

NAVAL AIR "BANKRUPTS" YAP



► Yap Island is world famous for its wheel-sized doughnut-shaped money hewn out of stone. But it was for Yap's importance as a base of military operations that a powerful United States Navy task force pommelled it from the air in recent attacks on Palau, just east of the Philippines. Palau is the seat from which Japan governs the sprawling territory mandated to her by the League of Nations. The naval air attack, which lasted from March 29 to March 31, blasted shipping and shore installations without interference from the coy Jap fleet. Views reveal Yap smoking.



STRIKE AT PALAU

THE WAR in the Pacific struck close to the Jap homeland when a powerful Navy task force blasted Palau, Yap and Woleai in a three-day raid, striking a crippling blow only 600 miles east of the Philippines, the deepest penetration of Japanese waters yet made by the Pacific Fleet.

Palau rivaled Truk as a Japanese "Pearl Harbor," yet the naval task force met with no opposition on the way to attack the islands, where opposition was limited to anti-aircraft fire and land-based fighters. Once again the Japanese Navy prudently stayed away from the scene of action and those enemy ships that were at Palau scooted at the first sign of danger. Aside from its destructive value, the raid gave the United States valuable data on strength of Jap defenses in the area.

Of great importance because of rich mineral resources, the Palau Islands have been producing a large percentage of Japan's supply of phosphate, as well as aluminum ore. The Palau group has played a vital part in administration of Japanese civil government in the mandated islands, with the headquarters of the Director of the South Seas Bureau located at Koror.

DURING THE three-day attack on Palau, Yap and Woleai, the naval force accounted for 28 Japanese ships sunk, 18 beached or damaged, and 160 to 214 planes destroyed. Extensive damage was done to ground installations, ammunition dumps, runways and other targets. U. S. losses totaled 25 planes, 18 lives, with no ship damage sustained by the attacking force.



HEAVILY WOODED VOLCANIC ISLANDS, SOME RISING 600 FEET ABOVE SEA LEVEL, MAKE UP PALAU GROUP, CONSISTING OF MORE THAN 200 ISLES

PALAU ISLANDS ARE NEAREST SPOT TO PHILIPPINES HIT BY THE U. S.

SITUATED AT the western end of the long chain of Caroline Islands, and about 1,000 miles west of Truk, the Palau Islands are the nearest group to the Philippines, being about 600 miles east of Davao on the island of Mindanao. This strategic central Pacific group consists of 200 small, heavily wooded, volcanic islands, six large islands and many islets. The latter sometimes rise perpendicularly to a height of 600 feet above high water.

With the exception of Angaur Island, the whole group is situated on and surrounded by coral reefs. The northern

end of the group is formed by several off-lying detached reefs and the eastern side has a fringing reef for most of its length. The western side is flanked by some 500 miles of broken barrier reef, the most westerly point of which is more than 10 miles distant from nearest land.

The largest island in the group is Babelthuap, more than equal in area to all the remaining islands. There is considerable timber on this island. It is swampy north and west of Melekeiok village, but the interior is mainly barren.

The islands south of Babelthuap are formed of limestone. Of these, Peleliu and Angaur Islands mostly are flat, but the others consist of long, narrow hills with steep slopes to seaward, with caves at sea level. Peleliu Island, about six miles NNE of Angaur, is at the southern end of the barrier reef. In 1935 there were 5,871 natives, 6,876 Japanese, and 17 foreigners living in Palau proper. Angaur Island had 420 natives and 406 Japs living mostly in areas along the ocean.



Typical Abi or community bachelors' apartment is not exactly the most palatial of living quarters; unmarried men of village live and sleep on straw mats in such places, more like cattle in barn



Japanese recruit Palau natives to work in phosphate mines on the islands; most of Japan's supply of that mineral received from any of mandated islands comes from Palau; Nauru produces quantity



Camera gun on Navy bomber catches this close-up of Japanese cargo ship receiving a lethal blow during the attack on Palau Islands; major Jap fleet units fled as task force bore down for the strike

THREE-DAY STRIKE HAMMERS SHORE DEFENSES AND AIRPORTS AT PALAU

THIS THREE-DAY raid on Palau proved the increasing ability of a naval task force to penetrate the Japanese island fortress area, protected from destruction from the air by its own aerial umbrella. The Japs had no major fleet units at Palau when the attack was launched, but as these photos taken by Navy photographers reveal, what shipping they did have there was sunk or damaged in a thunderous and accurate hail of bombs.

Ships sunk and damaged by this attack included a large fleet tender, tankers, freighters and freighter-transporters. One Japanese battleship, intercepted by a submarine, was torpedoed, but escaped. One *Wakatake* class destroyer was last observed burning fiercely.

Palau has carried on an extensive trade with Japan. Phosphates, aluminum ore, copra, pearl, bonita, charcoal and nilotic-type shells are exported. Foodstuffs, coal, tobacco, wine, lumber and tools are imported. In 1938 about 130,000 metric tons of phosphate and 30,000 metric tons of aluminum ore were shipped to Japan. This island group is a main source of phosphate and bauxite for Japan, both vital ores.



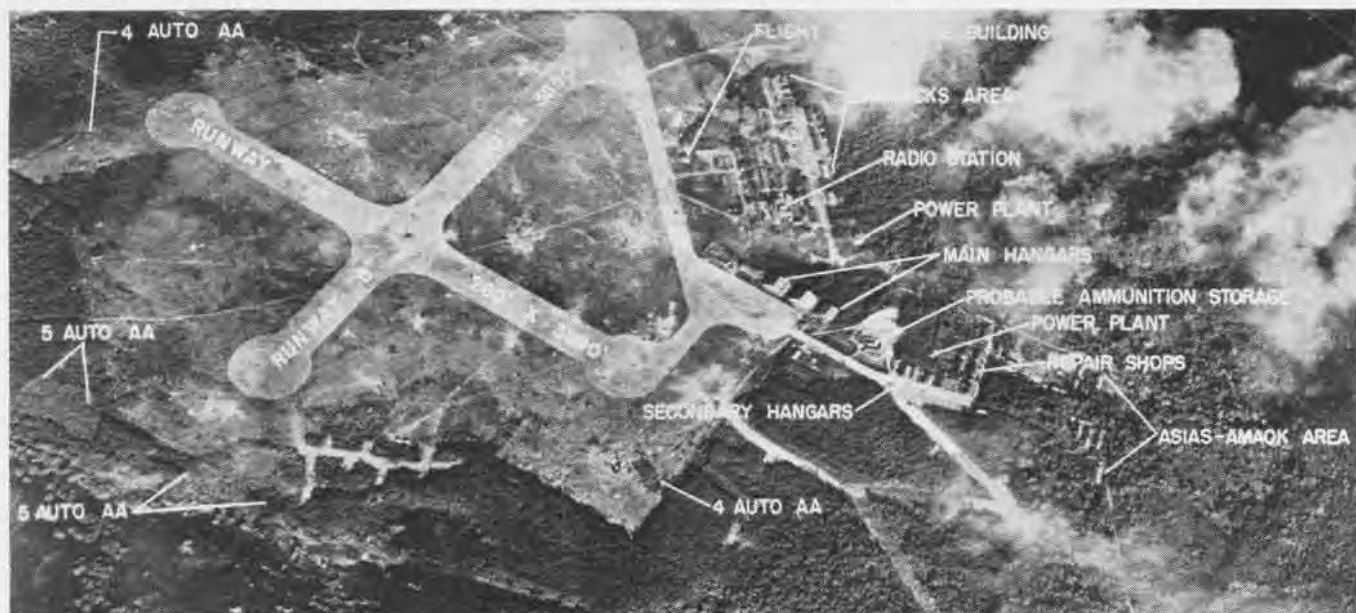
One of the Rising Sun's destroyers receives a fatal hit amidships as the setting sun silhouettes it in the glistening sea off Palau; more than a score of ships, including this destroyer, were sunk



ELEVEN JAP SHIPS SCURRY UNDER ATTACK, INCLUDING A LARGE FLEET TENDER



JAPANESE PLANE BURNS NEAR PALAU AIRSTRIP DURING PACIFIC FLEET'S CARRIER STRIKE DURING MARCH; THE HANGARS WERE PLASTERED LATER



NAVY PHOTO INTERPRETERS ANALYZE PELELIU AIRFIELD, POINTING OUT IMPORTANT MILITARY INSTALLATIONS WHICH WILL BE TARGETS IN ATTACK

NAVY HITS PALAU'S BEST AIRPORT LOCATED ON ISLAND OF PELELIU

THE MOST important aircraft facilities in the Palau Islands were on Peleliu Island, where there was a two-runway airfield with excellent service facilities. At least 25 aircraft were scattered about this field at the time of the raid. Other aviation facilities in the islands include a runway in its early stages of construction on Babelthuap Island, a similar one on Ngesebes Island and two seaplane bases on Arakabesan.

The airfield on Peleliu, a cleared area at the southern, widest portion of the island, is roughly an octagon, the inscribed circle of which has a diameter of 4,900 ft. There are two probably concrete-surfaced runways in an X pattern, with turning circles at the ends. Two hard-surfaced taxiways 130 ft. wide connect the northern turning circles and join the main service apron, while three taxiways under construction extend from the airfield to dispersal areas in the

woods. The entire airfield is used for plane dispersal and four dispersal bays are cut into the wooded area. Under construction in the area NE of the airfield is a dispersal taxiway 130 ft. wide and about 9,250 ft. long, forming a long narrow loop through the woods.

On the NW side of the main service apron are two steel frame hangars 115'x135' which were damaged, and a wooden hangar 90 ft. square. Bordering the NW side of the secondary service apron is another wooden, twin-gable hangar 80'x85' and six frame buildings.

Defenses on the island, all in the vicinity of the airfield, included the following: A battery of three unoccupied dual-purpose positions with associated command post, range finder, ammunition storage, and personnel barracks, 23 anti-aircraft installations, and a cylindrical concrete blockhouse.

The vertical photo of the airfield, annotated by Navy Photo Interpreters, shows the location of these and other installations. Such analysis of aerial reconnaissance photographs provides vital information for future operations, pointing out locations of enemy defenses to be bombed from the air or shelled from shipboard before an invasion.

JAP FLEET RUNS AS NAVY STRIKE BLASTS ALL SHIPPING IN HARBOR

GROUND INSTALLATIONS at Palau took their share of the three-day pounding as well as shipping and aviation facilities. Docks were extensively damaged and fires started. Hangars and other buildings at the seaplane base were destroyed, as well as warehouses, ammunition and supply dumps and personnel barracks. At Angaur, the phosphate plant, docks and storage buildings were badly damaged.

At Yap Island, which in 1921 was the subject of bitter controversy between United States and Japan over control of cable and other communications, airdrome facilities and buildings in the settlement were damaged. The island probably is most famed for its odd money, the biggest "currency" being huge stone discs with holes in them. Pickpockets are few.

The Japanese have introduced many improvements in the Palau Islands, including buildings of modern construction. Typical of these are the administration buildings at Ngarbaged, which are structures with galvanized iron roofs, the Nanyo-cho office, meteorological observatory, post office and radio station, hospital, law court, agricultural experiment station, primary school, public school, and a leprosarium. All dwelling houses and most other structures on Koror are of wood with galvanized iron roofs.

IN 1940 there were about 10,000 Japanese, 6,000 natives and six foreigners in Palau. The natives have been made helpless by the Japs and are forced to work in the mines.

The refinery is at Saipan Town, but the main excavation is at Gabayanga, where phosphate powder is shoveled from the surface. Natives also carry on considerable fishing activity and cured tuna and bonito meat are exported to Japan.



Camera clicks as bombs drop on Palau; photo aircraft brings back proof of how Navy task force destroyed installations on islands. Heavy smoke on lower right of picture indicates bombs have found a Jap oil storage tank or supply dump along the island waterfront



NAVY HELLCAT WITH BELLY TANK BUZZES OVER PALAU PHOSPHATE PLANT; ISLANDS ALSO PRODUCE MUCH OF ALUMINUM ORE USED BY JAP WAR PLANTS



FREE BALLOON IN LINE SQUALL

Back in 1928, Navy team in national balloon race amassed data in aerology that have practical application for flying today

ALTHOUGH the following incident occurred 16 years ago, it is such a vivid description of a line squall that NANEWS presents it for the benefit of naval aviators who may encounter this type of weather phenomenon. The narrator was the commanding officer of the Navy balloon racing team which participated in the national balloon races starting from Bettis Field, McKeesport, Penna., at 1800, May 28, 1928. He was accompanied on the flight by a chief boatswain's mate who acted as aide.

PRIOR TO TAKING OFF, the following weather conditions prevailed: surface wind wsw, light; with increasing altitude the wind direction veered through west toward nw, remaining light. During the early afternoon a thunderstorm had passed a few miles to the northward of Bettis Field. Several minutes after taking off, a severe bolt of lightning and heavy thunder were noted to the northward in a large and menacing cumulonimbus. This cloud seemed to have for a southern boundary a line extending ene and wsw; this line was about 4 miles north of me when first seen. Decision was made to go up immediately to try to get into the nw air aloft and thus, if possible, to keep ahead or diverge from the storm cloud.

Dropped ballast and at 1815 balloon was at 4,500 feet altitude; the line cloud overtook and passed under us and we started up rapidly, the variometer going "hard over" on the ascent side. At 8,300 feet I valved 2 seconds, and the balloon leveled off at 8,400 feet and then started down at a violent rate, the variometer ink going out of sight on the descent side. While falling, the air was extremely turbulent; hail (size of peas), heavy rain, and snow flurries hit us; the basket swung violently from side to side like a pendulum and spun in azimuth; heavy gusts hit the envelope and basket; the motion of the balloon was like one being held on the ground in very gusty surface wind. Lightning and thunder were heavy and apparently right on top of us. The rain and air were very cold and our hands numbed. During the descent we dropped approximately 15 bags of ballast; we came through the clouds at 3,000 feet and leveled off at about 2,000 feet. Found myself under a dense black cloud, the line boundary of which was several miles south; the

line extended as far as I could see in either direction. There were areas of heavy rain along the line on both sides of me and heavy rain to the northward, with lightning and thunder on all sides. The rain in my immediate vicinity had temporarily ceased; my air was snw, about 30 miles per hour, and for a few minutes seemed relatively smooth. It was soon apparent that we were fast overhauling the line cloud.

When nearing pressure height on the second rise, I valved about 5 seconds. On the descent we passed through the cloud base at about the same relative position to the line cloud as on the first circle and leveled off at about 1,500 feet, with nine bags of ballast left. The cloud roof (under which we were) sloped downward toward boundary line; this line was very sharp and well defined, and the air below and in the lower parts of this roll or line cloud itself were seen to be in great turmoil, the air apparently "boiling" there. Lightning and rain were heavy all along this roll and also astern of me. Where I was, under the cloud, it was very dark, but looking out beyond the line it was still light; it was like looking out into daylight from under a large low roof.

WE WERE again overhauling the line in the relatively smooth surface air. I searched the surface for a lee of some kind, behind which we might lay to, but none such was in our path. Upon reaching the line cloud, we started up a third time, but checked at 3,000 feet by valving; on the fourth approach and rise we checked the balloon just above the cloud base, and a suitable landing place being ahead, valved her down at 2020 and landed on a farm 1½ miles south of Perryopolis, Penna.

►**CNO COMMENT**—If you still don't believe all the dope aerology puts out on the subject of thunderstorms, you are cordially invited to find out for yourself. Aerology promises that no flowers will be sent.



GRAMPAW PETTIBONE

The Wrong Time

A PB5-5A recently had a fatal crash during night take-off. An aviation machinist's mate who was being checked out on take-offs was in the flight engineer's seat in the tower at the time of the accident.

While this accident was not caused by the flight engineer, it was pointed out that a night take-off was exactly the wrong time to have an inexperienced man in the tower.

Just a Playful Gesture!

The pilot of an SNJ joined up in close formation on a patrol plane.

As the pilot well knew, this was in direct violation of flight regulations, but he couldn't see any danger in it and it was good fun!

It wasn't so funny, however, when turbulent air or poor pilot technique caused him to collide with the underside of the patrol plane's port wing.

What this SNJ pilot thought was only a playful gesture resulted in:

1. His own death
2. Death of the entire crew of the patrol plane
3. Destruction of two aircraft.

Combination of Errors

An F4U pilot had a fatal crash shortly after take-off when his engine failed because of lack of oil. Here is the story back of the crash:

The plane captain had drained the oil system to find a leak and had not refilled it because the squadron had secured before the oil truck could be made available. So far there was nothing wrong, but the plane captain neglected to change the "in commission" status on the engineering board. This was particularly important in this case because flying was secured in that squadron for the next 43 hours. The reason he gave for not reporting the plane out of commission was that flying was secured the next day and he felt certain that no one would attempt to fly it without consulting him or the second mech. The fact that it was flown proves how wrong he was.

The next morning a squadron pilot decided to hop over to an adjoining field. He happened to choose this plane because it was handiest. Without consulting the line chief or the plane cap-

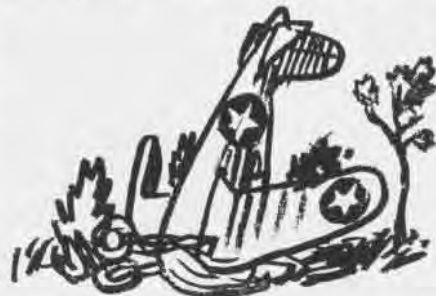


tain as to its status, he instructed a mechanic to start the engine. Then, without conducting a proper pre-flight check, he signed a blank "yellow sheet" and took off. The rest you know!

 Grampaw Pettibone says:

Let this be a warning to non-reg outfits! Carelessness in aviation eventually ends up this way.

There was absolutely no justification for not reporting this plane out of commission. The squadron was in an area in which



there might well have been an alert or other emergency operation while flying was secured, in which case the same thing might have happened. Some squadrons hang a red "Out-of-Commission" card on the instrument panel of such planes to prevent just this type of accident.

In addition to the negligence on the part of the plane captain, the pilot was seriously at fault on at least two counts:

1. He neglected to perform, or have performed, the required pre-flight inspection.

(This would have disclosed the empty oil tank.)

2. He neglected to turn up his engine just prior to take-off. (Done properly, this would have shown him he had no oil pressure.)

It's too late for this pilot to benefit from these mistakes, but not too late for the rest of us!

There's Nothing Too Small

One pushrod hose coupling on an SBD ruptured and another started leaking during a combat tactics flight. The cockpit filled with smoke and oil spouted in the pilot's face. The situation got so bad that the flier said later: "My vision at this point was zero. I was barely able to see the dashboard." During the forced landing, plane received damage requiring major overhaul.

The Trouble Board assigned 50 percent of the cause of this accident to pilot error. The immediate superior disagreed, stating that under the circumstances the pilot was to be commended for being willing to assume the risk of attempting a landing.

In the opinion of the reviewing authority, the underlying cause of the accident was carelessness and negligence of the personnel responsible for the maintenance of the airplane. It was pointed out that maintenance instructions require the inspection of hose couplings before each flight and at each airplane check. Had this been done, the incipient failures would have been discovered and this accident prevented.

This is a good illustration of the fact that nothing on an airplane is of such minor importance that it can be neglected.

