NAVAL AVIATION NEWS

Jap Plane Revetments
Swimming • Conservation
Air-Sea Rescue Units

Aug. 15, 1944
RESTRICTED

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SOME time ago, a flight was scheduled to attack the Jap airfield at New Georgia Island, now in American possession. Sergeant Gilbert H. Henze was the rear gunner in an SBD. They were about to dive through the steel-splattered sky when a piece of AA shrapnel pierced the cockpit and killed the pilot.

Out of control, the plane darted dizzily through the sky. Sgt. Henze had two alternatives—sure death or a long chance. He chose the latter, grabbed the controls.

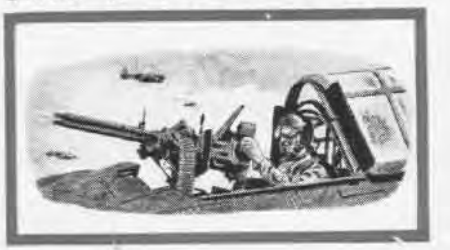
Breath-taking seconds passed as the inexperienced "pilot" fought for his life. He managed to bring the plane back to level flight, fumbled for the radio and called whoever might hear him. The leader of the fighter group picked up the call and Henze feverishly described the spot he was in.

The fighter pilot swung in close to the SBD and hurriedly issued a few instructions. After the gunner got the feel of his plane, another pilot joined up, and the three started back to the base. A hundred miles slipped by, with the sergeant rapidly gaining confidence.

Suddenly the engine of the SBD started to sputter. The gas tank was dangerously low, and the gunner had no means of switching to the other tank. The fighter pilot started to give Henze a quick course in bailing out when his radio went dead.

Both fighter escorts motioned to the gunner to gain altitude. Instead of pulling up into a stall, Sgt. Henze allowed the plane to go into a steep dive. His chute finally dragged him out of the cockpit.

When he hit the water, he lost consciousness, but was rescued by natives. The experience of Sgt. Henze assured all future gunners of "stick time" in airplanes.



Aircrewmen have what it takes!

JAP PLANE SHELTERS

THE JAPANESE go to elaborate extremes to conceal information on plane strength. The captured Jap photograph on page two, taken at the edge of the Marine air strip on Wake Island, shows a plane hide virtually under ground. Canvas "curtains" pull across the front to conceal the plane completely. In other cases ordinary types of plane revetments have been covered with garnished nets strung on light bamboo frames to form semi-transparent "hangarettes," to keep airmen guessing as to whether there are planes inside, or to obscure details so that planes cannot be identified. Wherever possible revetments are built under existing trees to take advantage of the screening effect of the foliage and confusing shadows of the branches. Dispersal is a very effective type of "camouflage" in the case of planes. A single plane parked under a tree or isolated in a revetment may easily be missed, while several in a group would be picked up on reconnaissance.

PHOTOGRAPHIC interpreters have studied the various types of revetments which the Japs have built in different parts of the Pacific area, and have grouped them in classifications according to shape and construction. These vary with the locale and the local materials available. A knowledge of which types of revetments can be expected in which regions and what these shapes look like from the air is useful to the pilot in spotting dispersed enemy planes and an aid in destroying them.

CAPTURED PHOTO SHOWS JAPS INSPECTING UNDERGROUND PLANE HIDE AT EDGE OF MARINE AIR STRIP ON WAKE ISLAND. CURTAIN CONCEALS PLANE

PLANE SHELTERS ARE DESIGNED TO GIVE MAXIMUM PROTECTION

In order to establish a system of classification for Jap aircraft shelters, the seven principal shapes thus far encountered in the Pacific have been assigned letters of the alphabet. The four principal construction types, packed earth, sandbags, log cribbing with earth fill, and concrete have been numbered 1 to 4. Thus, B-1 identifies a shelter that would otherwise have to be described in detail as a shelter having two parallel side blast walls, with both ends open, and of packed earth construction.

Besides the seven basic types, there are a number of other irregular shapes which are not classified, and also multiple units of the standard types, designated by repetition of the key letter or combination of two letters.

There are also several types of covered revetments known as "hangarettes," usually from 85′ to 110′ wide and 50′ to 65′ deep. These are often built in a square type D revetment, of very light construction, consisting of a frame of bamboo over which a roof of matting is laid. Their principal purpose is to shelter maintenance crews from heavy rains. The British first observed them being built in Burma just before the monsoon season. They also have the value of preventing accurate plane count or identification. Other covered types have concrete walls with earth banked against the outside and timber roofs with packed earth on top. Some are dug into high banks, and covered with earth and shrubbery on timber roofs, thus hiding planes.

A Multiple units of type A shelter are located on edge of runway at Truk. The British developed this shelter in Burma. Extension at back conforms to shape of plane, bringing it as close to blast wall as possible. One *Kate* has been put out of action

B Type B shelters, usually in central location adjacent to runway, protect planes and personnel during servicing and are not for permanent plane storage. This shelter at Lae is BB-1 fighter shelter with walls of earth that have been sod covered

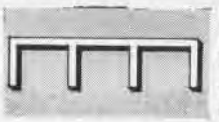
C Type C-1 revetment is used by fighter planes off taxiway at Vunakanau airfield, Rabaul. Blast wall is constructed of earth banked over log cribbing, with sod covering and shrubbery for camouflage. Note type D shelter with canvas net cover

D Type D-1 shelter is used on the But airstrip at New Guinea. Jap *Lily* in the foreground is camouflaged with paint alone but the one in revetment has been covered with canvas strip netting. Grass on walls blends in with surrounding area

E Entrance to type E-3 fighter shelters on Nauru Island are protected by log reinforced dump cars which can be drawn across on track. Blast wall is of coral earth banked against log palisade. Floor is packed coral with concrete center strip

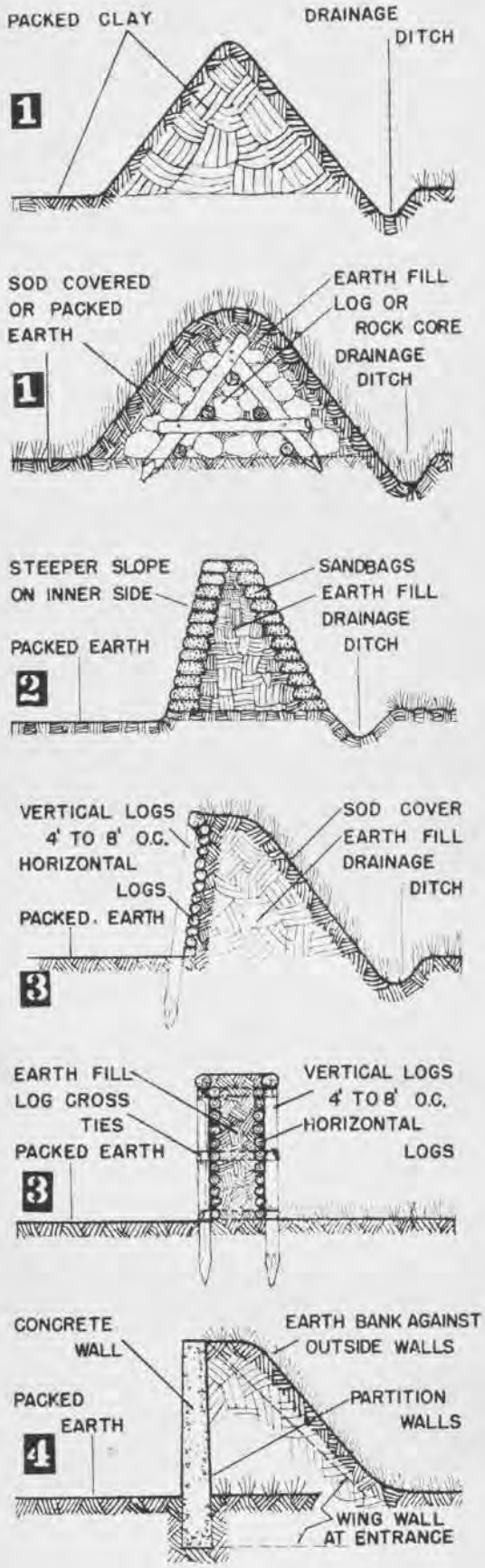
FF Type FF-1 shelter is heart-shaped with borrow pit at side. Great protection is provided in that revetment houses two planes but has only one narrow entrance in wall. Construction is of packed coral as well as floor and taxiways

K This symmetrical arrangement of type K revetments in the North Pacific Area makes a distinctive pattern in the bleak landscape which is partly snow-covered. This illustrates need for protective covering.



DDD This concrete fighter shelter at Maleolap is DDD-4. Thin straight walls have triangular buttresses, with the walls painted for camouflage. Vehicle revetment is located at the extreme left side

CONSTRUCTION OF SHELTER



JAP REVETMENTS ARE CATALOGUED BY TYPE OF CONSTRUCTION USED

AT LEFT are cross sections of the four principal types of construction used in Japanese shelters. Two variations of type *1*, EARTH, are given, the choice depending on the material available at hand. The PACKED CLAY type is characteristic of Burma, while the EARTH, SOD COVERED type is common to the Pacific islands, where the basic material is loose coral rock, sand and earth. There the sod covering, as well as a rock and log core, acts as a retaining agent for the loose material. Type *2*, SANDBAG, and type *3*, LOG CRIBBING, are also common to the Pacific islands, being even better methods of retention of loose coral earth and sand. Type *4*, CONCRETE, is the strongest of all, and indicates the most permanent type of installation. Each drawing shows certain definite characteristics which help spot types of shelters.

1. EARTH, PACKED CLAY. *a*. Sides equally sloping at about 45 to 60 degrees. *b*. Irregular but sharply defined outline with sharp corners and apex. *c*. Smooth surfaces.

1. EARTH, SOD COVERED. *a*. Sides equally sloping at about 45 degrees. *b*. Irregular outline merging into surroundings, with rounded corners, apex. *c*. Rough vegetation texture.

