



NAVY PLANE DIVES TOWARD ITS OBJECTIVE,
SMOKING FROM STRAFING BY OTHER PLANES

NAVAL AIR ATTACK

The stepped-up tempo of naval air attacks on enemy shipping is reflected in these scenes which record the grim end of a Jap cargo ship pounded at masthead level by Navy planes. Cameras of the plane were coordinated with gunfire to bring back visual testimony of the success of teamwork in Fleet Air operations. Teamwork between pilots and aircrewmembers has proved the deadliest weapon that can be pitted against the enemy, and recently has been emphasized as the objective aviation training program.

SHIP'S GUN REMAINS SILENT AS CREW IS WIPED OUT OR DISPERSED

BOMB HITTING STARBOARD SIDE CHURNS UP CONE OF SMOKE AND WATER





ORDNANCE SCHOOL ON WHEELS

TO KEEP AVIATION ordnance personnel and pilots up-to-date on bombs and fuses currently being issued to the naval service, 15 mobile units have been set up to carry "the word" wherever naval aviation operates.

While some of the traveling classrooms move with their equipment carried in 2½-ton trucks, others are streamlined versions packing all their material in metal "torpedoes" for transport in the bomb bay of a TBF. An added value of the mobile bomb and fuse units is that it enables men in the field to move up in rate by combining special instruction with experience while still far from an established school.

Both the mobile unit officer and his petty officer are trained in teaching, as well as in handling and use of

their material. Over the past months classes have been held in all parts of the world under varied conditions. Schedules are flexible, so that units can stay two days or two months.

TO GET THEIR story across, the units carry both standard and specially prepared 16 mm. movies showing the inner workings of the fuses. In addition to using large drawings and portable blackboards with colored chalks, the instructors give the fuses themselves to the men to take apart and study. One result of the mobile units' work has been to help reduce the percentage of ordnance troubles due to careless armament crews, pilot failures and improper maintenance and stowage of fuses.



TORPEDO CONTAINER, PACKED WITH MANY TYPES OF BOMBS AND FUSES, EVEN A MOVIE PROJECTOR AND FILMS, IS CARRIED IN BOMB BAY OF TBF

BOMB UNITS TRAVEL OVER WORLD, BRINGING "WORD" TO ALL AIRMEN

WAR EXPERIENCE showed that, to get best results from bombing operations, pilots and ordnancemen must receive periodic refresher instruction in workings of bombs and fuses. Bombers scored hits on the enemy without getting maximum destructive effect—often traceable directly to failure of the men to appreciate limitations or full possibilities of Navy bombs and fuses.

To meet the growing need, a limited number of instructional units were organized for assignment by various naval commands. Since they have been scattered over the world

for several months, they are scheduled to return to the mainland shortly for instruction in developments since they started afield.

Later they will be sent out to give still wider training in ordnance equipment, with new units which will give the latest information on small arms, projectile fuses, turrets and tactical use and loading of aircraft torpedoes and rockets. The latter ordnance is coming into increasing favor on aircraft, so instruction must be given men who have had no experience in their use.

► Need for constant attention to training was shown by a recent accident in the South Pacific, where an ordnanceman attempting to remove the fuse from a bomb exploded it instead, killing 15 persons.

In some cases, classes have been held at night when men could find spare time to attend them. The mobile units met with greater success in less advanced areas of the Pacific.



Before going into the field to bring the latest word on ordnance to advanced areas, mobile bomb unit officers get last-minute refresher

course. Here instructor explains fuse of parafrag bomb; being delicate mechanisms, fuses must be protected from weather

GRAMPAW PETTIBONE

Mr. Dilbert Goes to Washington

A pilot with 520 hours' flying time recently attempted a cross-country flight in an SNJ from Cherry Point to Anacostia. Weather conditions were good. Flight plan called for a CRN flight direct to Richmond, then CRN via airways to Anacostia.

The flight to Richmond was on the nose, but about twenty minutes farther on, when it was time to change frequency, he could not pick up the Washington beam. He then took a heading which he *thought* would take him to Washington and Anacostia, but he passed so far west of Washington that he didn't even see the city.

The pilot finally decided he was lost and made an emergency landing in a small field—just 40 miles north of Anacostia.

The landing was not a success; the SNJ was practically demolished. The pilot escaped injury.



Grampaw Pettibone says:

Wasn't that a beautiful exhibition for an experienced pilot!

That's just what you can expect, however, if you go barging around the country without keeping track of your position on the chart.

There is even some doubt as to whether this pilot had a map. It hardly seems possible to fly from Richmond to 40 miles north of Washington without being able to locate something to give you a fix. Evidently he didn't even recognize the Potomac River.

One other point involved is the "emergency" part of this landing. It was made just 2 hours and 20 minutes after departure. If the pilot was out of gas, it must have been because he wasn't fully fueled on take-off or because he didn't know how to operate economically. My guess is that he still had enough gas to look for a better landing area. He just gave up too easily.

All Fouled Up

Case I. While making a slip to circle in an N2S-5, a student lost too much altitude. The instructor, seeing that they were not going to reach the field, took over the controls and applied throttle. The engine failed to "take" and the airplane crashed into trees.

Case II. After demonstrating a high altitude emergency shot into a clearing, a primary instructor "gave it the gun" to recover at 150 feet. The engine did not respond and the airplane crashed.



Case III. The pilot of an OS2N-1 let down from 3,000 feet in a fast glide with throttle nearly closed. At about 1,000 feet he applied throttle and leveled off, but his engine began to misfire. He immediately applied two-thirds throttle and began working the wobble pump, but the engine failed completely, necessitating a forced landing in a rough sea. A wingtip float was torn off and the plane capsized.



Grampaw Pettibone says:

All of these accidents—and many more like them—were due to insufficient throttle opening at relatively high air speeds. We have to swing our arms and exercise to keep warm in a cold wind, so why expect an engine to stay warm in flight without exercise? Remember, you don't shut off the cooling, i.e., air speed, when you close your throttle in a glide; therefore, frequent "blimping" of the engine or a reasonable opening of the throttle is necessary to keep the engine warm. An engine will "load up" with raw gas (get the sniffles) and invariably suffer an acute case of fouled spark plugs (a really bad

cold in the head) if it isn't kept warm.

Another point is the necessity for applying throttle gradually. If you slam it open after letting the engine cool in a glide, you can expect the darned thing to cut out just as the one in your old jalopy did on a cold morning when you tried to beat the other guy at the traffic light. Here is an old jingle which aptly illustrates this:

*There was a young lad from Seattle,
Who used a strong arm on his throttle,
He yanked it to glide,
Then slammed it on wide,
He's now six feet under Seattle.*

Still another major cause of plug fouling is "rich idle mixtures." Don't try to correct for this by idling at cruising rpm. Do right by our Nell and adjust the idle as outlined in General Engine Bulletin No. 2.

Lastly, plug fouling often occurs as the result of prolonged idling on the ground. Engines should be blimped occasionally during such periods. It is much better to discover fouled plugs before take-off than suddenly to encounter misfiring during take-off. Always turn up your engines before take-off—and I mean just before, not the day before. The normal procedure for checking magnetos is not sufficient to clear the engine. The highest power run-up practicable, under the operating conditions encountered, should be made, exercising care not to exceed limiting engine temperatures.

I can't see why some pilots DON'T GET THE WORD on these simple precautions. Frequent warnings have been issued and, certainly, every pilot has been told about it at some time or other, but the same type of accident keeps recurring.

Two Obvious Errors

A PBM pilot taxied out just beyond the reef area to take off on a routine training flight. The aircraft got on the step nicely. Although the plane was making 74 knots, the pilot could not break the suction and was reluctant to pull it off. To keep water in front of him, he began a slow turn to the left. When right rudder was applied to stop the turn, the plane did not respond and subsequently went out of control in a vicious water loop. The plane was virtually a total loss. The crew, considerably shaken up, was rescued.

In his statement, the pilot analyzed this accident and pointed out that he had made two obvious errors:

1. I should have allowed myself more take-off room.
2. I should have cut my engines rather than turn on the step at 74 knots.



Go on Instruments

A PV-1 recently crashed almost immediately after take-off. Weather conditions were as follows: ceiling, 500 feet; light drizzle; visibility, 1½ miles.

The following comments are taken from the report on this accident:

"It is the opinion of the squadron commander that the pilot tried to maintain contact with the ground during his turn after take-off, either until he settled on his departure course or with the intention of proceeding under the overcast. That after he proceeded out over the water at low altitude, he lost contact and struck the water before he could shift to instruments. It is believed that the pilot's temporary faulty judgment in attempting to maintain contact under the existing weather conditions, instead of flying on instruments immediately after take-off, was the cause of the accident."

► **COMMENT**—A review of accident records shows many fatal accidents have occurred because pilots were attempting to fly contact when they should have been on instruments.

Many pilots are apparently loathe to go on instruments as long as any possibility remains of flying contact. This a dangerous habit. It is much easier to shift from instruments to contact than to have to make a sudden shift to instruments after contact is lost, especially under adverse conditions.

Play it smart! Go on instruments while you still have time to get set, before visual references are blotted out and before the aircraft has a chance to get into some unusual position. An occasional glance will inform you when you can go back to contact flying.

Squadron commanders and operations officers should insure that their pilots are fully indoctrinated regarding this danger.

Read Flight Safety Bulletin No. 3-44.


Life Raft Trouble

While an inflated life raft may be an aviator's best friend after a forced landing at sea, it is definitely an undesirable companion in the cockpit of a single seat airplane during flight. A pilot who had this latter experience submitted the following report:

"When recovering from an overhead gunnery run in an F6F-3 I noticed that my seat type life raft started to inflate. Upon levelling off I immediately opened the hatch and had to unbuckle the safety belt for comfort. This forced me forward against the instrument panel and I forced the now three-quarter filled raft in behind me as best I could.

"After heading for home I unbuckled my harness and raft container from the chute and attempted to toss it overboard without success after making a slow pass over the field. I then made a successful landing and surveyed the

damage to be a loose cap on the CO₂ bottle which leaked with the added pressure of a pullout, causing a near casualty. This accident might have been due also to improper stowage in the container."

 **Grampaw Pettibone says:**

Wonder why he didn't puncture the damn thing with a pencil or other "weapon"!

Technical Note No. 61-43 contains a report of a similar accident and gives instructions for preventing premature inflation of life rafts equipped with Walter Kidde inflation equipment.

Itchy Fingers


A PBJ-1 was taking off on a South Pacific bombing mission. The co-pilot saw the air speed was 100 knots and,



without any signal from the pilot, retracted the landing gear. The plane skidded 200 yards to a stop on the runway, so damaging the aircraft that it had to be shipped to another base for major overhaul.

► **COMMENT**—Don't get itchy fingers. The pilot is boss; wait for the proper signal from him before retracting landing gear.

The High Cost of Fun

 **Grampaw Pettibone says:**

Flight regulations prohibit stunting over congested areas and low-altitude flying over such localities.

These rules were not issued arbitrarily, just to take the fun out of flying. They grew out of experience and were designed to eliminate certain unjustifiable risks.

Some pilots seem to have the idea that these regs are merely warnings and that if they personally are willing to accept the hazard, they are at liberty to do so.

Definitely not! *Compliance is mandatory.*

These safety rules not only protect the pilot from his own poor judgment, but safeguard any passengers he may be carrying



and also protect the general public below.

Many pilots have paid with their lives for a few moments of such foolish flying, but death is not the only punishment to worry about. The following recent cases, in which no forced landings or injuries were involved, are published to show that violating these regulations is serious business—and expensive.

Case 1. A naval aviator was tried recently by General Court-Martial for carelessly endangering the lives of persons on the ground by low-altitude flying and for performing acrobatic maneuvers over a congested area. He was sentenced to be dismissed from the naval service. He got away lucky, however; his sentence was mitigated to loss of pay amounting to \$50 a month for 12 months.

Case 2. Another naval aviator was reported recently for stunting over a congested area and for flying over this area at an altitude insufficient to permit an emergency landing outside such area. He was sentenced by General Court-Martial to lose \$75 a month for seven months.


Case 3. Upon the recommendation of their commanding officer, two flight instructors, who jizzed a municipal airport and flew low over a small town, were summarily disenrolled from the Navy.

Don't Take It for Granted

It was only a training hop but the pilot of an SBD-5 was in a hurry. He checked rudder and ailerons but neglected the elevators. Upon commencing the take-off, he found that it was necessary to force the stick to get it forward. However, he continued down the runway. When the pilot tried to level off after the plane became airborne, he discovered that the stick was jammed in the backward position. He cut the throttle immediately to land on the remaining runway but the plane ran off the end of the field, sustaining major damage.

During a ground check after the crash, all controls moved freely. Some .30 caliber cartridge cases were laying on the cockpit floor and were believed to have jammed the controls.

The commanding officer assigned 50 percent error to the pilot for not making a complete pre-flight check of his controls and for not cutting the throttle immediately after he noticed that it was necessary to force the stick forward. The remaining error was attributed to other personnel. The commanding officer previously had ordered radiomen to remove all empty shells and cartridge cases after each flight and to make pre-flight cockpit checks for loose gear.

 **Grampaw Pettibone says:**

It is always better to be curious about difficulties than to assume they will work themselves out—and then be sorry.

Beside their life insurance value, regular and thorough pre-flight checks also indoctrinate your maintenance crew to be alert.

DID YOU KNOW?

Accident Board Is Formed Corpus Group Forms New Policy

NAS CORPUS CHRISTI—An Aviation Safety Board has been created at this station to collect accurate facts about accidents and "close shaves" which may lead to useful preventative measures and reduce the number of mishaps.

The board consists of a senior member, medical advisor, medical crash investigator, statistician and psychologist, two crash investigators and a recorder, with liaison safety officers in each squadron.

Announcement of formation of the board stated that it would not "snoop, circulate scuttlebutt, or have anything to do with assigning blame or handing out punishment."

Coral Works for the Navy Live Organisms Need Watering

Japanese airfields, constructed of dead coral, have failed to stand up under the weight of heavier American aircraft, so the Navy has been using live coral, "watering" it regularly with sea water to keep the organisms alive and putty-like. Fresh water rains kill the tiny animals and the coral loses its cohesive quality—a quality that makes it almost as satisfactory as concrete.

Seabees, equipped with power shovels, carry-alls and drag lines, dig live coral from the sea or from below the atolls' groundwater table. Japs depend largely on hand labor and are forced to use dead coral, sometimes mixing it with cement to get strength. Even so, their fields fail to take the pounding from heavy planes.

Squadrons Bag 289 Enemy Two Units Slaughter Japanese

Plenty of gunnery practice paid off in big results for two Marine and Navy Corsair squadrons in the South Pacific. One, a Marine group calling itself the "Fighting Corsairs," has 135 Japs to its credit and a Navy "Skull and Crossbones" squadron has 154 enemy planes shot out of the air and two destroyed on the ground.

The Marine squadron claims 10 aces on its roster and a victory ratio of more than 20 to 1 over the Japs after three tours of duty. On its most recent tour

PBY Reports to New Orleans

The manufacture of PBY type aircraft by Consolidated Vultee is now accomplished by its New Orleans division. In the future, one copy of RUDM's on PBY types should be forwarded to the Bureau of Aeronautics Representative, New Orleans, instead of to the BAR at San Diego.

at the front, the squadron shot down 104 Japs with a loss of only five Marine pilots.

The "Skull and Crossbones" squadron also has five small enemy cargo ships sunk to its record, plus 16 barges carrying troops and supplies. During its 11 weeks in the Solomons area the squadron flew every day but two—those due to storms—and finished all missions.

Naval Post Office Is Busy Millions of Checks Are Mailed

The post office maintained by the Navy at the Cleveland field branch of the Bureau of Supplies and Accounts is one of the most important in the world to thousands of wives and children of Navy fighting men. From this office a monthly average of 3,250,000 pieces of outgoing mail are issued, mostly allowance and allotment checks for the families of men and women in the Navy.

In addition to this volume, 180,000 pieces of incoming and 12,000 pieces of registered mail are handled by the staff of 36 workers, some of them civilians and some enlisted men who were in the postal service before donning uniforms. The office is steadily expanding and expects to handle more than 5,000,000 pieces of mail monthly.



A BAKER'S DOZEN of enlisted WAVES, 13 in all, reported aboard NAS Seattle for duty after being flown in by Naval Air Transport Service plane from NAS Pasco. The flight was made on a bi-weekly cargo run by NAYS Squadron 5 between the two bases. WAVES were assigned to various duties at naval activities in the Seattle and Bremerton areas. The flight across the Cascade Mountains was the first airplane ride for 7 of the 13 WAVES.



THIS 50-POWER German-made telescope was confiscated shortly after Pearl Harbor from a Japanese alien at Honolulu, but today it is working for the United States at NAS Pearl Harbor. The glass had a complete camera attachment for making pictures at long distances.

Successful War Loan Drive Home Folks Dig Deep for Bonds

The final figures on the fourth war loan drive speak for themselves. The Treasury Department set out to raise \$14,000,000,000. The people answered with \$16,730,000,000 worth of bonds. This is in addition to the seventy billions the Nation had already invested. In the fourth war loan drive, the public set an all-time record by buying more

than sixty million separate E bonds. To every man in the service this is evidence that the folks at home are raising fighting dollars to back the fighting fronts.

Helicopter Gets New Name Originate New H Classification

In order to eliminate the confusion which exists between the rescue squadron designation VH, and class designa-

tion VH for helicopters, the latter has been removed from the V classification and placed under a new general group for rotary wing aircraft to be known as H with sub-classes such as HO, for observation, HN for trainer and HR for transport.

It is considered that the radical difference in design and operation between the conventional airplane and the helicopter warrants the revision of the basic classification of aircraft to include H for heavier-than-air, rotary wing aircraft (helicopters) along with V for heavier-than-air, fixed wings (airplanes) and U for lighter-than-air (airships).

NATS Flies Long Distance Travels 320,000 Miles Weekly

Naval Air Transport Service, Pacific division, which adds another stop to its timetable every time the Japs lose another island, is now flying 320,000 miles a week, equivalent to ten trips a day from San Francisco to Tokyo.

NATS starts passenger and freight service to advanced areas as soon as the worst danger of enemy fighter planes is passed, carrying supplies to the fighting forces and shuttling key personnel between the islands. It operates both land planes and flying boats, including the huge *Mars*, depending on whether land or water landings are possible.

More than 5,500 passengers are carried monthly, but the principal cargo is freight, essential parts and supplies urgently needed to keep the fighting forces going. One month NATS carried 1,721,556 pounds of mail across the Pacific. Few trips on the regular NATS schedule are canceled. When a trip is not completed, the reason usually is that somebody took the scheduled plane and used it to meet an unscheduled emergency.

NATS uses four-engine *Coronados*, *Clippers* and twin-engine *Mariners* for water landings and four-engine *Skymasters* for land base operations.



ENLISTED PERSONNEL somewhere at an advanced base are caught by a photographer getting practical hints from NAVAL AVIATION NEWS. The magazine is a clearing house for the exchange of technical, safety and survival ideas and developments and contains information of practical interest to enlisted as well as to officer personnel. Activities are finding that it pays to get the magazine circulated among all hands, as it stimulates ideas that are useful in maintaining Navy planes, tells them of practical experiences of others.

Correction in BuAer Change

An error appeared in BuAer Change J2F-6 No. 2 and correction should be made on all copies. Paragraph 5(e) of this change states, "Caution: during engine operation, insure that the cowl flaps are full open and that the cylinder temperatures do not exceed the specified limits." Since this model airplane does not have cowl flaps, the statement should be modified to read, "Caution: during engine operation, insure that the cylinder temperatures do not exceed the specified limits."

Aerological Books Available Should Order Direct From CNO

The following aerological publications have been made available for distribution since the last list was published in the April 15 issue of NANews. They may be obtained from the Chief of Naval Operations.