Roll Out

While pulling around in a sharp turn to meet a head-on attack, an F6F entered a high speed stall and flipped over into a nearly inverted position at about 1,000 feet altitude. The pilot apparently attempted recovery by pulling through in a "split-S," but lacked sufficient altitude to complete the maneuver and crashed in about a 45-degree nose-down attitude.

► COMMENT—Remember, it takes much less altitude to recover from an inverted position by dropping your nose and then rolling or scooping out than it takes to pull through in a regular "split-S" maneuver.

ACI OFFICERS

**SPECIFY
MANUFACTURER'S
DESIGNATIONS
WHEN WRITING
AIRCRAFT
ACTION REPORTS**

Aircraft employes want to know how *their* planes are doing in combat. To tell them, the Navy must know not only the model but also the manufacturer.

DON'T SAY:
AVENGER WILDCAT
CORSAIR

SAY:
AVENGER TBF or WILDCAT F4F or
AVENGER TBM WILDCAT FM
CORSAIR F4U or
CORSAIR F3A or
CORSAIR FG



**“WE WANT
TO KNOW!”**

More Ditching Dope

A TBF-1C recently crashed during a carrier take-off. Basic cause of the crash was considered to be pilot technique. One of the preceding fighters had been a dud and was moved over to the starboard side of the flight deck to permit the remaining planes to be launched. This moved the launching spot to port and necessitated the pilot centering the plane on the flight deck after the take-off run had started. In attempting this, the pilot neglected to raise his tail wheel, over-controlled and left the flight deck at the forward starboard corner. Complete control of the aircraft was never gained. The plane stalled near the surface, hit on the port wing and turned over violently.

From the pilot's statement: "My gunner escaped immediately through the turret hatch and my radioman was next out, though he had become confused as to the location of the tunnel hatch when the plane turned over. I was knocked out by a blow on the back of my head, which I cannot explain. (Note: This probably occurred when the plane violently turned over.) We were under water when I came to and I immediately unfastened my safety belt and shoulder strap. On take-off, the only straps I had fastened were my shoulder strap, safety belt and chest strap on my jungle kit back-pack, which in turn was fastened to the seat pack. In order to take my seat raft with me, I left my chest strap fastened and this in no way hindered me in getting clear of the cockpit. I bumped into the wing twice before getting clear of it and swimming upward to the surface. When I reached the surface, both my crewmen were close by and called out that they were unhurt.

"My radioman found that his life jacket leaked and was of no use. I inflated my seat-pack raft.

"At this time—about 5 minutes after the crash—two of the depth bombs in the bomb bay of the plane exploded. They gave us quite a jolt, but no harm was done. (Note: Three things can be done to avoid injury from such possible depth bomb explosions: (1) get clear of the immediate crash area as soon as possible, (2) get into your life raft immediately, and (3) float on your back while in the water in the danger area.)

"We put the radioman into the raft and my gunner and I hung on to the sides, as our jackets were in good condition. The radioman emptied his dye marker into the water.

"The destroyer put a net over the side and we climbed aboard about 25 minutes after hitting the water. Personnel on the destroyer commented that the dye marker made their job of locat-

ing us much easier, as the sea was rough, with rolling swells.

"I recommend that the radioman carry his pack raft in his lap until the take-off is successfully completed, as it is almost imperative that at least one such raft be available in case one of the jackets fails to operate as it should. Also it is much easier to ride a rough sea and stay together by holding onto a raft than by floating and swimming in the jackets alone. It is not always possible for the pilot, in case of a crash such as this, to carry his pack with him on leaving the cockpit, especially if he wants to inflate his jacket to help get himself to the surface more rapidly.

"It is not possible to shout to the rescuing ship and tell them of your condition. Perhaps this information could be more easily transmitted by a green flag, meaning 'All OK—that the men could get aboard, up a net, under their own power,' and a red flag meaning 'Send a boat', or 'We need help quickly.'" (Note: This idea has merit, but rather than add more equipment to the life rafts, it should be possible to accomplish this with the equipment already at hand. For example, in Forced Landing Signals, one arm vertical or a white Very shell has the meaning "Slight damage" and no arm signal or a red Very shell means "Emergency; send assistance immediately.")

SNJ Landing Gear Troubles

In a recent study of SNJ landing gear troubles (*i.e.*, failure to lock when lowered), it was discovered that the underlying cause in a great many cases was poor maintenance.

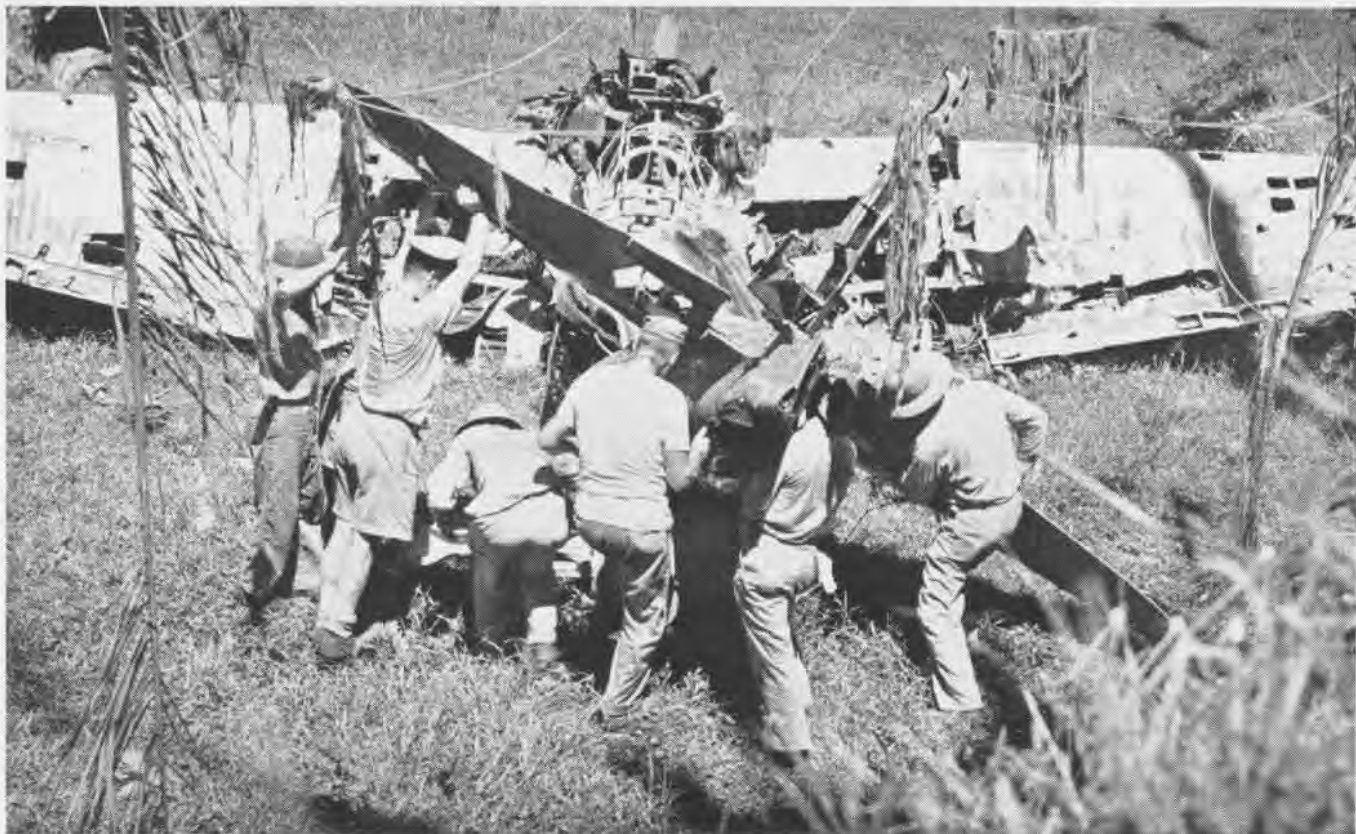
Caution: Maintenance officers should insist that their crews maintain the SNJ landing gear mechanism strictly in accordance with the latest instructions in the Erection and Maintenance Manual (AN-01-60F-2), 15 December 1943.

Blinded Signalman

A plane captain was dispatched with two flashlights to signal a PB4Y through a restricted parking area at night. An Aldis lamp, operated from the waist hatch, was used to illuminate the area in front of the airplane.

After moving the ship a short distance, the plane captain gave the "stop" signal and then walked toward the waist hatch. Apparently blinded by the direct beam of the Aldis lamp, he walked directly into the propeller arc of No. 1 engine and was killed.

It was recommended that personnel be warned of this dangerous use of Aldis lamps and that they be indoctrinated to pass around the outboard wing tips of this type aircraft at all times, whether engines are turning up or not.



TECHNICAL AIR INTELLIGENCE OFFICERS DISMANTLE JAP ZEKE AT VILA PREPARATORY TO ANALYZING ITS STRONG AND WEAK POINTS IN COMBAT

ENEMY PLANE SALVAGE

THE DENSE jungles and coral atolls of the Pacific are yielding their crashed Jap *Zeros* and *Bettys* so that Navy technical air intelligence officers can learn their secrets.

Working hand in hand with Army and Australian Air Force technicians, with kinky-haired natives furnishing much of the manpower, these officers bring back technical data on Jap planes, engines and air equipment. Aircraft that are not too badly wrecked are brought back to United States for re-assembly, analysis, and test flight.

Although wrecked enemy planes almost invariably yield valuable information, Allied souvenir hunters sometimes take things which are vital to piecing together a technical report on the aircraft. Out of their experience in the field, TAI officers give the following advice when enemy aircraft are found:

1. Post guards to keep important parts from being stolen.
2. Notify the nearest TAI officer through local command intelligence officer.
3. In the event of a water landing, make effort to salvage plane or instruments.

A strict censorship is being placed over mails to see that souvenir hunters

do not send home valuable data taken from Jap planes or pilots' bodies. By keeping close check on materials used in enemy planes and engines, technical air intelligence can help piece together the over-all picture of how the Japanese war effort is progressing.

Inspections of wrecked engines di-

vulge secrets of their performance and manufacture. Such planes also are a source of recognition data, performance and characteristic data such as fields of fire, vulnerability and exhaust pattern.

One of the biggest aids in amassing these valuable data is the native work crew. The men assist in spotting, dismantling and transporting enemy aircraft from backwoods areas to tidewater. Since Jap planes do not always pick beaches to crash on, TAI officers sometimes have to labor weeks to get to them in the dense jungles. Without assistance of woods-wise native boys, they never would be able to make their way through often-uncharted territory.

As an example, one Navy *Corsair* pilot swore that he had shot down a *Focke-Wulf* 190 over Santa Isabel island. The Jap fell six miles inland in the jungles on a 1,500-ft. hill. To get to it and bring out the engine would have taken three weeks, white men estimated. Since it later developed the plane was a new Jap *Judy* dive-bomber with an in-line engine, it was especially desired for analysis. A crew of black boys working for a shilling (16c) a day hewed a trail with machetes to the crash spot and carried out the engine on a bark-woven cradle—in four hours.



WRECKED HAMP AT VILA GETS CLOSE SCRUTINY



THIS JAP ZEKE STARTS ITS JOURNEY TO UNITED STATES WHERE IT MAY BE RECONSTRUCTED AND FLOWN; HERE SEABEE LOADER WORKS ON PLANE

FRIENDLY NATIVES HELP ALLIED PILOTS FIND WAY BACK TO BASES, MAKE UP SALVAGE CREWS

NATIVE BOYS are valuable for jobs other than carrying out pieces of Jap planes, too. Many an American aviator owes his life to the help natives have given him after being forced down in the jungles. Proper treatment of island inhabitants by the white men has brought an attitude of cooperation.

Although they will work for a few

cents a day on regular jobs, most of them do odd tasks for TAI crews for a few plugs of tobacco, calico or cans of Spam. They drive shrewd bargains when trading native gewgaws with white men and laugh loudly when they think they have bested them.

Although there are wide variations between islands, most natives are intel-

ligent and good workers. Because of their sharp hearing, they usually can hear and identify Jap planes far off, long before white men know any are in the vicinity. They become extremely skillful with a wrench, chisel and hammer but show little interest in the planes themselves unless as a source of some device which might be used to make jewelry, a pipe fashioned from an oil line or a hat of airplane skin.

White men sometimes underestimate their intelligence, however. When asked "how you likem ride big bird," a native who had been on a PBY trip replied "Quite an interesting flight."



TAI OFFICERS OFTEN HAVE TO BURY DEAD JAPS



SEARCH PARTY TRAVELS IN NATIVE WAR CANOE



NEW JAP DIVE-BOMBER, JUDY, GETS CLOSE STUDY

HOW JAP BETTY IS BROUGHT OUT OF DENSE JUNGLE FOR ANALYSIS



1 Fast, heavily armed Jap Betty, a twin-engine bomber, heads down to destruction with one engine smoking; technical air intelligence keeps close tab on wrecked Jap planes to study improvements or deterioration of material, noting weak points



2 Strong-backed native boys load wing of Betty onto log raft for transportation to a cargo ship which will take it back to U. S. to be studied; natives are intelligent, hard workers on such jobs and are paid small wages; some are paid in tobacco, calico



3 With wings and tail surfaces removed, fuselage of Betty lies in swamp, ready for the big job of moving it to tidewater for re-shipment; Betty is Japan's fastest bomber, carrying five to seven men at speeds up to 288 mph, flying as high as 29,000 ft.



4 After disassembling plane, the native crew, which often is surprisingly adept with wrenches and chisels, loads the rear end on a raft; natives on this particular island are more muscular than some; few know anything about airplanes but learn quickly



5 Floating on a raft of logs, forward part of fuselage begins trip to shipping port; souvenir hunters sometimes strip valuable data from crashed Jap planes which are needed so American pilots can get information on firepower, flight characteristics



6 Technical air intelligence officer supervises loading engine of Betty in LCR, while part of fuselage sits on raft at left for loading later; this particular plane arrived last month in United States where it will be given careful analysis by aerial experts

TROPICAL PLANT FOOD



PICKING A PANDANUS FRUIT IN AN EASILY AVAILABLE SPOT. THIS PILOT HAS FOUND ONE OF THE BEST OF THE COMMON EDIBLE TROPICAL FRUITS

THERE are numerous plant foods found only in the tropics. Because these plants must in most cases be specifically identified before you can make full use of them, only a few of the more common and widely distributed ones are discussed. Try to learn about these plants before an emergency arises.

Palms are found throughout the tropical world and are most numerous near the equator. They grow in all types of habitats and vary in form from tall trees to shrubs and vines. Palms are one of the best sources of plant food. They are widespread, conspicuous and a great many of them contain drinkable sap, edible fruits, buds or starchy

SURVIVAL HINTS—NO. 11

This is the eleventh in a series of articles condensed from How to Survive on Land and Sea, new U. S. Naval Institute textbook issued by Aviation Training Division of CNO. Individual copies may be purchased from the U. S. Naval Institute, Annapolis, Md.—Ed.

cores within the trunks. Palms also furnish sugar, oils, fibers, shelter and clothing material.

The terminal bud of most palms is edible cooked or raw. It is located on the tip of the trunk. Eat it if it is not too bitter. The fruits of the coconut,

nipa and date palm are excellent food, but the fruits of many old world species are not edible. Eat them with caution. Most of the new world palm fruits are edible or at least not poisonous or irritating. Quantities of edible starch are stored in the trunks of some palms, but it is not worth trying to get unless you have an axe or machete.

From this information it is evident that even if you lack specific knowledge concerning edible palm species, you can obtain and eat the fruit, sap, starch or buds with reasonable safety. Best plan, however, is to become familiar with sources of plant food in tropics.

NEXT INSTALLMENT: SUBSISTENCE IN FAR NORTH



CELERY-LIKE "MILLIONAIRE'S SALAD" AT BASE OF COCONUT PALM CROWN



CUTTING TENDER BAMBOO SHOOTS CLOSE TO THE GROUND WITH A KNIFE



NIPA PALM looks like a stemless coconut palm with long leaves rising in tufts from the rootstock to a height of about 15 feet. The flower stem produces a cluster of seeds that are edible when young. This palm grows only in tidal marsh and mangrove swamps of lands in the Indian Ocean. The flower stems give quantities of sugary sap.



COCONUT PALMS are common in the tropics of Asia, Africa, America and the South Pacific islands. The large terminal bud is an excellent vegetable cooked or raw. The nuts furnish meat and water, and sugary sap can be obtained by cutting the flower spikes. The jelly like flesh of half grown coconuts is more nourishing than hard mature nuts.



SAGO PALMS occur on islands of the Indian archipelago and the Malay Peninsula in damp lowlands, swamps and along streams and lakes. The trunk contains edible starch. To obtain, cut down the tree, split and remove the shell. Boil small slices of the core or wrap them in leaves and bake. Chew starch out of the pith. Cook and eat terminal bud.



PIVA OR PEACH PALM, another tree with edible fruits, is confined to the regions of tropical America. Its slender trunk, 20 to 40 feet tall, is easily recognized by its alternating light and dark bands of spines. The mature fruit is red or yellow and grows in large clusters. Eat them boiled or roasted. They taste much like sweet potatoes or chestnuts.



SUGAR PALM is common in open lands of the Indian archipelago. It is more abundant in the hilly districts than on the seacoast. The mature tree is 30 to 40 feet tall with a dense crown of leaves. Eat the terminal bud with caution. Obtain starch from the trunk. Collect sap by cutting the flower spikes. Black fiber at base of leaf stalk makes good cord.



BACABA AND PATAWA PALMS are found in the moist forested regions of the Guianas and Brazil. They are easily identified as palm trees. The pulp of the fruits can be chewed and is good to eat. The oily kernel within the pulp is also edible. The fruits are smooth skinned, dark purplish in color and are about three-quarters of an inch in length.



ASSAI PALM and related species are native to the forests of tropical South America where they generally grow in large masses. The Assai Palm grows in swampy places, particularly along banks of rivers within tidal limits. It attains a height of 30 or 40 feet with a stem about as thick as a man's arm. Soft purple pulp of mature fruit is edible.



BURI PALM is a very large fan-leaved palm found only in tropical Asia. The leaves may be as large as nine feet in diameter. The pithy portion of the outer trunk contains starch, though it is difficult to obtain because of the thick, hard outer shell. The sap is sugary and the buds are edible. The leaf and stem fibers are used for making cord, rope.



CLIMBING PALMS or rattan with long, smooth reed-like stems are abundant in Malay and the Southwest Pacific islands. The leaf stalks are spiny and in many species prolonged into whip-like tails. It is safe to try eating the terminal bud. The base of the vine in some species contains edible starch. Obtain drinking water from stems, use them for cord.



BAMBOO of many different species is distributed in warmer regions of the world. Found in open and jungle country, in lowlands and mountains. The young shoots may be cooked, eaten.



SUGAR CANE grows throughout the tropics, usually in open country along banks of rivers and streams. Sugar can be obtained by removing the hard outer stem layer, chewing soft pith.



BANANAS and plantains are found in the tropics of both hemispheres. They look much alike and the fruit of both is eaten raw or cooked, although most plantains must be cooked to be edible.