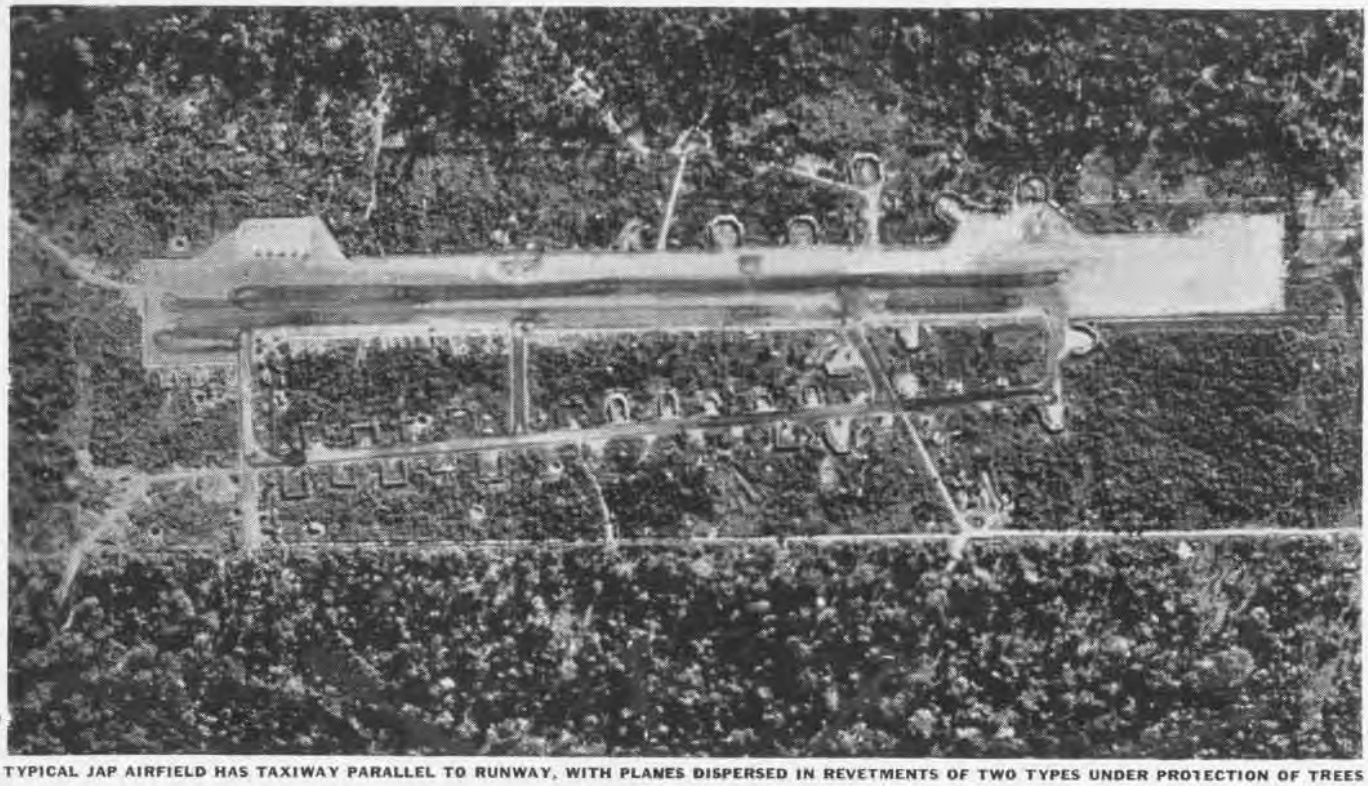
2. SANDBAG. *a*. Sides sloping at 45 to 60 degrees, often with steeper slope inside. *b*. Outlines of base, apex and corners sharply defined and straight. *c*. Sandbag texture sometimes visible, even in reconnaissance photographs.

3. LOG CRIBBING—one side. *a*. Inner face of wall vertical with slightly irregular outlines and vertical logs often discernible. *b*. Outer face, sloping earth bank, generally sod covered, planted with grass or shrubbery for camouflage.

3. LOG CRIBBING—both sides. *a*. Both faces vertical, with slightly irregular outline and vertical logs often discernible. *b*. Flat top four to six feet wide. *c*. Most often used as partition walls of multiple shelters, having outside walls of log cribbing, one side.

4. CONCRETE. *a*. Vertical wall with one to two foot wide white top. *b*. Sharply defined and absolutely straight outlines. *c*. Generally has earth banked against outside. *d*. Triangular wing walls buttress ends of side walls at entrance of this Jap revetment and retain end of earth bank.

Log revetment for aircraft being constructed by the Japanese when Marines invaded Betio Island, shows typical building technique



TYPICAL JAP AIRFIELD HAS TAXIWAY PARALLEL TO RUNWAY, WITH PLANES DISPERSED IN REVETMENTS OF TWO TYPES UNDER PROTECTION OF TREES

JAPS USE NATIVE MATERIALS FOR BUILDING PROTECTIVE SHELTERS

PICTURES on this page show several ways in which the Japs relate their plane revetments to air strips and taxiways. Where conditions are crowded and the landscape barren, as at Mili, shelters are built adjacent to the runways, while in other cases, where natural protection of trees and shrubbery is available, revetments are built off of taxiways which run more or less parallel to the runways through wooded areas. Shadows from trees or any other natural camouflage makes detection of planes more difficult and lessens the danger of strafing by attacking planes.

In cases where there are no revetments provided for planes, they are parked along the edges of runways or underneath nearby trees. The Japs often park their planes in this manner despite elaborate dispersal systems. Runways on these typical island bases are usually single strips from 3,000 to 4,900 ft. long, depending on the space available.

The effectiveness of plane shelters can be seen in the photograph of Mili airfield. Several of these multiple revetments show how direct hits from bombs, which have destroyed the sections hit, leaving adjacent sections completely intact. There have been very few plane revetments of concrete found in Jap held areas in the Central and South Pacific, but they have made excellent use of the native materials at hand, and have built highly protective shelters.

Planes parked in multiple revetments built adjacent to runway at Mili. Direct hits on shelters leave some sections undamaged

Jap airfield setup on small island shows use of protective covering of trees as camouflage for the widely dispersed plane shelters

GRAMPAW PETTIBONE

Weather Challenges Judgment

A flight of 15 planes received contact clearance for a ferry flight over rough terrain. Weather conditions were poor (1,000 ft. ceiling), but instead of improving, as predicted, the weather deteriorated. The flight leader continued toward his destination, however, and did not turn back until weather conditions were far below contact.

Two planes crashed on the return flight.

COMMENT—**The flight leader was chiefly responsible for these crashes. He exercised extremely poor judgment in delaying his decision to return until *forced* to do so by bad weather. He should have complied with flight regulations and returned to his point of departure as soon as it became evident that the flight could not proceed under contact rules.**

The delay in deciding to turn back was particularly bad in this case because of the special circumstances involved: *a.* the route was over rugged terrain, *b.* the flight consisted of a large number of planes, *c.* some of the pilots had very little experience in this type airplane and were rusty on instrument flying.

Not Good to the Last Drop

Upon returning to the field, an F4U pilot called the tower and asked permission to land immediately, stating that he was on reserve and that his gauge read 20 gallons. The tower acknowledged but told him to circle the field until a group of planes had taken off. After making one circuit, the pilot again requested permission to land, giving his fuel gauge reading. He was told to continue circling. A little later he called the tower and told them that his gauge read 10 gallons. The tower then gave him landing clearance and he immediately began his approach. He ran out of fuel before he reached the field, however, and was forced to land in a melon patch. The gas gauge still read 10 gallons. The airplane received major damage.

Grampaw Pettibone says:

The tower personnel were left holding the bag on this accident. Their casual attitude was *not* commendable.

Errors of other personnel are poor comfort to a crashed pilot, however. He must always look out for his own safety. This accident could have been prevented if the pilot had considered the situation more carefully. He should have known that with such a low gas gauge reading, his engine might quit at any moment. Realizing this, he should have protected himself by getting more altitude and staying close enough to the field while circling to be able to glide in from any position.

How to Shoot Your Own Tail Off

In preparation for free gunnery practice, the radioman in an SB2C discovered that the barrel covers were still on the guns. He left the hatch open about six inches and started to release the guns from the secured position. As he did so, the port gun commenced firing. Fifty rounds went through the tail section before the surprised radioman could raise the cover plate and stop the cartridge feed.

The pilot reacted correctly in this emergency. Upon realizing that his rudder control was partially shot away, he climbed to 5,000 feet and thoroughly tested his control reaction before attempting to make a landing.

The Trouble Board said: "A live round of ammunition had to be in the chamber in order to have caused this accident. This was due to the negligent act of some person or persons unknown. However, the radioman was also negligent in that he did not check his guns before inserting his belt of ammunition.

"An investigation of the gun showed the bellcrank trigger extension to be raised about one-eighth of an inch owing to misalignment of roller and bellcrank. This, coupled with the additional shock upon releasing the guns from the stowed position, raised the bellcrank sufficiently to cause the gun to fire."

It's Reserved for You

The cadet pilot of an SNJ-4 exhausted the fuel from his right main tank while on a night tactics flight and then shifted to the left main. The flight continued uneventfully until the student entered the traffic circle at his home field. His engine suddenly cut out at 500 feet. His prompt reaction was to shift the fuel selector valve to the right main tank. Naturally, the engine did not resume operation and a forced landing was necessitated. The cadet was injured and the airplane practically washed out.

Immediate inspection of the fuel system showed the right tank to be empty and the left tank empty except for approximately 18 gallons remaining in the reserve.

Grampaw Pettibone says:

This sort of thing is one of the most common causes of engine failures. When pilots learn their fuel systems and know how and when to shift tanks, I promise you the accident rate will take a significant turn for the better.

Floating Debris

Upon return from a fleet mission, a pilot made a normal landing approach with a J2F-5. After the plane had made a short run on the water, the port wing hit an unknown object and the plane water looped, turning over on its back. The pilot extricated himself but the radioman was trapped and drowned.

The Trouble Board found that the port wing tip float had been dented from its contact with the unidentified driftage. The investigators recommended that harbor craft assigned patrol duties in seaplane operating areas be alerted to the absolute necessity of clearing such areas of all floating debris.

Grampaw Pettibone says:

Alert your boat crews now—don't wait for an accident.