NAVAER NO.	TITLE
50-1R-103	<i>Air Masses of North China.</i> U. S. Navy reprint.
50-1R-105	<i>Climate of Southwestern Asia, Report No. 419.</i> Headquarters, Army Air Forces, Weather Information Branch, Restricted.
50-10R-122	<i>General Climatic Information Guide No. 122, Aparri, Philippine Islands.</i> Army Air Forces.
50-15R-8	<i>Weather Guide for Long Range Planning—Medan and Sabau, Northern Sumatra.</i> U. S. Weather Bureau.
50-45R-1A	<i>Stream Drift Chart of the World—January.</i>
50-45R-1B	<i>Stream Drift Chart of the World—July.</i>
50-1T-11	<i>A Climatic Summary of the Marianas Islands, April, 1944.</i> Confidential.
NONE	<i>Monthly Weather Review, Supplement No. 28, Climatological Data for the Tropical Islands of the Pacific Ocean (Oceania).</i> by W. W. Reed, U. S. Department of Agriculture, Weather Bureau.
NONE	<i>Studies on Local Forecasting Nos. 600-8—Corpus Christi, Tex.</i>

ORDER THESE FROM HYDROGRAPHIC OFFICE

HO No.	TITLE
264	<i>Weather Summary for Naval Air Pilots—South Africa (including Madagascar and Mauritius).</i>
273	<i>Weather Summary for Naval Air Pilots—West Pacific, Caroline and Marshall Area.</i>
275	<i>Weather Summary for Naval Air Pilots—Southwest Pacific, Solomon Islands Area.</i>

Carrier Smashes Japanese Wrecks Enemy Ships, Aircraft

One of the Navy's new 27,000-ton aircraft carriers is on its way to set a new record of destruction in the Central Pacific actions. Since September, 1943, its planes have sunk one destroyer and two merchant ships, damaged 13 cruisers and two destroyers and shot down 89 Japanese planes.

The carrier participated in raids on eight major Jap bases in the Pacific, including the invasions of the Gilbert and Marshall Islands, the recent strike at Truk and aerial attacks on Marcus Island, Wake, Rabaul, Saipan and Tenian.

Sixty of the Jap planes were accounted for in one battle last Armistice Day at Rabaul. In this action 126 Jap planes set out to retaliate for the Navy's strike on the harbor and defending American fliers permitted only one Jap to get close enough to the carrier to drop a bomb. It missed.

Several of the carrier's fighter pilots downed four planes apiece during the several battles. The carrier squadron had fought in the African invasion.



THREE NEW TRAINING PAMPHLETS

Three new, illustrated pamphlets have been published by the Aviation Training Division, Office of the Chief of Naval Operations, and are now receiving wide distribution through established channels. They are:

Taxi Sense—No matter how fine a pilot a naval aviator may be, he needs a little help getting in and out of the parking lot. An airplane snorting around on the ground is about as self-sufficient as a blindfolded whale trying to walk down Fifth Avenue. Airplanes are not designed to be driven around on the ground like overgrown jeeps—they're built to fly. *Taxi Sense* gives these and many other reasons why the Navy's taxi

signalmen are such important characters.

The Cold Front—If a cumulonimbus cloud is considered a weather factory which makes all kinds of weather, then a cold front is a whole manufacturing area which makes all kinds of weather, including cumulonimbus clouds. Pamphlet tells all about cold fronts and how to fly them.

The Occluded Fronts—An occluded front occurs in the atmosphere when a cold front overtakes a warm front and one or the other is lifted aloft so that the warm air between the two fronts is shut off from the surface of the earth, hence "occluded." Sounds a little vague, doesn't it? Maybe so, but the pamphlet clears up everything.

USE THIS FORM TO ORDER PAMPHLETS

Regular distribution is in process. Coupon should be used for those whose copies may have gone astray.

FROM: _____
(Unit commander)

TO: Office of the Chief of Naval Operations, Op-33J5, Navy Dept., Washington 25, D. C.

SUBJECT: Pamphlets—Request for.

It is requested that copies of new pamphlets be sent as indicated to this activity.

COPIES

PAMPHLETS

Taxi Sense

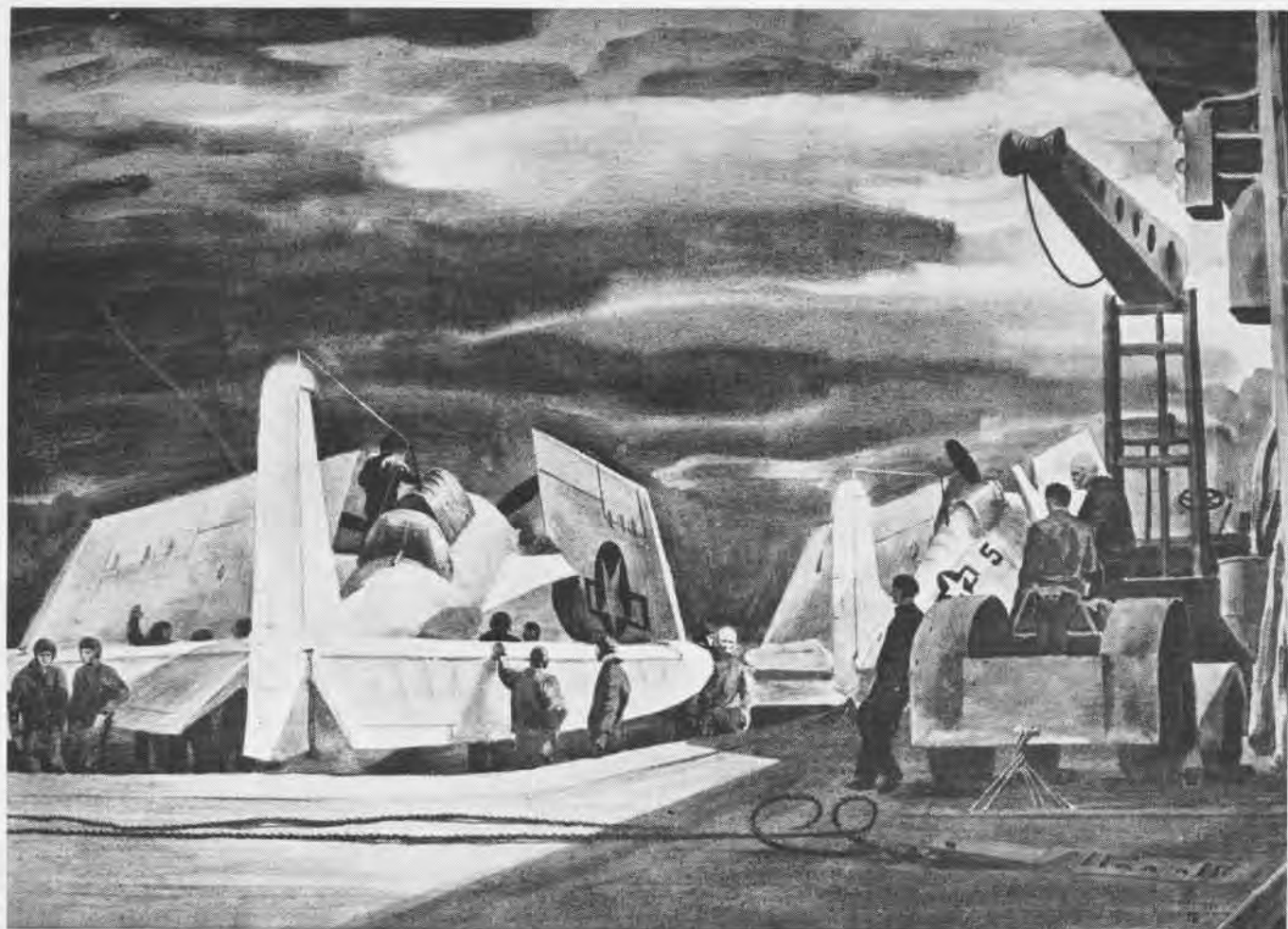
The Cold Front

The Occluded Fronts

SIGNED: _____

Delivery Address: _____

Cut here



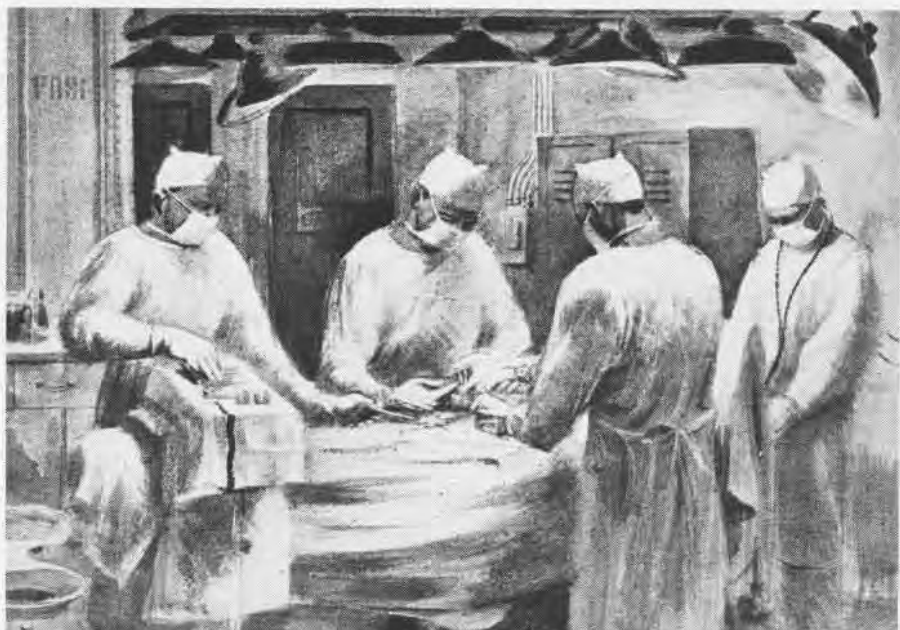
ABOARD CARRIER SOMEWHERE AT SEA, A GRUMMAN TORPEDO BOMBER IS BROUGHT UP ON FORWARD ELEVATOR AND READIED FOR NIGHT TAKE-OFF

WATER COLORS BY NAVY ARTIST

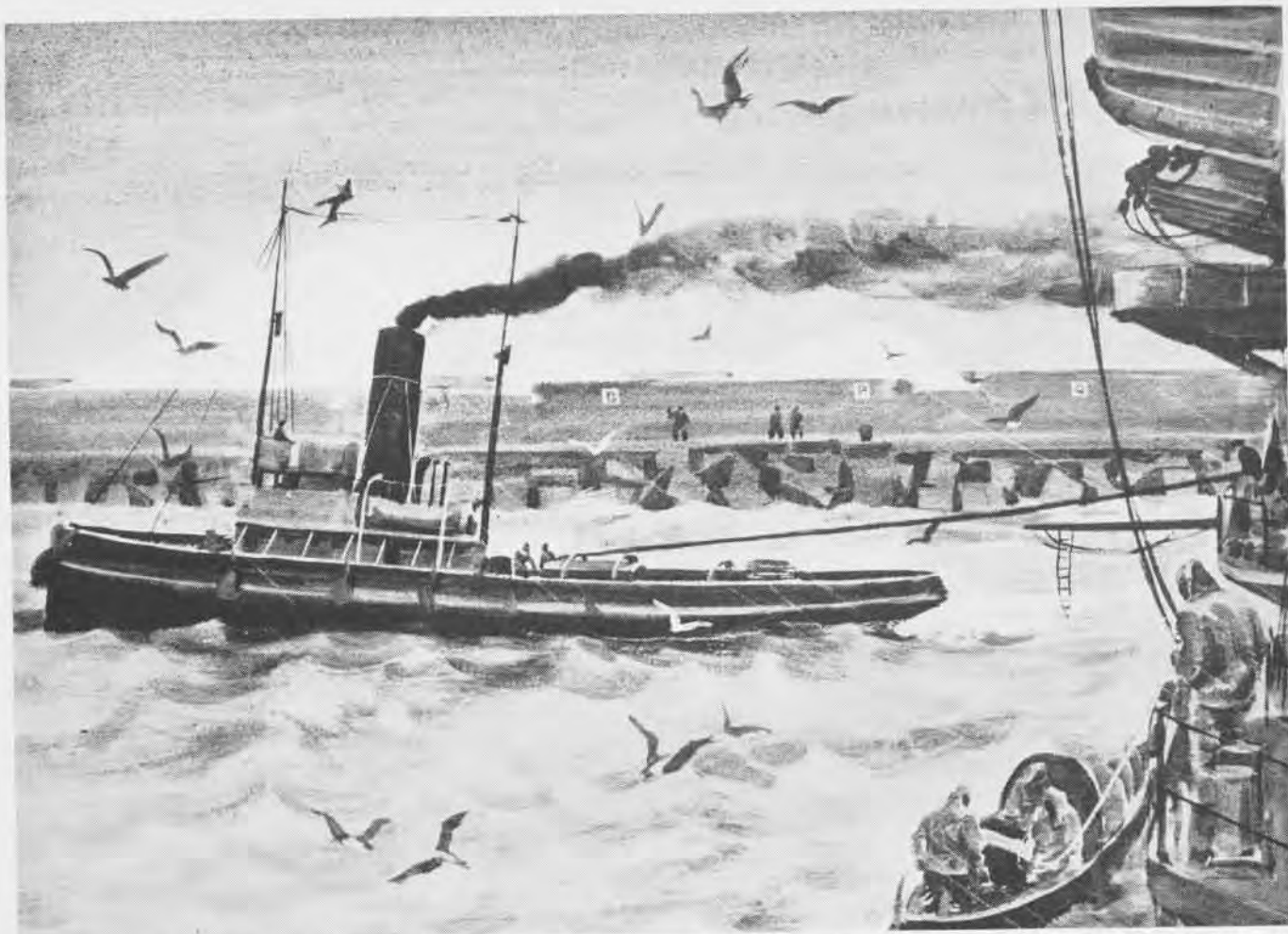
NAVY PILOTS and crews slugging it out against the enemy in all theaters of combat often see little but duty and grind in their tasks. But the everyday chores of planes and carrier crews become picturesque when transcribed on canvas by Navy artists.

These scenes show some of the operations of fighters and bombers of the Navy being readied for missions against the enemy. They will intercept and sink subs lurking near convoy lanes, or strike crippling blows at enemy warships and merchantmen trying to smuggle supplies past the mighty Allied naval bulwarks now girdling the globe.

The rapid growth of Naval Aviation, and the vivid success it is helping to score against enemy shipping, are epics told more powerfully in pictures than in words. Navy combat artists and photographers are chronicling a day-to-day visual record of operations of U. S. naval air against enemy ships of war.



APPENDECTOMY IS PERFORMED IN THE SHIP'S OPERATING ROOM OF AN ESCORT CARRIER AT SEA



STORM WHIPPING UP AT CASABLANCA SNAPS CARRIER'S ANCHOR CHAIN, AND TUG IS SENT OUT TO HOLD HER STEADY UNTIL MADE FAST ONCE AGAIN



UNDER PALE LIGHT OF MOON, TBF PREPARES FOR TAKE-OFF AGAINST ENEMY SUBS. CREW STANDING BY WATCHES CATAPULT OFFICER GIVE SIGNAL



RESCUED AFTER EXISTING FOR NEARLY THREE MONTHS ON A RAFT IN THE SOUTH ATLANTIC, THESE MEN LIVED ON RAIN WATER, BIRDS AND FISH

OCEAN SURVIVAL

Drinking water is essential for a long life at sea

THE MORE YOU KNOW concerning a particular area or set of conditions, the longer your survival time will be. Survival on the ocean depends to a large extent on the rations and equipment you have with you and the use you make of them. The Navy, Coast Guard and Merchant Marine have equipped all life boats, rafts and planes with survival equipment adequate for emergencies at sea. Check your equipment before starting out on a mission, know where it is stowed and how used.

In severe cold, clothes may be more

SURVIVAL HINTS—NO. 9

This is the ninth 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.

important than water or food. Dress for the emergency and take extra clothing if you are in cold waters and are lucky enough to leave your ship in a lifeboat. If you drink all the water you

can before leaving you can go without water for the better part of 24 hours without becoming thirsty.

Many useful articles can be made from a canvas tarpaulin if you can take it along. As soon as you are adrift make an inventory of such articles as safety pins, campaign bars, knives and military insignia and save them for future use. The most useless-appearing articles may be useful when the going gets tough.

Survival depends more on fresh water than on food. Without water, a man in



Improved hooks—*a.* wood latch; *b.* snell hook; *c.* shoe-nail barb; *d.* *e.* fish-spine hooks; *f.* pocket knife hook; *g.* *h.* insignia hooks; *i.* *j.* pin hooks; *k.* wood spoon; *l.* *m.* *n.* *o.* coin lures; *p.* feathers

Little bits of material plus ingenuity and experimentation will produce a number of useful articles, as shown in photograph above: *a.* wick; *b.* grapple; *c.* fish-spine needle used to sew container

good health will die in 10 to 14 days. With plenty of water but no food men can live 30 days or more without permanent damage to their bodies.

UNLESS YOU are very thirsty, drink no water during the first 24 hours. After that drink 16 ounces daily until you have only 10 ounces left. Use this for occasional sips until you get rain water. If you are thirsty and can afford it, drink 24 ounces daily.

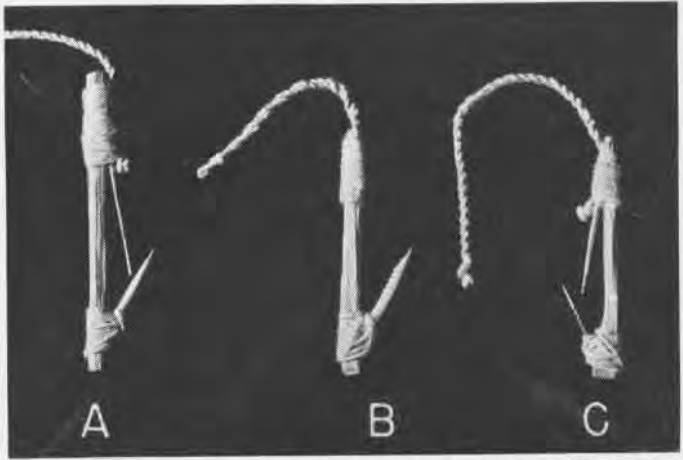
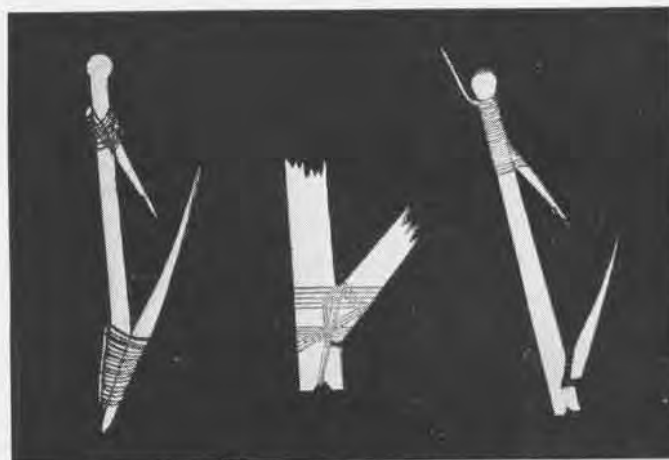
In warm weather, 16 to 24 ounces will not satisfy you unless you prevent evaporation of water from the body by:

1. Refraining from unnecessary exertion.
2. Removing all clothing except that necessary to protect you from sunburn.
3. Exposing your lightly clothed body to the breeze.
4. Rigging an awning which does not interfere with the breeze.
5. Keeping your clothes wet with sea water in the daytime.