TARO of numerous species is eaten by natives of the Pacific islands. It also grows in India, Ceylon, the West Indies and East Asia. Roots are rich in starch, but irritate unless cooked.



YAMS are sweet potato-like vines found in tropical regions. Cook the roots. Some species are poisonous unless they are properly prepared. The buck yam is common in tropical areas.



MANIOC, a starchy root, is staple food of natives of tropical America. Sweet manioc can be eaten raw, but bitter manioc must be cooked. When in doubt as to the kind, better cook it.



SEASIDE PURSLANES are to be found on the shores of most tropical countries. They are smooth, succulent, with fleshy stems and leaves, and a salty taste. Boil and eat the entire plant.



ARROWROOT of six or seven species are distributed over tropical America, Asia, Africa and the South Pacific islands. The carrot-like tuber is very starchy. They are good when cooked.



WILD AND HOG PLUMS are native to the tropics of both hemispheres and the fruits of some of them are edible. The Polynesian wild plum has a yellowish fruit tasting like pineapple.



FIGS of numerous edible species are common in tropical countries. Wild figs resemble cultivated figs and are easy to recognize. Wild figs are usually small and they have a milky juice.



CUSTARD APPLE trees are widespread in the American tropics and various kinds are cultivated in the other tropical countries. The spiny green fruit also makes a thirst-quenching drink.



SWEET SOP, of the same genus as the custard apple, or sour sop, is also found in the American tropics and the tropics of the rest of the world. It can also be used for the same purposes.



SOUR PLUM, a large, often thorny shrub or small tree, bears fruits resembling plums. It is found in the tropics of America, Africa, Asia and the Pacific islands. Fruit pulp is good.



STAMVRUGTE and star apples are found in the tropics of both hemispheres. The star apple in the West Indies and Central America; the stamvrugte in Africa. Ripe fruit is red.



BREADFRUITS of many species are native to the Southwest Pacific islands where they are staple food. Some are excellent boiled or baked. Others can be eaten raw. Cooked seeds are edible.



SCREW PINES are confined to coastal areas in the Eastern Hemisphere. The fruits and seeds are available the year around. They are edible either cooked or raw. Terminal bud may be eaten.



SAPODILLA is a medium-sized evergreen tree bearing brown fruits with large black seeds. Grows wild in Central and tropical South America and other parts of the tropics. Eat fruit raw.



MANGOS are found in nearly all tropical countries. The common mango is one of the best tropical fruits. Fruit of the wild species is also edible, but some may have turpentine flavor.



CASHEW is a moderate-sized evergreen tree cultivated throughout the tropics. The red and yellow fruit can be eaten raw. The nut, however, is poisonous unless roasted until all the oil is gone.



PAPAYA is found in all tropical countries. The melon-like fruit can be eaten raw. The milky sap contains papain which tenderizes meat if put on it before cooking. Boil unripe fruit.

LETTERS

PUBLICATIONS

SIRS:

This office urgently requests to be placed on the mailing list to receive 12 copies of NAVAL AVIATION NEWS.

Such old copies as are available in the Eastern Fleet have been widely circulated, well received and are considered excellent material.

SENIOR U. S. NAVAL LIAISON OFFICER
BRITISH EASTERN FLEET



SIRS:

Thanks very much for the copies of the NAVAL AVIATION NEWS. You certainly did a wonderful job with our aircrewmen material and we are very grateful. Please let us know if at any time we may be able to furnish anything for your fine magazine.

LIEUTENANT, USNR
Public Relations Officer

NAS Jacksonville



SIRS:

After an anonymous over-enthusiastic pilot attached to this command returned from a bombing and strafing mission against a Japanese base in the Pacific area and reported malfunctioning of his guns, the enclosed piece appeared on the squadron bulletin board. It is believed that it is worthy of wider distribution and is sub-

mitted herewith for publication. It was written by the squadron's gunnery officer.

ORDNANCE MEMORANDUM 4U

This is a piece of a .50 cal. slug.
It came from a gun.
This is not the way it should come from a gun.
Normally the slug is ejected from the muzzle or business end of the gun.
This slug was melted into the chamber of a gun.
Another slug was found in the barrel of this gun.
That is not the proper place for lead slugs.
They will not hurt the nasty Japs.
In fact, the Japs like this to happen.
That does them no harm.
But it makes us feel bad.
Now the gun feels bad.
It was cut in half to remove the slug.
Now it will not fire.
The bolt is badly burnt and melted.
It is good only for the scrap metal drive.

We do not allow planes to fly with only one bow gun.
So we will install a new gun.
New guns cost money.
The money comes from the people.
They will have to pay more taxes.
More war bonds will have to be bought.
Production will have to be stepped up.
Still no cars, no butter, no meat.
My family will get mad.
My wife will be very unhappy.
Then I will be unhappy.
Many, many people will be unhappy.
But we will get the new gun.

When the gun is installed, we will shoot it.
But it will not shoot straight.
So we will have to boresight it.
We will have to borrow a hoist.
The hoist is used to unload ships.
These ships have food aboard.
They have beer and eggs, too.
But we are using the hoist.
Result: no beer, no eggs.

The plane is now ready to fly.
The guns are ready.
A smart pilot can kill Japs with them.
Dead Japs mean the end of the war.
Then we can all go home.
An unthinking aviator can ruin these guns again.
It is very simple.
Just hold the trigger button down.
The guns will overheat.
Bullets will melt.
We will have the same trouble.
More work, more taxes, more bonds.
Many more people will be unhappy.
I will have to write another story.
I will be very, very irked.

You pilots can help win the war
by firing your goddamn guns in short bursts.

COMMANDING OFFICER

VB-144
San Francisco

ANSWERS TO QUIZZES

• BEST ANSWERS (on page 22)

1.d 2.b 3.c 4.a 5.b 6.d 7.b

• NAVIGATION PROBLEM (on page 24)

1. Cus 137° 3. 1505
Speed 54 k 4. Lat. 20° 42' S
2. 094° Long. 42° 20' W
5. 213°

(Tolerances of 2 or 3 miles or 2 or 3 degrees from the answers are considered correct)

• PIX QUIZ (on page 39)

1.3 2.4 3.3 4.4 5.3 6.3

Visual quiz films are available from BuAer's Special Devices Division. Standard slide film versions may be obtained from Training Films.

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PUBLISHED TWICE MONTHLY BY AVIATION TRAINING DIVISION, OFFICE OF CHIEF OF NAVAL OPERATIONS AND BUREAU OF AERONAUTICS, NAVY DEPARTMENT—NO. 219

NavAer Index Gets Wide Distribution

More than 8,000 copies of the June 1 issue of the *NavAer Index* have been distributed to the naval aeronautical establishment. This issue contains a list of approximately 16,000 handbooks, pamphlets, bulletins and other publications available to aviation activities.

Subjects in the *NavAer Index* on which material can be ordered by shore and Fleet units include: airframes, power plants, propellers, accessories of all types, instruments, airborne radio and radar, turrets, machinery and tools, photographic equipment, catapults and arresting gear, special devices and training aids.

Among the types of publications listed are: service and overhaul instructions, installation, operation and maintenance instructions, interchangeability charts, parts lists, bills of material, technical notes and orders, changes and bulletins, operator's handbooks, familiarization and study aids, sense booklets, etc.

All Publications Are Easy to Order

It is easy to order this material. Requests must, of course, come through the command form NAVAER 140. Several copies of this form are included in the back of the *Index*. Items to be indicated on this form, besides the complete address, are the order code number given in the *Index*, full title of the publication and number of copies wanted. Additional copies of *NavAer 140* order blank also are available upon request.

The *NavAer Index* is arranged alphabetically by major classifications of equipment, such as airframes, engines, accessories, instruments, etc. Other classifications of material are grouped according to sources, such as Special Devices, Photography and Training Literature.

A handy cross-reference section is located in the back of the *Index*. In the front there is an airplane and engine cross-reference table which lists airplane models in service, with their Army and British equivalents, and engines on each model.

Instructions Aid in Placing Orders

All publications in the *Index* are obtainable from the Publications Section, BuAer, unless otherwise indicated. An explanation is given at the head of each section of publications which should be requested elsewhere; for example, training literature should be requested from the Chief of Naval Operations; catapult and arresting gear material from the Ships Installations Branch of BuAer.

The June issue is a new basic *Index* (buff cover) which supersedes the previous basic (green cover) and the two supplements. When this issue is received, destroy old basic and supplements on hand.

Activities should not make requests for technical material to equipment contractors because those requests will simply be forwarded to Bureau of Aeronautics for action.

NAVAL AVIATION

NEWS



PB4Y Teamwork
Strike at Palau
Technical Data

June 15, 1944
RESTRICTED



TECHNICALLY SPEAKING

Prevents F4U Wing Folding Vought, Bureau Have Remedies

To prevent *Corsair* wings from folding in flight due to distortion of the wing folding pin pulling strut body assembly, BuAer published F4U-F3A-FG Change No. 101 on 6 March 1944. Reports are being received still of wings folding in flight, indicating that this change has not been accomplished.

In addition to showing two alternate



BUAER TELLS HOW TO LIMIT FOLDING OF WINGS

designs for local manufacture of the required support, BuAer authorized the contractor to release quantities of the Vought-designed reinforcement to the company's field service technicians. It is suggested that operating units contact the local Vought representative to determine if quantities of the Vought-designed reinforcement are available.

This reinforcement is identified by part No. VS-24038. It can be made from a 1 $\frac{1}{2}$ "x $\frac{3}{4}$ " block of aluminum alloy.

New Use for BuOrd Device Now Employed in Pilot Training

Originally developed as part of an anti-aircraft fire control system, the Bureau of Ordnance Position Angle Finder Mk. I now is being used successfully in training dive and glide bomber pilots, as well as pilots flying aircraft equipped with forward firing rocket projectiles.

Essentially this device resembles a small hand held reflector sight. In place of the usual reticle, a pendulous wheel

indicates the angle of elevation of the line of sight. This enables an observer to check the glide angle of an approaching plane making a dry run and using the observer as a target.

The device is equipped with three filters of varying density to facilitate use under all types of lighting conditions. In practice the observer uses this device in two ways: 1. Using radio communication, he coaches inexperienced pilots into making glides of any desired angle; 2. once the pilot has



DEVICE RESEMBLES SMALL REFLECTOR SIGHT

gained proficiency, the observer merely uses the device to test his progress, and can determine glide angles to an accuracy of one degree.

The device is designated 3-A-33 and may be procured from BuAer's Special Devices Division.

New Sequence Timing Disc Checks Valves on R2800 Engines

MCAS MOJAVE—The valve check Sequence Timing Disc was designed by this station for efficient and accurate valve checks on R2800, 2:1 reduction gear, engines. After indoctrination in its use, a novice crew performed the valve check in one and a half hours the first time and then diminished the time to three-quarters of an hour.

The valve check Sequence Timing Disc is attached to propeller shaft of engine by screwing propeller shaft adapter onto the shaft until assembly is firmly secured from movement outside of the shaft movement. The second disc then floats with the first disc on

its face perpendicular to a horizontal plane, and the first disc will then move with the shaft movement as desired.

Then set number eleven cylinder to top dead center exhaust stroke and loosen clamp bolt at center of disc and set pointer to number one on second disc, clamp securely, and proceed with valve check in accordance with instructions as they appear through the ports on the first disc.

When the first event is completed move propeller until pointer lines up



DISC REVEALS WHEN VALVES NEED ADJUSTING

with the line marked number two and proceed as before. Continue in this manner until valve check is completed.

The disc is also adaptable to timing the ignition system of engine. It can be used to check ignition wiring sequence on engine by transposing: "set number one intake" as it appears through the port in first disc for number one in firing order. Then move the pointer to number two and set number twelve intake as it appears and it will be number two in the firing order, and so on until all eighteen set intake events are transposed mentally and ignition wiring is checked for proper sequence in the firing order. Blueprints are available from the station.

▼*BuAer COMMENT*—This device shows thought and ingenuity. If action of one disc on another is free and plane is exactly level transversely, the device should work very well and save time. To positively check valves, the cylinder opposite the ones set should be exactly on T.D. center. This will not be possible unless both the airplane and the engine are on an even keel.

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Heavyweight Bomb, Torpedo Skid

A new bomb skid has been developed by BuOrd's Research Division, officially designated as Bomb and Torpedo Skid Mark 7 Mod 0, with a capacity of 4,000 pounds and embodying a number of features which should make it popular with



EIGHTEEN 100-POUND BOMBS CAN BE HANDLED

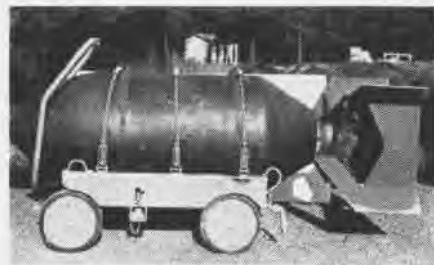
aviation personnel. One of the most important of these features is the steering mechanism which is so designed that, in any turn, the inner wheel is turned through a greater angle than the outer wheel, thereby permitting both wheels to roll freely along their circular path instead of being partly dragged along, as in older models. The result is that the new skid will be much more easily maneuvered into position than other types and will therefore require a minimum of personnel for handling.

While the Bomb and Torpedo Skid Mark 7 Mod 0 was built specifically to carry one 4,000-pound bomb, or one torpedo or 2,000-pound bomb, it was found that, with proper stacking, it could accommodate as many as eighteen 100-pound GP bombs, Mark 4, with tail vanes attached, or a number of other bombs weighing 1,000 pounds or less. It can be seen, then, that this new skid is capable of carrying a complete bomb load for many types of naval aircraft; alternatively, a single skid load of bombs could service several planes of lower bomb-carrying capacity.

A torpedo tilting mechanism is another attractive feature built into the Mark 7 Mod 0 skid. By means of this mechanism, a torpedo may be tilted until its tail touches the deck, thereby facilitating the spotting of torpedoes under bomb bays of low-clearance airplanes. Maneuverability of the skid is not impaired with the torpedo in a tilted position.

Free turning rollers are provided in the

skid cradle to permit the bomb or torpedo to be rolled, if necessary, to align hoisting bands or lugs. Surfaces of these rollers contacting the larger bombs or torpedo are non-metallic, and rollers themselves are designed to provide continuous load support.



BOMB SKID WILL HOLD TWO-TON BLOCKBUSTER

The brakes are applicable to the rear wheels and the brake levers are both foot and hand operated. Actual tests at the naval proving ground disclosed that no slippage of the brakes, wheels, or load occurred when the fully loaded skid was tilted fore and aft or athwartships up to 27 degrees. Cam-locking chain hold-down assemblies are provided to secure the various loads.

BuOrd Needs Full Malfunction Data

In action reports from carriers and aircraft squadrons received in Bureau of Ordnance, brief reference frequently is made to malfunction of aviation ordnance equipment. The references seldom give sufficient information to permit the Bureau to make recommendations for correction of causes of malfunctioning.

It is requested that in each case observed, where it is believed that a malfunctioning capable of correction has occurred, a RUDAOE (Form N. Ord. 147) be prepared at that time and forwarded to the Bureau. Value of such a report cannot be overemphasized, particularly when all witnesses are available and the situation surrounding the malfunctioning is still fresh in mind.

Issue Aviation Ordnance Catalogue

A new Aviation Ordnance Equipment Catalogue, the second revision of OP 865, is now at the printers and should be ready for distribution during June. It will supersede OP 865 and 865A.

Permanently bound, the new catalogue will be entirely different in appearance from the present loose-leaf form, and will contain, in addition to the customary Bureau of Ordnance products, a section devoted exclusively to devices under the cognizance of BuAer. Unlike OP 865A, the forthcoming edition will have consecutively numbered pages, although the plan of grouping similar items will be retained.

Water Idea Saves Aircraft "Mec" Repairs Hydraulic System

Resourcefulness and quick thinking on the part of J. W. Rosenkranz, AMM2c, in figuring a way to repair a faulty hydraulic system so that his plane's wheels could be locked, is credited with saving the aircraft and possibly the lives of his pilot and himself.

Upon returning to his carrier after a strike on Truk, the pilot found that his landing wheels would not lock and flapped back and forth. Enough hydraulic fluid had leaked out so that he was unable to pump enough pressure to lock the wheels.

He circled the ship trying vainly to pump up pressure and was about to make a crash landing when his gunner, Rosenkranz, suggested pouring water from his canteen into the hydraulic reservoir. Rosenkranz did this, with the result that the pilot was then able to pump up enough pressure to lock the landing gear and land aboard safely.

► **BuAER COMMENT**—Since water is likely to corrode the hydraulic system if left in for any length of time, it should be flushed out and replaced with the stock oil for the purpose. In the case of larger planes, spare oil usually is carried, but in any event when this is not available, water or any other fluid may be the best expedient for the purpose.

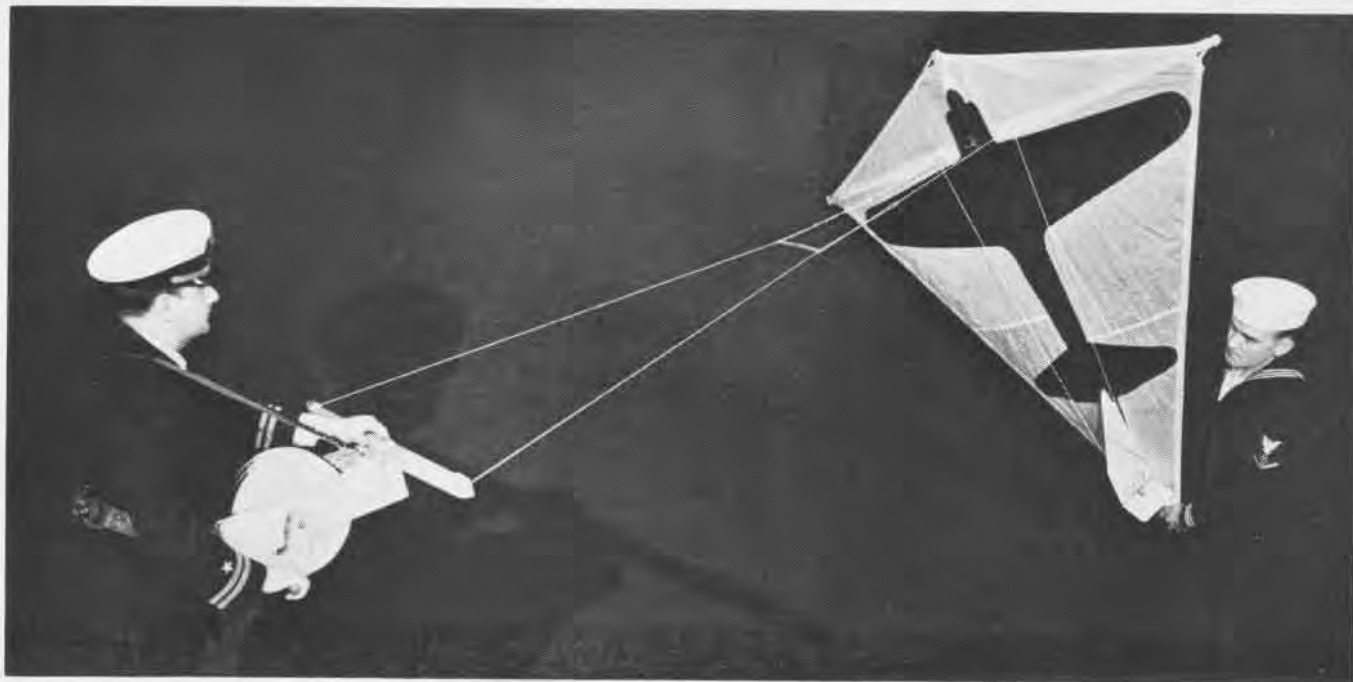
Station Uses Salvage Idea Chute Harness Ties Down Plane

NAS LIVERMORE—This station has partly solved the shortage of manila hemp rope by using unserviceable parachute harness straps as tie-down lines for airplanes. Harness snap rings and fasteners which otherwise are unserviceable are being used to secure the harness straps. One of the many advantages of this type of tie-down over manila rope is that they do not have a tendency to fray after severe use.