Tower operators and beach crews also can contribute to flying safety by promptly reporting any suspicious objects seen in operating areas. It is better to send a boat out to investigate a suspicious object that turns out to be harmless than to neglect to report driftage which will cause accident.

Navy "Hellcat" is poised awaiting take-off signal from the Fly One officer who is intent on seeing that preceding plane clears the deck. Landing signal officer in background directs the approach of another plane. This is typical of the split second timing aboard a U. S. escort carrier

Corsair Fire Hazard

An explosion occurred in the fuselage of an F4U-1 when the mech started the engine. Flame entered the cockpit and caused so much damage before it could be brought under control that the airplane had to be scrapped.

BuAer has received reports of several similar fires in this airplane. They occur in those planes in which the Y duct is removed and the opening around the drop tank fitting in the bulkhead, at station 100, is unsealed. Units are cautioned that gasoline may drain back into the fuselage through this opening while fuel strainers are being drained.

BuAer Change 163 provided for sealing this opening in bulkhead 100. This change should be incorporated at the earliest opportunity.

Insidious Effects of Anoxia

Recently a pilot flew a PBM-3D airplane with no oxygen equipment installed or carried, to an indicated altitude of 20,000 feet. A total of approximately 50 minutes was spent at altitudes in excess of 15,000 feet, the greater part of it between 18,000 and 20,000. At the end of this period a series of violent maneuvers threw the crew members about the plane "like peas in a shoe box," the airplane breaking apart in the air at about 17,000 feet. An explosion in the center hull occurred nearly simultaneously.

The considered opinion of investigating authorities was that the violent manuevers were caused by a stall and spin resulting in structural failure and internal explosion. Five of the fourteen crew members survived the crash via parachute, the remainder including pilot and two co-pilots perished.

As reported by the survivors, the apparent effects of anoxia were exhibited by everyone in the crew, although in widely varying degrees. The pilot was described as being exuberant and exhilarated, the second pilot as being perturbed, impatient and anxious. The flight engineer was hilarious, while other members of the crew suffered from severe headaches, dizziness and extreme drowsiness.

▸*COMMENT* — This is a particularly flagrant case of violation of orders and instructions regarding the use of oxygen. All that part of the flight above 15,000 feet was an obvious violation of Technical Order 54-44. There are indications in this case that the pilot went further in tempting fate than he probably intended at the start of the flight above 15,000 feet. This may logically be attributed to the insidious effects of anoxia and is indicated by the fact that the pilot had ordered an "abandon ship" drill just before the accident. With a crew suffering from lack of oxygen, this bears little resemblance to clear thinking. Furthermore, at one point during the climb-up at about 18,000 feet, the pilot was observed to place his feet on the controls and move the elevators up and down. While this was not a violent maneuver, it was at least unusual for patrol plane operation.

This case is described at length in order to impress upon all naval pilots that existing orders and instructions regarding the use of oxygen must be soberly regarded and strictly obeyed.

ATR Revised

The Aircraft Trouble Report form and the instructions for submitting it have been revised in Aviation Circular Letter 48-44. All instructions are now contained in one letter. It is no longer necessary to maintain a sheaf of letters, pamphlets, and ALNAV's in order to submit a proper report.

The term "Aircraft Trouble Report" is a carry-over from the time when this report served its present purpose plus that of a RUDM and also a Striking Report, consequently the previous instructions transgressed somewhat into the field of these reports. Now that the report is confined to reporting aircraft accidents, the name is changed to *Aircraft Accident Report*, and all instructions pertaining to RUDM's or striking are omitted to eliminate confusion.

Superficially, it would appear that additional reports have been introduced, since the report includes NavAer forms 339, 339A and 339B. Actually, NavAer forms 339A and B are rough worksheets to assist the board in obtaining the requisite information. Form 339A contains numerous items necessary for the proper analysis of the accident and space is provided to state in words how the items checked contributed to the accident. These remarks are then transcribed to the smooth form NavAer 339 which can be typewritten throughout. NavAer form 339B is a medical worksheet designed to bring to light the physiological aspects of the accident so that counter measures may be initiated to reduce the seriousness of personnel injuries incident to accidents.

Since this is the first issue of the *Aircraft Accident Report*, it is quite conceivable that imperfections may exist; therefore, comments, recommendations, and constructive criticism are invited.

BEST ANSWERS

China

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

1. In many parts of China, there is a superstition that if a photograph is taken it will—

- ☐ *a*–remove a person's soul
- ☐ *b*–make them bald
- ☐ *c*–cause loss of teeth
- ☐ *d*–cut their lives in half

2. The Chinese have an ancient belief that the hairier people are, the more—

- ☐ *a*–intelligent they are
- ☐ *b*–uncivilized they are
- ☐ *c*–quarrelsome they are
- ☐ *d*–money they have

3. When a Chinese host passes a bowl of tea to a guest, the guest should take it with—

- ☐ *a*–the left hand
- ☐ *b*–both hands
- ☐ *c*–the right hand
- ☐ *d*–the palm of the right hand

4. At a Chinese feast, it is always good manners to—

- ☐ *a*–eat all the food offered
- ☐ *b*–eat all the sweetmeats offered
- ☐ *c*–refrain from eating anything you don't want
- ☐ *d*–be informal

5. At a Chinese feast, the dessert is served—

- ☐ *a*–first
- ☐ *b*–last
- ☐ *c*–in the middle of the meal
- ☐ *d*–only when requested

6. The Chinese consider drunkenness a sign of—

- ☐ *a*–good-heartedness
- ☐ *b*–low breeding
- ☐ *c*–culture
- ☐ *d*–sociability

7. A Chinese shopkeeper will—

- ☐ *a*–respect you if you pay the first price he asks
- ☐ *b*–expect you to become angry when bargaining with him
- ☐ *c*–admire you if you pay one-half to two-thirds of what he asks
- ☐ *d*–prefer to sell at less than half the first price he asks

RUBBER CONSERVATION SHOULD START WHEN TIRES ARRIVE. PLACE IN UPRIGHT RACKS IN A DARK, DRY, COOL STORAGE ROOM, WITHOUT SQUEEZING

CONSERVING TIRES, TUBES ON AIRCRAFT

THE NEED to conserve crude rubber by proper handling and maintenance, prompt repair, and close inventory control of those items still requiring crude rubber is critical. Aircraft tires are particularly important in this regard. In spite of the fact that most aircraft tires are now made with 70 percent GR-S (Buna-S) synthetic rubber and 30 percent rubber, aircraft tire carcasses still use a large portion of current crude rubber consumption. Aircraft tubes are still made with crude rubber and a small percentage of reclaimed rubber. Manufacturing facilities for producing aircraft tires are insufficient to produce all the aircraft tires which the Army and Navy require. Aircraft tires also use high tensile strength rayon, the shortage of which is hindering complete conversion to synthetic rubber in heavy duty ground vehicle tires.

In spite of the fact that industry and the Army and Navy are taking aggressive action to use synthetic rubber, the use of crude rubber exceeds the present supply. (*Continued on next page*)

BUAER SURVEY SHOWS NEED FOR A PROGRAM TO CONSERVE RUBBER

BECAUSE of the importance of maintenance and handling of aircraft tires and tubes, a survey of tire handling procedures at eight of the major naval air stations and centers has been made by BuAer representatives. At one station the following program was being observed under the direction of a full-time tire conservation officer:

1. Inspection of tires and tubes returned from each dependent activity, analysis of types of injuries, and segregation of the tires and tubes into the following classifications: *a.* useable as is; *b.* useable after repair; *c.* useable after recapping; *d.* scrap.

2. Maintenance of tires and tubes, particularly mounting and demounting and inflation control, and including determination of the causes of injuries and the establishment of preventive maintenance procedures.

3. Storage and issue of tires and tubes.

4. Tire and tube repair and recapping.

5. Inspection of recapped tires and tubes, and those classified as unrepairable by local contractors.

At this center, a tire conservation officer has been established in each squadron, each tire conservation officer having this duty in addition to his regular duties. Periodic meetings are held where actual examples of abuses and correct procedures are demonstrated. Tire pressures are checked every 24 hours. The practice of reversing tires to effect even wear on both sides of the tire is enforced. Presses are used for bead-breaking. An axle fixed in a concrete floor or on a platform is used at most activities to hold wheels while tires are being mounted and demounted. Proper tools are supplied to all activities. Covers are placed on tires on standing planes of types where the landing or beaching gear is directly below the engine and tires are accordingly subject to dripping oil. Tarpaulins are placed over beaching gear not in use after the salt water has been washed off the tires, to protect the tires from deteriorating sunlight. A tractor-driven ramp-scraper is used for removing shells from patrol plane ramps to prevent injury to beaching gear tires. All tires are stored vertically in racks in a cool, dark, dry storeroom. Runways are kept free of all objects which might damage tires by frequent sweeping. In addition, procurement of a truck-mounted magnet for clearing runways has been initiated.

Other activities were also aggressive in their tire conservation programs and some have instituted unique conservation measures. As examples, NAS Jacksonville and NAS San Diego use airplane tires of certain sizes, no longer useable on aircraft, on ground vehicles; NAS San Diego has developed a special vulcanizing clamp for effecting bead repairs; and NAS Corpus Christi has developed a process for splicing tubes.

BEAD BREAKING PRESS REDUCES INJURY TO TIRES AND MAKES WORK EASIER FOR THE REPAIRMAN

TRACTOR-DRIVEN SEAPLANE RAMP SCRAPER PAYS BIG DIVIDENDS BY REMOVING SHELLS FROM WATER-COVERED CONCRETE, WHERE TIRES MIGHT BE CUT

PROPER MAINTENANCE AND REPAIR PROGRAM LENGTHENS TIRE LIFE

It was found to be almost universally true that difficulty was being encountered in mounting and demounting 30x7 and 32x8 tires on drop-center wheels with non-removable flanges. Where patience was not used and tire irons were not adequate, tires were damaged at the bead, often beyond repair. This will be eliminated when the Polt Tire Machine, manufactured by the E & G Machine and Tool Company, Huntington, N. Y., and currently under procurement by BuAer, is made available to all activities. This machine is portable and adjustable to provide for all sizes of tires. It breaks the bead on all airplane tires and is particularly useful for mounting tires from drop-center wheels with non-removable flanges. A sufficient quantity is being procured to supply one Polt machine to each carrier, CASU, advance base, class A, B, C, and D station. Further procurement to supply additional requirements is contemplated.