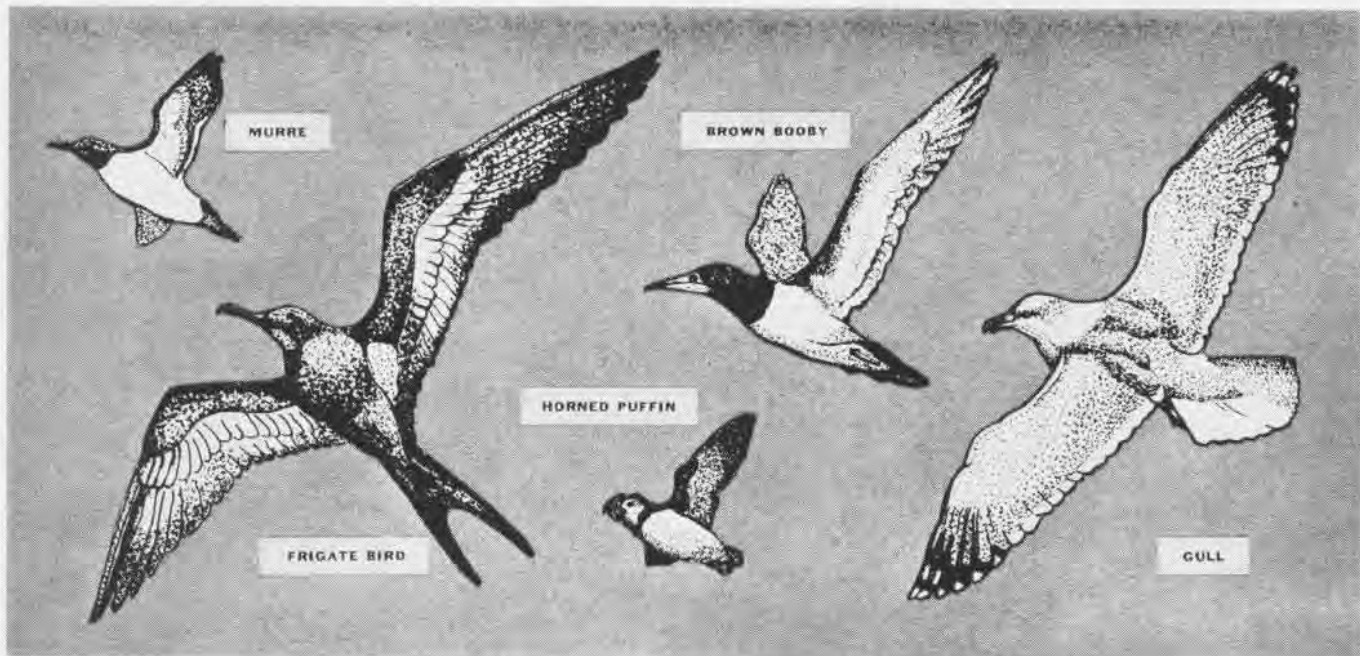
Be prepared to catch rain with such makeshifts as clothing or parachute cloth if you have no tarpaulin. When you see a rain squall coming, rinse any dried salt off your rain-collecting cloth with sea water so as to reduce to a minimum contamination of the rain

water with salt. If rain water is somewhat contaminated with sea water, drink it anyway unless it makes you vomit or gives you diarrhea. When you have been on a limited water ration and encounter rain, drink all the rain water you care to over the course of one hour. Your body will not waste it. Then return next day to a 16-oz. allotment.

DO NOT drink sea water or introduce it into your rectum. You will gain nothing from it and you may lose water by vomiting, diarrhea and an increased amount of urine. Do not drink urine.



THIS IS THE WAY FISHHOOKS CAN BE MADE FROM SLIVERS OF WOOD **WOOD SHAFTED HOOKS WITH WOOD, FISH-SPINE AND SHOE-NAIL BARBS**



WITH CARE AND PERSISTENCE YOU CAN DEVISE A VARIETY OF WAYS TO CATCH FOOD AT SEA

NO ONE AT SEA should be caught without fishing tackle, but even if this happens the situation is far from hopeless.

Fish caught at sea are good to eat cooked or raw. The heart, liver and blood are good. Intestinal walls also are edible, but the contents may be dangerous unless cooked. The stomachs of large fish may contain small fish partly digested; they are excellent. Fish eyes contain a high percentage of water.

With a knife you may be able to stab a large fish. Slash with your knife in schools of small fish. To make a fishing line, cut a piece of canvas about a yard square; following the weave so the threads may be drawn. Be sure the canvas is dry; wet canvas is difficult to ravel. Place eight or ten strands between the thumb and forefinger of each hand and twist the thread clockwise, at the same time passing the right hand over the left counter-clockwise. This will form a strong rope. As the end of each strand is reached, feed in a new strand until 50 or more feet of line have been made. Fishhooks to go with the line can be made like those in the accompanying illustrations.

Small forms of life drifting in the sea furnish food for larger forms of aquatic life. This drifting life can be gathered with an improvised net. Use the small creatures as fish bait. Don't eat them as they are salty and contain sharp spines

that will injure your stomach. Don't eat jellyfish; they have poisonous stinging cells.

For successful fishing remember:

1. Never fasten your line to something solid; it may snap when a large fish strikes.
2. Try to catch small fish; large ones may destroy your tackle.
3. Fish are more apt to see and strike a moving bait than a still one.
4. Use part of any bird or fish for bait.



BIRD NOOSE

5. Try fishing at different times of day and night at all depths. Sooner or later you will have luck.
6. When you hook a large fish, keep a taut line and play him. Don't force him or you may break your line or tear the hook loose.
7. Birds often follow schools of fish.
8. Many species of fish come to the surface at night. Some are attracted by light.
9. Many small fish are attracted by shade. Lower the sail or tarpaulin into the water; fish may gather under it.

Raw seaweeds are tough and salty, absorb water from the intestines and are hard to digest. Eat them only if you have plenty of water. However, small

edible crabs, shrimp and fish inhabit seaweed. A grappler dragged behind the boat will collect seaweed. Shake it and examine carefully for crabs, shrimp and fish.

All sea birds are edible, though they may have a fishy taste and musty odor. Many can be caught or lured within shooting distance by dragging a baited fishhook or a flat, sharp-edged, triangular piece of metal behind a boat.

Gannets once settled on a raft often will allow themselves to be captured. If they are shy they may be caught in the following manner: Tie a knot with two pieces of line; fastening two of the free ends of the knot to the raft. Place bait inside the loop. When a bird is attracted to the food, pull the knot together about its legs.

LARGE NUMBERS of tropical birds indicate some kind of land nearby. Most of the tropical sea birds do not range far from their breeding grounds. Also take note of any stationary cloud, especially when other clouds are moving, for it is an indication that land lies beneath it beyond the horizon. Lagoon glare, a greenish tint in the sky or the under side of a cloud, is caused by the reflection of sunlight from the shallow water of coral reefs. The reflection of light from any surface such as sand or shoal water, ice or snow may be seen in the sky or on clouds.

High morale will bring you through. Don't let your thoughts and imagination become your enemy. Keep fishing and experimenting to the limit. Activity is the best practical cure for depression.

IN THE FOLLOWING ISSUE: SHORE SURVIVAL

Mobile Ordnance Trainers To Provide Special Instruction

The aircraft maintenance trainer program (see NANews, April 15, 1944), initiated to give specialized technical training at operational activities, will soon be supplemented by the mobile ordnance trainer program.

The PB4Y maintenance trainers will include all items of ordnance equipment, including guns, sights, gun cameras, bombracks and shackles, turrets, etc., but mobile ordnance trainers will be built to cover ordnance instruction on all other types of airplanes covered by the maintenance trainer program.

Three types of tactical units will be constructed. A fighter type unit will contain all guns, sights, cameras and

other items of ordnance equipment used on fighter type airplanes. A vsb-vtb unit will cover similar equipment, including turrets for scout, dive bomber and torpedo planes. The vpb unit will cover ordnance equipment for patrol and patrol bomber planes, with the exception of the PB4Y. One special unit covering the pøj will be made for the Marine Corps.

Units will be administered by the Advanced Base Aviation Training Unit, NAS Norfolk, in a manner similar to that planned for the maintenance trainer detachments, and will be known as mobile ordnance instruction detachments.

Mobile bomb and fuse units now in the field will be returned to the Bomb Disposal School on completion of their tour and will be converted to mom's (munitions). They will be under ABATU.

BuAer Tail Jack Now Ready Can Lift 2 Tons to 73 Inches

Bureau of Aeronautics has available for issue from stock, 100 Universal tail jacks manufactured under contract N288S-16154 by the Aeronautics Machinery Corporation. This jack is ca-



BUAER HAS TAIL JACK READY FOR DISTRIBUTION

able of lifting 4,000 lbs. from a minimum height of 8" to a maximum height of 73", with height adjustment to any desired fraction of an inch.

An attachment, called Universal adaptor saddle, may be used in conjunction with the jack to provide a means for lifting the tail of aircraft not equipped with tail jack pads or when the tail wheel is damaged. The jack is a mechanical type, weighs approximately 550 pounds and has the following minimum dimensions: width 34", length 77", and height 25". It can be operated easily and moved by one man or towed by a tractor.

Portable Gas Cart in Use Bronson Speeds Fire-Fighting

NATC PENSACOLA—Squadron 5 at Bronson Field has designed a small, durable cart for transporting carbon dioxide bottles between planes on the line. With approximately 250 planes operating over eight periods, and only 75 bottles, use of the carts has expedited line operations and lessened fire hazard.

Each cart, built of non-critical material, has a total cost of \$1.67. Material used was ten 3/8" or 1/2" pipe; two 3/8" nipples for wheel bearings; two wooden wheels; five pieces 1/2" welding rod; four 1 1/2" washers with 1/2" holes; one 1 1/2"x4"x7" ring; one 1"x3/8"x7" long cold rolled bar; eight 1 1/2" No. 6 screws, four 3/4" No. 6 screws.

► **BuAER COMMENT**—The project is one of considerable merit and may be of some use to other naval aviation activities.

(Succeeds list of March 18, 1944)

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

April 18, 1944

Engine	Bulletin	Date	General Engine Bulletin	Date
Pratt & Whitney			40	Revision No. 1 dated 3-11-44
R-985	none		41	Being issued
R-1340	none		42	Being issued
R-1535	none		43	Being issued
R-1690	none		44	4-4-44
R-1830	none			
R-2000	65	3-16-44		
R-2800	119	Being issued		
R-2800	120	3-4-44		
R-2800	121	Being issued		
R-2800	122	4-4-44		
Wright				
R-760	none			
R-975	none			
R-1820	none			
R-2600	39	Revision No. 1 dated 4-4-44		
R-2600	106	Supp. dated 1-13-44		
R-2600	120	Supp. dated 3-13-44		
R-3350	23	Supp. dated 3-13-44		
Continental				
R-670	14	2-12-44		
R-670	15	2-15-44		
R-670	16	2-27-44		
R-670	17	2-22-44		
Lycoming				
none				
			Propeller Bulletins	Date
			Curtiss	
			13	3-13-44
			15	3-28-44
			Hamilton Standard	
			14	Being issued
			15	Being issued
			16	Being issued
			17	3-17-44
			Auxiliary Power Plant Bulletin	Date
			11	Supplement No. 1 dated 3-3-44
			General Propeller Bulletin	Date
			3	Supplement No. 1 dated 1-20-44
			Power Plant Accessories Bulletin	Date
			21	3-13-44
			22	3-8-44
			23	3-19-44
			24	3-14-44
			25	3-13-44
			26	3-21-44
			27	3-23-44
			28	3-28-44
			29	3-15-44
			30	3-31-44
			31	3-21-44
			32	3-20-44
			General Engine Bulletin	Date
			5	Revision No. 1 dated 3-3-44
			6	Supplement No. 1 dated 3-7-44
			15	Supplement No. 1 dated 3-20-44
			39	Revision No. 1 dated 4-10-44

NAVAL AVIATION

NEWS



Marianas Point to Tokyo
Ordnance School on Wheels
25 Years Ago • Survival

May 15, 1944
RESTRICTED



ENLISTED TRAINING COURSES

The aviation enlisted training courses (see NANEWS, March 15) have all the aspects of being "best sellers" and the demand for copies threatens to exceed present supplies. An initial distribution is being made to most units in accordance to complement reports. This includes CASU's, HEDRON's, SOSU's and ACORN's; CV, CVL, CVE, AV, AVP and Marine Aircraft Wings Pacific. NATTC, NAS, NAAS, NAF, and NAAF; MCAS, MOPTC

and Depots, other aviation units and all aviation shops will receive sample sets. > Use NavPers 676A form, supplied with each shipment, in placing orders for books. Education officers should study the needs of their units before placing order for books. > It is contrary to BuPers policy to fill individual requests from enlisted men. All requests for books must be through C.O. Courses are restricted and not for sale.



AVIATION FLIGHT ENGINEER

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10311 Fundamentals Electricity
- 10315 Electrical Systems
- 10331 Airplane Structures
- 10332 Aircraft Hydraulic Equipment
- 10333 Aircraft Instruments
- 10334 Aircraft Engines
- 10335 Aircraft Fuel Systems
- 10336 Aircraft Propellers



AVIATION RADIOMAN

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10306 Hand Tools
- 10311 Fundamentals of Electricity
- 10312 Aircraft Radio Equipment
- 10313 Aircraft Communications
- 10314 Advanced Work in Aircraft Radio



AVIATION ELECTRICIAN'S MATE

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10311 Fundamentals of Electricity
- 10315 Aircraft Electrical Systems
- 10316 Advanced Work in Aircraft Electricity



AVIATION RADIO TECHNICIAN

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10311 Fundamentals of Electricity
- 10312 Aircraft Radio Equipment
- 10314 Advanced Work in Aircraft Radio



AVIATION TURRET MECHANIC

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10311 Fundamentals Electricity
- 10332 Aircraft Hydraulic Equipment
- 10341 Aircraft Armament
- 10342 Aircraft Fire Control
- 10343 Aircraft Munitions



AVIATION MACHINIST'S MATE

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10331 Airplane Structures
- 10334 Aircraft Engines



AVIATION ORDNANCEMAN

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10341 Aircraft Armament
- 10342 Aircraft Fire Control
- 10343 Aircraft Munitions



AVIATION BOMBSIGHT MECHANIC

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10341 Aircraft Armament
- 10342 Aircraft Fire Control
- 10343 Aircraft Munitions



AVIATION CARBURETOR MECHANIC

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10331 Airplane Structures
- 10334 Aircraft Engines
- 10335 Aircraft Fuel Systems



AEROGRAPHER'S MATE

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10361 Aerology I
- 10362 Aerology II



PHOTOGRAPHER'S MATE

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10371 Photography I
- 10372 Photography II



TRANSPORT AIRMAN

- 10391 Transport Airmen (Specialist-V)



PARACHUTE RIGGER

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10351 Parachutes



AVIATION HYDRAULICS MECHANIC

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10331 Airplane Structures
- 10332 Aircraft Hydraulic Equipment
- 10334 Aircraft Engines



AVIATION INSTRUMENT MECHANIC

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10331 Airplane Structures
- 10333 Aircraft Instruments
- 10334 Aircraft Engines



AVIATION PROPELLER MECHANIC

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10331 Airplane Structures
- 10334 Aircraft Engines
- 10336 Aircraft Propellers



AVIATION METALSMITH

- 10303 Introduction to Airplanes
- 10304 Mathematics
- 10305 Blueprint Reading and Layout Work
- 10306 Hand Tools
- 10321 Aircraft Metals
- 10322 Aircraft Welding
- 10323 Aircraft Metal Work

WORK HORSE OF THE NAVY

The PBV has proved once more that it is the work horse of naval aviation—that it can handle just about any situation that may arise. Two P-boats on a recent night search and attack mission in the Southwest Pacific flushed a Jap task force of one cruiser and three or more destroyers. The first PBV had tough luck and lost its bombs, but the second plane glide-bombed the cruiser, getting two direct and two possible hits

almost gone, the PPC decided to make another run to drop incendiaries and flares, at the same time strafing and observing results.

During this run an explosion was seen on the ship. Two flares and a cluster of incendiaries were dropped. Then a shell, probably a 20 or 40 mm, seriously damaged the plane,

The pilot realized immediately the loss of rudder control and put the plane

completely severed, and the elevator cable almost broken. The constant jockeying of the throttles, necessary to keep the wings level, had caused the engines to sputter and lose power. The plane had gotten into a turbulent front (at one point the rate of climb registered 3,500 ft. per minute), and for the next hour and a half it was impossible to keep course within 90°. One or both engines were kept at full throttle during this period.

After the plane had been out of the front about 30 minutes, the PPC and one of the gunners succeeded in connecting the rudder cable with a triple length of



and leaving the CA smoking and exploding. Report describes the second plane's attack and the trip back to base.

AT TWO MILES AWAY, a large zigzagging wake was seen. When about a third of a mile away, the plane went into a steep dive from 1,200 ft. As the ship maneuvered violently at high speed, the PBV made a stern to bow run.

Photo flashes were set to drop with the first and last bombs. Release was made at 140 knots from about 100 to 150 ft. As soon as the release was made, the target and the DD's set up a withering AA barrage. The plane made a slow climbing turn to the right of 180°. With smoke pouring from the CA and its wake

into a steep right bank, losing altitude. The port engine was cut back and the starboard given full throttle to bring up the right wing. The plane was still under fire and in the searchlights of the several ships. The pilot ordered all excess gear, including guns and ammunition, jettisoned. At this time the waist gunner reported large fires on the CA. As the plane lightened, altitude was gained and a course of within 40° of south was maintained. The PPC believed the plane passed over a large enemy base as searchlights and firing were observed.

On examination, it was determined that the port rudder cable, the rudder tab cable and the Sperry cable were

rudder tab cable, giving some control to the rudder. The engines then returned to normal. The plane transmitted MO's, but they were not received by the base. During the return trip preparations to bail out were made several times. The plane made a hot landing at a base 10 miles from its tender to keep the tunnel hatch from shipping water. During the last half hour of flight, the plane made 80 knots, indicated with 24 inches and 1,500 rpm's, burning 30 gallons per hour in each engine.

[The PPC of this PBV is the author of *PBV Serenade*, which appeared in *NAVAL AVIATION NEWS* 2/1/44. That drinking song told of PBV squadron which sank a Jap cruiser.—Ed.]

SHORE STATIONS

► **NATC CORPUS CHRISTI**—NATC fliers have access to another field with the formal opening recently of the million-dollar airport near Rockport. The field, purchased by Arkansas County and built by CAA, has been turned over to the Navy for the duration. It has three hard-surfaced runways.

► **MCAS EL CENTRO**—Static, the only duck in the world that peeps in code, is the new mascot for group communications. He was acquired some weeks ago at a carnival when he was just two days old.

So far, he hasn't attempted any maiden flights on his own or in an airplane, but he does have an accomplishment of which he is quite proud. Static drinks beer, and after he is well fortified with several swigs, he boldly marches over to Trixie, canine mascot of the squadron. Then and there he proceeds to berate her in no uncertain terms.

Trixie invariably retreats to the nearest corner, and Static swaggers back, giving out the word in code.

► **MBDAG 42**—Instruction in survival has been particularly stressed for every pilot, ground officer, and enlisted man attached to this group.

Newly arrived pilots are "treated" to an hour lecture on crashes which have occurred at the station in the past. The lecture is illustrated by not-too-easy-to-forget photos of the wrecked and mangled planes. Crash manuals which include Trouble Boards' findings, have also been issued to each squadron commander.

Other features of the training program include causes of engine failure, proper use of parachutes on land and sea, first aid, decontamination and chemical warfare.

► **NAS BUNKER HILL**—The education division of this station recently instituted a regular weekly program of educational movies which is proving popular. The programs are planned to be entertaining as well as instructive, with each showing previewed by the education office staff to insure desirable variety and a maximum of appeal. Each week a *March of Time* movie is shown along with features such as "Divide and Conquer," "Handing It Back," "Kill or Be Killed," "Useful Knots," "Naval Log of Victory."

► **NAS LIVERMORE**—Simplified racks have been put into use by the A&R Department for storing N2S wings, rudders, elevators, stabilizers and center sections. These racks utilize a minimum amount of material and permit parts to be closely stacked and easily handled. Unlike other racks in use, these permit the stacking of wings on their

tips instead of on the roots, making it unnecessary to remove the aileron control rod or to stack the wings high enough above the ground to clear this rod. The wings rest on two slotted 2 x 8's in line with the wing spars, the 2 x 8's being set at right angles to the point of contact. When stacked, the wings tilt slightly back and rest in another slotted 2 x 8 mounted on the bulkhead 12 ft. above the deck. All slots are lined with felt.