Being made in proper lengths, a rapid and positive securing of aircraft can be effected. More speed in tying is possible and the snap fasteners insure greater security as it is almost impossible for them to come unfastened. Another added advantage in the new tie-down lines is that the parachute material will not shrink when exposed to rain, as does manila rope.

► **BuAER COMMENT**—BuAer is procuring 15,000 mooring reels with cable under contract NOa(S)-3082 to moor aircraft in the open. The reels are similar to those described in NANews of Nov. 15, 1943. It is expected that this material will be available in the near future. Concurrently, BuAer is procuring 75,000 mooring stakes of the auger type to be used with reels.





NAVY TARGET KITES

Gunnery instructors praise training device

THE NAVY target kite (Device 3C-29), announced by BuAer's Special Devices Division a year ago, has proved to be one of the best moving aerial targets, according to Navy, Marine and Army gunnery instructors. Kites are in use at gunnery schools, naval air stations, advanced bases and aboard ship, and are being supplied at the rate of several thousand daily.

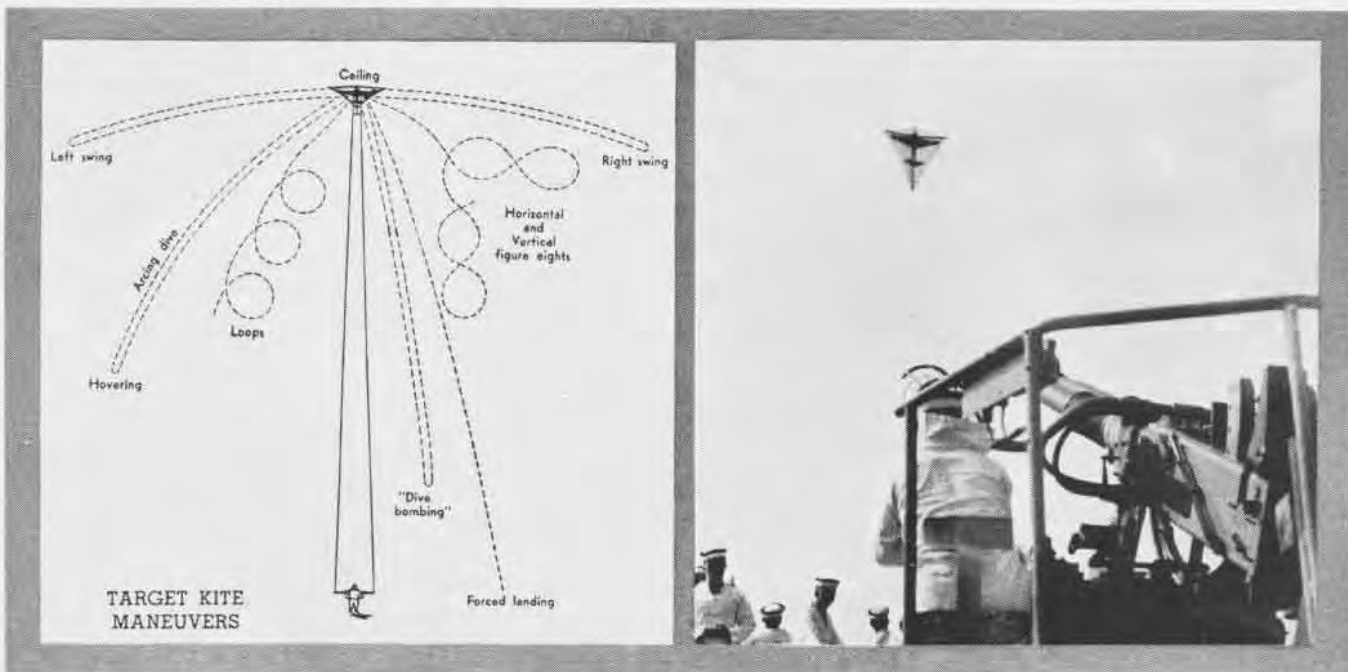
The target kite resembles a boy's

kite, but differs in four ways: it is better designed aerodynamically, has no tail, is maneuverable and controllable, and has two flying lines. At the ground end the lines enter a special reel which combines a means of winding and evening the lines, together with a brake and control bar.

A 10-knot minimum wind is required for satisfactory flight; 35 knots is the approximate maximum. Launch-

ing is in the usual manner for all kites. The kite is carried about 50 ft. leeward and held vertically while the operator adjusts the lines. It then is heaved gently aloft. Range is from 150 to 200 yards. With the command "commence firing," the operator begins to maneuver the kite (*see diagram*).

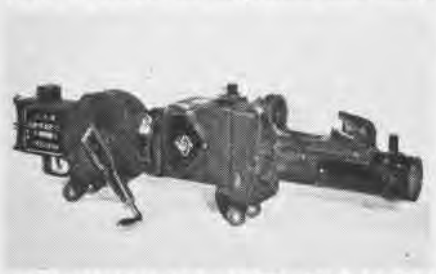
The target kite, developed by Special Devices Division, embodies many of the requirements of the ideal ground-to-air target. Compared with the sail target car, it adds practice in upward, downward and arching movements. It is more maneuverable than the airplane towed sleeve. Although slower than the rocket target, it is not limited to the rocket's single arc and is much simpler.



PHOTOGRAPHY

Captured Jap Gun Camera Is Studied

A captured Jap gun camera recently arrived in BuAer for inspection and study.



35 MM. JAPANESE GUN CAMERA HAS F. 4.5 LENS

It uses 35 mm. film, has an F. 4.5 lens of three inches focal length, sturdily built.

Issue New Torpedo Camera Assessor

The Mark II torpedo camera assessor is now being delivered to photographic supply depots, and gradually will replace



TORPEDO CAMERA ASSESSOR EVALUATES PHOTOS

the Mark I. The Mark II is a lighter model, more compact and covers a range of higher speeds and altitudes.

►The Beattie Process Camera Company has developed a portable vacuum type contact printer capable of handling 20"x24" copy negatives. The standard photographic stock list number is 18-P-24559. This printer is intended for use in Fleet photographic squadrons.

Photographic Stock List Is Revised

The Standard Photographic Stock List is now being revised and should be available about July 1. The large expansion of naval photography since start of the war is responsible for many new cameras and other items of equipment being added to the list. With the capacity of most manufacturers already extended, that factor must be considered when new items are suggested for procurement. BuAer tries to balance the manufacturer's capacity and the time element with most pressing needs of the various photographic operating units.

Oil Slick Is New Rescue Idea

BuAer Comments on Suggestion

VS-40—It has been suggested, in answer to NANews' request for items of value to other squadrons, that an oil slick be used to help spot "ditched" planes.

When planes are shot down or make crash landings in the water, very little trace marks the spot of their disappearance. Where a small amount of oil has escaped, a fair-sized slick is visible. It was suggested that a spring-loaded cap be put on the oil tank of the plane to release oil to form a slick around a "down at sea" plane.

After coming to rest in the water, the pilot could pull a toggle in the cockpit, releasing the spring-loaded cap, thereby allowing oil to escape to the surface as the plane sinks. This would be an aid, it was suggested, for the following reasons:

- A five or 10-gallon oil slick can be seen for a great distance.
- The calming effect of oil on water would increase possibility of life raft and personnel being seen.
- Money would be saved on purchase of sea dyes or markers.

The chance of fire hazard is of course apparent but is decreased by the fact that any fire in the engines would be out by the time the oil from the tanks escaped, since the oil outlet is at the same level with the engine or higher. Also, in the event of fire, pulling the release toggle for the oil tank would be at discretion of the pilot.

►BuAer COMMENT—This idea is not considered feasible for the following reasons:

a. The oil tank filler cap is a standard design resulting from several years of development and is not adaptable to quick release. It is not considered that the primary functions of ease of operation and tight sealing should be compromised by such a feature as that proposed.

b. Oil tightness of the tank, including the tank top, is essential to avoid oil on the windshield which seriously interferes with vision. Any quick release opening is a potential source of leakage; furthermore, devices such as proposed which are operated only once in the life of the airplane have a tendency of not working when the moment comes.

c. Addition of another cockpit control is undesirable. Also, it is doubtful if the pilot would think to use it or even know its location or function when the time of emergency came.

d. It is not established that an opening in the top of the tank will release oil at the necessary rate during submergence. Any device which could overcome all of the above objections would probably be able to use advantages set forth in basic letter.

Light Tells of Open Door

Tunnel Hatch Warning Is Given

VP 202—To prevent possibility of operating planes on the water with tunnel hatches inadvertently open or insecurely fastened, a device developed in this squadron is now being installed in all its planes.

As long as the tunnel hatch is open or insecurely closed, a warning light in



RED LIGHT SHINES IF HATCH IS NOT CLOSED

front of the first pilot shows red, illuminating the word OPEN on its face. When the hatch is fully secured, one of the securing rods actuates a micro-switch which extinguishes the warning light in the cockpit.

The installation of this device is relatively simple on PBM type aircraft. It is believed it can be adapted readily for use in any type seaplane.

►BuAer COMMENT—Although this is undoubtedly a good idea, it should not be used as a substitute for the old reliable take-off check-off list. Electrical systems, regardless of their simplicity, are heir to many sources of failure and it is believed a visual and muscular check would be a more positive means for preventing loss.

Notice

It has been called to the attention of BuAer that an informal pamphlet for upkeep and operation of the Type H, Mark II, Mod. 1 catapult has been distributed to certain CVE vessels of the service by a member of the Navy catapult test crew at Kaiser Company, Vancouver, Wash.

Much of the information included in this publication is inaccurate and obsolete. The Bureau desires to inform all catapult personnel in the service that this manual should not be regarded as official in any respect and that the Bureau is not responsible for data and procedures described therein.

This and any other information received through unofficial channels should be disregarded completely or used with extreme caution. All authorized publications concerning hydraulic catapults are listed in Ships Installations of *NavAer Publications*.

Changes Stowage of Flares New System Is Put Into Usage

VS-60—An aviation ordnanceman attached to this squadron has perfected a system of stowing signal cartridges, Mark 3 Mod 3, which speeds up their removal from the canvas stowage case. The prescribed method calls for stowing the cartridges with the primer



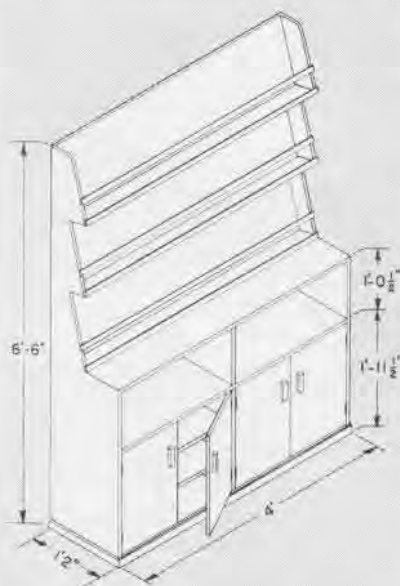
STOWAGE SYSTEM SPEEDS CARTRIDGE REMOVAL

section down. In this position the rim tends to bind with the case. If a plane was forced down at sea, it would be desirable to get cartridges out quickly.

Quick identification of the cartridges was made possible by painting two quarter-inch stripes on the under and top side of the stowage case cover to correspond to the color of cartridge.

[DEvised BY ERNEST OTTIS HAZLETT, AOM/1C]

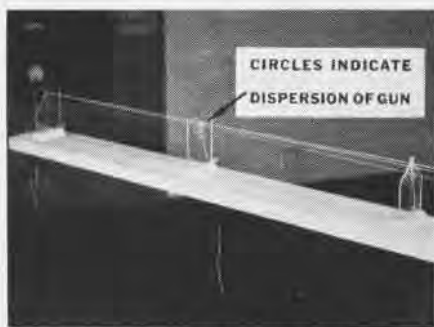
► **BuORD COMMENT**—This plan has one drawback. There are eight color combinations in use at present, and ultimately 10 combinations. Painting on holder does not make for ease in changing combinations.



THIS CONVENIENT CABINET for displaying literature was designed by the shop of BuAer's Special Devices Division. Although Special Devices is not prepared to fill requests for cabinets, the isometric drawing at left gives the necessary dimensions for construction. It is recommended that birch wood be used and that two coats of varnish be applied.

Model Traces Trajectories Helps Pilots Visualize Firing

CASU 23—This unit has developed a scale model showing line of flight and line of fire of F6F-3 airplane. The model was found helpful to many pilots by showing them comparative distance involved and boresight pattern. The model is on a scale of 14" to



MODEL ILLUSTRATES PATTERN OF BORESIGHTING

1,000', and shows line of sight of a bullet trajectory up to 1,000'. At present it is set up for the recently developed AB pattern, but may be used for others as well. Its size is limited by dimensions of the bulkhead to which it is secured, but if space were available, and it seemed desirable, bullet trajectories at any reasonable range could be shown.

It is believed the 1,000' range is enough for most purposes, as most effective firing is within this distance and pilots may visualize the range and bullet pattern on the 1,000' basis. It does not appear practical to scale down further.



POWER PLANTS

Use GEB 2 to Set Idle Adjustments

Here is a direct quotation from a report made by an engine contractor's serviceman to his company:

Description of Contact: Recently while contacting two combat squadrons operating FM-2 airplanes, the pilots and engineering officers complained bitterly because their engines were loading up before carrier and catapult take-offs.

Action Taken: As directed by the senior power plant officer, the idle mixtures were readjusted on all these PD12K10 carburetors in direct compliance with General Engine Bulletin No. 2.

Comments: After adjusting these carburetors in this manner, we didn't encounter another fouled spark plug during the writer's visit with these squadrons.

The airplanes which I am referring to in these two squadrons were all rich, and an rpm increase between 75 and 125 was obtained on nearly all these planes. The mixture adjustments were turned to the left from three to five notches before we received our desired 5 rpm increase at best power. After this adjustment, a sudden acceleration check was made from approximately 700 rpm to 2,000 rpm and the engines didn't pause, falter, or backfire.

This adjustment was made as follows:

1. Warm up engine in the usual manner until oil and cylinder head temperature are normal.

2. Check magnetos in the usual manner. If "drop-off" is excessive, check for foul spark plugs. If drop is normal, proceed with the adjustment of the idle mixture.

3. Close throttle to idle at approximately 600 rpm. If the rpm increases appreciably after a change in the idle mixture, readjust the rpm stop to maintain 600 idle rpm.

4. When the speed has stabilized, move the cockpit mixture control lever momentarily, but with a smooth, steady pull, into the idle cut-off position (auto-lean is sufficient for Holley and some Stromberg carburetors) and observe the tachometer for any changes in rpm during the process of leaning. Return mixture control to auto-rich position before the engine cuts out.

5. Following this system as outlined above, the idle adjustments were leaned down until the rpm didn't increase over 10, but we attempted to obtain a 5 rpm increase at 600 rpm when the mixture control was moved slowly from full rich position back through the best power mixture position obtained just a fraction above idle cut-off. After each change in adjustment the engines were cleaned out by increasing the rpm and again the idle mixture was checked in the above manner until the desired 5 rpm increase was obtained.

► **BuAER COMMENT**—Well, well! How about the rest of you squadrons getting out your copy of General Engine Bulletin No. 2. Remember—it applies to any engine.

Who Can Beat This Record? Overhaul Engine in Two Hours

NAS NORMAN—Three mechs here recently set a new record for engine overhaul when they accomplished a complete assembly of an R-670 Continental

engine in one hour and 58 minutes. The job was completed in less than six man-hours or about half the usual time. After overhaul the engine was run at gradually accelerated speeds for five hours.

The men who set the record were: R. W. Smith, AMM2c; W. J. McGraw, AMM2c, and H. N. Gardner, AMM3c.

(Succeeds List of April 1944)

LATEST NUMBERS OF ENGINE, AUXILIARY POWER PLANT, PROPELLER AND ACCESSORY BULLETINS

May 21, 1944

Engine	Bulletin	Date	General Engine Bulletin	Date
Pratt & Whitney			6	Supplement No. 1 dated 3-7-44
R-985	173	Revision No. 1 dated 3-19-44	12	Revision No. 1 dated 4-19-44
R-985	177	Revision No. 1 dated 5-7-44	36	3-15-44
R-1340	199	4-19-44	37	4-27-44
R-1535	none		38	4-23-44
R-1690	none		39	Revision No. 1 dated 4-10-44
R-1830	351	Revision No. 1 dated 4-18-44	40	3-11-44
R-1830	352	Being issued	41	Being issued
R-1830	353	Being issued	45	4-27-44
R-1830	354	5-2-44	46	Being issued
R-1830	355	5-6-44	47	5-11-44
R-1830	356	4-28-44		
R-1830	357	4-29-44		
R-1830	358	5-3-44		
R-1830	359	5-11-44		
R-1830	360	5-11-44		
R-1830	361	5-11-44		
R-2000	59	Being issued		
R-2000	60	Being issued		
R-2000	61	Being issued		
R-2000	63	Being issued		
R-2800	119	Being issued		
R-2800	121	Being issued		
R-2800	123	4-4-44		
R-2800	124	4-17-44		
R-2800	125	Being issued		
R-2800	126	Being issued		
R-2800	127	5-11-44		
Wright				
R-760	none			
R-790	none			
R-975	none			
R-1820	354	3-24-44		
R-1820	355	Being issued		
R-1820	356	4-28-44		
R-1820	357	5-8-44		
R-2600	120	3-13-44		
R-2600	121	4-29-44		
R-2600	122	Being issued		
R-2600	123	Being issued		
R-2600	124	Being issued		
R-2600	125	Being issued		
R-2600	126	4-28-44		
R-3350	21	Being issued		
R-3350	22	3-1-44		
Continental				
None	none			
Lycoming				
R-0-435	1	4-23-44		
R-680	11	Being issued		
Ranger				
None	none			
			Auxiliary Power Plant Bulletins	Date
			13	4-19-44
			14	5-8-44
			Propeller Bulletins	Date
			Curtiss	
			16	4-29-44
			Hamilton Standard	
			14	Being issued
			15	Being issued
			16	Being issued
			18	Being issued
			19	5-9-44
			General Propeller Bulletin	Date
			None	
			Power Plant Accessories Bulletins	Date
			33-44	4-20-44
			34-44	4-10-44
			35-44	5-4-44
			36-44	4-22-44
			37-44	5-4-44
			38-44	Being issued
			39-44	5-4-44
			40-44	5-4-44
			41-44	5-9-44

List Electrical TO's and TN's Gives Current Reference Data

Following is list of TO's and TN's concerning operation, installation and maintenance of generators, motors, motor alternators, voltage regulators and control panels, effective May 15.