It also was found that tires were often damaged by excessive use of brakes, making too sharp turns in taxiing or pivoting about a locked wheel, taxiing with tail wheels locked, and turning beaching gear tail wheels while airplane is standing.

To provide information on procedures for repair of tires and tubes, and technical information pertinent to tire and tube maintenance, the following correspondence, technical notes, technical orders, and manuals have been issued to naval air activities concerned:

BuAer and BuSandA letter, BuAer file No. 413-14(3), BuSandA file No. L4/jj-49(1) (SV) L4/JJ35(5), Subject: Retreading of Airplane Tires and Repair of Airplane Tires and Tubes, dated 22 October, 1942.

BuAer Technical Order No. 67-44—Urgent Need for Proper Handling of Aircraft Tires.

BuAer Technical Note No. 11-44—Inspection of Tires for Reconditioning (Repair or Retreading).

BuAer Technical Note No. 24-42—Beaching Gear and Amphibian Tires—Replacement of.

BuAer Technical Note No. 67-42—Airplane Tires—Care and Maintenance.

BuAer Technical Note No. 3-39—Airplane Tires—Storage of.

Section 17 of AN-01-1A-1—General Manual for Structural Repair—Tire Changing, Repair.

Army-Navy Aeronautical Specification AN-C-82a—Casings; Repair and Treading of Used Aircraft Landing, Auxiliary, and Beaching Tire.

War Department Technical Manual TM-31-200—Maintenance and Care of Pneumatic Tires and Rubber Treads.

B. F. Goodrich Co. Manual on the Care and Maintenance of Airplane Tires.

Firestone Tire and Rubber Co. Pamphlet on the Firestone Aircraft Tool Kit.

Army Technical Order 04-10-1—Tires and Tubes—Inflation and Use of Aircraft Tires and Inner Tubes.

Army Technical Order 04-10-2—Tires and Tubes—Maintenance, Inspection, and Proper Care of Tires, Tubes, and Wheel Rims.

BuAer letter Aer E-256-FED, VPBY5/F12-2, dated 14 April, 1944, Subj: Model PBY-5A Airplane—Bulletin No. 56—Landing Gear—Duel Seal Tubes—Use of.

By following maintenance and repair procedures in the above publications, the naval air service can contribute in a large measure to decreasing the rate of consumption of the precious rubber stockpile.

AN OLD AXLE TO HOLD WHEEL, PLUS ADEQUATE TOOLS, MAKES TIRE CHANGE SIMPLE


POLT TIRE MACHINE FOR BEATING, BREAKING AND MOUNTING WILL SOON BE READY


CANVAS WHEEL COVERS PROTECT TIRES FROM DRIPPING OIL AND THE SUN'S RAYS


BEACHING GEAR TIRES SHOULD BE WASHED WITH FRESH WATER, THEN COVERED UP

DID YOU KNOW?

BuAer to Provide Watches

Three Types of Straps Being Tried

Bureau of Aeronautics is procuring a wrist watch Stock No. 88-W-800 for issue to naval aviators, naval observers, and naval aviation pilots. Three different kinds of straps are being supplied for use with the watches.

1. The first is a so-called "safety strap" made of gabardine fabric with a buckle. The safety strap is continuous around the wrist and the watch is fastened to it so that if the watch breaks loose at one end it will be supported from the strap at the other end. The buckle arrangement makes it practically impossible to lose the wrist watch without actually breaking the strap.

2. The second is a so-called "duo-fold" leather strap. It has the advantage over the safety type of being more closely adjusted to the particular size of the wearer's wrist and is somewhat easier to remove from the wrist. The strap is not continuous around the wrist, however, and the watch might conceivably be lost by being pulled off the wearer's wrist or by being detached from the leather wrist strap at one end.

3. The third is especially designed to permit ready removal of the watch from the wrist. It consists of a gabardine-covered split-metal bracelet which is sufficiently flexible to permit it to be slipped over the wrist or to be removed without difficulty. The ease with which it can be put on, while a recommendation in one sense, makes it doubtful in another in that it also can be easily pulled off. This type often is referred to as a "metal clam shell."

Recommendations from the service in regard to the type preferred are invited.

Cabinet Displays Material

ACI Officer Develops New System

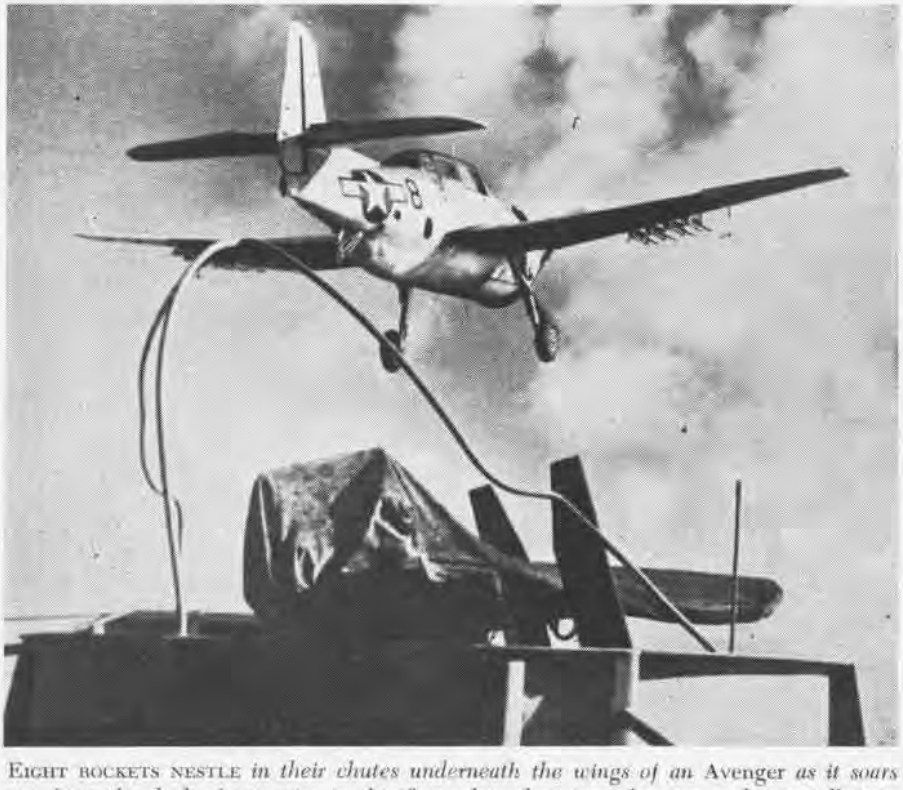
NAS San Diego—The ACI officer of a patrol squadron here has devised a collapsible cabinet and display rack for keeping magazines and other pertinent material where officers can see them.

Often publications either remain locked up in a file where no one sees them or are set out on a table where they degenerate into a disorderly mass. Being collapsible, the rack takes up little space when not in use and is easy to lock and secure at the end of a day.

All incoming intelligence material of interest to pilots is reviewed first by the CO, exec and ACI officer. Some documents, or sections of publications, are selected as required reading for all pilots and others only for the patrol plane commanders.

FOLDING CASE MAKES READING DATA AVAILABLE

Material so designated is tagged prominently with a colored slip and placed in the rack. A list of this material is posted with space for the pilot to initial when he has read each item. The system works well and pilots appreciate having material so readily available.



Eight rockets nestle *in their chutes underneath the wings of an* Avenger *as it soars out from the deck of a carrier in this first released picture showing rocket installations on a Navy plane. Armed with rockets, machine guns, bombs or torpedoes, the TBF becomes one of the toughest fighters in naval aviation. These new missiles have been used by American planes against U-boats in the Atlantic, and shipping in the Pacific.*

Pensacola Leads in Bonds

Navy Buys Double Amount of 1943

Naval air activities aided materially in boosting the recent Independence Day cash War Bond drive to an all-time high for Navy's semi-annual campaigns.

Final total for the campaign was $47,585,737, exclusive of bonds bought regularly through payroll and allotment plans. This total was more than twice the December 7 volume of $23,079,700 and more than 12 times the Independence Day total a year ago.

Pensacola showed the way for air stations, with $1,136,875; Quonset Point was runner-up with $873,946. In practically a tie for third place was NAS St. Louis with $819,124, and NATC Corpus Christi with $818,671. Despite its lack

of Navy yards or other activities with large complements of civilian personnel, the Eighth Naval District was highest with $4,958,337.

Safety Council Is Created

Various Agencies Combine Efforts

A Flight Safety Council has been set up in the Navy to plan, coordinate and execute flight safety programs and tie together the activities of individual units of BuAer, DCNO (Air) and affiliated units.

Aims of the new council were outlined as follows: Provide a central advisory agency through which positive action and follow-up on flight safety matters can be insured; integrate programs, requirements, training and activities of agencies concerned with flight safety; procure and exchange safety of flight information; assemble and maintain central file of accident studies, safety equipment and project developments.

Agencies cooperating in the council include BuAer's Engineering, Military Requirements, Maintenance, and Special Devices; Flight Training, Flight Operations and Air Intelligence in Operations, and representatives of Naval Medical Research Institute, Air-Sea Rescue Agency of the Coast Guard, and Aviation Medical Research Section.

