator tells the story of the ASO, its beginning in 1941, its accomplishments during wartime, and its mission today.

The keynote of the film is that to keep the multi-purpose Navy planes flying, the right amount of the right materials must be where they are needed *before* they are needed. This is the primary responsibility of the Aviation Supply System and ASO.

Parts of the picture were filmed at the Aviation Supply office, the nerve center of the naval aviation supply system. The film outlines the system by which aviation supply requirements are met: planning, provisioning, purchase of spares and accessories, and the operation of the Inventory Control System, the primary function of ASO.

The film stresses the importance of the part played by ASO in providing specialized aviation material through procurement, stock control, planning, technical research, and cataloging. The picture graphically describes the cycle from operating information and funds to the issuance of an item at the point of actual use; and the principal functions of a supply point—storage and issue, receipt, material handling, packing and preservation, and other responsibilities.

The film will be of particular interest to line and supply officers in service schools; storekeepers; Navy civilian employees concerned with aviation supply; and executives and key personnel of industries supplying naval aviation material and equipment.

Parachute Preservation

The following information governs the airing and drying of the 28-foot rip-stop nylon parachute:

Parachute Manual NAVAER 13-5-501 of 1 September 1947, paragraph 17, provides that parachutes packed in accordance with Spec. AN-P-75, Par G-2A and G-2B, may be stored in these containers until issued for service, which means no airing and drying while so packed. However, parachutes in storage that are not packed in the original containers or repacked in accordance with Spec. AN-P-75 are to be aired and dried in accordance with parachute Manual NAVAER 13-5-501, paragraph 19.

The only contemplated change to the above will be paragraph 19, chapter 5, of the parachute manual. This change will exempt the inspection, airing and drying of rip-stop nylon parachutes packed in metal containers.

The service life of the rip-stop nylon parachutes is still to be established by BUAER. As stated in ACL-38-49 of 20 March 1949, the service will be informed well in advance as to the date the parachutes will be withdrawn from service.

ASO Aircraft Engine Display

The Naval Aviation Supply Depot, Philadelphia, Pa., recently provided a historical aircraft engine display in the "Little Gallery" at Gimbel Brothers' Department Store in downtown Philadelphia. The 55-foot display included seven engines ranging from a 1909 Wright to a cutaway J34 Westinghouse.

The engines were provided by the Aeronautical Engine Laboratory, Naval Air Experimental Station. Many pictures of naval aircraft, both in color and in black and white, made an appropriate background for the display.

Navy chief petty officers from NAAS

A.M. GORE, ADC, EXPLAINS JET PRINCIPLES

MUSTIN FIELD were on hand to explain the engines to the thousands of people who viewed the display in the two-week period. CPO Adamson, on duty at the exhibit the first week, reported that the children asked especially intelligent questions about the engines and naval aviation.

Weight and Cube Logistics

Several years ago BUAER initiated a program to include weight and cube logistics in all shipboard allowance lists and delegated the responsibility for including such information in all *aeronautical* allowance lists to the Aviation Supply Office. In addition, weight and cube information is also being incorporated into Marine TBA's, BuShips photographic and photolithographic allowance lists and Advance Base allowance lists.

A large proportion of this logistical information is procured by carefully studying and analyzing manufacturer's prints. The program has been retarded in some degree because the required weight information has been omitted from many of the drawings furnished by airframe manufacturers. In such instances, ASO initiates correspondence with the manufacturers, and this takes time.

It is vitally important that all Inspection Offices make sure that all drawings submitted for approval provide the necessary weight and cube logistical information. In that connection definitions of the terms "weight" and

"unit weight" are extracted from Specifications MIL-D-5028 and MIL-D-5481 and reprinted below:

• The "weight" column shall show the approximate average net weight of the finished production spare parts and assemblies for reference purposes. These weights may be added to the drawing or revised without engineering change. As an alternate, these weights may be shown on a Master Data List. A revised list shall be furnished every three months.

• The "unit weight" column, when used, shall show the approximate average net weight of the spare parts and assemblies on all drawings for shipment purposes only. These weights may be revised without engineering change. When the "unit weight" column is not used, the weights shall be shown elsewhere on the drawing.

Over-Age Aircraft Hose

Pending revision of T.O. NO. 44-49, BUAER has authorized the omission of proof-pressure testing of aircraft hose *in storage*. This authorization *does not* relieve activities of the responsibility for proof-pressure testing hose used in the hose assemblies. All hose assemblies with applicable end fittings must be tested prior to installation on aircraft.

● VF-111—Jet *Panthers* make good close air support planes, this squadron has found. Time of attack on a given target from the time the signal was given was far less than when it flew F8F's.

● VF-111—Jets wet spectators? Climaxing an air show, the squadron's 20 F9F's dumped water out of their wingtip tanks from 500 feet going 300 knots. The speed atomized the water, however, and nobody got wet.

LETTERS

SIRS:

Enclosed you will find a check to cover cost of a subscription to be sent to Allen H. Conkwright, Polio Ward, Rancho Los Amigos, South Gate, Calif. Allen is a ADE3 and still a member of VP-772, Los Alamitos.

He has remained a member because the wonderful fight he is making against this dread enemy has given every man in the squadron the necessary guts to face his own small morale problems in a new light. We feel that his courage should be rewarded, and although he is not able to be physically present at our Reserve meetings, Allen is certainly a real member of our squadron.