GENERATORS

TO 51-44	Type A Condensers Used With NEA-3 and NEA-5 Generators and 800-1 Motor Alternators, Reconnection of.
TO 42-44	Modification of Eclipse Type NEA-5 (1997-1A) Generators.
TN 31-44	Modification of Armature Shaft on Eclipse Type 309, 310, 314, NEA-2, NEA-2B, NEA-2D and NEA-2E Generators.
TO 26-44	Modification of Field Leads of Type 2CM70B2, 2CM70B2A, 2CM70B5 and 2CM70B5A Generators.
TN 25-44	Brushes for the Eclipse P-2 Generator.
TO 9-44	Eclipse Series 310, 314, and 1308 Generators, Securing Flexible Coupling Against Axial Displacement.
TO 3-44	Electrical Connections to Generators Equipped with Terminal Boards.
TO 134-43	Conversion of Generator Type 2CM70B5.
TO 70-43	Failure of Mounting Flange Screws in Various G. E. and Electric Auto-Lite Generators.
TO 66-43	Oil Drain Holes in NEA-3 Generator.
TN 55-43	Failure of the Field Lead on Eclipse P-2 Generators.
TN 53-43	Burning of the Positive Lead of the 2CM70B5 Generator.
TO 73-42	Maintenance of Aircraft Generators and Generator Control Equipment.
TN 27-42	Interchangeability of Generator Equipment for Service Aircraft.
TN 3-42	NEA Generator Bearings and Clutches.

MOTORS

TN 9-44	Reworking of the Base on Existing Motors for PESCO Pumps Model Nos. IE-A280-BII, IE-AK280-BII and IE-AK280-BHC, Motor Driven Hydraulic Pumps, Lear Avia Inc. Model CM-C178-5 Cont. Flap Motor.
TN 74-43	

MOTOR ALTERNATORS

TN 5-42	Motor Alternator Units for Radio Power Supply.
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VOLTAGE REGULATORS

TO 69-43	Conversion of the G. E. 3GBD1A18 Voltage Regulators.
TN 3-43	Generator Voltage Regulators Carbon Pile Type.

CONTROL PANELS

TN 4-43	Conversion of NE Type Control Boxes to the 111924 Chokebox.
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GENERAL

TO 124-43	Repair and Overhaul of Armatures and Field Coil Assemblies on Naval Aircraft Accessories.
TN 43-42	Ground Operation of Electrical Equipment.

Special Note

BuAer has been informed of two instances where obsolete catapult instructions, dated February 1937, were in use for the Type P, Mark VI and Mark VI-1 catapults. The last issue of these instructions was dated October 1, 1942. Attention is invited to the directive on page 1 of these instructions. Four copies of the latest issue were forwarded to all vessels concerned on November 2, 1942. All vessels not now in possession of these latest catapult instructions should request them from BuAer immediately.



Sure is Beautiful!

IF your squadron has developed something that can be used by other activities, don't send it to the Smithsonian Institution . . . yet! Let NANews disseminate it to *all* squadrons and activities who very likely will benefit from its use.

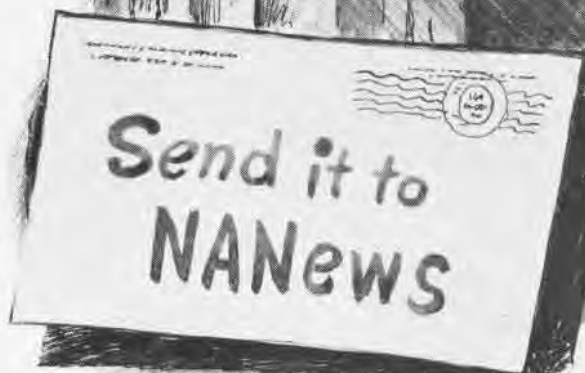
NAVAL AVIATION NEWS comes out twice a month, publishing latest technical, safety and survival data and tips from combat sent in by wide-awake activities in all theaters of operation. That little gadget of yours, that idea or hint worked out in combat, may be the simple solution another squadron is groping for. It may be the extra advantage needed to down a *Betty* or a *Messerschmitt* . . . save a life!

FRESH IDEAS WANTED. NANews is the best medium of telling activities everywhere about your latest developments that speed up maintenance and improve the fighting performance of Navy planes. It also prints useful, informative dope on nature and fighting characteristics of the enemy, under a restricted classification.

DON'T HOARD VALUABLE INFORMATION. If you have facts that should receive wider dissemination, take that extra little bit of trouble and send it on to NAVAL AVIATION NEWS for publication. Read, below, how to address so that it will reach NANews promptly.

Why keep it under glass

SEND INFORMATION to Chief of Naval Operations, Naval Aviation News, Navy Department, Washington 25, D. C.





JAP PILOTS DIE FOR THEIR EMPEROR

Interception was made on a large flight of enemy planes whose mission was to strafe our landing party and bomb shipping in the harbor. While patrolling over the task force, Lt. H. ran out of oxygen, and the flight came down to 13,000 feet. He describes his tangle with the Japs.

I SAW A FLIGHT of six Zekes coming out of a trough in the clouds. Twenty or thirty planes were following. I picked the one diving for the beach—tailed in behind him in his dive—and gave the son of the rising sun a burst!

He tried to pull away to the left, but had too much speed to maneuver. I gave him another burst. He started to smoke, and then burst into flames. He slowed down all right, and as I passed over him, he pulled up his nose and snapped a few tracers at me. Missed! He then fell off and down, burning all the way.

I banked to the right—then left, and got in position behind another Zeke. Got him in my sights, gave him a long burst, and he smoked slightly. Suddenly he exploded! Another dead Jap.

I pulled up to the left and climbed to 8,000 feet where I saw about six Kates. I had enough speed to make a low-side beam run on the nearest. He peeled off to the right. I shot. No smoke or damage was observed on this baby.

After I had pulled through this run, I ended up above the remaining planes and to their left. I started a fairly low, high-side run on the left plane of formation. Right in the middle of my run, they dropped their bombs into the water

of the bay. I finished the run on this left plane, and all but the one I shot peeled off to the right. After this first long burst, the Kate nosed over very slightly—then his dive became steeper and steeper. He didn't burn or smoke. I followed him down in his dive, weaving from side to side—picking at him with my guns working spasmodically.

I followed him straight down until he crashed—pulled up and right, and chased the other Kates that had peeled off on my first run. Then and there I realized my engine was dead. I had no power. Lost speed rapidly. I knew I would have to make a water landing, so I headed toward the task force of six DD's and eight transports, and made a dead-stick water landing.

I crawled out of my plane, fast! It sank in 30 seconds or less. Then I inflated my life jacket, but it deflated at once! I then broke out my rubber boat, inflated it—and started paddling for the DD's. I paddled with considerable effort, because I knew they were due to leave soon. I was singing "You'd Be So Nice to Come Home To."

A flight of TBPs flew over me about eight times. I had my dye sea marker out, but they didn't see me, so I paddled to within 250 yards of the DD's and finally they identified me and took me aboard. I only spent four and a half hours casting around in my rubber boat, and that wasn't bad at all.

Life aboard ship was very pleasant, and the meals swell. I couldn't help noticing the conspicuous absence of a very well known brand of canned meat!

BEST ANSWERS

Map Sense

Pick the best choice to complete the statements below, then check your answers on page 40.

- The Alaskan base nearest to Japan is—
 - a—Sitka
 - b—Kodiak
 - c—Seward
 - d—Dutch Harbor
- The most important industrial center (bombing objective) in Japan is located around—
 - a—Hokkaido
 - b—Osaka-Kobe
 - c—Nagasaki
 - d—Nara-Kyoto
- The country among the following showing *least* distortion in size on a Mercator map is—
 - a—China
 - b—Mexico
 - c—Brazil
 - d—Norway
- The country among the following showing *most* distortion in size on a Mercator map is—
 - a—Greenland
 - b—Arabia
 - c—Australia
 - d—England
- The most direct route from the North Pacific to the North Indian Ocean is via the—
 - a—Drake Strait
 - b—Strait of Malacca
 - c—Torres Strait
 - d—Caribbean Straits
- A ship following a great circle course between a point 40° N Lat., 130° W Long., and a point 40° N Lat., 170° W Long., will be farthest north when at—
 - a—90° W Lat.
 - b—160° W Long.
 - c—130° W Long.
 - d—150° W Long.
- During recent weeks Navy planes have bombed many Japanese bases. Which of the following is closest to the Jap mainland—
 - a—Marcus Island
 - b—Shimushiri Island
 - c—Saipan Island
 - d—Soerabaja

SHORE STATIONS

► **NAS NORFOLK**—A young Wave struggled up the street under the heavy burden of a bunch of suitcases and parcels when an elderly man went to her assistance.

"Thank you," she said. "Are you a retired Navy man?"

"Yes," he answered.

"Former chief?"

"No," he replied, "admiral."

It was Rear Admiral Guy H. Burrage, USN, retired.

► **SoPAC**—Used oil drums are a great source of joy to Marine practical scientists in this part of the country. They use them for the following purposes: split in half, they make excellent bath tubs; tied to tree branches and the bottoms perforated, they provide showers; pontoons for canoes; home-made stoves; portable photographer's darkroom; split and hammered out as roofing material; cr cans; mail boxes; foundations for small buildings; placed end to end as movie seats; ring lights over boxing arena, and *ad infinitum!*



► **NAS OTTUMWA**—A three-page, mimeographed letter from "home" providing the latest news about officers who have been detached is being mailed to detached officers along with their copies of the semi-monthly station paper.

► **MAD MIRAMAR**—The West Coast brags of a sergeant who hasn't received one piece of mail for the past ten years. Furthermore, he's not looking forward to any as he is both an orphan and a bachelor.

The last letter he received was in November 1933 from a California telephone company. It contained a five-cent piece which was returned to him for a wrong number telephone call he had made in Los Angeles.

► **NAS BERMUDA**—On July 1 this station will light three candles on its birthday cake. In the three-year span it has passed through many phases, including an important part in the operations against Axis subs. More recently the station has been providing operational training for the squadrons based here.

This was one of the first U. S. Naval Air Stations established on English soil. For the first year, planes operated exclusively from British facilities. Two years ago one ramp was completed, and an OS2U was the first plane to make use of it. The station is now entirely completed and the old-timers who have not been back since the early days would be pleasantly surprised to find grass and paved roads where there once was a veritable sea of mud.

► **MCAS MOJAVE**—A pleasing commentary on the relationship between WAVES and Women Marines on the station was indicated by the inquiry as to whether they might be permitted to wear Marine uniforms, inasmuch as they are serving with the Marine Corps.

► **MCAS EL CENTRO**—Marines at this station have been spending all spare time learning to pack a punch for the boxing tournament sponsored by Marfair West. Instructors are available to train the men, and exhibition bouts draw a cheering audience of several hundred.

► **NAS MEMPHIS**—After almost two years in New Caledonia and the Solomons, one of the Bluejackets was sent to this station. He was complaining to his new buddies here that headquarters only gave him two hours' notice to get ready to leave the South Pacific.

"How that hour and 55 minutes dragged until those trucks came," he said.

► **SoPAC**—Do natives of the islands prefer the Americans to the Japs was a question answered recently by the story of a native.

A Malaitan dashed into camp one night and excitedly announced, "I save American, I save American. I heard plane come down, I go out and I say: 'Jap or American?' If he say Jap, I hit with axe."

► **NAS PASCO**—There's a story making the rounds about a new recruit who was stationed at the gate of the station with instructions to admit no car unless it carried a special tag. So he stopped them all, including a high-ranking officer.

The officer ordered the driver to go on, whereupon the gate guard said, "I'm sorry, sir, but I'm new at this. Who do I shoot—you or the driver?"

► **NAS New York**—One of the officers sprouted a luxurious growth of face-spinach while undergoing treatment for a skin ailment. When he boarded a city bus, the driver was moved to compassion by the lieutenant's rugged appearance.

"Keep yer nickel, buddy. I ain't charging a guy what just come back. Was it pretty tough over there?"

The officer nodded and took a seat amidst admiring glances. The very next day he trimmed the beard to a suave mustache.

► **SoPAC**—That "after you, old man" brand of politeness has been shelved for the duration by Marines in this area. Here's why:

On Rendova, a group of Leathernecks refused to take an air raid warning seriously. When the alert sounded, they strolled slowly over to a newly dug bomb shelter, and with Chesterfieldian manners, bowed deeply at the waist and said to each other,

"After you, my good man."

The courtly touch ended up in a rat-race for cover when a 500-pounder dropped not too far away, spraying the area with tokens of Japanese esteem. Since that time, the boys just take it for granted that their mothers taught them to say "thank you" and "pardon me, please." "Gangway" is now used when *Mitsubishi* bombers are reported in the vicinity.

► **NAS NORFOLK**—Mary's Little Lamb had nothing on "Wiggles," the little Spitz dog who has adopted the oor's messenger. Not only does Wiggles follow the Bluejacket everywhere he goes during the day, but at night he curls up alongside his new master's bunk, and woe to anyone who approaches without permission!



The attachment started one night recently when the Bluejacket gave the homeless dog a drink of water. After that, nothing could induce him to leave the sailor. Wiggles has proved to be extremely valuable early in the morning when the MAA comes around to rouse the slumbering Bluejackets. Wiggles won't let the MAA near his master's bunk.

► **MCB SAN DIEGO**—An unusual seabag finally found its owner. The seabag was highly prized because it was autographed with the names of 45 members of the corporal's detachment aboard the U.S.S. *Yorktown* when that ship was sunk in the Battle of Midway.

It was originally lost in San Francisco more than 18 months ago when the corporal came ashore after two years of sea duty. Recently it turned up in the reclamation and salvage office. An itinerary of its travels during the interim will never be known.

Listed on the seabag are the eight engagements in which the Marine corporal took part, including the Marshalls, Gilberts, Solomons, Coral Sea and Midway actions in addition to the six ships on which he had served. During the Marine's four years of duty, he served or touched 31 bases and ports. Their names are printed on the seabag, and geographically, they stretch from the coast of Africa to ports deep in the South Pacific, nearly circling the globe.

A&R SHOPS
LET NANews
HEAR
FROM YOU!

► **NAS JACKSONVILLE**—Usually when you get out of the doghouse, you don't have anything to worry about, but not so for Sandy, mascot at Firehouse No. 2.

Recently, he chewed his way through the wire fencing of his kennel and went AWOL. After gallivanting around on a 24-hour bender he was finally collared by the Yard Police.

Sandy was put on report and demoted to apprentice seaman, fourth class. A repeated offender of regulations, the gay young pup's service record is so spotted now it looks like a polka dot tie.

► **NATC CORPUS CHRISTI**—According to the latest statistics, Corpus Christi and Pensacola (with Corpus having an edge in the number of flying hours) are turning out pilots at the unbelievable rate of nearly three an hour.

► **MAD JACKSONVILLE**—An ingenious Marine private combined initiative, patriotism and good business sense with the result that he now has more than \$8000 in War Bonds. And that figure is constantly growing.

Back in the civilian days, the private owned two grocery and meat markets. The customers of one store had been carried "on the cuff" to the aggregate tune of several thousand dollars. In spite of lucrative war jobs, many of them refused to pay their bills, claiming that tax deductions, insurance, and War Bond allotments left them with only small change.

The enterprising young grocer stopped that argument. He arranged to have the War Bonds signed over to him until his customers' bills were paid in full. If the bill was \$50, the Marine graciously accepted two \$25 bonds as full payment.

► **SoPac**—A Navy Lieutenant was flying near Australia carrying out exercises in navigation and attempting to discover his geographical position with a sextant. After a series of involved and confused calculations, he suddenly turned to his pilot and said:

"Take off your hat."

"Why," asked the pilot.

"Because according to my calculations we are now inside St. Paul's Cathedral."

► **NAS PENSACOLA**—A recreation building for WAVES has been approved. The new building will include a lounge, game rooms, library, sewing room and a canteen with a soda bar and small galley attached. Cost of the structure will be \$60,000.

► **NAS LIVERMORE**—How the lowly bean basket became a mighty life-saver is the result of someone's powerful imagination. The bushel baskets are now used to designate the closing of outlying fields.

Painted red and white, they have been arranged alternatively in the center of the field to form a cross, three paces apart and turned upside down. On windy days they are held in place by stakes driven into the ground.

In the past there have been many landings at closed fields, but since the installation of this new system, there has not been one violation of this type recorded.

TOKYO TALKS

—TO JAPAN

An "adequately appropriate and stirring" song designed to arouse the Japanese people to destroy "menacing Anglo-America" has been published. The song, which calls on the Japanese to "charge!", was selected by the Imperial Rule Assistance Association, Japan's totalitarian party, for use in a national drive "to awaken the entire populace to action." It is entitled "The Bugle Call to Charge Resounds."

—TO JAPAN

Wounded Japanese soldiers in the first Army Hospital in Tokyo were made "very happy" when the Tokyo Toy Control Union gave them more than 200 kinds of toys such as dolls, paper balloons and model warships "to play with during the long hours of the day."

—TO UNITED STATES

The puppet "National Government of China" at Nanking has executed two of its official agents and imprisoned 18 others at Japanese demand because they had sought to carry out orders to buy up rice that had been earmarked for the Japanese military.

As a result of this incident, the Japanese have designated all rice-producing zones of Kiangsu and Chekiang Provinces as "military rice areas," where the entire production must be sold to the Japanese at a fixed price for shipment to the homeland.

—TO UNITED STATES

"Neat squares of Irish and sweet potatoes will dot the spacious lawn" around the Japanese Imperial Diet building in Tokyo as another step in the "vacant lots utilization program."

This plan was designed to do away with all idle but cultivatable acres in Japan, and land along railroad lines and highways is also being put into production.

Emperor Hirohito himself has "graciously granted" the city of Tokyo permission to raise vegetables on "idle Imperial Palace grounds" and to breed fish in the "outer moat of the palace."

—TO KOREA

The government-general has developed an "epoch-making plan" to bring oil needed "for increased production" in from the "southern regions via fishing boats."

The 100 and 200-ton fishing boats would travel in groups of ten under the protection of "portions of the armed forces."

—TO NAZI EUROPE

Japanese occupation authorities in Java have ordered planters to increase their output of quinine as "vital to the war effort." Tea and coffee "output will be reduced to a minimum" in order to concentrate on quinine and other war crops.

—TO EUROPE

Japanese "wrestlers are pitting the strength of their bodies against luggage packed high like mountains, grunting 'ugh ugh' as they carry this luggage to distant places."

The Japanese wrestlers are participating in "Wartime Emergency Small Luggage Transportation Increase Week" and offered their service to decisive wartime transportation. "Pictures of these wrestlers wearing national suits, trench helmets and leggings are very brave looking." Why the wrestlers are wearing trench helmets to move luggage around was not made clear.