► **NAS NORMAN**—All the way from Italy recently came a letter from a former Norman bluejacket to one of his still land-bound shipmates. "Like everyone else here, I'd give my right arm for the sight of a pretty American girl in civilian dress. We see only a few WACS and still fewer military nurses. So you can guess what chance a bluejacket has here. To paraphrase Winston Churchill: 'Never have so many chased so few for so little.'"

► **MCAS EL CENTRO**—A new obstacle course which was constructed by members of Group Defense Unit is now in use. Profiting by observation of the courses at Camps Elliott and Miramar, this is a 250-yard stretch of 20 muscle-building devices.

Scaling walls, slit trenches covered with barbed wire, deep holes, ropes and inclined planes complete the course, and three minutes is the best record for one time around.

Although difficult, the obstacles were built to insure a minimum of accidents and injuries. When a Marine can successfully negotiate this course in good time, he is ready to cope with any field conditions.

► **NAAS GREEN COVE SPRINGS**—An outdoor addition which will more than double the present seating capacity of ship's service lounge and provide an outdoor dance floor for all enlisted personnel and their guests is now building at this station. It will be open for dancing daily from 1630 to 2130.

► **NAS CLINTON**—The public works department at this station has designed a new type of valve installation to prevent

the waste of water caused by continual failure of ball cocks in urinal overhead tanks, which were replaced with victory model Sloan valves. More than 100 valves have been installed to date, effecting a saving of approximately 75,000 gallons of water a day. An additional saving is the reduced cost of labor and material for repairs. The conservation officer estimates that the savings of water, when the installation is complete (3,000,000 gallons a month), will pay the cost of the new installation within six months.

► **MCAS CHERRY POINT**—Intensive combat swimming courses marked the formal opening of the station's new combat swimming pools.

The preliminary step consists of weeding out the non-swimmers by means of a 200-yard swim. Men who find it necessary to drop out are placed in a special group, while qualified swimmers are permitted to continue the advanced training. Non-swimmers are given underwater breathing exercises to increase their strength and confidence.

The training course for each group of men continues for two weeks, and students emerge as experts in the art of abandoning a stricken ship.

► **NAS JACKSONVILLE**—Numerous first-class cooks and bakers have gone out from the chief commissary students' school here and reports from the various fronts prove the worth of the training they receive. It is not a case of learning how to cook at this school; every member is already a first-class cook. Rather, it is a case of putting the finishing touches on their training by preparing them to take over the responsibility of turning out a substantial and nutritious meal under any and all conditions. Perhaps the most interesting part of the course is combat cooking. The men are handed a minimum of cooking equipment and, with no stove, are told to turn out a meal fit for a hard-fighting landing party. With clay and sand, the students throw together an amazingly efficient oven. They bake bread and potatoes at high temperatures and, as the ovens cool, they cook the meats and soups.

► **NAS LIVERMORE**—A radio and instrument-equipped "crash and recall" Stearman, with a fuselage band, wing tips and tail painted red, has been placed on the line. The front cockpit is equipped with artificial horizon, rate of climb indicator and gyro-compass. The radio equipment was obtained from a stricken SNC. It has been found advantageous in cases of forced landings to dispatch this airplane to the scene of the crash. Usually it can land and radio back the requirements necessary to return the plane to the station.



► **MCAS EL CENTRO**—A fire which started from an oil furnace explosion completely destroyed one of the barracks on this station recently. Fanned by an extremely high wind through desert dried plywood, the entire center section of the building was a mass of flames before the fire department could couple their lines to the fire hydrants.

All hands did a remarkably fine job of fire fighting and had the fire under control in 20 minutes; completely out in 30 minutes. The entire structure was gutted, and will have to be completely rebuilt. The few men inside the building had so little time to get out when the fire started that no personal belongings were saved.

► **NATC CORPUS CHRISTI**—Late news from the press associations reaches the Aviation Cadet Regiment and other naval personnel here daily through an arrangement made by the public relations officer with KRIS, local radio station.

News is rushed from the radio station to the printer and distributed in miniature newspaper form throughout the training center each morning, enabling busy personnel to keep abreast of current events.

► **NAS LIVERMORE**—The mass of technical data received by A&R has been properly segregated, indexed and made readily available in a new library established in one of the hangars. This library has been equipped with a permanent screen and mounted projector for showing of Navy technical, instructional and general information films. A schedule for showing of films to A&R personnel is prepared and published in advance. Large attendance at showings indicates the favor with which the programs are received. The library is utilized widely by enlisted personnel as a place to study for advancement in ratings and for general reading in off hours. The library will soon be used for projection of microfilmed airplane working drawings from BuAer.

► **MCAS CHERRY POINT**—Women Marines have their foot in the door of another activity formerly occupied by men. Radio, an established institution at the station's A&R, has extended its course of study to 28 lady leathernecks—the first class of girls to enter into the technicalities of the dot-dash system.

Those in charge of the young women declare the new radiowomen will prove an asset in future radio work at the station.

► **NAS PASCO**—A special feature of the new WAVES Red Cross Auxiliary on this station is a free mending service extended to enlisted personnel. Jumpers as well as trousers and button-less gear are cared for by the group. Men interested in using the service simply take their gear to the solarium on Wednesday evenings.

► **MCAS MOJAVE**—The spirit of cooperation which has marked every program undertaken at Mojave was shown again in the recent Red Cross drive. The station was well over its quota, with total donations amounting to \$1,204.64. Another illustration is that in spite of changes in personnel and new people coming aboard, the station has a 100% War Bond record.

TOKYO TALKS

—TO JAPAN

Another effect of Japan's shipping shortage was disclosed in a Tokyo announcement that the Japanese, unable to move oil in sufficient quantities from the occupied areas in South Asia, are trying to produce synthetic high-octane gasoline. A new process is claimed as a result of experiments in the manufacture of synthetic rubber—a necessity also arising from the lack of enough ships to transport rubber in sufficient quantities. The urgency of the need for high-octane fuel is indicated by a statement that the reported synthetic product will be made industrially without the usual preliminary tests.

—TO NORTH AMERICA

The Japanese government is substituting a tin alloy for aluminum in the manufacture of one-, five-, and ten-sen coins because "aluminum is important to the war." Although smaller in size, the new tin alloy coins will weigh two and a half times as much as the old coins.

—TO EAST ASIA

Intensifying its drive for the expansion of Japan's merchant marine, Premier Hideki Tojo's government recently began conscription of merchant seamen in all Japanese-occupied territories and stepped up the seamen's training program in Japan. The new measures are designed to raise the morale of Japanese seamen as well as to increase their number. "The clothing of seamen will be quickly standardized and improved, and the distribution of food and other necessities of life will be preferentially guaranteed," Domei says. "Salaries, pensions, and so forth, will be improved, and various other kinds of protective provisions will be expanded and organized."

—TO PHILIPPINES

Japanese pressure to root out English as the Philippine national language—and any use of Spanish as well—substituting instead the native Tagalog, moved forward recently in an order requiring all public school superintendents, officials and teachers throughout the islands to take special instruction in Tagalog. An "Institute of National Language" already has been set up with prepared lessons and lectures. The broadcast was in English—as Philippine broadcasts must be if the Japanese wish to reach the people.

—TO NORTH AMERICA

The Japanese-operated Singapore radio says that two more Japanese transmitters will be set up in Malacca and Ipoh, bringing to seven the number of controlled radios in the Malay States. The Singapore radio, a key station in the transmission of Japanese propaganda in the occupied southern regions and to India, also revealed that its program schedules are being "revised and improved."

—TO OCCUPIED CHINA

Japanese occupation authorities in Hong Kong have announced that they have suspended "the general distribution of rice" and will continue to supply rice only to those "who are considered to be directly connected with the development and construction of Hong Kong." The step was taken to enhance the "determination" of residents in the Hong Kong area and to stimulate rice-growing "on the spot."

—TO THE UNITED STATES

The Japanese Domei agency recently sponsored a rally in Tokyo in cooperation with metropolitan newspapers to "hear leading newspapermen voice their grim determination to completely smother out the Anglo-American enemies."

—TO JAPAN

A recent census conducted by the military administration in the Japanese-occupied city of Medan, Sumatra, showed the city to have a population of 134,804, which was 23,000 less than last year. In explaining what had become of the missing population in the Netherlands Indies city, Tokyo says that 8,000 of the missing 23,000 "crossed the seas" or had been sent elsewhere by Japanese authorities. As for the remainder—"The remaining 15,000 just disappeared as though a ghost population."

SHOW ME THE WAY TO GO HOME



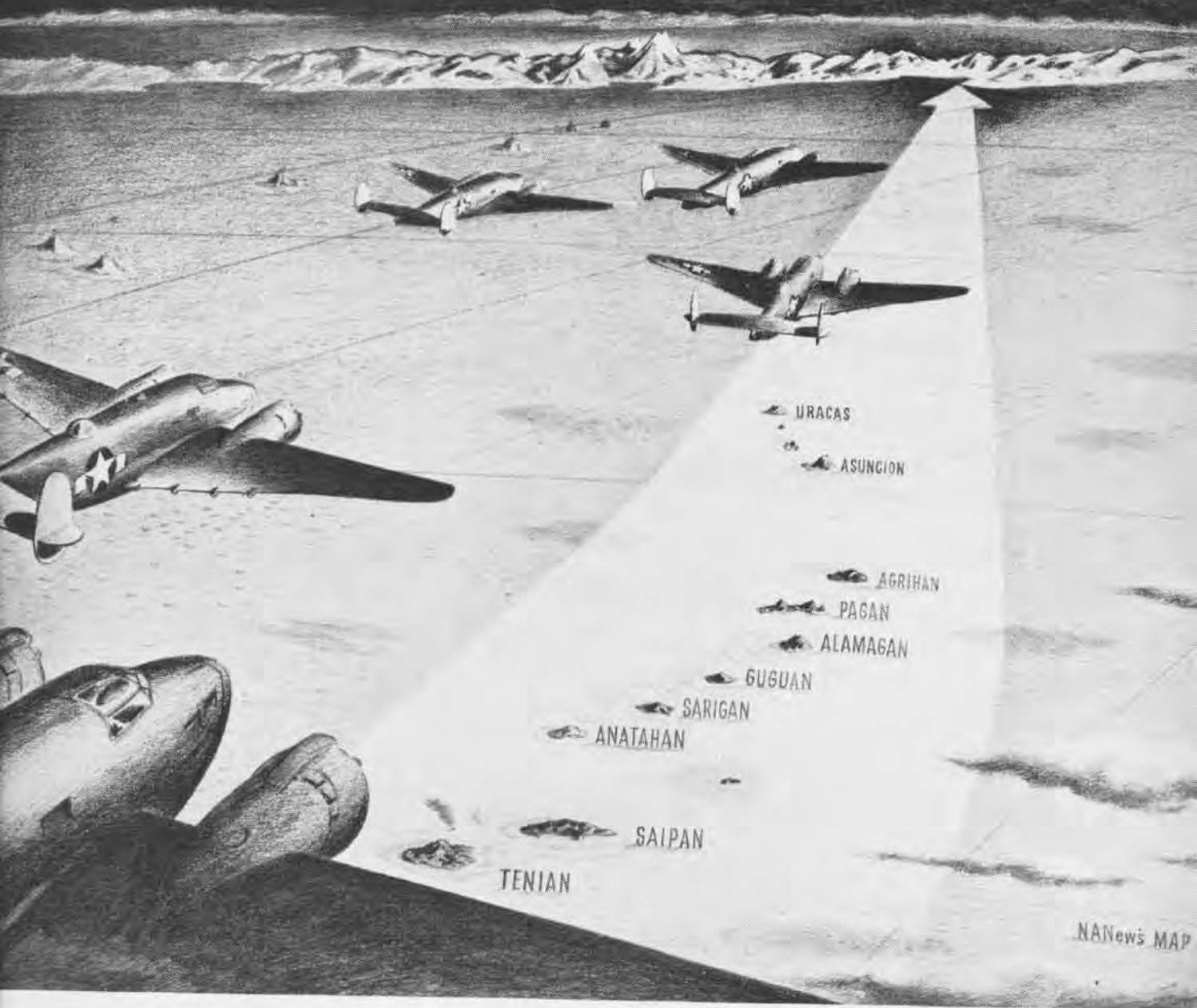
Man Is Not Lost

During the month of December an observer directly at the North Pole observed a fixed star whose altitude (Ho) was 60° at the instant its GHA was 090°. Answer any four of the following:

1. The star's declination is
2. The polar distance of the star is
3. The distance (in nautical miles) from the observer to the star's subpoint is
4. The star's azimuth is
5. The approximate Ho of Polaris at this time is

(Answers on page 40)

MARIANAS POINT TO TOKYO



NAVY TASK FORCE PLANES STRIKE JAP ISLANDS IN MARIANAS CHAIN

FIVE DAYS after the daring strike on Truk, units of the same task force delivered a similar assault on islands in the southern Marianas, approximately 700 miles to the northwest and on a direct route to Tokyo. Hundreds of carrier-based planes swept over Saipan and Tenian

Islands, delivering lethal blows at shipping and ground installations, while fighters and bombers, Fleet and aerial gunners shot down or destroyed a total of 135 Jap planes.

Differing from the Truk strike, the attack on the Marianas was detected and enemy land-based interceptors were dispatched. For 11 hours, through the night and early morning, Fleet gunners, aided by fighter planes, fought off the attackers without a single ship being sunk or damaged. At the very climax of the aerial bombardment, carrier planes were readied and launched to carry destruction to the Japanese mandated islands.



Salvaged plane parts are shown in this close-up of a damaged Jap *Lily* with engine nacelles removed. Note zig-zag trench at lower right



Tenian takes it! Navy planes look back on columns of smoke rising from Jap planes hit on the airstrip in a powerful task force strike

TENIAN ISLAND ATTACK

NAVY CARRIER-BASED PLANES raided Tenian Island on February 22 and 23, bringing into the zone of attack the long chain of Marianas Islands, curving northward from Guam like a drawn sword, pointing at the heart of Japan. This attack carried the war 1,260 miles from Tokyo.

Main objectives at Tenian were the airfield on Ushi Point at the north end of the island, installations in Tenian town

and shipping in the harbor. Aerial photographs taken by the Navy during the attack have made it possible for photo interpreters to analyze the enemy installations and point out important targets for future attacks.

Strategically, Tenian is important in the protection of Saipan, which is nearby. Two sugar mills with a daily production of 120 tons are located in the town of Tenian. Other important buildings include a hospital, headquarters of the Tenian Branch Bureau, police station, post office, elementary schools and radio station. Extensive harbor facilities have been provided in the anchorage area inside the barrier reef.



TWO CARGO SHIPS IN HARBOR BURN FIERCELY IN THIS PICTURE OF TENIAN ISLAND. SUGAR REFINERIES AND OTHER INSTALLATIONS ARE MARKED

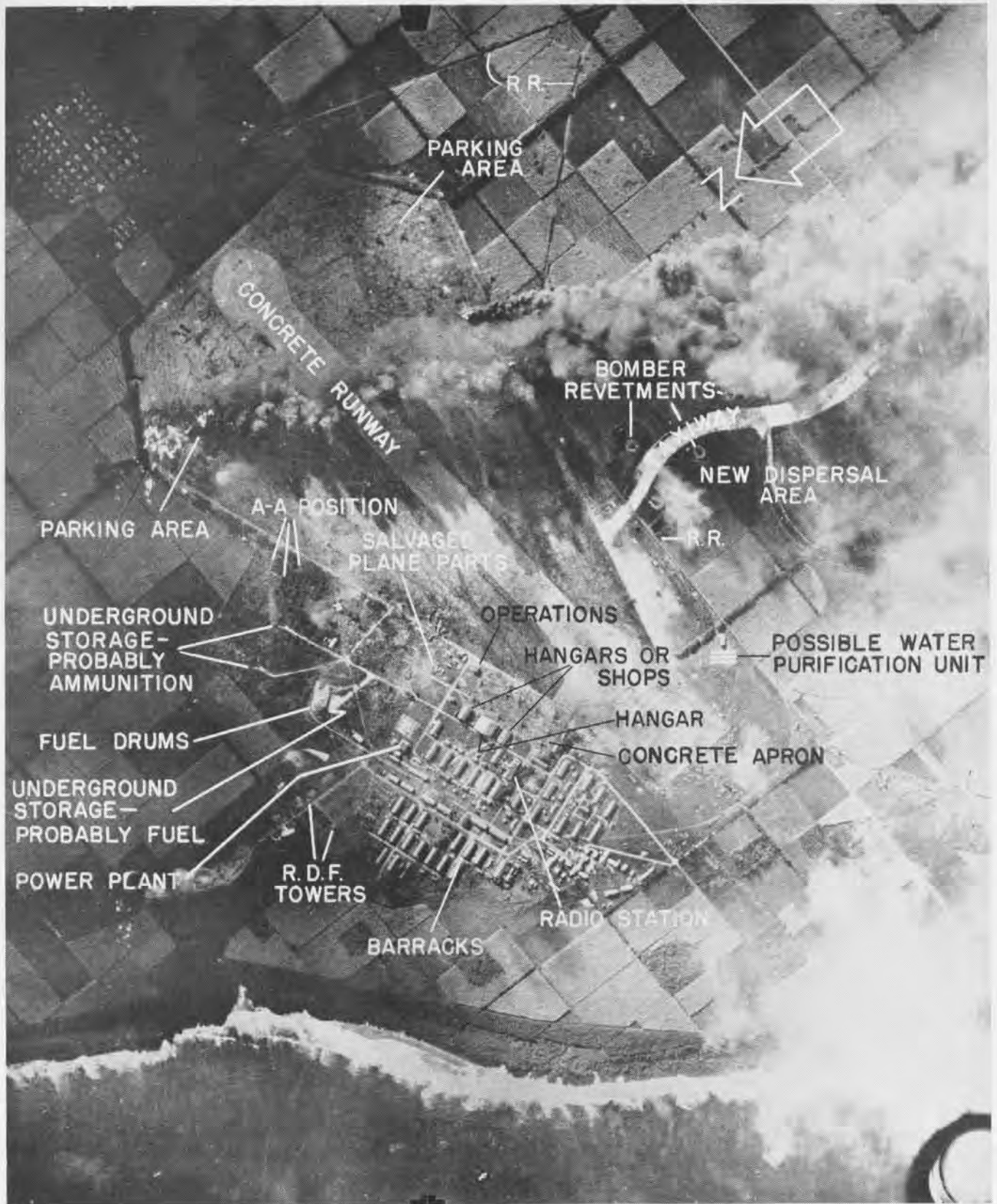


Photo interpreters have analyzed this photograph of the Tenian airfield and pointed out important installations as targets for future attacks. Close examination reveals 34 twin-engine planes and 22 single-engine planes on the concrete apron in front of the hangars and in the parking areas around the concrete runway. This single runway is 275' x 4,750', bearing roughly east and west, with turning circles at both ends. It is surrounded by a wide trapezoidal parking area, while

a wide taxiway leads off to a new dispersal area that is being developed to the south. Six bomber revetments have already been constructed in this new dispersal area. These are visible below the dense smoke rising from planes left burning in the parking area. Hangars, shops, radio station, operations tower, underground fuel storage and ammunition dumps, power plant, barracks, railway connections, and other airfield installations are indicated in the aerial photograph.