VP-772 flies PV-2's, and Allen showed considerable talent on our cruise last summer to Seattle keeping the old things in the air. He was stricken shortly after the cruise, and had to interrupt his college training as an aviation engineering student. We are 100% complemented in officers and men, and we all offer our prayers that Allen Conkwright will return to us in good health. He is one hell of a fine lad.

LT. (jg) BYRON MORGAN
11332 MORRISON ST.
NORTH HOLLYWOOD, CAL.

¶ The *News* joins VP-772 in pulling for Conkwright's recovery and hopes he finds in its pages interesting reading to fill some of his waiting hours.

SIRS:

At the second reunion of officers who served on the CV *Shangri-La* held at the Naval Gun Factory, Washington, D.C., May 1, it was decided that the *USS Shangri-La Association* would be formed.

All former officers and men who served on the ship are invited to take an active part in the association. Please communicate with Reverend Paul Martineau, Church of the Immaculate Conception, Pompey, N.Y.

Father Martineau was chaplain on the ship during the war and was elected unanimously president of the association. Among those present at the reunion were several former commanding officers, RAdm. James D. Barner, RAdm. Richard F. Whitehead, Capt. Wilson P. Cogswell, and Cdr. James A. Thomas who finally placed the grand old carrier in moth balls.

F. C. SCANLAN, LT.

SIRS:

I would like to suggest the publication in NAVAL AVIATION NEWS of the price of each operational type of naval aircraft. The figure to be as close as possible to the cost of the completely-equipped aircraft minus spares. It is further suggested that such figures be published annually.

This information, I believe, would be of great interest to all aviation personnel. It would seem to be a good policy to acquaint those concerned with the value of the equipment they are handling.

SAMUEL B. FOLSOM, MAJ., USMC

¶ Occasionally, the NEWS runs a round figure in its *Grampaw Pettibone* pages, showing how money you cost the Navy when you wreck a plane. Outside of such use, figures on individual cost of planes are confidential. Actually, it is pretty hard to get a reliable figure on what a plane costs since these vary with the number being procured.

The first one costs thousands of times more than the 1,000th model. If the Navy buys 10 they cost more apiece than it it brought 100. Some have more government-furnished equipment than others; some have more radar. However good Maj. Folsom's idea may be from many angles, the Navy feels the disadvantages outweigh the advantages of revealing unit costs.

SIRS:

Referring to the picture of VP-40 pilots in your April issue, I don't know where that squadron was the day that Lt. Roy S. Whitcomb and Ens. D. T. Ward sideslipped 74-P-5 of VPB-74 down on Kapitan Leutnant Guggenberger's (formerly of San Francisco, U.S.A.) submarine and blew him 70 feet in the air—but they certainly made the put-out unassisted.

If VP-40 is the old VPB-74, I'm sure some of the old crew would like to know. None of those pictured is familiar.

LT. DALE W. KELLY

BEAUMONT, TEXAS

¶ You are right, VP-40 used to be VPB-74 during the war. The Navy changed the designation of that squadron four times between 1944 and 1948 and apparently the faces in it changed too.

SIRS:

Can the NEWS be sent to a civilian who is not a member of the Armed Forces or the Reserve?

Enjoy the NEWS very much and find that it is a reliable source of good dope.

S. T. KUKLINSKI
AMC(AP), USN

NAS JACKSONVILLE

¶ Thank you. Yes, the Reserve issue of the *Naval Aviation News* (unrestricted) can be sent to anyone. Simply send in $2.00 to the Superintendent of Documents, Government Printing Office, Washington 25, D.C., and the News goes to the subscriber for 12 months. Just use the coupon on the back cover.

SIRS:

In the May issue there appears a picture of Wave Beth Qualls sending up a weather balloon during rain at Alameda.

I would like to call your attention to the fact that weather balloons are never released during rain. This is against all rules for sending up pilot balloons as the weight of the rain affects the ascension rate.

This is the first time in my eight and a half years of weather work that I have heard of anyone doing this. But the Waves are seldom wrong so maybe there are new rules concerning this.

G. D. PARHAM, AG2

NAS JACKSONVILLE.

¶ We are advised that the balloon in the picture is being released to measure height of cloud ceiling, in which case rate of ascent is not important.

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● THE COVER

A look through the business end of a jet tail pipe section finds Joseph W. Daughtry, AD1, at NAS San Diego, checking the exhaust pipe shroud which acts as an air duct cooler and as an insulator against the terrific heat that is generated within the engine assembly. *VU-7 Photo by Matthew L. Ryan, Jr., AFAN.*

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SQUADRON INSIGNIA

ONE OF the most highly-colored of recent squadron insignia approved by CNO is the brown panther of VA-25. On a yellow background, the cat has green eyes and a red mouth. Another interesting insigne is VF-24's with the pugnacious fighter of old, a Saracen *Corsair*—the squadron flies in *Corsairs*. The squadron looked ahead and foresaw a proper insigne if it flew F6U *Pirates* or F7U *Cutlasses*. VP-45's sub-ferreting pelican is laden with bombs and symbolic of the PBM squadron's mission of ASW. Another idealized insigne is VU-7's with flying horse towing a target sleeve and two sides indicating day and night flying.

VA-25

VF-24

VU-7

VP-45

NAVY 'MINUTE MEN' 1950

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