VB-104 Gets Unit Citation

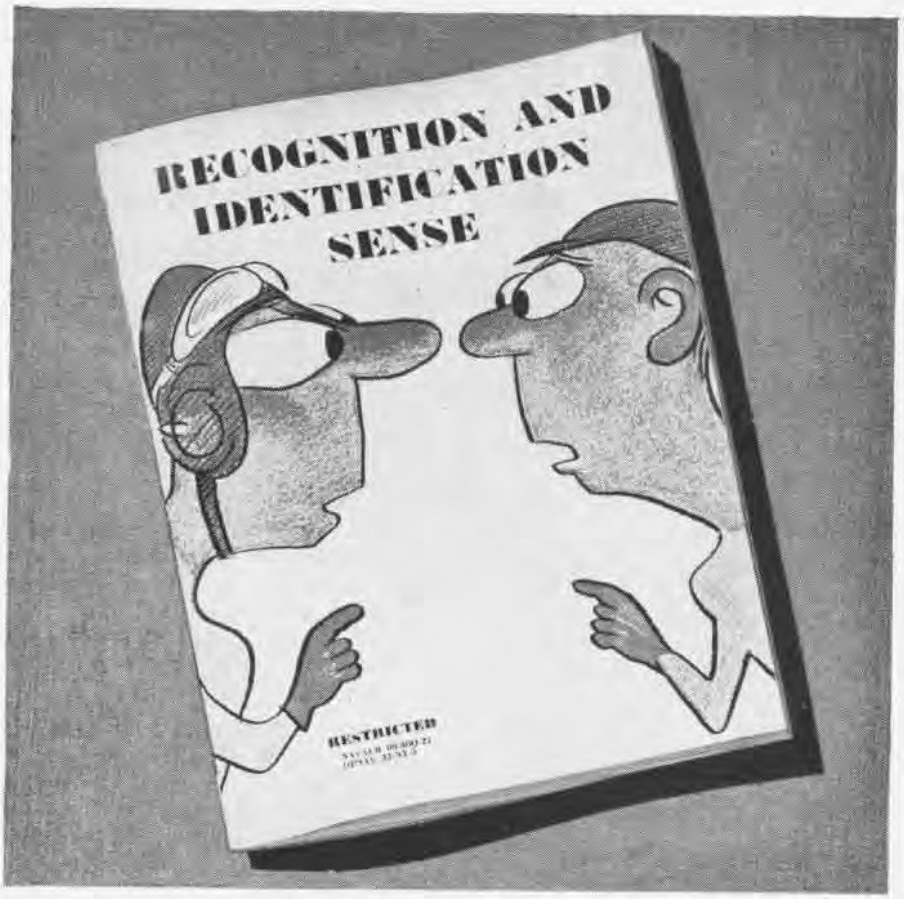
'Buccaneers' Downed 14 Aircraft

A Presidential Unit Citation has been awarded VB-104, a pioneer Navy search plane unit, for its accomplishments in patrolling in the Pacific between August, 1943, and March, 1944.

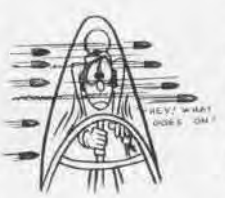
Nicknamed the "Buccaneers," the squadron flew *Liberators* patrolling approximately 125,000 miles daily regardless of weather to scout enemy movements and harass shipping. The squadron recently returned from the combat area for reassignment.

It was based in the Solomons and much of its work was helping lay groundwork for neutralization of Truk. One PB4Y sighted six Jap vessels running supplies to beleaguered islands and attacked at masthead level, sinking four, with one probable, one damaged.

The "Buccaneers" destroyed 14 enemy aircraft, with five probables and 11 damaged, lost only one *Liberator*.



ONE GOOD WAY to save the Navy the bother of sending 10,000 loaves of Uncle Sam's lettuce to your next of kin is to pay close attention to the twin keep-alive sciences of Recognition and Identification. So says *Recognition and Identification Sense*, most recent pamphlet published by the Aviation Training Division, Office of the Chief of Naval Operations. The only really safe place around *any* Allied gun is behind it. This may prove a difficult position for you to maintain, however, as it is often necessary for naval aviators to fly about and drop heavy objects on the enemy. During such times of hurly-burly you will be playing clay pigeon to a large audience of Allied guns, any one of which can shoot the pants off you if the guy behind it pulls that string. Also, you yourself will be chauffering a row of cannons of assorted sizes, each capable of blowing large holes in anything you decide large holes will look good in. The total situation, as you can plainly see, is fraught with danger. This means that unless everyone keeps his head, somebody is going to *lose* his.



The only solution is for you: *1.* To refrain from blasting away at innocent parties, and *2.* to make sure that innocent parties don't blast away at you by mistake.

USE THIS FORM TO ORDER PAMPHLET

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

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

SUBJECT: Pamphlet—Request for.
It is requested that copies of the new pamphlet be sent as indicated to this activity.

COPIES _____ PAMPHLET

Recognition and Identification Sense (Restricted)

FROM (Unit Commander): _____

Delivery Address: _____

Cut here

Attn: _____

25 YEARS AGO THIS MONTH

Naval Aviation in August 1919

August — Using a Caproni bomber, the Navy Department carried on successful tests with launching airplanes from sea sleds. The sea sled traveled at maximum speed; with the plane's engines turning up full, the launching was easily performed. This was a follow-up of experiments carried on in England in 1918 when Camel scouts were launched from towed barges. This type of launching, however, proved impractical owing to the difficulty experienced by the sleds in attaining high speed in a rough sea.

August—Due to the extreme cold encountered at higher altitudes it was necessary to provide electrically heated clothes for airmen, at least in the instance of most military machines which offered no protection to the passengers. The energy required to heat these suits was generally around 80 watts, disposed as follows: helmet, 20 watts; each glove, 16 watts; each moccasin, 14 watts. The energy was supplied at 12 volts, either from a storage battery or from a small fan-driven generator of streamline shape mounted on the airplane, the fan being rotated by the passage of the plane through the air.

August — "After being exhibited for two weeks in Central Park, the NC-4, which made the first trans-Atlantic flight in history, is being dismantled for shipment to Rockaway Naval Air Station," stated the *Aerial Age Weekly* in its August 4 issue. "Here she will be completely overhauled preparatory to a recruiting flight upon which she will be manned by the same crew which took her across the Atlantic."

August—According to the statistical statement in the *Infantry Journal* American aviators brought down 755 enemy craft in action and lost 357 during World War I. American aviators used 2,698 planes at the front, of which 667 were of American manufacture.

August—After a tour of inspection along the eastern coast, the Naval Air Service had settled on the location of a large hangar for rigid airships near Lakehurst, New Jersey. Construction had already begun.

August 4—Commemorating the flight of the NC-4 the Rockaway Civic League met and agreed to form an organization to raise a fund for erecting a monument.

August 7—It was announced by Acting Secretary of the Navy F. D. Roosevelt that the sale of 265 Navy seaplanes had been authorized by Secretary Daniels. Mr. Roosevelt explained that this would enable commercial airplane transportation companies to buy high-speed machines of large carrying capacity ready for immediate delivery. A number of such routes, as Chicago to Milwaukee and New York to Atlantic City, were already in operation or contemplated in the near future.

ADMIRAL FISKE

August 9 — The Board of Governors of the Aero Club of America awarded the gold medal of the club to Rear Admiral Bradley A. Fiske, USN, retired, for his invention of the torpedo plane, patented on July 16, 1912, which was used effectively by the U. S. during World War I.

August 14—The *Aircraft Journal* recorded a description of the first air delivery of late mail for outgoing ocean liners which was ingeniously and successfully accomplished August 14, when an Aeromarine flying boat dropped a pouch on the White Star liner *Adriatic*. Despite poor weather conditions and a heavy sea the aerial delivery was made an hour and a half after the *Adriatic* left port in New York.

August 31—With the bid for disarmament and the resulting decline in air power the Air Service reported a net decrease in strength from November 11, 1918, to August 7, 1919, of 91 per cent, leaving the U. S. with few planes.

Sea sled traveling at full speed, plus the maximum rpm of a plane engine assured the successful take-off of the Caproni bomber

Curious New Yorkers had an opportunity to examine the historic NC-4 which completed the first flight by air across the Atlantic

SHORE STATIONS

▸ NAS PENSACOLA—New assembly line procedure in the A&R final assembly shop recently began to produce results with a record number of 47 planes completed in a single month. This was the largest number of planes to be completed since the entrance of the United States in the war. Previous high production for one month was 33 planes.

▸ MCAS SANTA BARBARA—Group intelligence has inaugurated a news map to accompany the usual morning reports. These maps, drawn in colors and done in typical newspaper style, assist the report readers to pin-point targets and obtain other data.

▸ MCAS MOJAVE—A recent innovation in the entertainment line is a series of concerts given by the enlisted personnel. The station boasts many talented singers and musicians and the programs made up of semi-classical music have a very wide appeal. The group has formed a glee club under the direction of the chaplain, and their work is taking on a definite professional quality.

▸ NATC SAN DIEGO—The bluejackets at this station boast they have a girl gob in the Navy and she is not a WAVE. She joined last March at Los Angeles and has expressed a liking for the life. Actually she is not a living person, but the alter ego of a bi-vocal sailor well known in civilian life for his radio interpretations of "Betty Lou."

▸ NAS NORFOLK—Eager Beavers who play "footie" with the accelerator when motoring will soon be playing "footie" with the pavements at this station. A directive from ComFive recently established the regulation that: *1.* Upon conviction of driving a motor vehicle in excess of 35 mph, the speeding Mac will have any supplemental gas rations taken up by his co; 2. This in addition to appropriate disciplinary action. The operation of a machine above 35 mph will be considered *prima facie* evidence that the operator has an excess of gasoline and is not conserving it.

▸ NAS BUNKER HILL—Forty-five Seabees, who are waiting to be transferred to the Naval Reserve as soon as they can prove their ability to hold their rates, have been busy both on the station and at outlying fields. They recently cleared and mowed 10,700 acres of grass using air-field grass blitzers and 3,096 acres of grass with cutter-bar mowers. They have also painted and repaired 1,288 wooden field markers, 18 wind tees, 11 sets of pylons, resurfaced 30 crushed-rock landing circles and repaired 14,700 rods of fencing. They also reconditioned three miles of railroad spur.

▸ NAS ALAMEDA—An elderly lady accosted a sailor on a San Francisco dock:

"Young man, what is the name of that ship out there?"

"I cannot say, ma'am," the sailor replied.

"And what ship are you from?" the lady persisted.

"That one, ma'am."

▸ MCAS SANTA BARBARA—Setting off on a cross-country navigation hop, three pilots missed the turning point on one of their flight legs and kept right on flying. They flew for nearly an hour before finally deciding they were wrong. Then they became worried and landed at the first flying field that popped into view. Imagine their amazement when they were met by soldiers who greeted them in Spanish. They had landed across the border in Mexico.