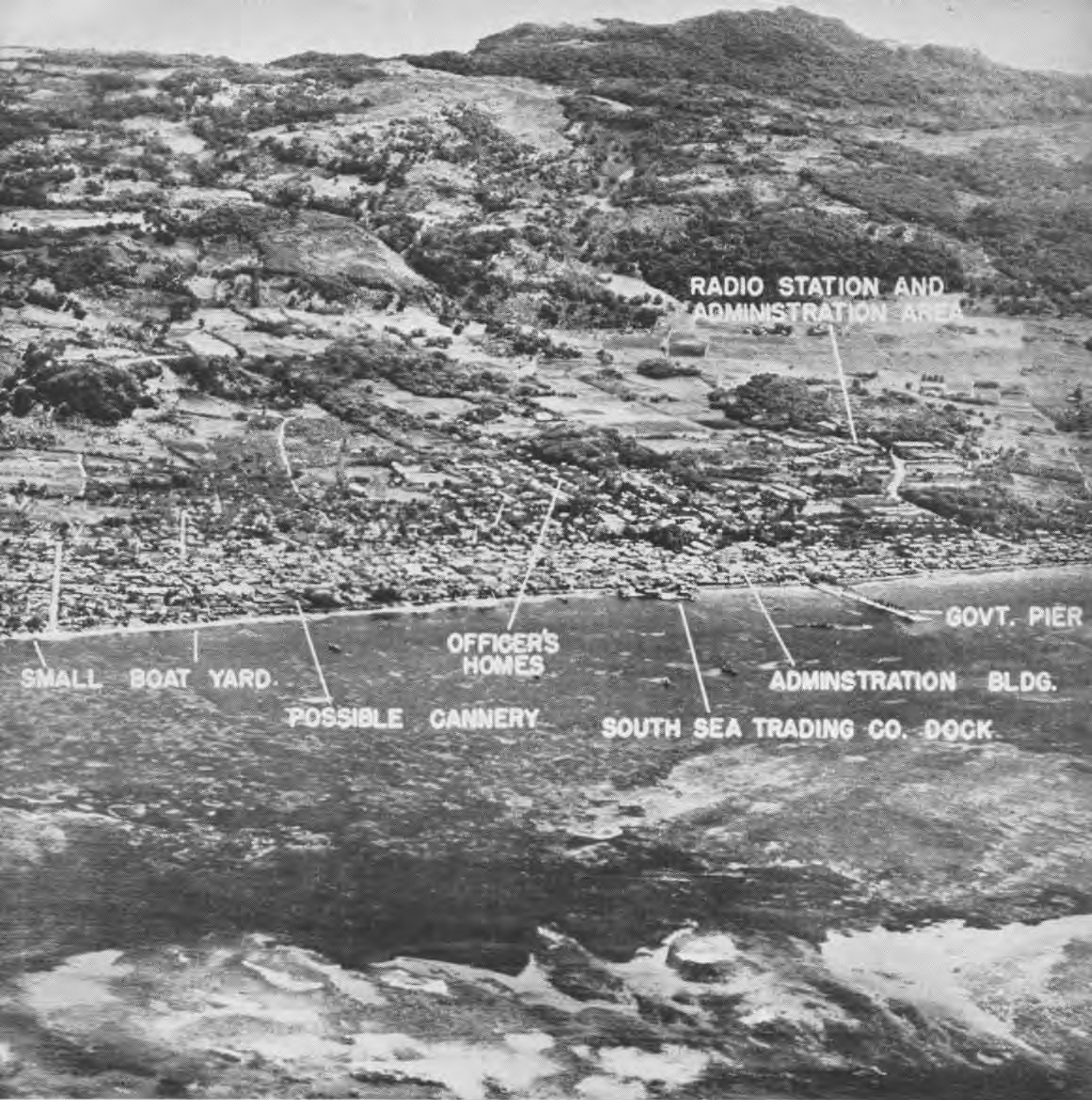
SAIPAN IS SOUTHERN OUTPOST IN DEFENSE SCREEN GUARDING JAPAN

SAIPAN ISLAND lies near the southern end of the Marianas, between Farallon de Medinilla and Tenian Islands, and is the largest in the group. It is important because of its proximity to Guam and its position near the Bonin Islands, forming a defensive screen for the approach to Japan from the south. The Japs consider Saipan one of the most vital bases in the League of Nations mandated Marianas group. Naval activity has been almost continuous with an exposed anchorage for all types of ships and protected anchorage for

several destroyers and many seaplanes available in the well-developed, but small, harbor.

In the foreground of the above view across the hilly island of Saipan is Garapan, located on the coast and the principal town of the island. It is built on ground sloping westward from a ridge of hills whose crests are about a half mile inland. The hills are wooded with coconut palms. About a mile north of Garapan is Mutecho Point, a flat area covered with coconut palms. Between it and the highway is a lagoon with marshy banks, about one-fourth mile in diameter. Between the lagoon and Garapan lies an expanse of fertile farm land.

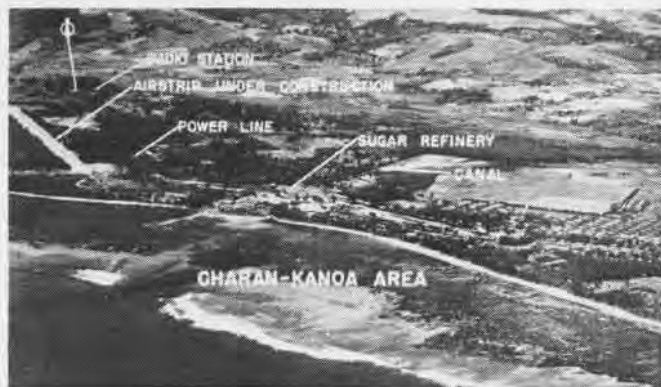
The island is 12½ miles long by 5½ miles wide, with a chain of mountains across the middle running in a north-south direction. The east side of the range is steep, but the west side slopes gradually down to flat, cultivated fields.



THE BACKBONE of the island is formed by a series of peaks. Mt. Tapotchau, with a crest of 1,554 ft., is the highest, located about 2½ miles southeast of Muteho Point and almost in the exact center of the island. Northeast of Mt. Tapotchau is a series of hills, for the most part heavily wooded. Between the lower slopes and the coast is a level area averaging 800 to 1,000 yds. wide.

The major industry of Saipan is sugar production with sugar mills at Charan-Kanoa and Akokoru, near Garapan. By-products are converted into industrial alcohol and liquors.

In 1935 there were 20,280 Japs, 3,282 natives and 10 foreigners on the island. Most of the Japs were brought to Saipan by the Nanyo Kohatsu Kaisha (South Seas Development Co.). They work on sugar plantations under a complicated system of tenant farming and are living under its economic control, being little more than slaves to their land.



JAPS BUILD AIRSTRIPS ON SAIPAN TO PROTECT THEIR INSTALLATIONS



ROWS OF TIGHTLY PACKED HOUSES GIVE GARAPAN VILLAGE ON SAIPAN ISLAND THE APPEARANCE OF A PROSPEROUS, MODERN JAPANESE SETTLEMENT

JAPAN'S CONTROL OVER MARIANAS DATES BACK TO LEAGUE MANDATE

WHEN JAPAN took over the Marianas Islands under a League of Nations mandate, following World War I, it was stipulated that the islands were not to be fortified. However, some few travelers who were able to visit Saipan before the outbreak of the present war reported feverish activity on the island. There were indications that a submarine base had been built, although Japan denied this.

Located only 125 miles north of Guam, the American out-

post seized early in the war from a small group of defenders, Saipan and nearby Tenian have provided the Japs with an ideally located base for mid-Pacific operations. Airfields on the islands have served as operational bases and for relay points in the delivery of planes to other theaters of action. Important also is the completely equipped seaplane base used for extensive patrol operations.

Harbor facilities were improved long before the war, ostensibly to take care of commercial shipping, but other installations were of a purely military nature.

While the 1935 population figures reported 20,280 Japs on Saipan, it was reported in 1938 that the number had increased to 25,000. Practically all of them were shipped to the island after 1920, to be workers on sugar plantations.



Before the war, the Japanese were busy building piers and dredging the harbor of Saipan Island so that ocean-going ships could enter instead of anchoring outside the reef. The protected anchorage is sufficient for a sizable fleet of destroyers and a large seaplane base



Island natives in the mandated Marianas, though greatly outnumbered by the industrial-minded Japanese population, continue to travel about in their quaint outrigger canoes. Nearly all of them live in two native settlements located around the Garapan area

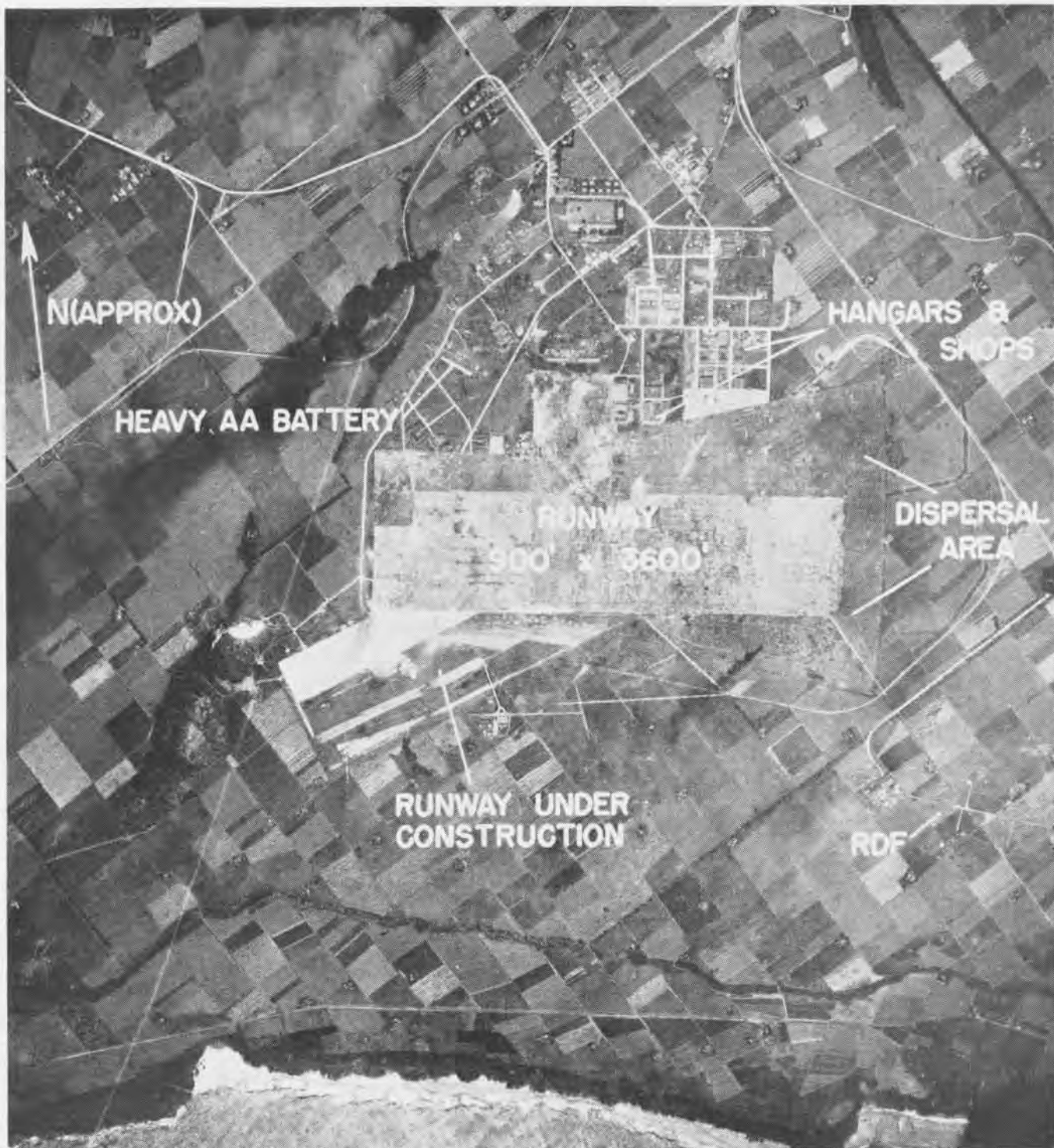
NAVY TARGET ON SAIPAN

ASLITO AIRFIELD on Saipan, situated at the south of the island, is the main air facility. A secondary airstrip is under construction on the southwest coast in the Charan-Kanoa area. In addition to these installations, there is a seaplane base northeast of Garapan.

From this vertical photo of the Aslito airfield, photo interpreters were able to spot two operative and seven inoperative twin-engine planes, six operative and two inoperative single-

engine planes. The single runway, about 900 x 3,600 feet, is being improved by an additional strip southwest of and adjoining the present strip. About one-third of this new section is leveled and surfaced.

Nine fighter revetments, in groups of three, are located north of the runway. One group is damaged. Another revetment, southeast of the runway, is not yet completed. Heavy anti-aircraft batteries protect the landing field, which includes hangars, shops and servicing facilities. This field was one of the principal targets for the carrier-based Navy planes which raided the Japanese island stronghold during the task force strike on the Marianas on February 22 and 23.



ASLITO AIRFIELD. SITUATED AT THE SOUTH END OF SAIPAN ISLAND, IS THE MAIN AIR FACILITY. A SECONDARY FIELD IS NEAR CHARAN-KANOA



PLANES NEAR THE APRON IN FRONT OF THE HANGARS AT ASLITO AIRFIELD BURN FOLLOWING THE ATTACK BY CARRIER-BASED FIGHTERS AND BOMBERS

SAIPAN INSTALLATIONS BLASTED

WHEN NAVY PLANES swept over the airfields of Saipan and Tenian, they caught and destroyed 87 Japanese planes on the ground, despite the fact the enemy knew the American ships were nearby. Gun crews aboard ship accounted for 14 planes, while 34 were shot down in aerial combat to make up the total of 135 enemy planes destroyed.

Only six American aircraft were lost during the action, to give a loss ratio of 22½ to one, probably a record.

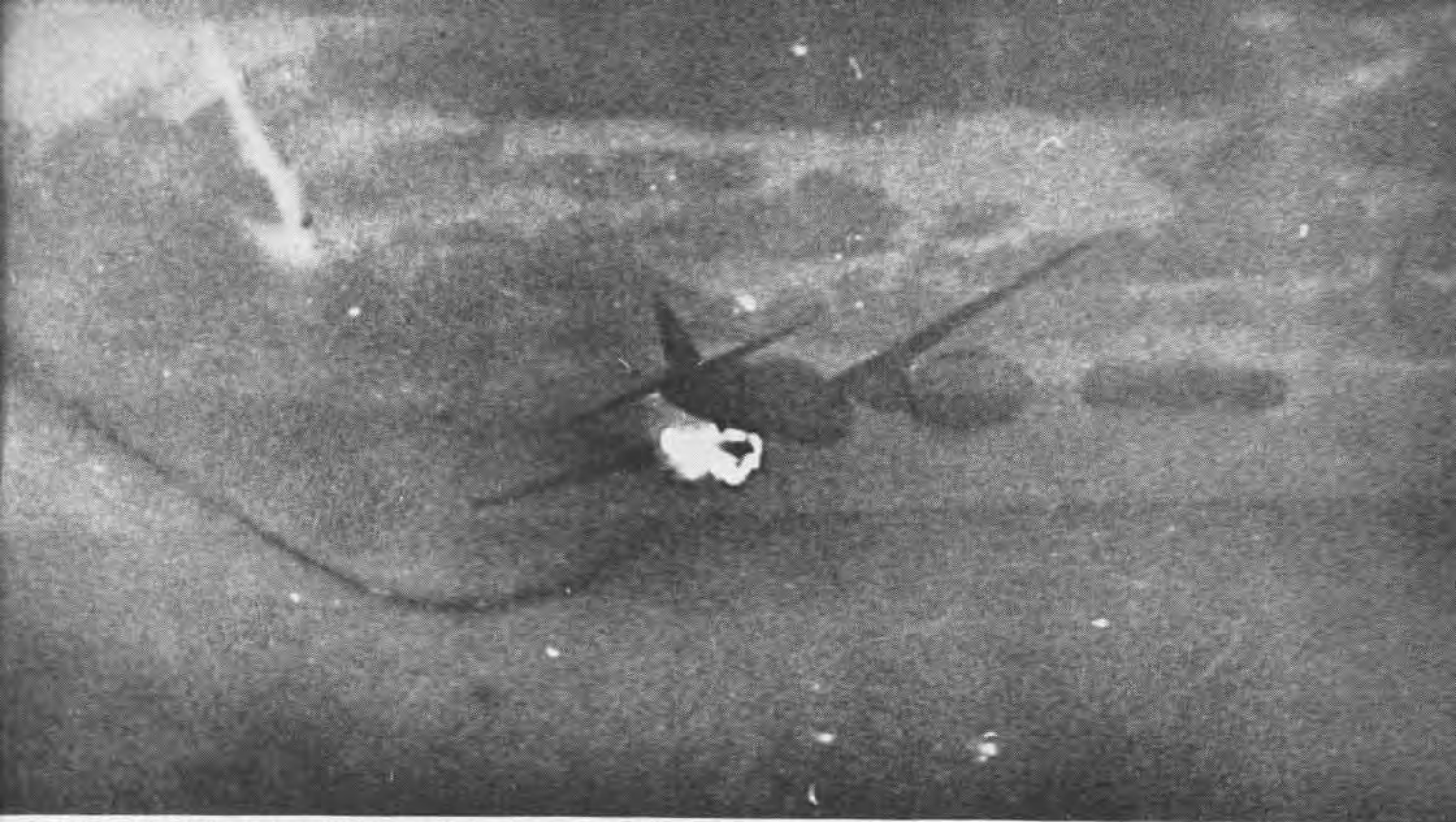
The absence of any important ships of the Japanese fleet was to be expected when the approach of the task force became known and anchorage areas were left nearly deserted. However, one cargo ship and a patrol vessel were sunk, while nine other non-combatant vessels were damaged. Following the strike, the United States Fleet retired from the area without a ship being sunk or damaged during the engagement.



Another view of the dispersal area at Aslito airfield shows planes burning following the attack. During the Navy strike on the Marianas, carrier-based planes and anti-aircraft fire accounted for a total of 135 Japanese planes. American plane losses were six



Very few enemy ships were found in the harbors when the Navy task force struck, but dive bombers and torpedo planes succeeded in sinking one freighter, a patrol vessel and inflicting serious damage to nine others. No United States ship was sunk or damaged



LEAVING A BLAZING TRAIL IN THE EARLY DAWN, A JAP PLANE IS SHOT DOWN AS IT ATTEMPTS TO INTERCEPT THE POWERFUL NAVAL TASK FORCE
FLEET ANTI-AIRCRAFT FIRE ACCOUNTED FOR 14 RAIDERS WHILE FIGHTER PLANES SHOT DOWN FIVE MORE DURING THE INEFFECTIVE ENEMY ATTACK



25 YEARS AGO THIS MONTH

Naval Aviation in May, 1919

May—Capt. T. T. Craven relieved Capt. Irwin as director of naval aviation. Navy conducted free balloon race for purpose of ascertaining data on air currents over land. Winning balloon with Lt. P. D. Collins and Ensign Clarence A. Palmer was in the air 21 hours, 9 minutes, traveling 420 miles.

May 8—NC-1, NC-3 and NC-4 left Rockaway Beach bound for Halifax on the first leg of their Atlantic flight. Crews of the flying boats were:

NC-3: Comdr. J. H. Towers, commander of flight and navigator; Comdr. H. C. Richardson and Lt. D. H. McCulloch, pilots; Lt. Comdr. R. A. Lavender, radio operator; Boatswain L. R. Moore, pilot engineer; Lt. Braxton Rhodes, reserve engineer and Lt.

Comdr. R. E. Byrd, reserve navigator.

NC-4: Lt. Comdr. A. C. Read, commanding officer and navigator; Lt. E. F. Stone and Lt. (jg) Walter Hinton, pilots; Ensign H. C. Rodd, radio operator; E. S. Rhoads, CMM, reserve engineer; and Lt. J. L. Breese, engineer.

NC-1: Lt. Comdr. P. N. L. Bellinger, commanding officer and navigator; Lt. Comdr. M. A. Mitscher and Lt. L. T. Barin, pilots; Lt. (jg) Harry Sadenwater, radio operator; C. I. Kesler, CMM, reserve engineer; Machinist Rasmus Christensen, pilot-engineer.

ROUTE: Rockaway to Halifax, N. S., 540 nautical miles; Halifax to Trepassey, N. F., 460 miles; Trepassey to Ponta Delgada, Azores, 1,350 miles; Ponta Delgada to Lisbon, Portugal, 800 miles; Lisbon to Plymouth, 775 miles.