—TO JAPAN

Citing the "frequent and active propaganda-spreading by America and Britain on the quantity of materials they possess," Japanese Minister of Education cautioned the people against being confused by the Allies' "thought warfare."

"If we are confused by the enemy's propaganda in the slightest degree, that confusion will stem from the spiritual recesses of the heart and will indeed be shameful. We must not forget that the enemy is watching eagle-eyed, in an attempt to weaken our spiritual strength by always driving into some crack or other."

SHOW ME THE WAY TO GO HOME



Radius of Action

Depart Jasper Reef, Lat. 21°20' S., Long. 46°08' W, at 1330 to scout out on a course of 080° to a maximum distance, returning to Base Able, Lat. 23°32' S, Long. 43°56' W, at 1650. Flight altitude 8,000 ft., Mean Variation 6° W. Visibility 32 miles. CAS 111 k. Air temperature (+) 11° C. Wind is from 201°, force 20 k.

1. What is the course and speed of the fictitious ship?

Course

Speed

2. What is your magnetic heading out?

.....

3. What is your time to turn?

.....

4. What is your position of turn?

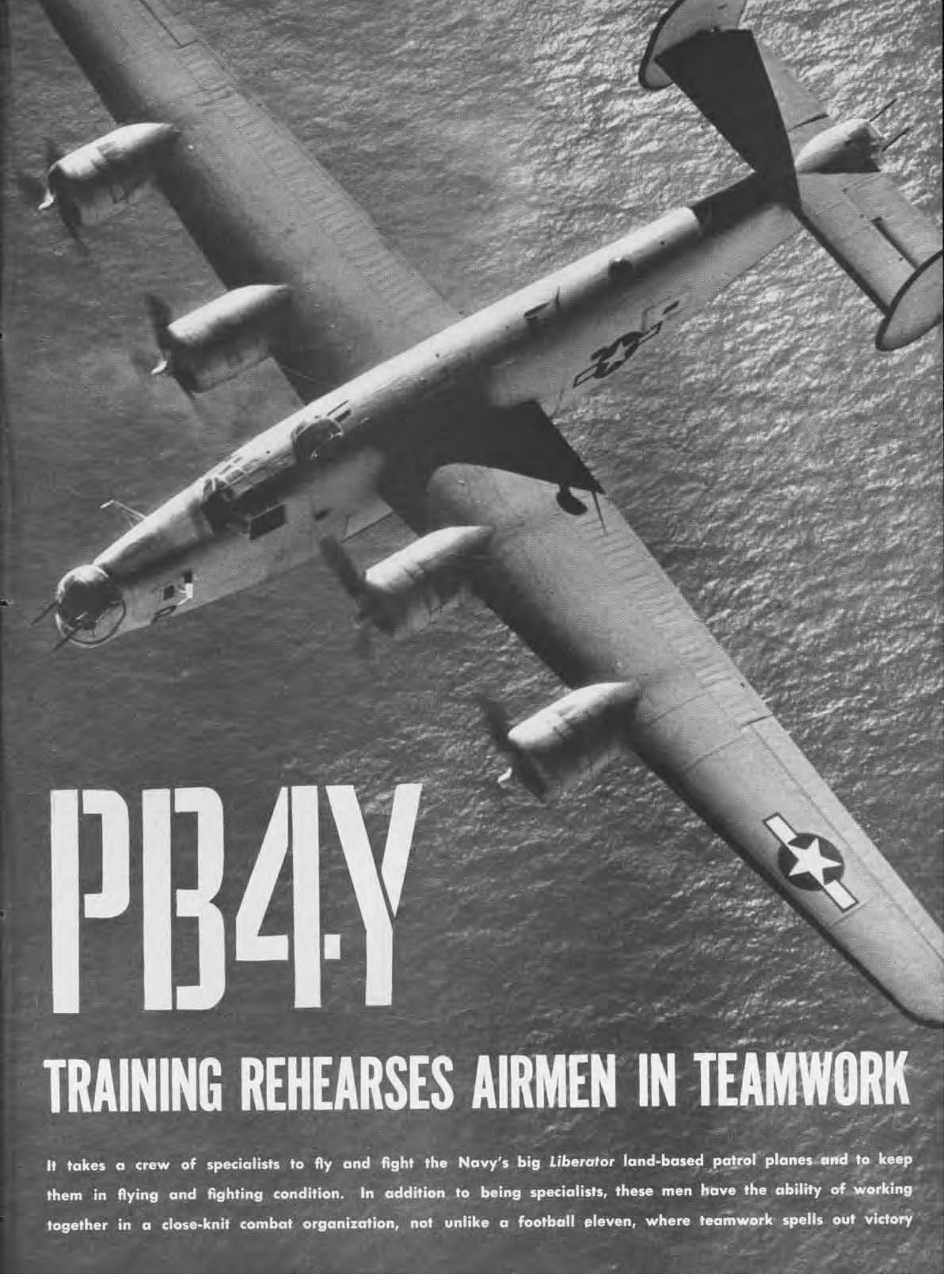
Lat.

Long.

5. What is your magnetic heading in?

.....

(Answers on page 40)



PB4Y

TRAINING REHEARSES AIRMEN IN TEAMWORK

It takes a crew of specialists to fly and fight the Navy's big *Liberator* land-based patrol planes and to keep them in flying and fighting condition. In addition to being specialists, these men have the ability of working together in a close-knit combat organization, not unlike a football eleven, where teamwork spells out victory

COMBAT TEAMS TRAIN IN LIBERATORS



PILOTS AND AIRCREWMEN, TOGETHER WITH INSTRUCTORS, HEAD FOR THEIR PB4Y-1 ON A REGULAR TRAINING FLIGHT OVER LEVEL KANSAS PRAIRIES

OFFICERS AND MEN FROM THREE COMMANDS FORM NUCLEUS CREWS

OUT IN THE HEART of the Nation, far from any seacoast, the Navy is centering its training for *Liberator* crews. At NAS Hutchinson, located near the geographical center of the United States, three separate commands are bringing together a group of skilled technicians and pilots to form nucleus crews to fly the Navy's largest land-based patrol bombers—a crew of fighting men, ready for combat.

Officers and enlisted men report every week, from the Fleet, from operational training units and from technical training schools, to be drilled in teamwork, so necessary in the operation of the PB4Y-1. And every two weeks, trained crews, upon completion of their six weeks' training, are leaving for advanced training before they go into combat.

Commissioned as a primary training station, the conversion to operational training was made this spring and NAS Hutchinson became the center of all PB4Y basic training for the Navy. Starting in a small way, the school will be enlarged until it is able to do all PB4Y basic training, as well as produce PATSU units to keep the big planes flying.

The organization of combat crews does not follow any set formula and is subject to some variation. But in general it calls for three men from the Fleet, a Patrol Plane Commander or first pilot, one AMM as a prospective plane captain and one ARM as a prospective first radioman. However, on their showing at NAS Hutchinson depends whether they are actually placed in these responsible positions.

TWO ADDITIONAL PILOTS and three enlisted men, one each with AMM, ARM and AOM ratings, report from operational training units. These eight men compose the nucleus combat crews as they leave for advanced training, where the addition of three gunners brings the crew up to full strength.



INSTRUCTORS USE SPECIAL DEVICES TO ENABLE STUDENTS TO VISUALIZE THEORY OF NAVIGATION. AFTER CLASSES, PILOTS GET ACTUAL EXPERIENCE

TRAINING PROGRAM PRODUCES A TEAM OF FIGHTING SPECIALISTS

THREE DIFFERENT PHASES of training are conducted for the aircrewmembers. Mechanics, radiomen and ordnancemen go through intensive training in their individual specialties, getting theory in classrooms, practice in laboratories, experience on the line . . . and then learn by putting their new knowledge into actual operation during flight.

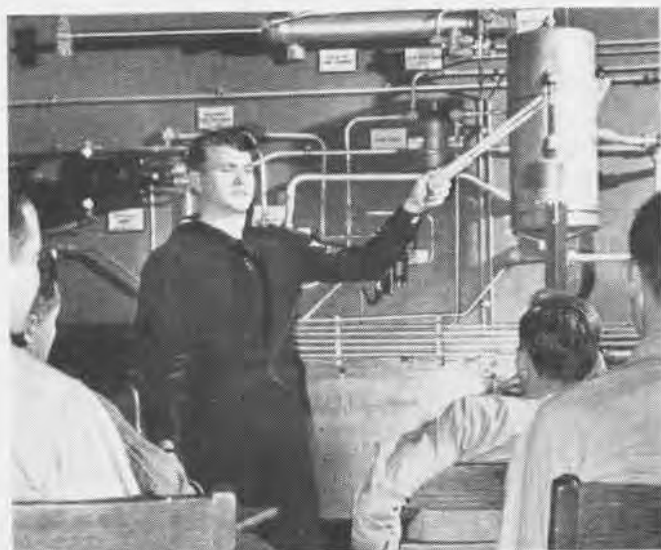
In the air, the students carry out all the duties of their positions under the guidance of individual instructors. They learn their own jobs as well as a general working knowledge of the functions performed by the other crew members.

Enlisted men who have not previously earned their air-

crewmembers wings are awarded them at completion of the training, providing they qualify. Graduation exercises are conducted every two weeks as a new class completes training and leaves to make room for other aircrewmembers. Every man in the crew is a trained aerial gunner, officers and men alike, to give the big craft a punch to be feared and respected.

Pilots get identical training and each attends ground school and takes his turn at the controls of the four-engined planes. All are skilled pilots, having earned their wings in the regular flight training program, most of them with past experience flying PBV's or similar types of patrol planes.

IN STILL ANOTHER training organization, ground crews are given specific instruction and experience in caring for the big Navy patrol bombers. Most of the men in PATSU training have had previous schooling at some NATTC school and are taking this post-graduate course to become specialists.

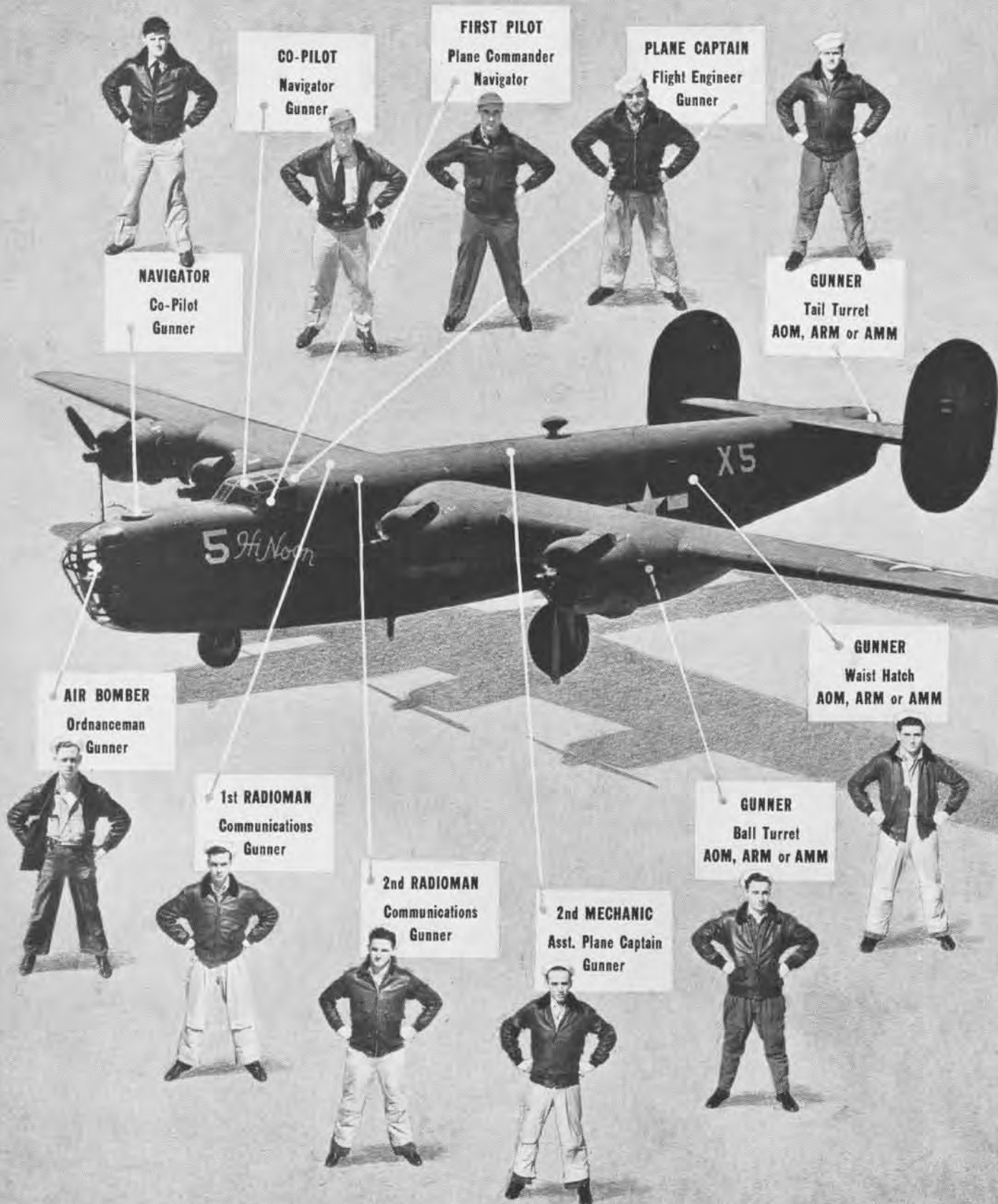


Hydraulic systems on the PB4Y are complicated and mockups are used so that the various parts under discussion can be pointed out



Working laboratories are provided for the radioman where he can trouble-shoot and operate working models of radio equipment

FIGHTING MEN FLY THE LIBERATORS





PATROL PLANE COMMANDER AND CO-PILOT WATCH AND MANIPULATE SCORES OF INSTRUMENTS, SWITCHES, AS WELL AS ENGINE AND FLIGHT CONTROLS

PPC IS THE SKIPPER OF ELEVEN-MAN CREW OF A NAVY LIBERATOR

FLIGHT AND OPERATIONAL TRAINING TOGETHER WITH FLEET COMBAT EXPERIENCE QUALIFIES A PILOT TO COMMAND THE NAVY'S PATROL PLANE



THE FIRST PILOT ON a PB4Y is the patrol plane commander. The PPC, along with his two co-pilots, make up the officer complement of the *Liberator* crew. All have had Navy flight training and earned their wings, while most of them have had experience in flying PB4Y's before being transferred to NAS Hutchinson. Some of the pilots have been operating with the Fleet and have hundreds of hours of combat experience on other plane types before taking the PB4Y training. Others are from OTU at Jacksonville and some are newly commissioned pilots.

The PPC is usually a pilot with Fleet experience, but all get identical training. In ground school they study general airplane to learn the PB4Y thoroughly, they study the power plants, automatic flight control equipment, cruise control, radio, navigation and aerology and the electrical and hydraulic systems. They train on many special devices, Celestial Link, synthetic gunnery devices, Link trainers and aircraft recognition through visual aids.

While they are getting this indoctrination, they are flying the PB4Y's—first as an observer, then as a co-pilot and finally at the controls. The flight syllabus calls for four phases of training: basic, instrument, night, and navigation hops.

During the 75 hours the pilot spends at the controls, he learns to handle the plane under every conceivable condi-

tion. He practices take-offs with and without flaps, with only three engines operating, full power or emergency pull-ups, landings with and without flaps, with one, two and all engines inoperative, under low visibility and short field conditions.

He becomes familiar with the oxygen, heating, de-icer and anti-icer and fuel systems, the gyro equipment and turbo supercharger, propeller synchronization and feathering, long range operation, radio equipment, instrument flight, stalling speeds at all wing loadings and flight attitudes.

He practices emergency landings and ditching procedures and learns his responsibilities as a patrol plane commander under these as well as all other conditions. He must know the duties of every member of the crew and see that these duties are carried out, for the safety of the plane and crew depends on his action. He has the responsibility of the captain of a ship and his word is final.

► Of course, only one pilot out of three is made a PPC. The co-pilots, with the same flight training, must be prepared to take command in emergency. Co-pilots might be likened to the executive officer aboard ship, ready at all times to assist the skipper, to serve as relief pilot and to perform their own very important duties.

NOTHING is left to guesswork or memory in handling the big patrol planes. Before the engines are started, the PPC, co-pilot and plane captain go through the check-off procedure, which is the ritual of checking all of the many and complicated flight and control instruments and systems. The co-pilot reads a list of 30 items to be checked and the PPC gives the answers. As he continues, the plane captain answers for 10 more. With the engines running, the co-pilot reads 14 additional items before take-off and the PPC gives the answers. Before landing, 12 items must be checked and, in the final sequence, six others, both during the approach and after landing. Then before leaving the cockpit, the co-pilot reads a list of eight items to be secured and checked.

CO-PILOTS, ALTERNATING AT THE CONTROLS, SERVE AS NAVIGATORS

NAVY FLIGHT TRAINING AND OPERATIONAL EXPERIENCE PROVIDES BACKGROUND NEEDED TO FLY AND NAVIGATE BIG PB4Y BOMBERS



THE TWO CO-PILOTS of the *Liberator* crew alternate at the controls, relieving the patrol plane commander during flight, acting as second and third in command of the big patrol bomber. The one not actually at the controls serves the crew as navigator, the co-pilots alternating at this position.

All three pilots are trained and experienced navigators. That is part of their flight training and any one of them is qualified to set the course to the target or the return to base. Likewise, each is a capable PB4Y pilot, each is a trained aerial gunner, could in emergency handle the radio equipment or any other part of the plane.

But navigating one of the big *Liberators* over trackless oceans is in itself a full-time job and a very important one. To be able to set a course and guide the plane to a tiny island, hundreds of miles away and, what is even more important, get the plane safely back to base, is a big responsibility. With fuel supplies running low, the lives of all the members of the crew depend on accuracy of the readings taken by the navigator.

Celestial Link trainers aid the navigator in his studies after ground school classes in the subject. Simulating flight conditions, the navigation student can take his readings, chart his course and perform all the functions of his job

without leaving the ground. Conditions can be altered to make each simulated flight different.

Finally, each pilot must make at least one four-hour daylight navigation hop and two night flights of similar length before he can qualify. Additional navigation training is provided during the advanced course.

► While one co-pilot is occupied with his navigation, the other is assisting the patrol plane commander, taking over the controls on long flights and aiding him at all times in watching the complicated instrument panel to see that everything is functioning properly. At the same time, both the PPC and co-pilot are watching for other planes and for enemy opposition, as well as scanning the surface below for landmarks or points of interest.

Long search and patrol missions, such as the *Liberators* are called on to make, would become very tiresome if one pilot were required to do all the flying. Thus with extra pilots aboard, they can alternate at the controls and serve to relieve one another.

As flight hours are built up and experience gained, the co-pilots will soon become qualified as first pilots on other *Liberators* and will take over the duties of patrol plane commanders. With their lessons in teamwork learned, they will put into combat practice the principles of a fighting crew of men, each depending on the other to do his own job well for the safety of all.