▸ NAS JACKSONVILLE—A seaman second class at this station frankly admits he has a girl in every port—and most of the inland cities too! He corresponds regularly with 136 girls in all parts of the country, not to mention Hawaii. It's a bad week when he doesn't write each of them at least once. He receives an average of 10 to 20 letters a day and answers all promptly.

▸ MCAS EL TORO—The synthetic training department has completed a colored contour map of the base and surrounding territory as a training aid to new pilots. Mountains have been built up with plaster of paris. Buildings have been made of tiny bits of balsam wood instead of being painted on the surface. This gives the map a three dimensional character.

▸ MCAAS CONGAREE FIELD—The Marine Corps' newest air station has come into being at this field, and is operated as an auxiliary of Cherry Point. Station activities now center around the arrival of R4D's, materials and supplies.

▸ NAS LAKEHURST—A group of M-G-M movie stars recently wound up a visit to this station, among them Wallace Beery, James Gleason, Noah Berry, Tom Drake and director William Wellman. They had been on location at Lakehurst shooting pictures for the movie "Airship Squadron 4."

▸ MCAS EL TORO—Marine aviators here are sent into the field and taught to eat meals under conditions which will exist when they reach the battlefields of the Pacific.

Dehydrated foods comprise their menu and between now and the end of the experiment, each flyer will eat seven meals to acquaint him with the food he is likely to encounter upon arrival in the battle zone.

The course is serving two purposes: *First*, to give the men a chance to taste the victuals of tomorrow; *Second*, to provide cooks and bakers with the necessary experience in preparing meals under combat conditions.

▸ MCAD MIRAMAR—According to a turret gunner who just returned from the South Pacific, Marine airmen recently executed a bombing raid to the strains of of the Star Spangled Banner!

"As we were approaching the target area, the Japs broke in on our wave length and broadcast our national anthem. There was no explanation for the music, but we figured they were trying to foul our communications or affect our morale. They did neither.

"Instead, we dropped our bombs to the rhythm of the music and gave those Japs a Star Spangled blasting!"

▸ NATC PENSACOLA—A special direct telephone line for the reporting of airplane crashes by anyone in the vicinity of NATC has been installed here. Designed to expedite relaying information concerning crashes involving naval aircraft, the phone is expected to speed up rescue operations. Incoming calls reporting crashes may be made collect, with line charges paid by the Navy. All telephone subscribers have been asked to write the number of this special phone across the front covers of their telephone directories.

▸ NAS OTTUMWA—All hands cast their votes recently to choose a pair of pin-up royalty. After official crowning of the pin-up queen and king, the winners enjoyed a full day and evening's entertainment in Chicago. They were flown to the windy city in a special plane, lunched at a famous hotel and danced at night spots.

▸ NPFS ST. MARY'S COLLEGE—Just prior to official announcement of the Navy's revised V-5 program, the following story gained wide circulation at this station: Said one cadet—"Do you know what they are going to do with us cadets?" When the answer was no, he said: "They're going to send us to the Ford plant, ram three pistons down our throats and make us V-8's!"

▶MCAD MIRAMAR—A Marine on leave wired his CO: "Whosoever findeth a wife, findeth a good thing: *Proverbs 18:22.* So, I request five days' extension of leave. My confidence in you tells me you'll agree with me."

The CO replied: "Parting is such sweet sorrow— *Romeo and Juliet, Act II, Scene 2.* Extension denied. My confidence in you also assures me you will be back on time."

▶NAS NEW YORK—The officers and men of this station who worked together night and day to expedite a recent series of special secret cargo flights to Europe, were commended with a "Well Done" from the Chief of Naval Operations. In a letter to the commanding officer, CNO acknowledged the "splendid cooperation of station personnel" in assisting with 27 NATS flights from New York to Europe carrying urgently needed secret material to the European theater of operations.

▶MCAS EL TORO—A six-hour flight syllabus "under the hood" has been instituted for WR Link trainer operators. This enables them to hear and study radio range signals under actual flight conditions making their instructions for pilots as realistic and accurate as possible.

The syllabus is divided into four hops and covers flight familiarization, radio familiarization on nearby ranges, orientations, and a cross country hop including complete instrument approach and letdown before landing.

▶MAG CORVALLIS—The Marine Corps has taken over this Army air base for temporary use. The station will serve as a replacement training center for V-J pilots and as a center for processing of aircraft for overseas transport.

▶NPFS CHAPEL HILL—A naval lieutenant wrote the following letter aboard ship in the Pacific:

"My Dearest—I haven't much time, but I want you to know that I love you and the children very much. . . . Everything I have I want you to have to administer as you see fit. . . . We are nearing the enemy and they outnumber us."

The letter ended with a scribbled postscript: "Forget all that mournful stuff. We just whipped hell out of those Japs."

▶NAS MIAMI—Veterans of some of the toughest naval action of modern warfare came aboard this station recently. They are *Avenger* torpedo bombers back from Pacific combat. Now parked adjacent to the A&R hangars, these feed-back planes will be recommissioned after a thorough overhaul by A&R. Student pilots then will fly the veterans in operational training.

▶MCAS SANTA BARBARA—The Marine fighter squadron which became so well known as the "Black Sheep" under the command of Major Gregory Boyington has a new mascot, a real, live black sheep. Another Marine fighter squadron referred to as the "Wolf Pack" has not yet acquired a real, live wolf, but intends to add one to the muster roll. In the meantime a small dog bearing the blood of both Collie and Police dogs has been nicknamed Wolf.

TOKYO TALKS

—TO JAPAN

A program of compulsory naval training for secondary school students has been inaugurated upon the recommendation of Fleet authorities at Yokosuka Naval Station. The new program is to be carried out under the direction of Japan's three District Naval Stations and all schools are to begin actual instruction of students late in the summer.

—TO AUSTRALIA

Propagandists continue to talk extravagantly about damages inflicted on United States Fleet units in waters west of the Marianas Islands. "Perhaps this engagement has given the American Navy and Americans alike a taste of what it is to bump up against an unemployed Japanese Fleet." "Previous brazen statements" from Americans about the Japanese Fleet must now be giving them "a dirty taste in their mouths."

—TO JAPAN

Tokyo press devoted considerable space to pictures and stories of one B-29 reported shot down by enemy action. One newspaper pointed out that the uniform on the body of one of the American crew members had been "mended in several places." "It seems that even enemy America who prides herself in her material superiority has suffered shortage of material. Since the front-line soldiers, especially the Air Force members, are in such uniforms, the situation is very clear. It is exceedingly delightful to see that Roosevelt's pack of lies is being exposed perfectly in this war in faraway Kyusu."

—TO JAPANESE AREAS

The Japanese Domei agency recently said that defense against air raids is being "intensified" in Tokyo and that construction of 5,000 prefabricated houses has been started under the auspices of the Tokyo defense board. According to Domei, only about 30 cubic feet of lumber apiece has been allotted for construction of the houses, and "a special feature is that no nails are used."

—TO OCCUPIED ASIA

A 40-page pictorial guidebook on Japan, "for the benefit of future tourists," will be published this fall and circulated in occupied Asia, the Japanese Domei agency reports. Its title: *Yamato, the Holy Land.* It will be printed in Chinese, Thai, Malayan and English, and its sponsors hope that those who read it "will understand the expansion of our nation which is unique in the world."

—TO THE UNITED STATES

The Japanese Domei agency says that Japanese political, economic and academic leaders have organized a committee "exclusively devoted to the study of postwar problems." The committee of "experts" will study the "fundamental conditions for securing a lasting world peace" and "work out definite programs for that purpose." Another plan for "lasting world peace"—Japanese style—was quoted by Domei some time ago when two "experts" were said to have drawn up a list of conditions to be imposed "after the United States surrenders."

—TO EAST ASIA

The Domei agency claims that a Japanese scientist has discovered a new process to make candy by sugar-coating the pupae of silkworms. (The pupa is a stage in the development of insects.) Claiming that the silkworm candy is rich in vitamin B complex, the Japanese agency says that it "should help nourish the pilots and the young people working in the labor service corps."

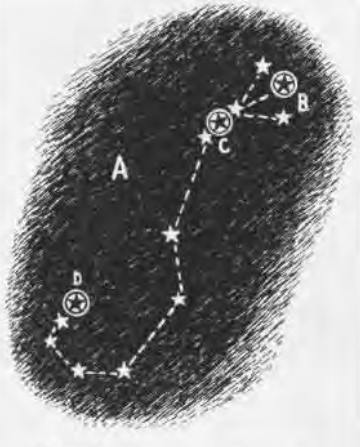
—TO OCCUPIED ASIA

The mayor of Tokyo was recently quoted as saying that "a five months' supply of food" is stored in Tokyo as a part of the Japanese capital's air raid defense program.

—TO JAPANESE AREAS

A "Livestock Power Promotion Corps" has been organized in Japan to "mobilize" more than 1,000,000 head of oxen and horses for use in farm work on a "systematic basis" under a "military regimental system," the Tokyo radio says. It is expected that the systematic use of the draft animals under government control will result in "increased production of foodstuffs," and will "consolidate the surplus power of oxen and horses now raised by farmers, and of cart-wagon pulling horses used in cities for transportation purposes."