May 15—Non-rigid C-5 flew from

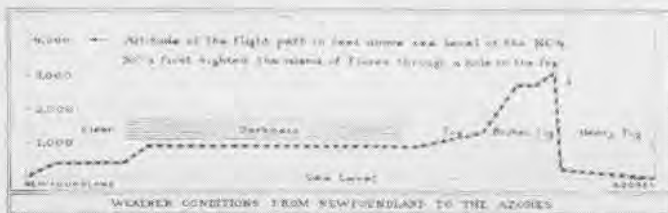
Montauk Point to St. John's, Newfoundland, in 25 hours, 50 minutes, a distance of 1,200 miles. Crew of six men—Commanding Officer, Lt. Comdr. Coil. It was planned that this airship fly the Atlantic at the same time the NC flying boats made the crossing. However, while moored at St. John's a gale tore the ship from its mooring with no personnel aboard. It disappeared at sea.

NC-1, NC-3 and NC-4 departed Trepassey Bay, Newfoundland.

May 17—NC-4 arrived at Horta, Azores Island. Average speed of flight was 78 knots; total flight time 15 hours, 18 minutes. NC-1 landed at sea and sank after the crew was taken aboard the Greek steamer *Ionis*. NC-3 landed and taxied into Horta, badly damaged.

May 27—NC-4 arrived at Lisbon.

May 31—NC-4 arrived at Plymouth.



THE NC-4 CREW

Commanding Officer: Lt. Comdr. A. C. Read, US Coast Guard
 Pilot: Lt. E. F. Stone, US Coast Guard
 Pilot: Lt. (jg) Walter Hinton, US Navy
 Pilot Engineer: Lt. J. L. Breese, USNRT
 Radio Operator: Ensign H. C. Rodd, USNRT
 Engineer: Chief Machinist Rasmus Christensen, US Navy

THE NORTH ATLANTIC
 QUARTER OF THE NC-4

LIEUT. COMMANDER A. C. READ, UNITED STATES NAVY

DATE	COURSE	DEPARTURE	ARRIVAL	DISTANCE
May 8	Rockaway to Cape Cod	2:02 pm	6:52 pm	287
May 14	Chatham to Halifax	1:07 pm	6:10 pm	465
May 15	Halifax to Trepassey	12:53 pm	9:38 pm	540
May 16	Trepassey to Horta	10:05 pm	1:24 pm	460
May 20	Horta to Ponta Delgada	12:33 pm	3:24 pm	150
May 27	Ponta Delgada to Lisbon	10:45 am	8:01 pm	561
May 30	Lisbon to Montego Bay	5:20 am	1:21 am	113
May 31	Montego Bay to Plymouth	1:28 pm	9:27 pm	328
May 31	Plymouth to Plymouth	9:27 am	1:26 pm	478

Greenwich Mean Civil Time
 Distance in Nautical Miles

BRITISH ISLES: IRELAND, ENGLAND, SCOTLAND

FRANCE: Paris

SPAIN: Madrid

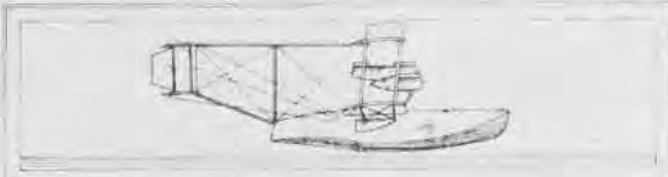
PORTUGAL: Lisbon

ATLANTIC OCEAN

Greenwich Mean Civil Time
 Distance in Nautical Miles

H. C. Read

Navy Curtiss, NC Flying Boat wing span 126 ft, hull 45 ft. Engines 4 Liberty V-type, 12 cylinder water-cooled, each 400 horse power at 1,700 r.p.m. Wing loading 11.7 lbs per sq ft. Power loading 17.5 lbs per hp. Gasoline capacity 1610 gal. oil 162 gal. Weight empty 15874 lbs, loaded 28,000 lbs. Cruising speed 77 mph, maximum speed 95 mph.



Organized and commanded by J. H. Towers, Comdr. USN, US Navy. Flying boats, namely NC-1, NC-3, NC-4, NC-5, NC-6, NC-7, NC-8, NC-9, NC-10, NC-11, NC-12, NC-13, NC-14, NC-15, NC-16, NC-17, NC-18, NC-19, NC-20, NC-21, NC-22, NC-23, NC-24, NC-25, NC-26, NC-27, NC-28, NC-29, NC-30, NC-31, NC-32, NC-33, NC-34, NC-35, NC-36, NC-37, NC-38, NC-39, NC-40, NC-41, NC-42, NC-43, NC-44, NC-45, NC-46, NC-47, NC-48, NC-49, NC-50, NC-51, NC-52, NC-53, NC-54, NC-55, NC-56, NC-57, NC-58, NC-59, NC-60, NC-61, NC-62, NC-63, NC-64, NC-65, NC-66, NC-67, NC-68, NC-69, NC-70, NC-71, NC-72, NC-73, NC-74, NC-75, NC-76, NC-77, NC-78, NC-79, NC-80, NC-81, NC-82, NC-83, NC-84, NC-85, NC-86, NC-87, NC-88, NC-89, NC-90, NC-91, NC-92, NC-93, NC-94, NC-95, NC-96, NC-97, NC-98, NC-99, NC-100.

NAVY NC-4 MAKES FIRST AIRPLANE FLIGHT OVER THE ATLANTIC OCEAN

THE TRANSATLANTIC crossing of the NC-4 was beset with trials and tribulations that would have daunted a less sturdy craft and crew. When barely out of sight of Long Island, the oil pressure in one engine failed, and the crew was forced to continue on the other three. Then the forward engine threw its connecting rod, and the plane was brought down 80 miles east of Cape Cod. By taxiing all night, she made NAS Chatham, Mass., under her own power.

After a change of engines, the NC-4 took off again for Halifax and proceeded on to Trepassey, Newfoundland. Another change of engines and a change of three split propellers was necessary, and the next day—with one engine fresh from the crates, unflown, untested and not broken in—she took off on the longest leg of her flight.

Smooth air conditions had been expected, but the going was rough. The NC-4 pursued a "wallowing, plunging" course and at one time was tossed into a dangerous spin from which—for a moment—the commander did not believe recovery was possible. The pilots took turns at the controls every half hour



FLIGHT CREW OF THE NC-4 (LEFT TO RIGHT): STONE, RHOADS, HINTON, RODD, BREESE AND READ

and in this way avoided exhaustion.

Continuing on from the Azores alone, the NC-4 reached Lisbon and then left for England. Just out of Lisbon a leak in the port engine forced a landing for repairs in the Mondego River near the town of Figueira, Portugal. While taxiing on the river, the plane ran aground on a sand bar, but no damage occurred. Since it was not desirable to land at Plymouth after dark, another overnight stop was necessary at Ferrol, Spain. Next day, May 31, 1919, after a stormy crossing of the Bay of Biscay, the NC-4

landed at Plymouth, England, to complete its epochal flight, becoming the first airplane to fly the Atlantic.

Though decorated by foreign governments for their feat, it was not until Congress passed an act February 9, 1929, that the crew of the NC-4 received formal recognition from their own government. The special medals authorized by Congress were presented by President Hoover at a White House ceremony May 23, 1929, just a little more than 10 years after the landing in the Azores at 1323, May 17, 1919.



AFTER HECTIC TRANSATLANTIC CROSSING NC-4 ENTERED THE HARBOR OF ANCIENT CITY OF LISBON WHERE THE CREW WAS MET BY JUBILANT PORTUGUESE



DIARY OF A MARINE FIGHTER SQUADRON

MARINE CORPS REPORT

MONDAY—SOUTH PACIFIC

2305—Two divisions took off to patrol X area

0110—Made contact at 20,000 feet

0250—Returned. See attached statements

DIVISION LEADER A:

DIVISIONS were separated by five miles at first sighting of enemy planes. *Zeros* were closing from 2 o'clock and slightly below. Nine *Vals* were seen below at approximately 15,000 feet. My wingman immediately reported it to the base—air was jammed at the time, and no response was heard.

The *Zeros* continued on course toward the north, passed underneath and apparently did not see us. Flying three planes abreast so as not to lose each other, I made a turn towards the bogey.

They saw us. Two of them split and began to gain altitude advantage. As they rolled and dived on us, we pulled our noses up into them, doing about 170 knots. The *Zeros* then pulled their noses up and started to climb.

I looked over my left shoulder and saw the other division coming in, and assumed they were above the *Zeros* on top of us—so I made a sharp turn to the right and ran into some *Zeros*.

I fired at the leader of a four-plane division. Tracers passed over his left wing. He did a split **S** and went down hard. His number three and four plane followed. Number two plane continued to the right, climbing slightly ahead of me. I closed from five o'clock above

and, on the longest burst, fired from 200 yards. My tracers passed ahead of his cockpit and through his left wing. Pieces scattered in the air.

At this time I received a burst in my cockpit and right wing. I pulled out, did a split **S** to the right, rolled to the left and then right. A 7.7 mm came through the fuselage, breaking the *tr* box and oxygen regulator, causing the oxygen pressure to be reduced to 0. I went down to 8,000 feet.

Indicating better than 300 knots in the dive, I noticed an F4U over each shoulder and thought them to be the other two planes of my division. A few minutes later Lt. W. joined up on me.

I leveled off, examined my plane and myself, then joined up with the other division. At this time I saw two planes in flames, heading west and northwest, diving toward the open ocean. They were out ten miles from our orbit, and I was unable to determine whether they were friendly or Japs. I then notified the other division leader I was returning to base and Lt. W. accompanied me. After passing X island, my plane started to smoke and run very roughly, so I landed there.

When I inspected the ship, I found a 20 mm shell had gone through my

right wing root, oil cooler return line, ricocheting off engine cowl flaps, putting one hole near the end of two propeller blades. There was other damage to the plane of a less serious nature. I had received some slight scalp and thigh wounds from shattered glass and 7.7 mm bullet jackets. Otherwise, no injuries were received by any of them.

DIVISION LEADER B:

WE WERE FLYING at 19,500 feet about five miles off shore when we heard the report of a bogey at six o'clock. As we turned away from shore, we noticed nine *Vals* below coming in towards the Cape. We began a high side towards the *Vals*, which turned away. Four flights of *Zeros* and one flight of *Hamps* were above us, so we did not complete our run on the *Vals*.

We spotted the other division mixing up with *Zeros*, so we proceeded in their direction. Three *Zeros* above us at four o'clock were over our right shoulders. We began a right-hand turn and saw one F4U 2,000 feet below with three *Zekes* on his tail. We made a sharp left turn, losing the *Zekes* that were firing on our tail. We then made a sharp



right turn and saw four *Zeros* in column 1,500 feet below and climbing parallel to our course. We then rolled over and made a high side attack. Major H. picked the lead plane and Lt. H. the number two. We started firing from 1,000 feet and saw tracers in front of their noses. At the same time, off to our right, four *Zeros* were making a high side on us. Our target turned slightly towards us, increased their climb and Lt. H. saw his tracers enter the cowl and move along the cockpit and fuselage. Pieces of cowl flew.

We had then closed so much, it was necessary to pull up to prevent running into them. Lt. H. estimated that he passed by the *Zero* with approximately a 20-foot clearance!

We then turned to the left and noted four *Zeros* below and climbing in column, so we made a right-hand turn to prevent their getting on our tail, and prepared to make a head-on attack. Lt. H. fired one burst and they did a split **S** out. We then made a sharp turn to the left and dove out of the fight with eight *Zeros* following directly behind, but we lost them. I contacted the base and requested permission to pancake, as our fuel supply was running low. We landed just ahead of a violent storm.

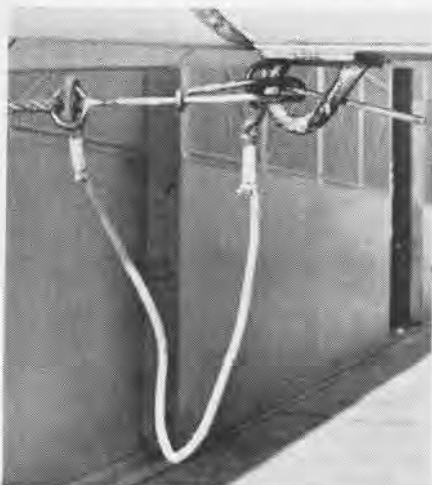
CARRIERS LET NANNEWS
HEAR FROM YOU!



TECHNICALLY SPEAKING

Aids in Launching Planes Line Has Quick Release Fixture

NAS PENSACOLA—A quick-release fitting has been devised at this station for use in launching OS2U type planes. A retaining line is secured to the tail hold-down fitting as the plane is rolled down the ramp. After the plane is waterborne and the beaching gear is



A PULL ON THE CORD RELEASES RETAINING PIN

removed, retaining line is released by pulling a cord which removes a pin.

This device permits quick attaching and releasing of the retaining line, and the difficulties of having spring-latched releases corrode and stick are eliminated.

Recharge Flashlight Cells Can Be Rejuvenated Three Times

NAS DALLAS—This activity has devised a method of recharging flashlight batteries it uses in night flying. A charging device is made by taking a pair of parallel wires from the garage battery charger and building trays to hold the batteries. It is possible to recharge them to about 70 percent of the original charge. This can be repeated until the battery case begins to leak.

► **BuAER COMMENT**—This proposal to recharge flashlight batteries appears practicable. It is more exactly a rejuvenation which depolarizes the cell. A simple procedure is described in October, 1943, *Electronics*, page 148.

Briefly, the method is to place cells in a rack, end to end and connected in series. Either a full-wave or half-wave rectifier may be used. The charging current should be maintained for about 10 hours at approxi-

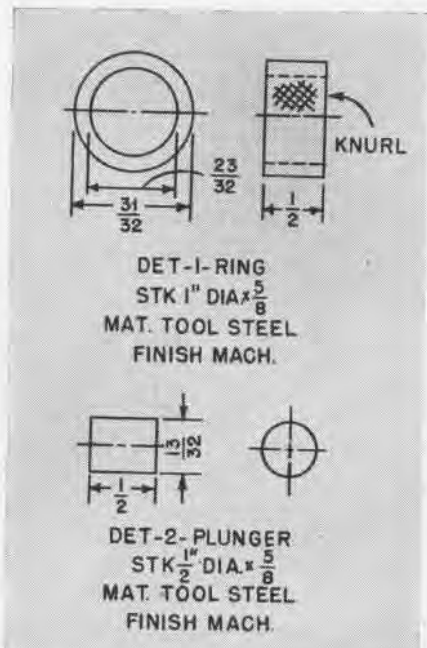
mately 150 milliamperes, in no case exceeding 200 milliamperes. Life of a new standard-size flashlight cell, when discharged at 250 milliamperes, is about eight hours. After the first recharging, the life will be about six hours, after the second about four and after the third about three.

Flashlight cells should be recharged as soon as possible after discharge. Cells with leaks or suspicious-looking bulges in the case should be thrown away. It is recommended, where dependable flashlight operation is required, such as in the flashlights issued for a pilot's use in airplanes, that only new fresh cells be used. It is not recommended that penlight cells be recharged.

Bearing Tool Is Produced Extractor Removes Gyro Units

NAS BANANA RIVER—A bearing extractor has been put in use at this station for removing bearings from the gyro frame of the turn and bank instruments, 88-I-3280. It is found that use of this type of bearing extractor reduces the number of damaged bearings when compared to the use of Sperry Bearing Extractor part No. T22259. The extractor is used with a small arbor press or vice.

► **BuAER COMMENT**—Sperry tool T-22259 is listed by Sperry as obsolete due to improved overhaul technique. However, use of the Sperry type bearing extractor is not recommended on the Pioneer turn and bank since the Pioneer bearing can be pressed

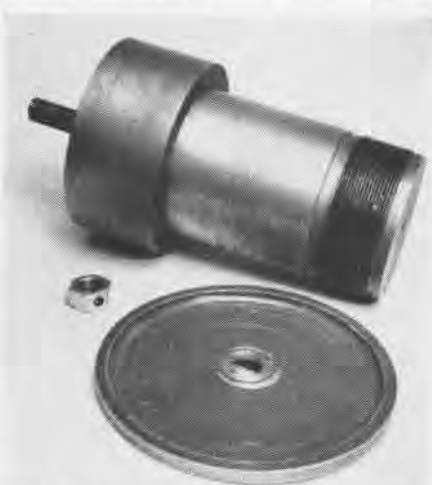


BANANA RIVER HAS GYRO BEARING EXTRACTOR

out and in. The pressing technique is recommended by Pioneer but no specific tools.

Tool Holds Socket Wrench Keeps It From Slipping Off Nut

FAIRWING 7—When special tools supplied by the manufacturer to remove propeller retaining nut used on Hamilton Standard propellers appeared to be



AIDS REMOVAL OF PROPELLER RETAINING NUT

inadequate, this squadron devised a pilot retainer wrench. With this aid, removal of this nut can be accomplished in a few minutes where previously it often required several hours.

Easily manufactured in any machine shop, the only material necessary to make the tool is a piece of $\frac{3}{8}$ " boiler plate, 6" x 6", and a piece of mild steel 4" in diameter and $6\frac{1}{4}$ " in length.

The principle of this tool is to form a means of support for the deep socket wrench used to remove retaining nut and also furnish a means of holding socket firmly in place on the nut. This is accomplished by installing tool in engine propeller shaft from which propeller distributor valve has been removed. Deep socket is then slid over outer end of tool and onto nut. Tool thus acts as a pilot while the outer end is of sufficient dimension to allow socket to turn and act as a means of support.

Retainer plate follows socket and through use of a $\frac{3}{8}$ " stud and nut, plate can firmly hold socket on the propeller retaining nut. The nut holding retainer plate in position must be loosened as the nut backs off, otherwise damage may result to the propeller shaft.

[DEVELOPED BY E. M. NICHOLS, AMMTC]

BEST ANSWERS

First Aid at Sea

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

- The first aid treatment for blast concussion injuries (in water) caused by depth charge, torpedo or aerial bomb is to—
 - a—place the victim in a lying position with head low, keep him warm and administer morphine
 - b—place the victim in a lying position with the head raised and give him morphine and stimulants
 - c—administer artificial respiration immediately
 - d—apply cold applications to the victim's head
- A seaman is brought from a burning compartment of a ship and placed in a lying position on the deck. An examination reveals that his body has turned blue, he is unconscious, and has three broken ribs. No pulse can be found. The first aider should—
 - a—treat only for shock and obtain a physician
 - b—give artificial respiration and treat for shock throughout the procedure and after revival
 - c—use an inhalator and treat for shock after revival
 - d—bandage broken ribs and treat for shock
- A survivor at sea has developed pressure ulcers. The first aid treatment is to—
 - a—cleanse the inflamed areas daily with alcohol and dust with antiseptic powder
 - b—apply compresses moistened in ammonia water
 - c—apply antiseptic and sterile dressings
 - d—apply compresses wet with warm salt or epsom salt solution
- Desperate survivors of prolonged exposure afloat often resort to the drinking of sea water. The result is likely to be—
 - a—relief, if only a small amount is consumed
 - b—convulsions and delirium
 - c—coagulation of blood in the veins
 - d—the shrinking of the tongue and the glands of the mouth



BENEFICIAL SUGGESTION PROGRAM AT CORPUS CHRISTI NETS DOUBLE SCREWDRIVER FOR PBY

Double Screwdriver for PBY Removes Corroded Nuts Safely

NAS CORPUS CHRISTI—A civilian employe here has designed a double screwdriver for the fuel system pump valve on PBY's under the beneficial suggestion program. Before manufacture of the double screwdriver, there was no set way to remove the pump valve adjusting pin or the packing nut that secures the pin. Screwdriver permits worker to remove all corroded packing nuts without damaging them and also permits accurate setting of the adjusting pin. Without the proper tools, it is very easy to damage these packing nuts and adjusting pins while removing or installing.

[DESIGNED BY LOUIS E. CURRAN]

Radio System Is Improved New Table Aids Communications

NAOTC JACKSONVILLE—An improved version of the communications training table for teaching radiomen Morse code has been developed here. It is planned to build approximately 75 at NAS Jacksonville for distribution to all OTU's and NAC's of operational command.

The synthetic voice and telegraph training table has 12 positions, with the instructor at one end. Each cubicle has a telegraph key, headphones and "push to talk" microphone. By utilizing "split phones" and toggle switches in each cubicle, the instructor may simulate communications with planes 1 to 6 by turning his rotary switch to the desired position.