ADVANCED TRAINING for the pilots and crew follows the basic course offered at NAS Hutchinson. After completing the six weeks' course, the crew is shifted to another naval air station, either on the east or west coast. Patrol missions give the crew additional experience in handling the *Liberators* under conditions closely simulating combat. With this training finished, the crew is ready for assignment. Each man is a specialist at his job, thoroughly trained to meet every eventuality by battle-wise instructors who were returned from combat to pass their experiences on to others.



Celestial navigation is the most accurate method over vast expanses of water. Pilots must be experts. Astro hatch provides navigator with view of heavens, but he must make allowance for distortion



Co-pilot reads check list to PPC and plane captain before take-off and landing to make sure all adjustments have been made. During flight he relieves pilot at the controls, serves as an observer



PLANE CAPTAIN, AIDED BY OTHER AIRCREWMEN, CONDUCTS PRE-FLIGHT CHECK, STARTS ENGINES TO SEE THAT THEY ARE TURNING UP PROPERLY

PLANE CAPTAIN AND SECOND MECH ARE FLIGHT ENGINEERS ON PB4Y

WITH RATES ALREADY EARNED FROM NATTC SCHOOL OR IN FLEET OPERATIONS, THE TWO MECHANICS BECOME LIBERATOR SPECIALISTS



PLANE CAPTAINS are selected from among the AMM rates who complete aircrewman training at NAS Hutchinson—not on the basis of how many stripes they have on their sleeve, but on ability alone. Regardless of whether he is first, second or third class, he stands an equal chance of becoming a plane captain when he enters training, for the designations are made on the basis of average ground school, line and flight grades kept in the scheduling department of the school.

Generally speaking, AMM's are graduates of NATTC and gunnery school, and have had experience in operational training units. Some have had extensive Fleet and combat experience, but when they enroll at NAS Hutchinson, each man must stand on his record made during the course. ▶ During the first week, AMM's are given a general airplane

course in ground school. As they progress, they are given practical experience on the line and finally start flying in the big *Liberators*. Ground school and flight are coordinated so that the subjects covered in one will be practiced in the other. The course covers such essentials as power plants, fuel, electric and hydraulic systems, superchargers, Hamilton Standard propellers, minor systems, including oxygen, heating, de-icers and anti-icers, as well as control surfaces, landing gear, emergencies and safety equipment. Mockups of all kinds and visual aids are used in working laboratories to illustrate classroom lectures.

Individual instruction is given during flight and when any weakness is shown on a subject, extra instruction is provided. Flight checks and solo flights are part of the training. The AMM's are divided into a port and starboard wing which alternates each week for morning and afternoon flights. While one wing is flying, the other is in ground school. While waiting for a flight, AMM's get line training under supervision to learn every phase of their job.

AFTER SIX WEEKS, the mech is ready for graduation. The top fifty percent in scholastic rating earn the coveted plane captain designations, while the remainder become second mechanics. The plane captain is just what his title indicates. He is in charge of all aircrewmembers and the plane. He is responsible for running all pre-flight checks and needs the assistance of every member of the crew of specialists. Both mechanics double as machine gunners during combat.

ARM'S MUST ALTERNATE BETWEEN GUN TURRET AND CIRCUIT WATCH

WITH BASIC RADIO BACKGROUND OBTAINED IN NATTC SCHOOL AND EXPERIENCE IN AERIAL GUNNERY AT OTU, RADIOMEN STUDY THE PB4Y



RADIOMEN ENTER the PB4Y training school with their ratings already earned, to get specialized instruction on the equipment used in the big Navy patrol planes. Like the AMM and AOM, he is selected for this additional training because he is a capable man and an apt student. Like the others, he has also had aerial gunnery training and operational experience on PBV's or similar types.

Ground school for the ARM starts with a course on general airplane, where he becomes familiar with every part of the *Liberator*. Then the radioman is given specialized instructions on the electrical system with which he must work. This study includes the radio compass, radio range equipment, antennas, transmitters, receivers and electronic installations. This occupies some 160 hours of classroom and laboratory work. An additional 40 hours are spent in flight training, where he operates all of the equipment, makes minor repairs and adjustments.

The ARM assists the plane captain in the pre-flight check by testing all of his own equipment. This includes examining the batteries to determine voltage, checking the auxiliary

power unit for fuel, starting and voltage. With the putt-putt running, he checks all radio gear according to the pre-flight sheet.

As the two radiomen alternate watches in the top deck turret and the radio circuit watch, they must check to see it is ready for operation. First and second radiomen are selected on the basis of grades in the same manner as the first and second mechanics.

► In flight, the radioman is in charge of all communications, coding and decoding messages transmitted and received. Communications, of course, mean all types—radio voice or code, blinkers, signal flares and other devices. In addition, the radioman must handle the electronic equipment that comes within his province.

► In combat areas, radio silence is usually observed. But the radioman on circuit watch must check all frequencies to intercept messages, even when silence is maintained.

During emergencies, the radioman must stay at his post until ordered to abandon plane, to report position and send distress messages authorized by the patrol plane commander. In ditching operations, he is responsible for providing all signal equipment and gear, including a portable "Gibson Girl" radio set.

The radioman must be able to keep his equipment in operating condition. This often means making minor repairs and adjustments while actually in flight. Consequently, he must be a technician as well as operator, in order to know the sources of trouble and how to check for them as well as overcome them. Serious failures and trouble are reported to the PATSU ground crew upon return to base and their technicians do the necessary repairs.

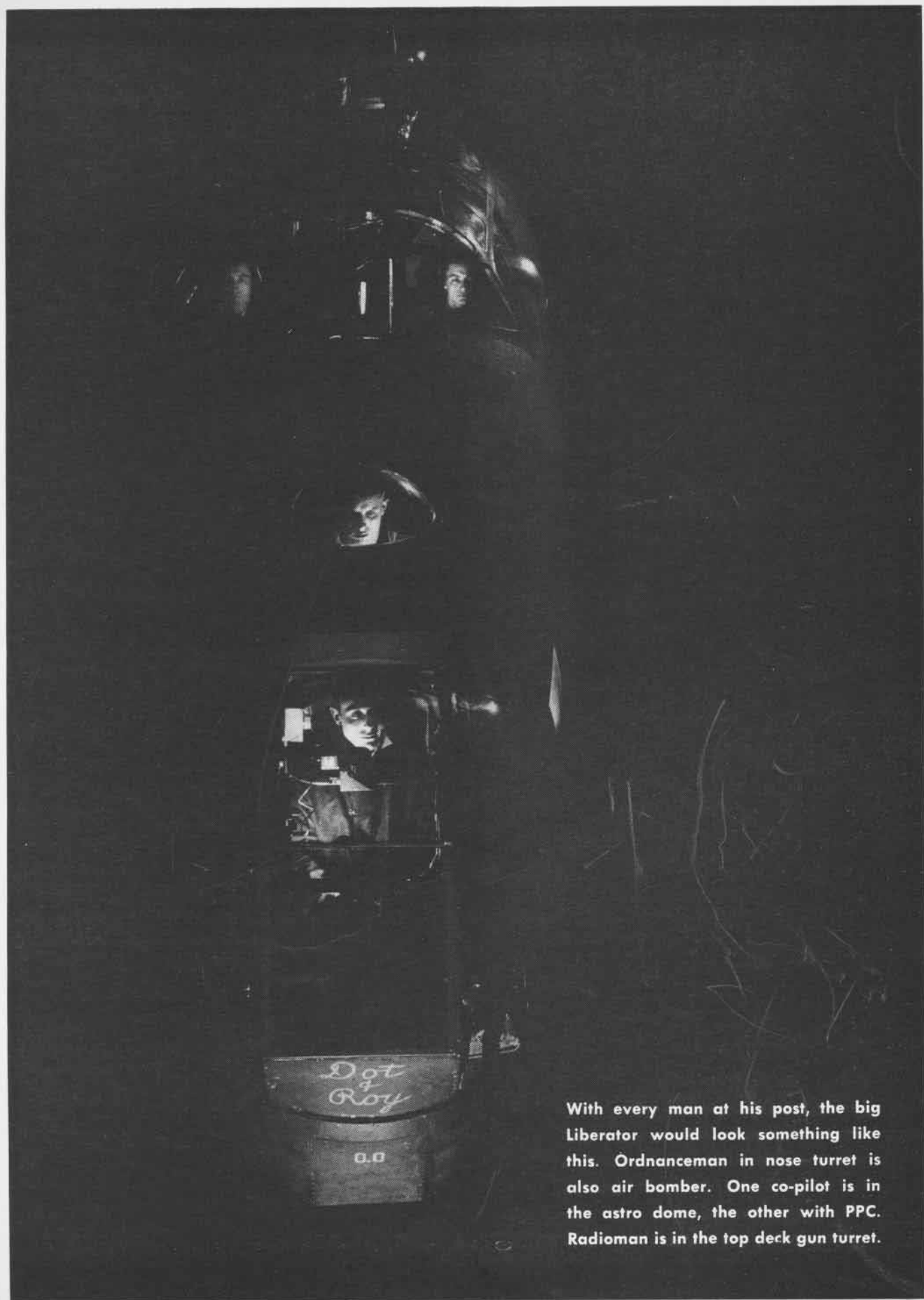
NIGHT SESSIONS in code are given the radioman while in school until he reaches a proficiency of 20 words per minute. Base radio, communications instructions and procedure are additional subjects covered in the radio course.



First radioman stands circuit watch in the radio compartment just behind the pilot's cockpit where he can be in close contact with the PFC. In top deck turret just overhead is the second radioman



Second radioman sweeps the skies with his twin .50 caliber machine guns, on the lookout for aerial opposition. Two radiomen alternate positions on long flights between radio watch and gun turret



With every man at his post, the big Liberator would look something like this. Ordnanceman in nose turret is also air bomber. One co-pilot is in the astro dome, the other with PPC. Radioman is in the top deck gun turret.

ORDNANCEMAN KEEPS BOMBERS IN FIGHTING TRIM FOR AIR COMBAT

NATTC SCHOOL TRAINING AND EXPERIENCE IN AERIAL GUNNERY EQUIP ORDNANCEMAN FOR HIS JOB AS AIRCREWMAN ON BIG NAVY LIBERATOR



THE EIGHTH MEMBER of the nucleus crew of the *Liberator* patrol plane is an ordnanceman. His very important duties are to see that the plane is ready for combat before it leaves the ground. This means to check each gun turret to see that it is in operating condition, examine the guns to determine whether they are ready to spit lead at the enemy, supervise the loading and fusing of

bombs, care for the computing sights and handle all ordnance gear and pyrotechnics.

The AOM, like the AMM and ARM, is a graduate of an NATTC school, has completed aerial gunnery training and may have had OTU experience. Because most of his work must be done while the plane is on the ground, only 12 hours are devoted to flight training. The rest of his six weeks of schooling is spent in learning the general airplane, the hydraulic and electric systems, turret operation, pyrotechnics and bomb release systems.

► Actual turrets are used in the training instead of mock-ups. These include the Erco nose, Martin top deck, Consolidated tail and Sperry retractable ball turrets. Turret operation and trouble shooting require a thorough understanding of the hydraulic and electric systems of the big *Liberator* patrol planes.

In addition, the AOM must be able to keep the machine guns firing, take care of the bomb release system, know bombs and fuses and all the details of loading them into the spacious bomb bays. He conducts all pre-flight checks on the ordnance equipment.

► To attain proficiency, he must spend long hours in classroom sessions and practice with the various turrets. Being the only ordnanceman in the nucleus crew, he is responsible for all ordnance and armament equipment.

Ordnancemen in the PATSU crew are responsible for repairing and keeping the equipment in operating condition, but the member assigned to the aircrew must be able to make minor repairs and adjustments while in flight, to keep them in operation. He reports malfunctioning to the ground crew upon return to base.

SOME OF THE ordnancemen are graduates of an air bomber training unit and are qualified air bombers. Doubling in this capacity gives the ordnanceman the extreme pleasure of dropping his bomb load on Axis targets and makes him a more valuable man to the crew, adding to his responsibilities.

ADVANCED OTU IS LAST HURDLE

AFTER SIX WEEKS of training, graduation day finally comes around and aircrewmembers and pilots participate in the farewell ceremony. Aircrewmembers who have not previously received their wings are awarded them in an impressive ceremony, along with a certificate of proficiency designating each as plane captain or second mech, first or second radioman, or ordnanceman of the *Liberator* crew.

Transfer is made to either the Atlantic or Pacific coast, where additional training and experience is given in an advanced course before the crew is ready to leave for combat duty.

► The nucleus crew of eight men is built up by the addition of three men who have earned their aircrewmembers wings at aerial gunnery school. This additional strength provides a fighting crew to man all of the plane's defensive positions.

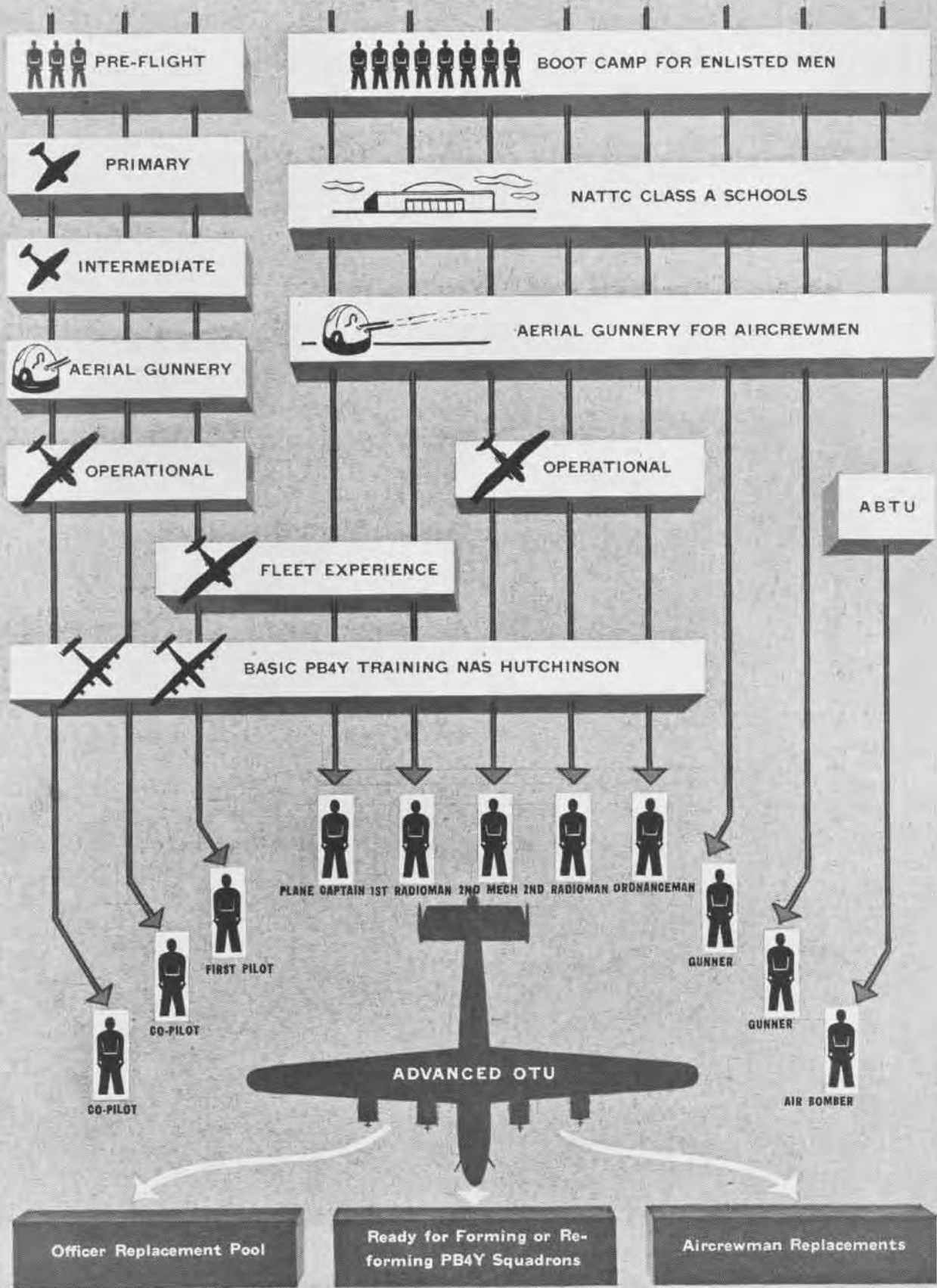
When no member of the nucleus crew is qualified as an air bomber, one of the newly added members must be a graduate of an air bomber's training unit. This air bomber usually mans the nose turret, going back to his bomb sight when nearing the target and taking over the release mechanism.

This brings the crew up to full strength and after a short period of training it will be assigned to a squadron and will be off to war, a crew of specialists, trained in teamwork. Every man knows his job. His naval training has equipped him to perform it well. Together with his teammates, he is prepared to meet the enemy on any terms. Such are the crew members who fly and fight the Navy's *Liberators*.



Ordnanceman supervises the loading of 1,000-pound bombs on the racks in spacious bomb bay of *Liberator*. The PATSU line maintenance crew hauls bombs to plane and hoists them into position

TRAINING BACKGROUND OF AIRCREW MEMBERS



NAHOWS Chart



LINE MAINTENANCE CREWS ARE JUST AS IMPORTANT AS FLIGHT CREWS FOR THEY ARE THE MEN WHO ACTUALLY KEEP THE BIG PLANES IN THE AIR

PATSU LINE MAINTENANCE CREW KEEPS THE LIBERATORS FLYING

LIBERATORS won't fly unless they are serviced regularly and properly, and that is the training job of the PB4Y Line Maintenance School at NAS Hutchinson. The mission of this school is to train men of various aviation ratings in line maintenance in order that they may be formed into a PATSU unit ready for active duty with naval aviation.

Trainees reporting to this school come from various activities and are of all degrees of experience. Generally speaking, they have a rating, earned at some NATTC school or from actual experience in the Fleet. Specialized instruc-

tion is provided to equip them to care for the big *Liberators*.

Six types of specialists compose a PATSU. First is the AMM, the mechanic who keeps the plane flying. He must be able to do everything from setting the gap on a spark plug to a major engine overhaul. Metalsmiths rebuild damaged control surfaces and patch the skin of the fuselage and wings. The AOM in the line crew knows the operation of all ordnance gear, how to tear it down and repair it as well. AEM's do the trouble-shooting on the electrical system and ARM's take care of the radio and electronic equipment. Other specialists do everything from repairing instruments to building mockups.

THREE fully equipped, surveyed *Liberators*, retired from air combat, are used in the school for working laboratories. By graduation day, the PATSU is able to do every job necessary to keep *Liberators* flying . . . and fighting.



Every part of the *Liberator* is inspected by the PATSU when the plane is on the ground. Defects are repaired, engines serviced, ammunition loaded, and the plane readied for another trip aloft



Engine changes are required frequently. When one needs overhauling, it is removed and another installed in its stead so the plane will not be grounded while the actual work is being done

DID YOU KNOW?

Blimps Rescue Men at Sea Patrol Craft Pick Up Survivors

Navy blimps have turned in two successful rescues at sea off the coast of Southern California, helping save three airmen forced down. Two Marines from a torpedo bomber were sighted by planes and a blimp summoned to pick up one man who was seriously injured.