SHOW ME THE WAY TO GO HOME



Identify the constellation-lettered stars in the diagram:

The constellation is:

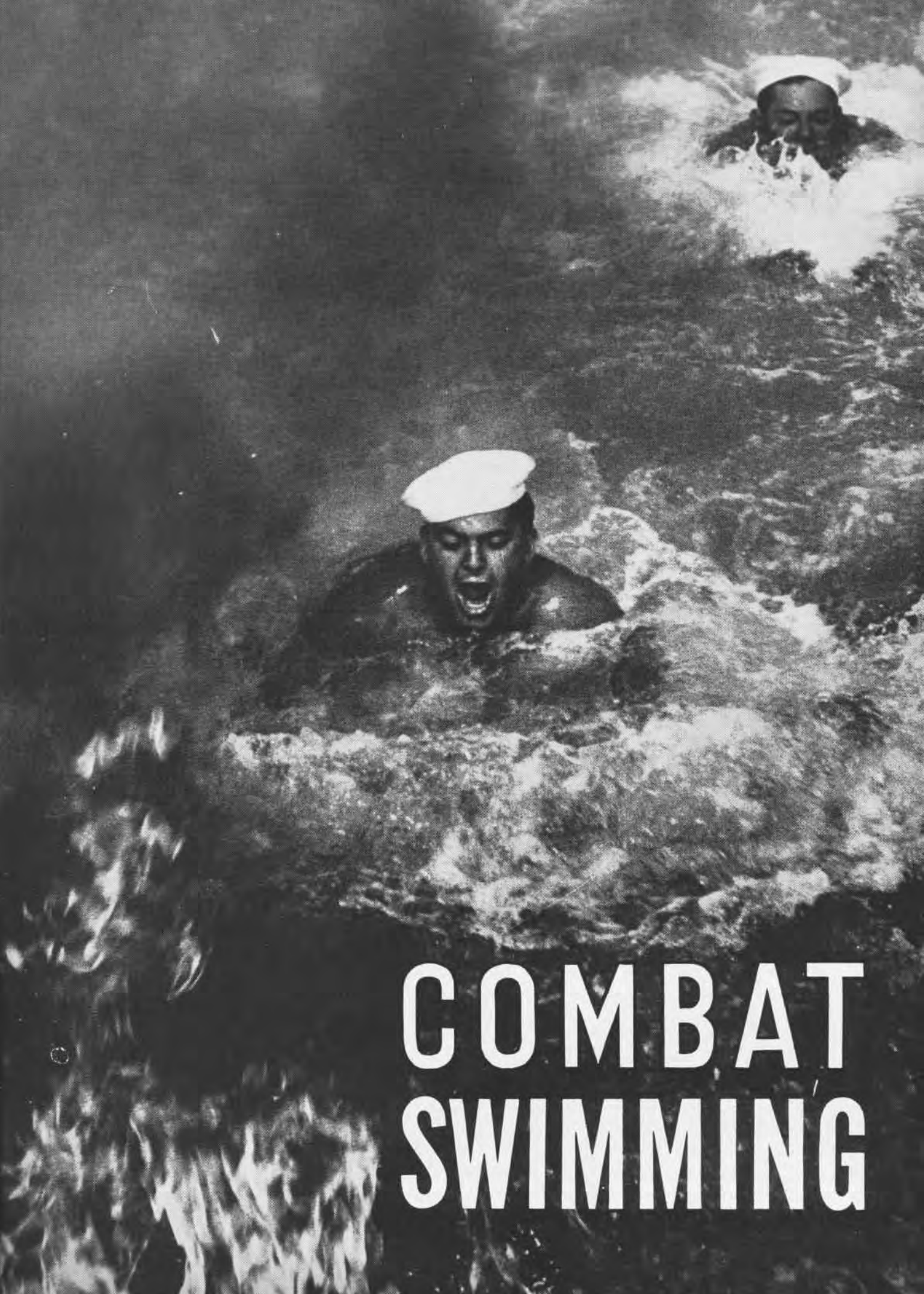
A _____

B _____

C _____

D _____

(Answers on page 40)



COMBAT SWIMMING

Swimming Ability is Survival Ability

TODAY, no Navy airman flies without a parachute. Likewise, no Navy man should go to sea without the ability to swim. Most fliers will never use their chutes, most Navy men will never get their feet wet. But just as surely as we are at war with Japan—some men will get a dunking. When they hit the water, the ability to swim will be as important as a parachute is to the flier who has to bail out. The Pacific is a large body of water. Most of it is deep.

Swimming used to be a pleasant way of spending a hot day. It still is, but it is also a life and death necessity. An officer who served aboard a carrier lost in combat wrote: "The most vivid need of the men in our Navy was burned into my memory that day our ship was torpedoed. I saw men die because they could not swim well enough to carry themselves out of danger."

Some 25 percent of the men entering naval aviation can't swim at all. Many have never been near the water. But they can and do learn to swim. Anyone can learn to swim if he works at it. And those who know how to swim can learn to swim better.

From long experience on the water, the Navy knows what skills are needed for combat swimming, and the Navy knows how to teach those skills. In naval aviation swimming classes, men are divided up in groups according to their swimming ability. They learn by easy stages that give every man a chance to acquire the skills he needs, along with others in the same boat.

WHETHER a man has to begin at the beginning by learning simply to stay afloat, or whether he knows all the strokes and merely needs practice at endurance swimming and life saving, he can benefit from the training. Swimming is serious, it's life insurance.

THE LADS IN TRAINING AT A NAVAL AIR STATION WILL KNOW HOW TO TAKE CARE OF THEMSELVES IN THE WATER UNDER COMBAT CONDITIONS

NAVAL AVIATION SWIMMING TESTS DEMAND WATER SKILLS, TRAINING

THERE are six naval aviation swimming tests of progressive difficulty which must be passed in sequence. Each test is based on the needs of combat swimming.

D TEST: Swim, tread or float for five minutes.

C TEST: Swim 80 yards using each of the following strokes ¼ of the distance in the order named—back breast, side and overarm strokes.

B TEST: *1.* Swim 200 yards using each of the following strokes ¼ of the distance in the order named—back, breast, side and overarm strokes. 2. Carry subject 20 yards using tired swimmer carry. *3.* From a surface dive swim 20 feet under water.

A TEST: *1.* Carry subject 20 yards using any carry except tired swimmer carry. 2. From surface dive, swim 50 feet under water. *3.* Demonstrate artificial respiration. *4.* Jump from height of 10 ft. and swim 50 yards wearing shirt and trousers. *5.* Swim a half-mile, or swim continuously for 40 minutes.

AA TEST: *1.* Swim a half-mile wearing shirt and trousers. 2. Carry subject 100 yards, any carry except tired swimmer carry. *3.* Demonstrate in deep water releases from front and back neck holds. Follow up each release with cross chest carry to nearest point.

AAA TEST: *1.* Swim one mile. 2. Tow or push a subject on an improvised float one-quarter mile.

After a swimmer has passed all six tests he should have a maintenance check every two months—swim one-half mile in 15 minutes—to make sure that he doesn't lose his swimming ability, or get out of condition.

Although a great majority of Navy men can pass the D and C tests, it takes a competent swimmer to pass the B test, and a glance at the A, AA, and AAA tests shows that a man must really know his stuff in the water in order to pass them. However, it is well worth the effort to learn to pass these tests. Navy men who couldn't pass the D test, staying afloat for five minutes, have been known to pass the AAA test after only 12 weeks of instruction and practice. That's a worthwhile mark for any inexperienced swimmer to shoot at.

Fully dressed aircrewman practices towing pilot dressed in flying clothes. He may have to do it some day after real ditching

SWIMMING RECORD SHOWN ON TEST CARDS

THE performance of naval aviation swimming tests is recorded on individual cards which each man carries with him. Thus, wherever he goes in the Navy, he has proof of his swimming ability ready at hand, and, if he has not passed all six tests, he can always practice for the next higher rating.

The naval aviation swimming program is, above all, practical. It is not designed to teach men to do swan dives, double flip-flops or zigzags from the high diving board for the benefit of beauteous bathing babes. It is designed to teach men how to survive and help their shipmates survive when there is lots of water, the swimming is rugged and the going is tough.

A PhM3c practices artificial respiration at edge of training pool. This is treatment to restore breathing when muscles quit

IN THE naval aviation swimming program, four basic strokes are taught in the following order: BACK STROKE, BREAST STROKE, SIDE STROKE and OVERARM STROKE.

The BACKSTROKE is good for the swimmer who must swim a long distance and needs rest periods or for the man who merely needs to stay afloat for a long time. The face-up position allows the swimmer to watch the horizon for ships and the sky for planes and, in the confusion of abandoning ship, to see and avoid other men jumping into the water. It is easy to learn and, since the face is out of the water most of the time, it is easy to breathe. The body position is similar to that for floating and for the life-saving carries. It is the best for reducing effects of under water explosions.

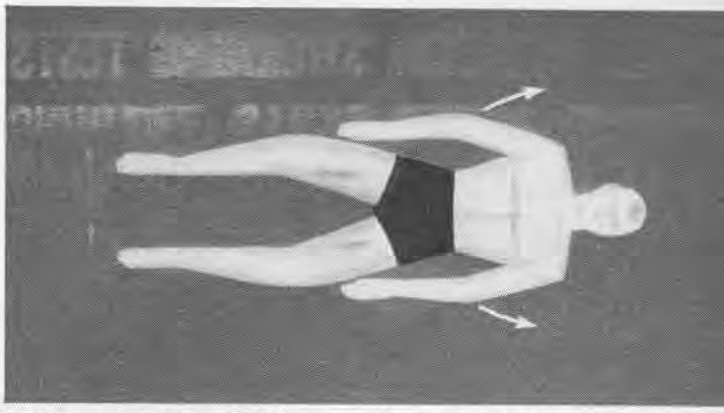
THE OLD FASHIONED BREAST STROKE IS ONE OF THE BEST

The BREAST STROKE permits free breathing, good forward vision and satisfies the demand for an endurance stroke. Whether it is used for crossing streams in the jungle or in waters where sharks are known to be present, it offers a method of quiet swimming. Plane crews and men from ships are advised to stick together in the water and a high BREAST STROKE permits talking and discussion—a great help to morale in the water. The frog kick is also used for the back stroke, in swimming under water and for the life-saving carries. The arm stroke is like that for underwater swimming. When performed without haste it is restful, while providing reasonable speed. By ducking the head and swimming through breaking waves physical punishment can be avoided. Forward vision permits the swimmer to see debris and the high breast stroke helps to keep oil out of the mouth. The sweeping breast stroke also offers a means of clearing a path through burning oil or gasoline. With the breast stroke, the swimmer can carry equipment in pack style on his back or he can push it in front of him. Finally, the breast stroke is an extremely easy one for a man with all his clothes on and for performing tired swimmer carry.