In this situation the positions opposite each other simulate a plane, with pilot and radioman able to communicate with



COMMUNICATIONS TABLE IMITATES PLANE WORK

each other and the instructor by voice without interfering with any communication being carried on by the other positions using either voice or telegraph.

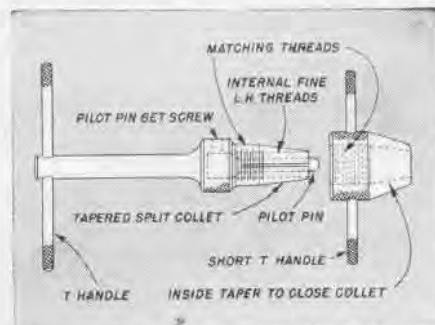
The recording unit will permit the instructor to record 30 minutes of simulated situations using either voice or code and then play the entire communication back over the headphones to the entire group. This permits corrections in either voice or telegraph procedure to be made.

Conversation between instructor and one plane cannot be recorded, as this enables the instructor to make "on the spot" corrections of errors without interrupting the voice or telegraph circuit operation which is being recorded.

Carburetor Tool Is Handy Aids in Removing the Idle Tube

NAS MEMPHIS—A tool has been designed in the A&R Department of this station for installation and removal of idle tube (Part No. P13931) in Stromberg NAR6-NAR6D-NAR6G carburetors without damage to the parts. Make-shift arrangements used previously nearly always resulted in deforming the idle tube so that it was necessary to replace it out of new parts stock.

In practice the tool is used to install the idle tube by inserting tube in jaws of collet and tightening the compression nut by the T-handle, then screwing tube in place in carburetor body. In disassembly, tool is slipped over idle tube extension above carburetor body, then tapered nut is tightened on collet. Pilot pin, being the same size as the hole in idle tube, prevents tube from being crushed or bent out of shape.



PREVENTS DAMAGE TO CARBURETOR IDLE TUBE

The very fine internal left-hand thread inside collet grips outside of idle tube and, being a left-hand thread, aids collet in unscrewing tube from carburetor. It is successful in use, even in stubborn cases, and is proving its worth in the saving of material and time. Drawings are available at this station.

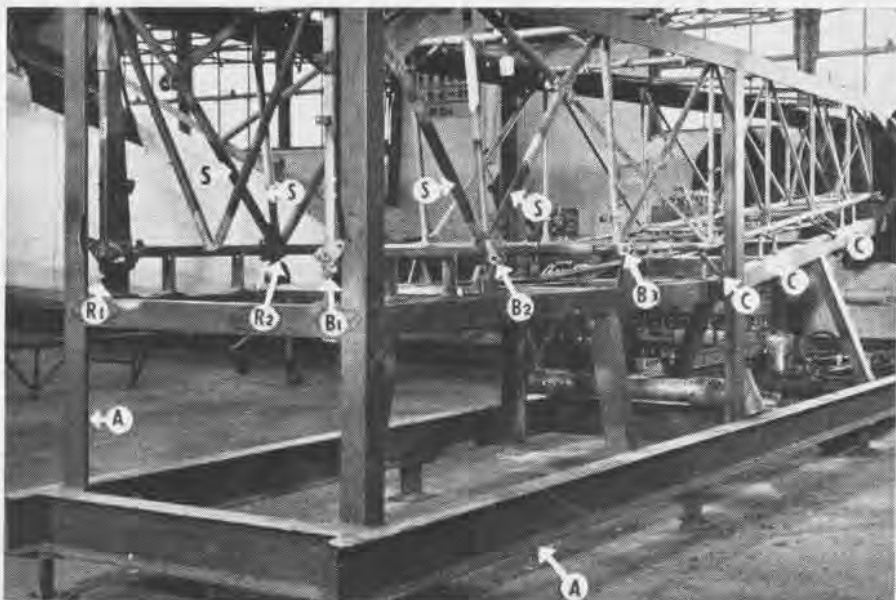
► **BuAER COMMENT**—This tool appears to be both practical and good and as far as is known, there is no contract manufactured tool to do this job.

Wheel Jack Is Supplied

BuAer Developed Hydraulic Lift

BuAer has developed a new tail wheel jack in response to the need for a quick and handy method of lifting and leveling airplanes during bore sighting and similar work by advanced bases, CASU's and Marine squadrons.

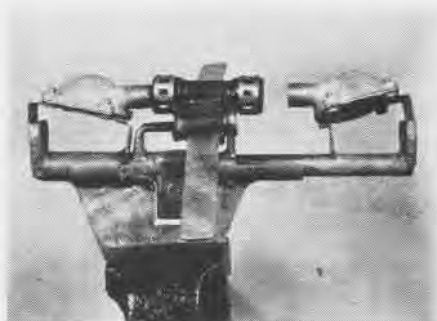
This tail wheel jack provides a hydraulic means of lifting the tail wheel



GROSSE ILE FIXTURE HELPS IN REALIGNING N2S FUSELAGES AND REPLACING DAMAGED FITTINGS

length (handle raised) 94". It is easily moved about and is intended for use aboard carriers and ashore. The jack is available for issue and can be furnished

fuselage shown in the fixture had all the landing gear fittings stripped off on both sides. Damaged sections were cut out and replaced by sections salvaged from



NAS EMPLOYEE WINS AWARD FOR TOOL DESIGN

Civilian Designs Hose Tool Saves Labor, Eliminates Hazard

NAS PENSACOLA—A civilian employe here has won an award in the beneficial suggestion program for designing a tool for assembling rubber oil hose on rocker-box covers for R-985 engines.

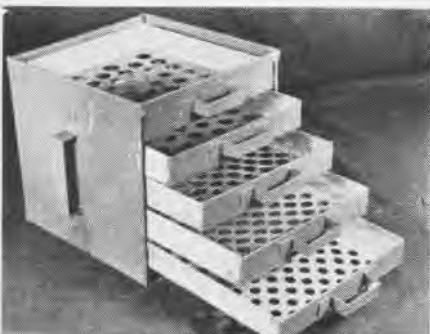
The tool was made by preparing a jig to fit the rocker-box covers and rubber oil hose. Jigs were then secured on a telescopically arranged wrench. The form that fits the oil hose is secured between the box cover jigs, so that when the two covers are brought together with the telescopic wrench the oil hose is forced into its proper place on the box covers.

Prior to development of the tool, it was quite difficult to force the rubber hose on the rocker-box covers by hand. Women mechanics in particular had trouble. With new tool the hose can be assembled efficiently without any strain or hardship on the mechanic. It virtually eliminates danger of injuring mechanic's hands. Besides the safety feature, the tool enables mechanics to cut labor time in half and gives uniformity to all work assembled.

[DESIGNED BY WILLIAM L. LEE]

Sorting Box Speeds Work Perforated Drawers Sift Nuts

NAS OTTUMWA—A sorting box for washers, nuts and palnuts has been developed by A&R Department which both speeds up and simplifies the operation. A series of drawers with perforated bottoms is used, employing the principle of gravel sifters. The top drawer has



SORTING BOX SIFTS NUTS, WASHERS, PALNUTS

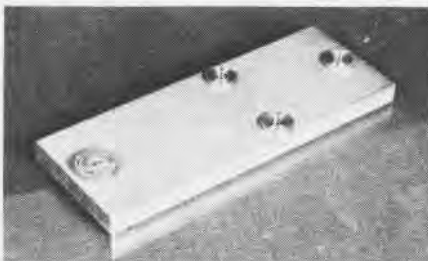
the largest holes, succeeding drawers having smaller ones. When the box is shaken, the objects sift through until passage is stopped.

[DEVELOPED BY W. J. LUPKIN, ACDM]

Tapping Jig Aids Drilling Ottumwa Tells of New Device

NAS OTTUMWA—This station's A&R Department has perfected a Lycoming rocker box stud drilling and tapping jig which holds the drill in the center of the stud while a broken stud is being drilled out. The plate is placed over the rocker box studs.

Bronze collars are slipped over the good studs. The case-hardened collar is slipped in the stud hole to be drilled. Two sizes of the latter are available, depending on condition of the broken



DEVICE HELPS IN DRILLING OUT BROKEN STUDS

stud, which readily can be drilled out. This idea can be applied to similar conditions in other engine parts.

►BuAER COMMENT—This device will eliminate possibility of drilling into the rocker box, thereby causing the cylinder to be of no further use. It is suggested that interested stations contact NAS Ottumwa for prints and specifications of this jig.

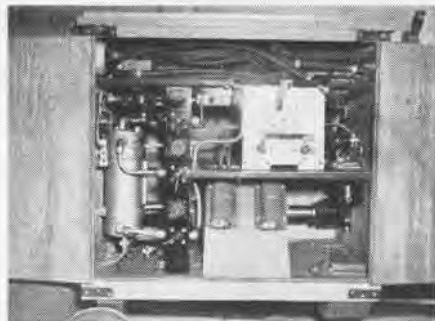
Field Test Stand Developed Unit Used to Check Instruments

NAS SEATTLE—In order to test automatic pilots without using the airplane power plant, A&R has recently developed a field test unit which is manufactured almost entirely from salvaged parts. This unit has the power to check all gyroscopic instruments and hydraulic systems and to blow out pitot-static lines.

It consists primarily of two oil filters, a hydraulic gauge, vacuum gauge, vacuum relief valve, reversing switch for three-phase wiring and a main electrical switch. The entire unit is contained in a plywood case 48" x 24" x 42" which is mounted on three rubber-tired wheels.

Use of this independently powered test device reduces the necessary manpower to one and the time required for aircraft overhaul by approximately 25 man-hours.

[DEVELOPED BY HAAKON O. OLSON AND LEONARD A. PYM]



CHECK AUTOMATIC PILOT WITH PORTABLE UNIT

►BuAER COMMENT—A small portable hydraulic pump is available under stock No. 88-T-792 for use with the C-1 instrument field test set 88-T-903 in testing automatic pilot hydraulic systems. This pump merely acts in place of the aircraft pump; the remainder of the aircraft auto pilot hydraulic system is utilized including filters and sump tank.

New designs of the instrument field test set now include a hydraulic pump. These sets are carried as stock numbers 88-T-901 and 88-T-902, operating on alternating current and direct current respectively, and R88-T-903-20, operating on 110-volt AC-DC.

All the above test sets are mounted on wheels and have an air pressure source for blowing out pitot-static lines. Additionally, the sets permit functional testing of air-speeds, thermocouple thermometers, altimeters, vacuum-operated flight instruments, oil pressure gauges, tachometers, and electrical circuit continuity tests.

A portable test set for electrical instruments is being designed. This set will have an electric power source and removable portable units for testing all types electrical thermometers, magnesyn compasses, autosyn instruments, liquid level and position indicating instruments, gyro flux gate compasses.

A&R Uses Circular Bench Aids Work on Engine Cowlings

MCAS MOJAVE—A circular felt-covered work bench has been devised by A&R to facilitate work on engine ring cowlings. The "inside" man can work more effectively and several men can gather around a piece of work and operate simultaneously without interfering with each other.

►BuAER COMMENT—This is not a new idea but a worthy reminder to those repair units not familiar with procedure.



CIRCULAR BENCH AIDS WORK ON RING COWLINGS



Burning fiercely, the fate of the S.S. *Topeca-Norge* appears doomed after an attack by carrier-based torpedo planes opposite the east cove of Lotka, Norway. In sinking condition, the stricken vessel is being deliberately run ashore by Nazi commander



Dauntless dive bombers sweep into Mel fjord to attack a Nazi ore ship. Bold raids like these over Axis-controlled waters have taken a heavy toll of merchant vessels so vitally needed by the enemy. These swo's flew off broad decks of the U.S.S. *Ranger*



German shipping in the fjords of Norway has felt the sting of Navy planes from the aircraft carrier U.S.S. *Ranger*. Here the *Saar*, a new type German merchant vessel, and other Nazi freighters resting at anchor just off Bodo, are under attack

Cleaning Job Is Facilitated Fuel Gauge System Is Explained

NAS MEMPHIS—Cleaning of the plexiglas cylinder in the N2S fuel gauge has always presented a difficult problem owing to the effect of leaded fuel on the material; but the A&R Department at this station has devised a method of salvaging them.

In many instances the gauge cylinders become so coated that it is difficult to read the markings. A&R has salvaged about 40 to date by reaming the plexiglas cylinders with an extra long reamer, 1/32" larger than the original bore, thus cleaning the cylinder bore without damage to the threads.

After reaming, the inner bore is rinsed with acetone to make the tube transparent. Acetone should not come in contact with the threads. If the threads are worn, they may be replaced by plugging the end with plexiglas and retapping. Graduations on the gauge then are repainted if necessary.

► **BuAER COMMENT**—This method of salvage appears to be satisfactory, provided staining of the sight tubes does not penetrate too deeply into the material. This same method could be used on any sight tube, with appropriate reamers to use.

By-Pass Switch Is Provided Approach Light Circuit Control

In carrier-based aircraft, whenever practicable, access is provided to the automatic switch in the approach light circuit for manual closing of this switch when use of the approach light is desired (with the hook in the up position) for practice landings ashore.

In some types of carrier-based aircraft, the manual closing of the automatic switch is impracticable, and a toggle switch is installed for by-passing that switch. A guard is also provided for holding the toggle switch in open position during carrier operations.

This guard should be removed only during practice landings ashore as covered in TO 33-44. Care should be exercised to insure that the automatic hook switch alone is controlling the approach light during carrier landings and that the guard is in place over the toggle switch (if such is employed) on ending practice landings ashore.

CARRIERS

LET NAVY NEWS
HEAR
FROM YOU!



AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Lens Heaters for AN Gun Cameras

Inquiries from the Fleet have led to the development of three experimental lens heaters to prevent lenses of AN type gun cameras from fogging. Preliminary tests now are being conducted, and it is contemplated that a limited procurement will be initiated for 50 of these heaters.

Fleet air activities operating in weather conditions which cause extreme fogging are requested to communicate with BuOrd in order that more exhaustive service tests may be made using the experimental lens heaters.

New Lamp Is Made for Mark 9 Sight

Bureau of Ordnance calls attention to the new lamp, Mazda No. 846, Stock No. 2-L-345L (old number 17-L-6733-10), for the Illuminated Sight Mark 9. Squadrons having difficulty in dimming the old lamp (Mazda No. 1664IF) Stock No. 17-L-6733, for night use of the Mark 9 sight, are urged to change to the new lamp, the minor filament of which is capable of smooth dimming by the standard rheostat in the Mark 9 sight. The major filament, on the other hand, is considerably brighter than that of the old lamp, giving maximum brilliance for daytime use. Complete information may be found in OMI V1-44.

Unclean Fuse Cavity Causes Blast

Necessity for a careful inspection of fuse threads of aircraft bombs before a fuse is screwed into place was borne out by a recent explosion at an ammunition depot. The circumstances were as follows: In the Explosive ν loading plant, it was desired to lift an adapter ring from a major caliber ν loading truck. The usual practice has been to screw two bolts into the adapter ring and lift it off with the crane.

On the occasion in question, the threads in the bolt hole were supposedly cleaned thoroughly. However, a slight amount of ν still remained on the threads, and when a bolt $\frac{1}{2}$ " x 8" was started into the hole, a violent explosion occurred after about six threads were engaged. This explosion blew the bolt out of the hole and through the roof which was $1\frac{1}{2}$ " thick.

BuOrd Produces Dangerous Weapon

Although the newly developed aircraft flare container Mark 1 is intended solely for carrying six Mark 6 type aircraft parachute flares which may be released one at a time by electrical impulse from a 24-volt circuit, the flare container has proved one of the world's trickiest "ratchet-traps."

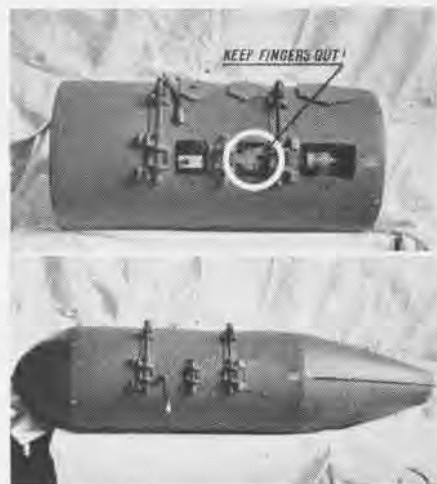
The "mice" caught thus far have been president of the firm manufacturing the containers and the naval officer at naval proving ground in charge of inspection and tests of first production models. Both victims had to be given medical treatment for painfully injured fingers which, in each case, remained caught in the container until

released by the aid that was loudly summoned.

The two victims lost no time in calling for assistance and commanding "somebody do something to the cocking lever" (not a direct quotation), which unfortunately is located at the bottom of the container just out of their reach. The accidents resulted in addition of a prominent decal, located on top of the bracket which houses the ratchet, which reads "Danger!! When cocked, keep fingers out!"

It might be well to add a couple of comforting remarks about the so-called "ratchet-trap": 1. It is completely enclosed, being at the top of the container under the center access cover where it can do no harm during normal installation, loading, or operation of the container. 2. When examining inner workings of the container with the center access cover removed, obey what's written and avoid being bitten.

The aircraft flare container Mark 1 is jettisonable and may be suspended from any standard single or double hook (14" spacing) bomb rack or shackle located either externally or in a bomb bay. For



BUORD AIRCRAFT FLARE CONTAINER IS TRICKY

bomb bay installations it is intended that the container be used without the nose and tail fairings.

The container was developed to enable any desired airplane to be adapted quickly for flare-dropping duties. The empty container weighs only 130 pounds and when loaded with six flares (Mark 6 type only) the total weight is only about 310 pounds. This fact will allow several of these flare containers in almost any type aircraft.

The container has its own transfer switch which operates after the sixth flare has been released; therefore, it is possible to obtain uninterrupted train release of flares by use of the intervalometer or electric bomb release "pickle."

Each flare container will be accompanied by an ORN containing working instructions.



CORSAIR PAYS UNEXPECTED CALL TO ISLAND AIRSTRIP, SHORTLY BEFORE IT WAS DONE; MARINE "MECS" IN VARIED GARB FIX ITS POWER PLANT

BIRTH OF A JUNGLE AIRSTRIP

CHOPPING A LANDING strip for Navy fighter planes a few score miles from a big Japanese base in the Southwest Pacific was only a few days' job for a crew of Seabees. The first plane came in two days ahead of schedule when a *Corsair* pilot made a forced landing only 19 days after the first LST nosed up to the shore of the densely jungled island and began discharging its cargo of bulldozers, trucks, men and guns. New Zealand infantry and tanks worked hand in hand with the Seabees and Marines in taking the island away from a few score of Jap "custodians."

Almost as soon as the first white men got ashore they set up 20 mm. anti-aircraft guns to ward off any Jap air raids on the new operation. Gradually a roadway was cleared from the beach to the interior of the island where surveyors had hacked their way to lay out a fighter strip amid the dense coconut palms. Then the bulldozers went to work, pushing over the tall palms, digging out their roots and leveling off uneven places. Dynamite blasted out the coral hummocks.

Four days elapsed from the time the first landing was made until a crude

road into the jungle was constructed and clearing work begun on the airstrip. From then on it was a routine job of bringing civilization into the jungles. Taxiways had to be built, dispersal areas provided so that strafing Japs could not find Navy planes in neat rows. Endless lines of dump trucks hauled in coral from the seashore to pave the strip and areas. First planes were scheduled to land on the strip on the twenty-first day but the first visitor came two days early—a *Corsair* pilot whose engine froze up while on a mission from another base in the area.