Hovering 25 feet above the water, the blimp dropped a first aid kit, then lowered a parachute harness into which



NAVY AIRSHIP RESCUES MARINE IN SEA CRASH

the injured man was strapped and hauled aboard. The other man was picked up by a surface vessel.

The second rescue was performed by a blimp whose crew saw the carrier plane crash and dropped a life raft on the wing tip of the sinking aircraft. The pilot stepped into the raft and was picked up by an escorting destroyer.

"Mec" Tests Are Outlined Flight Engineer Rules Drafted

Qualifications for the various classes of aviation machinist's mates (aviation flight engineer) have been outlined to facilitate advancement of men in the rating.

No changes were made in existing requirements for AMM3c. Abilities required to reach the rate of AMM2c in the flight engineer's branch include inspection and testing of engines and planes prior to take-off, use of power charts, make engine tests, know operation and handling of fuel and oil systems, instruments and accessories, propeller maintenance, aircraft controls, hy-

draulic systems, precision instruments, working drawings, beaching and launching, oxygen and emergency equipment and inspectional and operational reports. If assigned to a combat type squadron or unit, he must demonstrate ability as an aerial gunner.

To reach first class, the AMMF must know assemblies, engine repair, trouble shooting, electrical equipment, cruising and loading control, fuels and oils, metals, and aerodynamics. Requirements for chief include organization of aircraft squadron or repair units, taking charge of engineering department, know overhaul of engines, draft watch quarter and station bill, know aviation seamanship, naval organization, ratings, personnel duties and use of technical manuals.

New Wildcat Joins Fleet Bigger Engine Put in Aircraft

A revised version of the Wildcat fighter, the FM-2, has joined the Fleet as a small-carrier plane, designed to fly faster, climb better and in general help the Navy rule the air from sea-level upwards.

Equipped with the R-1820-56 Wright



MORE POWERFUL WILDCAT BUILT FOR CARRIERS

engine, the FM-2 has 200 more horsepower and weighs 600 pounds less than the earlier Wildcats. Because of its lighter weight and more power, it can take off from a shorter carrier deck, land slower and is much more maneuverable. Only slight modifications have been made in the design of the plane, one being a higher tail fin and another an exhaust chute above the leading edge of the wing where it joins the fuselage.

Lakehurst Uses Six Links NAS Waves Teach LTA Students

NAS LAKEHURST—For the past few months this center of lighter-than-air training has operated six ANT-18 Link

trainers daily from 0700 to 2130. "Manned" by 10 WAVE specialist-instructors, the Link battery has proved a valuable supplement to "behind-the-curtain" instruction, the lighter-than-air equivalent of instruction under the hood in the conventional type airplane.

The pilot of an airship must contend with two factors which increase the ordinary difficulties of instrument flight—the relatively slower speed of the airship and the consequent increase in wind drift.



IMPROVEMENT FOLLOWS LTA LINK INSTRUCTION

While the pilot of an airplane must contend with a small wind drift in his instrument procedures, drift angles as high as 40 to 50 degrees are often encountered by the airship pilot. These high drift angles naturally complicate his problem. For this reason, and because the pilot of the slow-speed airship has much less time, relatively, to complete a given orientation, it becomes imperative that correct instrument procedure be almost automatic.

Each student receives a minimum of six hours of Link instruction. During these six hours, he must learn four standard orientation procedures, spend time flying the beam, learn to allow for excessive drift angles, and perform let-downs and landings.

The standard ANT-18 Link trainer has proved satisfactory for this work. A decided improvement in the ability of students correctly to use radio aids to navigation, flight instruments in general, and two-way voice communication has followed initiation of lighter-than-air Link training as provided by the WAVE instructors at this naval station.

Sets Fast War Bond Pace Lead for Fourth Straight Month

Naval air stations for the fourth consecutive month continued to set the pace for war bond participation among civilian employees. At the end of April, naval air stations had 96.5 percent of personnel investing 13.1 percent of gross pay. The overall civilian employee participation for the entire naval establishment was 93.1 percent, and payroll participation, 12.1 percent.

War Bond purchases by Navy personnel in April showed a 36 percent increase over the same period last year, with total purchases of \$29,503,388 in comparison with \$21,675,573 for 1943.

Atoll Airfield Honors Pilot Eniwetok Field Named "Stickell"

The airfield at Eniwetok, in the Marshall Islands, has been named Stickell Field in honor of the late Lt. John Harlan Stickell, USNR, who died last December as a result of wounds suffered in a low level attack on Japanese installations and an oil storage depot in Jaluit Atoll in the Marshalls. Stickell was a flight lieutenant in the Royal Canadian Air Force before the United States entered the war, and flew many bomber missions over Germany.

He was awarded the Distinguished Flying Cross at Buckingham Palace and later the Distinguished Service Order. Although severely wounded in the Jaluit action, he piloted his plane back to an emergency landing at his base.

Navy Cuts Fighter Program Losses Are Below Expectations

The Navy has ordered a reduction in over-all production of fighter planes because plane losses have proved smaller in combat than was anticipated when production schedules were planned.

The reduction will enable naval air strength to stay within the maximum over-all goal of Navy planes fixed last year as the force necessary to accomplish the Navy's war job. Losses less than anticipated may be attributable in part to improved pilot ability and rugged construction which enables badly shot up planes to return to base. Attrition figures turned out to be only two-thirds of the estimate set for fighter planes early this year.

New Station in Wild Area Quillayute Sees Bear and Deer

NAAS QUILLAYUTE—This station, one of the newest in naval aviation, will celebrate its birthdays only once every four years, since it was commissioned

officially on 29 February. The base was carved out of the wilderness of the Olympic Peninsula in Washington, a rugged section of timber and mountains.

Under administration of the Naval Air Center, Seattle, the station is used



FLAG FLIES OVER NEW STATION AT QUILLAYUTE

for operational training of Fleet Air, Seattle, squadrons. Practically all Navy men at NAAS Quillayute are volunteers. Situated as it is near 7,000-foot mountains, station personnel frequently sight bear and deer in nearby foothills.

Navy Gets Steel Aircraft Conestoga Can Carry 2 Jeeps

The Navy has accepted the Budd Conestoga, first large-size airplane of stainless steel construction, and turned the aircraft over to Naval Air Transport Service for cargo transportation. Desig-



NEW STAINLESS STEEL CARGO PLANE IS ROOMY

nated the RBI flight ship, the Conestoga is the first plane obtained by the Navy which was designed especially for cargo carrying, other Navy cargo planes being adaptations of combat aircraft or passenger transports.

The Conestoga is a high-wing monoplane, 68 ft. long, with 100-ft. wingspread. It is powered by two Pratt & Whitney engines of 1,200 hp. Except for plywood doors and floor, the plane is constructed entirely of stainless steel varying from .008 of an inch upward and is spot welded. Cargo capacity is 10,400 lbs.

The plane can carry one ambulance or two jeeps. It may be fitted with 24 seats or adapted to carry 24 stretchers. Paratroops can be launched simultaneously from doors on both sides of the fuselage while the troops' supplies are being dropped through the rear.

Jap Plane Names Are Given Navy, Army Adopt Title Listing

The Navy and Army have adopted an official list of designations for Japanese military planes. Fighters carry men's names, bombers are named after women, as are flying boats, while reconnaissance aircraft carry both men's and women's names. The list follows:

FIGHTER PLANES

Nickname	Type
CLAUDE	Single engine fighter
NATE	Single engine fighter
ZEKE	Single engine fighter
HAMP	Single engine fighter
OSCAR	Single engine fighter
RUPE	Single engine floatplane fighter
NICK	Twin engine fighter
TOJO	Single engine fighter
TONY	Single engine fighter

BOMBERS

NELL	Twin engine bomber-reconnaissance
SALLY	Twin engine medium bomber
HELEN	Twin engine bomber
BETTY	Twin engine medium bomber
KATE	Single engine torpedo bomber
VAL	Single engine dive bomber
LILY	Twin engine light bomber
JILL	Single engine torpedo bomber
IDA	Single engine bomber-reconnaissance
BABS	Single engine bomber-reconnaissance
SONIA	Single engine bomber-reconnaissance
MARY	Single engine light bomber
LIZ	Heavy bomber

RECONNAISSANCE PLANES

DINAH	Twin engine reconnaissance
JUDY	Single engine reconnaissance
ALF	Single engine floatplane reconnaissance
DAVE	Single engine floatplane reconnaissance
SLIM	Single engine floatplane reconnaissance
PETE	Single engine floatplane reconnaissance
GLEN	Single engine floatplane reconnaissance
JAKE	Single engine floatplane reconnaissance

FLYING BOATS

MAVIS	Four engine flying boat
CHERRY	Twin engine flying boat
EMILY	Four engine flying boat

TRANSPORT PLANES

TESS	Single engine transport
TOPSY	Twin engine transport
THELMA	Single engine transport

Army Clarifies Word Usage "Ship" Must Not Mean "Plane"


The Army has issued an official memorandum to halt confusion which arises over use of the word "ship" to refer either to a vessel or an aircraft.

Under the signature of General George C. Marshall, the memorandum directed that all Army personnel "will discontinue use of the word 'ship' to designate aircraft." The memo stated that use of the word to describe a plane has led to serious confusion between personnel of the Army and personnel in various units of the Navy, Marine Corps and Coast Guard.

► **BuAER COMMENT**—Navy and Marine personnel who still persist in calling an airplane a "ship," should take cognizance.

REMEMBER the line in the old song, "A man's best friend is his mother, no other"? Be that as it may, one of the best friends an aviator has is the aerologist. He's the man who knows *most* of the answers about the weather. As every flier realizes, it's common sense to consult the aerologist before taking off. If the weather map shows a frontal condition, ask him all about it and be sure you get the word. Try these, then see page 40.

[QUESTIONS FROM VISUAL QUIZ FILM NO. 39, ICING & THUNDERSTORMS]




Write your answers here

1 4

2 5

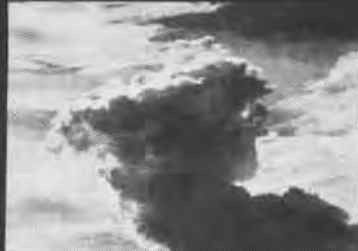
3 6

1 Water droplets carried to this level are generally subject to:




1. Disintegration 3. Freezing conditions
2. Friction heating 4. Vaporization

2 Encountering this, the smart pilot will fly:



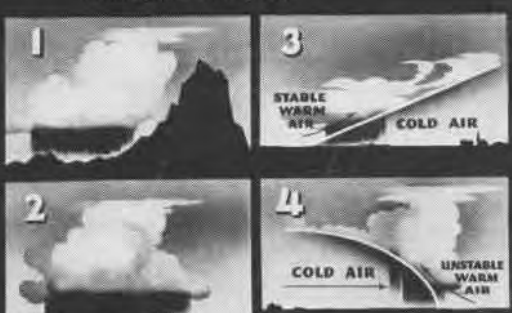
1. Through it 3. Above it
2. Under it 4. Around it

3 In general, a cloud of this type is visual evidence of a:



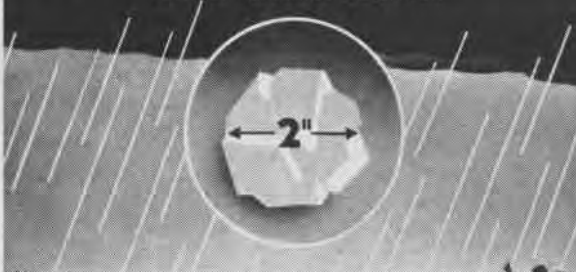
1. Hurricane 3. Thunderstorm
2. Dust storm 4. Stable air mass

4 The most severe turbulence is generally found in the type of thunderstorm indicated in Panel:



1. Stable warm air over cold air
2. Unstable warm air over cold air
3. Stable warm air over cold air
4. Unstable warm air over cold air

5 Hailstones of this size would indicate vertical velocities of about:

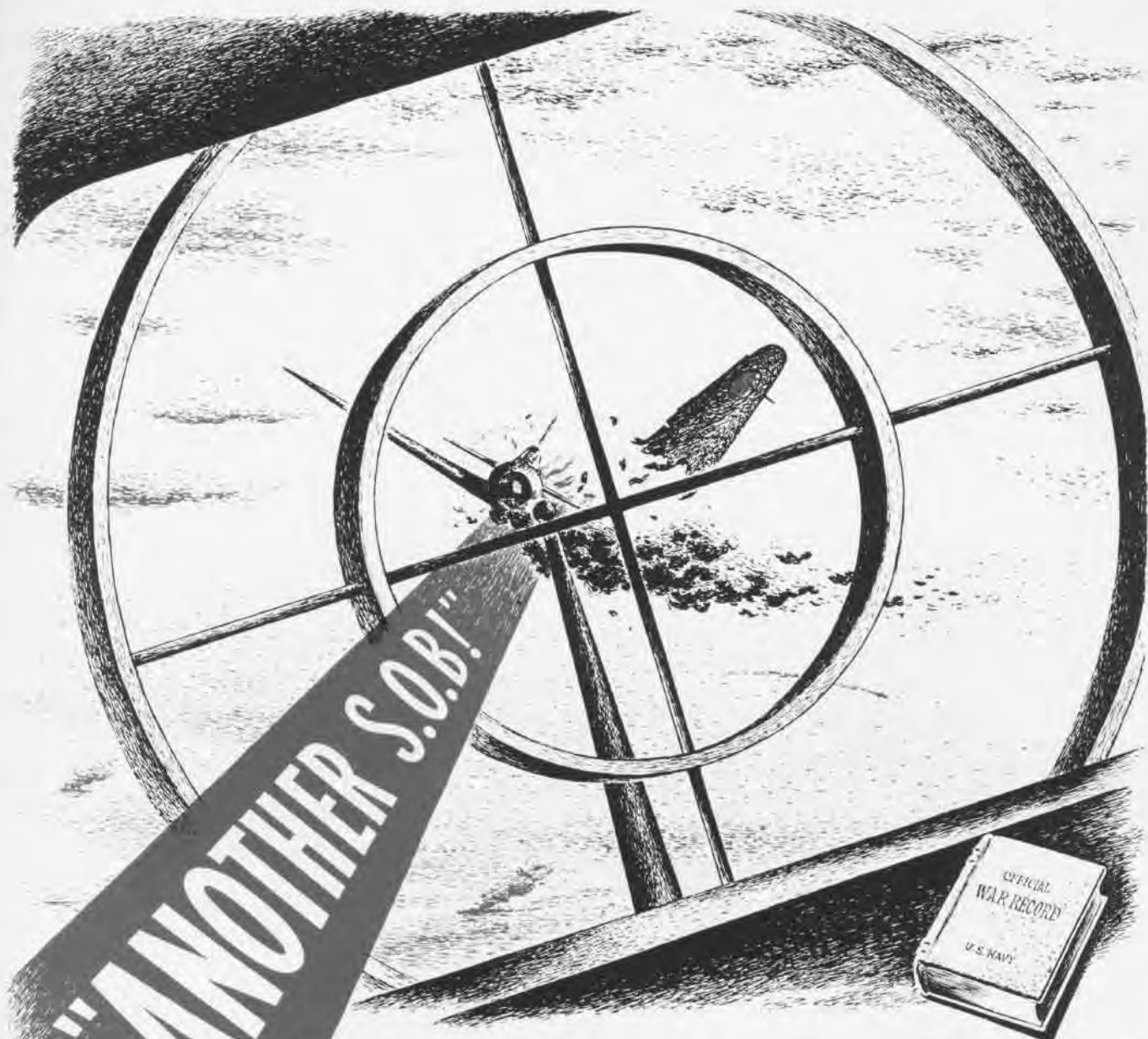


1. 500 mph 3. 100 mph
2. 25 mph 4. 300 mph

6 In the face of this hazard, the first rule is:



1. Reduce flying speed
2. Increase rpm
3. Maintain flying speed
4. Change propeller pitch



BUT WILL IT BE CITED IN NAVY'S OFFICIAL WAR RECORD?

ANY pilot or aircrewman would be pretty sore to learn that his achievements in aerial combat have been ignored when the official Navy War Record is completed. To make sure this doesn't happen, CO's must send NOW complete, accurate information. Data should cover all personnel and squadrons on board 15 March 1944 from the period 7 December 1941 to 15 March 1944.

COMPILATION NOW IN PROGRESS The Navy now is compiling its official blow-by-blow description of World War II, which will include the accomplishments of pilots, aircrewmen and squadrons of Naval Aviation in aerial combat *if they are officially reported now.*

MOST ARE IN, BUT A FEW . . . By letter dated 14 February 1944 (Op-33-j-BWM, Serial 7333), Chief of Naval Operations requested that this report of achievements in air combat be sent in. To date, most have been received.

But a few reports not yet in are holding back the compilation. So don't delay further. Send yours in NOW!

HERE'S THE DOPE WANTED

on PILOTS, AIRCREWMEN and SQUADRONS
on board 15 March 1944
Period covered: 7 December 1941 to 15 March 1944

NAME	PLANES DESTROYED IN AIR
FILE NO.	PLANES DESTROYED ON GROUND
PRESENT RANK (USN, USNR)	PROBABLES IN AIR
RANK AT TIME OF ACTION	PROBABLES ON GROUND
DATE OF ACTION	HITS ON ENEMY SHIPS
OUTFIT	OTHER DAMAGE
PLANE FLOWN	DECORATIONS
	NOTEWORTHY FACTS

NOTE TO PILOTS AND AIRCREWMEN
Reports must come through CO's as of 15 March 1944
Achievements after 15 March 1944 will be reported on new
forms distributed soon

► **SEND REPORTS** to Chief of Naval Operations, Op. 33-j, Navy Dept., Washington 25, D. C. **THEY DID IT . . . GIVE THEM CREDIT!**

STAND BY FOR A CHASE!



They were on a forward search mission in an SBD. Another SBD was with them. It was three days after the first Mili raid, and their carrier had refueled and was headed for Kwajalein.

On the first leg of the hop, the pilot spotted a *Betty* forward. He signaled the other plane and told his aircrewman, WILLIAM J. HISLER, ARM2c, to stand by while they made a chase for it. They dropped their depth charge, and HISLER closed his cockpit deflectors to give the SBD more speed. Every extra knot would count.

At 2500 to 3500 feet they opened up on the *Betty* with tracer fire. The pilot let go his 50's. They hit their mark—the *Betty* slowed down and began to zig-zag. Then the pilot's guns jammed. He told HISLER to stand by while he pulled up alongside the *Betty*. He did this at about 1000 feet and gave HISLER the show.

HISLER'S first shot hit the *Betty*'s starboard bow. He strafed the fuselage. Then he opened the hood a little and, though the wind was strong, he got in some good shots.



HISLER TELLS GUNNERS:

*Keep your eyes open.
Observe bomb hits.
Watch other planes. Keep
count and let your pilot
know if one is missing so that he can
report or give help. Report stragglers.
Learn hand signals to communicate
with other planes.*

After about 600 rounds, the *Betty*'s starboard engine began smoking. The Jap plane had already dropped its torpedoes and bombs to run for it. It was out of control; the pilot apparently had been hit. On the SBD'S third run, the *Betty*, which was now about a hundred feet off the water, crashed.

AIRCREW MEN have what it takes!