1 As soon as LST nosed up to shore, the ever-present Seabee bulldozers went ashore to push back the steaming jungle so supplies could be landed on beach. Note 20 mm. gun mount on blade of right-hand bulldozer, which later was set up on shore



2 Five days later the bulldozers had shoved back enough undergrowth so that supplies and equipment could be landed on the sandy beach and the push into the jungle started. Japs lurked in the interior of the island but they did not seek a showdown



3 Infantry, under cover of a light tank, head back into the deep jungle-covered island, to flush the Japs known to be hiding there. Meanwhile, surveying parties, armed with machetes, hack their way through the dense undergrowth to lay out the airstrip



4 Bodies of dead Japs tangle grotesquely with banyan roots after the skirmish ended and the rising sun's garrison was wiped out; back on the beach the task of unloading more supplies, ammunition goes ahead; Japs, though close, failed to attack field



5 Sometimes the crystalline coral was so tough the Seabee's bulldozers could not shove it aside and dynamite crews had to be called in to blast it out. Here pneumatic hammers drill holes for the dynamite to be tamped in and work of leveling continued



6 Operating on a round-the-clock schedule, Seabee trucks haul in crushed coral for placement on the taxiways and hardstands as the airstrip comes down to grade. Power roller nearby will flatten coral into smooth surface for the fighters soon to arrive

PHOTOGRAPHY

Distribute Photographic Handbooks

Bearing in mind that the present PhoM3c is the future leading chief, the photographic officer should see that all photographer's mates have ready access to all technical bulletins, technical orders and other handbooks of instruction being supplied by BuAer.

TAI Teams Get Data on Jap Planes

One of the important functions of Technical Air Intelligence field personnel is to supply complete and accurate details of crashed enemy aircraft. To assist the TAI teams in getting this vital information, photographers have recently been added to the complement of the teams. These men now are in action and photographs showing important details of Japanese aircraft are beginning to flow in.

Such photographs are first supplied to the theaters in which the teams are operating so that any views which have combat value can be put to immediate use. At the same time additional copies are forwarded to TAI in Washington where they are used in the development of accurate drawings and silhouettes of Jap aircraft.

Lack of detailed information on Jap aircraft makes it essential that photographs be taken by experienced men. In many cases, all recognition material is of necessity based on photographs of bits and pieces of the crashed aircraft. An example of this is the new Jap fighter, *Tojo*.

▶ A new manual of photography is now being prepared at NAS Pensacola. Much effort and good talent are being employed to bring the book up to present-day needs. It is hoped the new issue will be available in the early part of June.

▶ Quarterly photographic reports coming into BuAer reveal that many photographic units run some form of training program along with their regular work. This is necessary due to the fact that some photographer's mates have not been through the Pensacola school or need further training in specialized branches. Where possible, it is suggested the actual shooting of pictures be confined to subjects which may be of value for filing and forwarding. Many good shots of record, news and historical value could be so produced.

▶ Some excellent photographs of night surface engagements have been made by combat unit photographers. Technique employed in the stills was the same as is often used in photographing lightning; an open shutter, camera, either hand-held or on tripod, with the various gun flashes and ship outlines controlling composition and pattern. Eyemo motion picture cameras running at sixteen frames per second and using large lens aperture have produced excellent shots of close-up patterns.

Make Mold for Plexiglas

CASU Solves Difficult Problem

CASU 17—Recently a Ventura bomber attached to this very advanced base lost its pilot's escape hatch. The only available replacement hatch had a good frame but the plexiglas was damaged.

The structural chief dreamed up a rig to form new plexiglas. The Seabees made up a concrete mold of the required shape which included a tricky double curvature. An old gasoline drum was converted into a steam generator while a used pellet case was made into a steam box. The first attempt at forming plexiglas was only partially successful but with the lessons learned by it,



CRUDE PLASTIC MOLDING METHOD IS SUCCESS

subsequent trials turned out a factory finished job.

The mold was placed in the steam box and the plexiglas sheet to be formed was laid on top of the mold. The box then was closed and the plexiglas allowed to steam for a period of two to three hours. The mating mold was then placed in position, the box closed and the plexiglas allowed to cool slowly. The final product came out clean and clear and was cut to shape, drilled and installed in the frame.

▶ **BuAER COMMENT**—Obviously, the refinements in the process depend entirely on the available equipment, but the process might have been improved as follows: Fundamentally, live steam is not the best heating medium. If the packing case had been lined with sheet metal and instead of bleeding steam into the box, the pipe from the boiler had been extended into the box to form a heating coil with the steam exhausting into the open air, the plastic would have been heated by convection and a more uniform temperature might have been achieved. The mold can be left outside of the box. After the sheet has been heated until it is suffi-

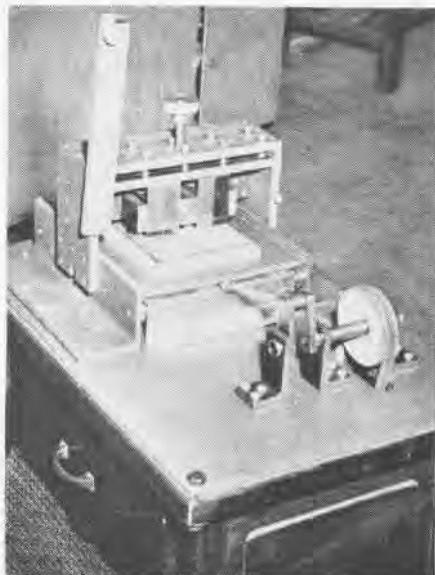
ciently soft by placing it in the box on a rack or tray, it can be removed and draped or even stretched, if necessary, over the mold. To prevent "mark-off" on the softened plastic from the concrete mold, a soft felt cloth, such as a billiard table covering, could be used if available.

The plastics section is preparing a technical order on the maintenance and repair of plexiglas sheets jointly with AAF, which will be issued soon.

Machine Grinds Off Points

Refacing Operation Is Speeded

NAS OTTUMWA—A machinist's mate at this station has developed a power-driven lapping machine for refacing magneto points, doing four points in one operation to save on man-hours.



REFACING MACHINE SIMPLIFIES POINT FILING

Points to be refaced are first placed in the conventional jig for that purpose. These jigs then are placed in a rigid but adjustable frame over the top of the stones, which are set on a steel plate riding on rollers. A pulley and arm arrangement, power driven, supplies the reciprocating motion needed to reface the points.

[DEVELOPED BY J. J. SOCHA, AMM3c]

▶ **BuAER COMMENT**—This is a commendable machine, but too elaborate to consider replacing smaller special hand tools now supplied and found adequate for this operation. This type of machine would be ideal for activities set up to do magneto overhaul on a production or progressive overhaul basis on a speeded-up program.

CARRIERS

LET
NANEWS
HEAR
FROM YOU!



Fan Ventilates Hot Plane

BuAer Stocks New Blower Gear

BuAer has come to the aid of men who literally "sweat it out" in the interiors of aircraft based or operating in regions where temperatures hit the high spots. When planes are exposed to direct sunlight for prolonged periods, the interior compartments become heated and bring on extreme physical discomfort to personnel working inside.

To lower these interior temperatures, BuAer has procured a quantity of self-powered portable ventilators which are compact and completely self-contained. They are powered by Briggs and Stratton 1½-hp single-cylinder engine which in turn drives 14" axial flow, pro-



VENTILATOR BLOWS AIR TO COOL HOT AIRCRAFT

PELLER-TYPE pressure fan at 3,400 rpm. The unit delivers air at 4,000 cubic feet a minute through a 14" duct which is 16' long and is used to convey the air to the desired compartment. The duct is reinforced by wire rings and may be collapsed for stowage in the duct stowage compartment on the unit.

Primarily, the ventilator is intended to deliver atmospheric air to the interior of the aircraft, but it may be used to exhaust the interior air to the outside. However, under no conditions must the unit be operated in confined spaces or spaces which are contaminated by gasoline fumes.

The ventilator is mounted on two rubber tires (zero pressure type), weighs 87 lbs, and has dimensions of 19"x26"x36". BuAer has procured the units as described above, complete with spare parts. Description is (A) Ventilator, gasoline engine driven, self-powered, portable, stock Nr. 89-V-205000. (B) Kit, ventilator, maintenance spare parts, designated as stock Nr. R89-K-628500.

BuAer has stocked these units at various supply depots and annexes. They have not been placed on allowance lists, but will be made available on requisition from organizations whose operations require them.

Machine Tests Safety Belt Hydraulic Vise Provides Weight

NAS BUNKER HILL—A new type safety belt testing machine that is both accurate and a time-saver has been designed by a parachute rigger at this station to replace the commonly used fulcrum type.

The tensile load required is supplied by a Studebaker foot-operated hydraulic vise. Proper tensile load is registered by a 1,000-lb. capacity dynamometer



SAFETY BELT TESTING MACHINE IS TIME-SAVER

scale. The machine is constructed of 2" square tube iron. The vise is mounted securely at the bottom, one end of the safety belt is fastened to a connection secured to the movable jaw of the vise. The other end is fastened to the dynamometer scale.

[DESIGNED BY H. F. THOMAS, PR2C]

New Sight Put on Shotgun Aircrewmembers Train With Device

NAS BANANA RIVER—An ordnance man at this station has adapted the Mark IX reflector sight on a 12-gauge automatic shotgun for training aircrewmembers. Provisions have been made for both azimuth and elevation regulations.

Two 12-volt batteries have been hooked up to provide current. A good many thousand rounds have been fired with this arrangement and, to date, no difficulties have been experienced. This gun is mounted on a stand and equipped with a machine gun spade grip.

[DESIGNED BY T. O. NELSON, AOM2C]

POWER PLANTS

Front Intake Pipe Coupling Leakage

Exhaust gas leakage at the exhaust clamp connection is responsible for burning through of intake pipe rubber couplings on R-2800 engines. A plain stainless steel shield (see BuAer P&W R-2800 Engine Bulletin No. 81) has been installed on the hose couplings of production engines for several months and has been made available for field installation, but burning through of these shields has also been experienced.

An improved stainless steel shield incorporating an asbestos liner is now available under Chicago Rubber & Asbestos Co. Part No. 100 (see Supplement No. 1 to BuAer P&W R-2800 Engine Bulletin No. 81). When stainless steel shields are not available, a very effective protection is to wrap the couplings with a strip of four-inch asbestos tape, secured with safety wire, and coat with water glass. Rotation of the exhaust clamps, so as to turn the hinges away from the intake couplings, also reduces the probability of burning the couplings.

Adopt New Engine Number System

The system of assigning to aircraft engines a manufacturer's serial number and BuAer or AAF number is being discontinued. Under the new standard system established by Army Air Forces and Bureau of Aeronautics, there will be only one serial number, which shall be known simply as the engine serial number and shall be preceded by a letter, or group of letters, which will identify engines as to manufacturer and designer.

Where only one letter precedes the numerals, the engine is both designed and manufactured by the company whose code letter is used. Where two letters precede the numerals, the first indicates the actual manufacturer, whereas the second indicates the company controlling the engine design. Identification code letters assigned to respective aircraft engine manufacturers follow:

Code	Name	Code	Name
A	Allison	L	Lycoming
B	Buick	M	Waukesha
C	Chevrolet	N	Naval Aircraft Factory
D	Chrysler	P	Pratt & Whitney
E	Franklin	R	Ranger
F	Ford	S	Studebaker
G	Warner	T	Continental Motors
H	Nash-Kelvinator	V	Packard
J	Jacobs	W	Wright
K	Kinner	Z	Continental Aviation

Under the new system of serial-numbering engines, it will be possible for each manufacturer to utilize the same numbers as other manufacturers, thereby making it possible to correctly identify engines only when the maker's code letter or letters precede the numerals. It is therefore imperative that when identifying an engine by serial number, that code letter or letters always precede numbers used to describe it.

LETTERS

PUBLICATIONS

SIRS:

We have just received as a gift from an officer here at the Naval Academy several issues of the NAVAL AVIATION NEWS (formerly entitled BUREAU OF AERONAUTICS NEWS LETTER), and we believe that this library should, if possible, own a complete set of this publication. Midshipmen and officers are continually requesting information of this nature and we are sure that its use will justify our receiving copies as published.

LIEUTENANT, USNR
Librarian

Annapolis

SIRS:

The article on Navy Helicopters in the May 1 issue of NANews did not point out that the HNS-1 Navy model was developed by Army Air Forces. It is their R-4 model, and this fact should be noted for the record.

COMMANDER, USN

Washington

SIRS:

It probably sounds corny to say, but we felt the April 15 issue of NAVAL AVIATION NEWS which came to our desk a few days ago looks even better. In the midst of a lot of amateur journalism it is refreshing to run into a job so well done. The art was stimulating, good copy, well handled. Editorial enterprise stands out all over, e.g., the page 7 NANews chart.

CAPTAIN, AAF
O-1-C Plane Facts

Patterson Field, O.

¶ Thanks for them kind words.

SIRS:

I note in the April 15, 1944, edition of NAVAL AVIATION NEWS, page 8, the statement that I was a member of the crew of the NC-4. This was the plane which, under the command of Lieutenant Commander Read, eventually completed the transatlantic flight.

In the interest of historical accuracy, I call your attention to the fact that I was

not a member of the crew of the NC-4, but was in command of the NC-1.

P. N. L. BELLINGER,
Vice Admiral, USN,
Commander Air Force, Atlantic Fleet

SIRS:

On page 8 of the April 15, 1944, issue of NAVAL AVIATION NEWS there is an article concerning the first transatlantic flight. The following inaccuracies are brought to your attention in order to keep the record straight:

1. The left-hand picture shows (second from left) Lieut. J. L. Breese, USNR, who was a member of the NC-4 crew.

2. Machinist Howard (on the left) was detailed to the NC-4 crew but did not make the trip because he had his hand cut off shortly before the start. It is believed the left picture was taken prior to the final assignment of personnel.

3. The picture on the right shows the crew of the NC-1 and not of the NC-4.

4. The NC-1 is not mentioned along with the NC-3 and NC-4. All three of these planes started.

5. The cruising speed was whatever speed balanced the plane the best because there was neither an adjustable stabilizer or tabs. The cruising speed of the NC-4 with an average load was about 60 knots.

Neither the NC-1 nor the NC-3 completed the first transatlantic flight.

A. C. READ
Rear Admiral, USN

¶ NANews admits the inaccuracies and attributes them to captions on old prints that were incorrect. This frequently is the case in many photographs that were captioned years back, owing to insufficient personnel then assigned to the task. The testimony of eye witnesses, as in this case, often is needed to straighten out identification. NANews is glad to have these corrections for the record, and has checked inaccuracies that might have occurred, except for these letters from Admirals Bellinger and Read, in pages 26 and 27 of this issue.

Allowance List Guides Distribution

Aeronautical technical publications and forms, as well as other items distributed by BuAer's Publications Section, are forwarded automatically to all ships, stations and activities concerned originally in the quantities set forth in Section K, Allowance List of Publications and Forms (NAVAER 00-35QK-1).

Thirteen classifications of aircraft form the basis for distribution: VF, VG and VR, VJ and VJR, VN, VPB (land), VPB (PB2Y), VPB (PBY), VPB (PBM), VSB, VSN, VOS and VSO, VTB, and LTA. Insofar as possible, published material is sent to every activity according to the types of aircraft stated to it or the types of planes it may be called upon to service, maintain or overhaul.

Mission Is the Basis for Distribution

This policy of distribution on the basis of mission rather than current custody developed from the difficulty encountered in attempting to trace continuously the location or quantity of any particular model of aircraft.

All carriers receive data on all airplane models currently being assigned to carriers. Squadrons, streamlined or non-streamlined, assigned a specific model originally, will receive initial commissioning allowances of publications for that model. Thereafter they will get data on models of that type.

Such activities as NAS, NAAS and NAAF are sent publications and forms in quantities proportionate to the number of established detachments or PATSU's, which should apply to the parent organizations for their material.

In the past certain technical publications have been addressed to the CO, marked for the attention of the A&R Officer. Because difficulties have been reported in getting adequate distribution of these technical data to all interested divisions of the activity, this practice is being discontinued, and publications are now being addressed only to the CO who is responsible for coverage within his command.

Here's Where Material Is Located

At most NAS's complete files of technical data are located in the A&R Office, except where Aero Publications Centers have been established. CASU's and HEDRON's generally maintain files in the Engineering Office, with essential supply publications, such as parts catalogs, being located in the Supply Office. On CV's and CVE's these files are in the Air Officer Division.

Every technical publication is issued to serve a specific purpose and to perform a service in the field so that continuous maintenance and operation may be possible. Therefore it is important that the information being made available through BuAer's technical data program reach the personnel whose functions require it. For further details, see Aviation Circular Letter 31-44.

ANSWERS TO NAVIGATION PROBLEM

on page 15

- | | |
|----------|---------|
| 1. 60° N | 3. 1800 |
| 2. 30° N | 4. 180° |
| 5. 89 | |

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

BEST ANSWERS

to questions on page 30

- 1.a 2.b 3.a 4.b

ANSWERS TO POWER PLANTS QUIZ on inside back cover

- 1.1 2.1 3.2 4.4 5.2 6.2

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

PIX QUIZ

Do you know about AIRCRAFT POWER PLANTS?

You don't have to be a watchmaker to tell time, nor a mechanic to drive a car; nevertheless, knowledge of power plants is likely to be helpful to anyone in naval aviation. Try this quiz, then see answers on p. 40.

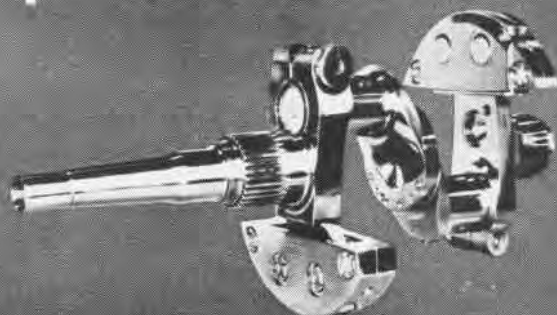
[QUESTIONS FROM VISUAL QUIZ FILM NO. 42, AIRCRAFT POWER PLANT]

Write your answers here

- 1 4
2 5
3 6

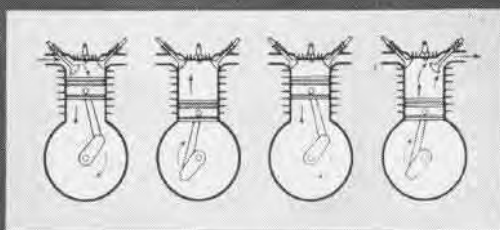


1 Journals on this crankshaft number:



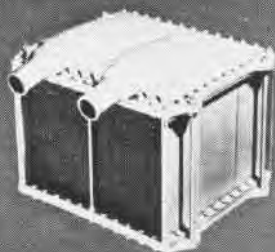
1. 4 3. 2
2. 5 4. 6

4 Power-stroke principle illustrated here is:



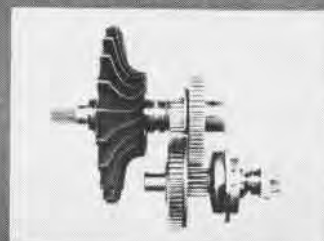
1. Multi-cycle 3. Two-stroke-cycle
2. Double-cycle 4. Four-stroke-cycle

2 Coolant used in this type of radiator is:



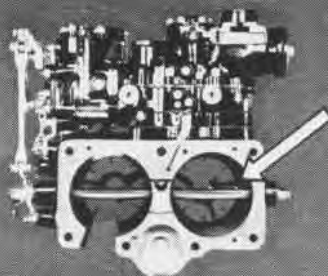
1. Ethylene glycol 3. Benzine
2. Steam 4. Liquid air

5 Operation of this mechanism directly influences:



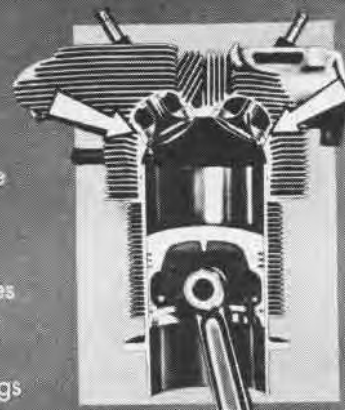
1. Oil viscosity 3. Fuel octane rating
2. Volumetric efficiency 4. Firing order

3 This type of throttle valve is known as:



1. Variable-venturi 3. Diaphragm
2. Butterfly 4. Centrifugal

6 Arrows indicate the:



1. Valve guides
2. Valve seats
3. Tappets
4. Valve springs

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