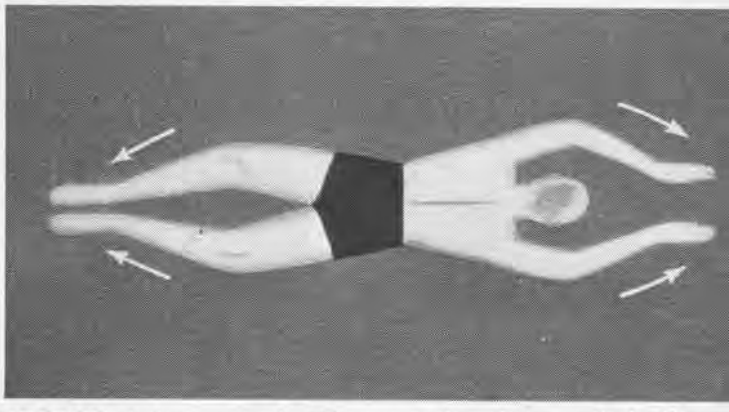
THE SIDE AND OVERARM STROKES ALSO HAVE THEIR PLACE

The SIDE STROKE is an excellent one for long distance swimming and it provides a restful change from other strokes. Because neither the arms nor the feet are out of water at any time it is also a quiet stroke. In calm water the face can be kept out of the water for breathing and in rough water the swimmer can turn the back of his head to windward and breathe to leeward. Since the stroke can be performed using only one arm, the other can be used to carry equipment. And, in case of injury to one arm, the swimmer can swim on the side which places the injured arm uppermost, trailing it on the surface.

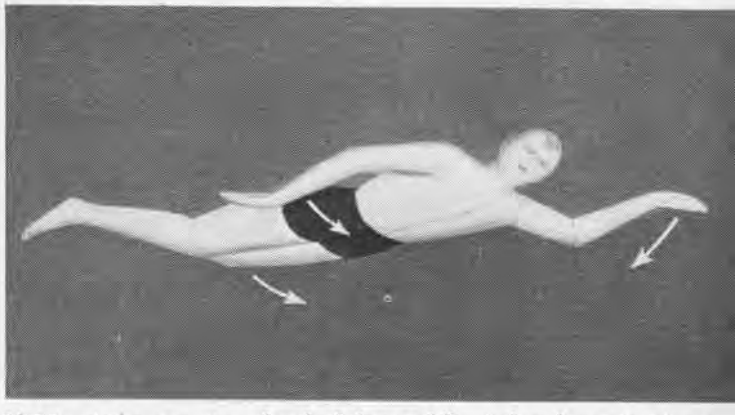
With the OVERARM stroke, by which is meant the overarm with scissors kick, or Trudgen, the arms must be brought out of the water on recovery. Since this is tiring to the average swimmer, the stroke is of particular value only when bursts of speed are essential. The swimmer may need it to get clear of debris from a sinking ship or from the ship itself. He may need it to reach a drowning man in a hurry or to recapture a liferaft or lifejacket that has gone adrift. It is also a good stroke for swimming against a tide or for reaching a rescue ship in a limited length of time.



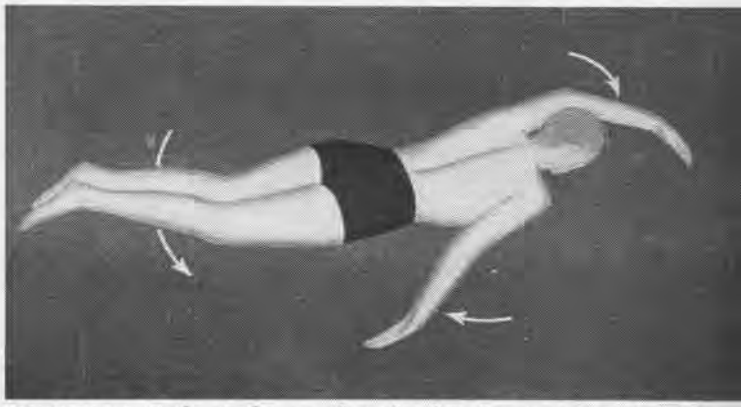
BACK stroke is the first basic stroke taught in the naval aviation swimming program. It comes naturally after learning to float.



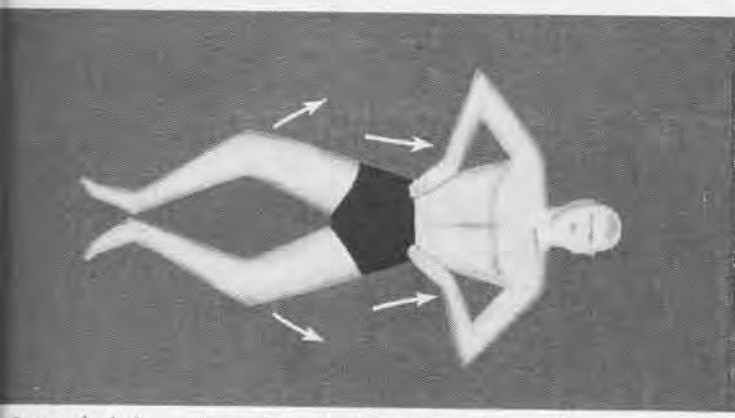
BREAST stroke is a good endurance stroke. Swimmer looks like a frog, but frogs are good swimmers. This is perhaps the



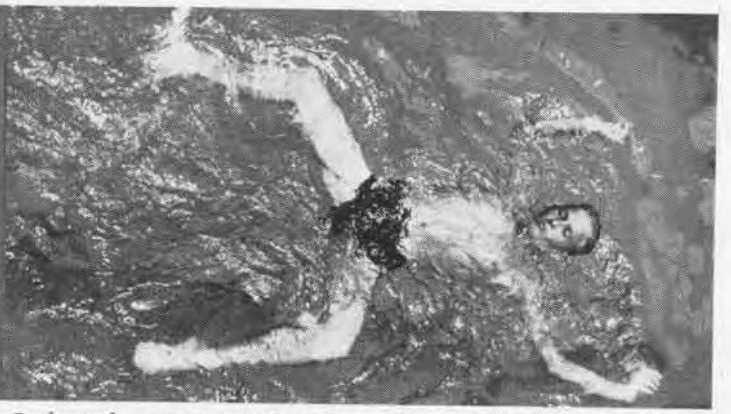
SIDE stroke, one step ahead of dog paddle, is fine for swimming a long distance. An experienced swimmer can lie in the water as



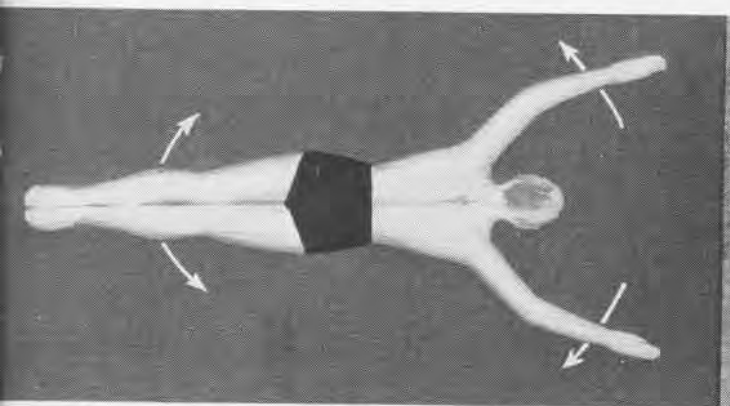
OVERARM stroke is the speed stroke, but for most men it is also tiring. Because it is similar to the kick in the other



It may look funny from above, but it's extremely useful in the water. Swimmer can see well and if lazily done it's a most restful stroke.

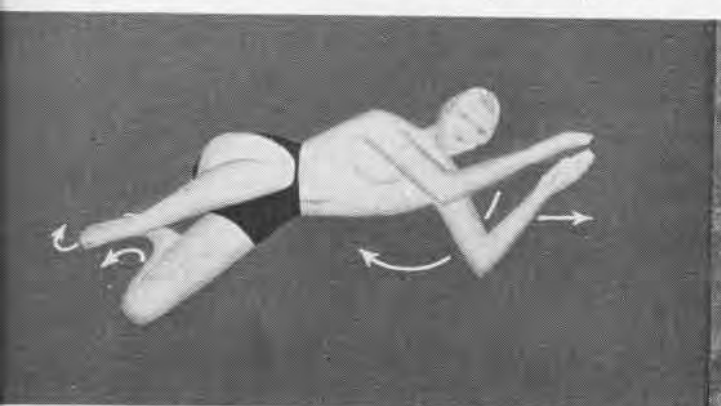


Back stroke position, with belly and chest near surface of water, gives swimmer best protection against effects of underwater explosions



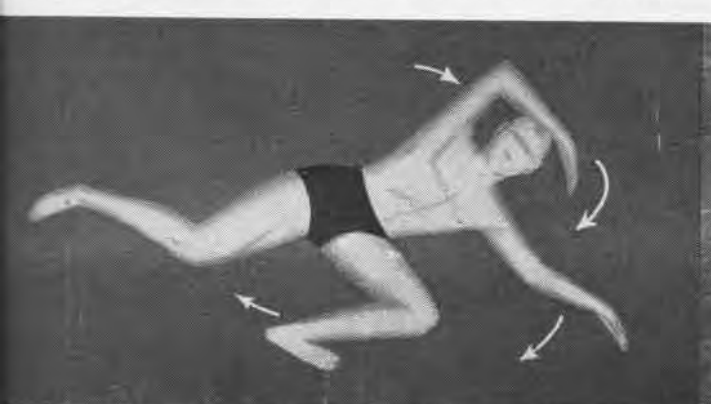
most useful all-around basic stroke. Motions are the same as those used by experienced men for underwater swimming. This is good stroke

for swimming in a seaway. Swimmer can see breaking waves coming and duck through them, saving himself necessity of fighting waves.



it is feather bed and go right on plugging along. Very restful. heavy seas, swimmer merely turns his back to waves and breathes

on the leeward side. This stroke can be performed using only one arm. This is advantageous if swimmer has injured arm or is carrying gear.



rokes, naval aviation coaches teach the scissors kick instead of utter kick used in a racing crawl. Swimmer inhales when his mouth

is out of water and exhales when it is under the water. This stroke is good for short sprints when swimmer is in a hurry to go somewhere.

Water Survival Calls for Cool Head

When he has learned the basic strokes—back, breast, side and overarm—the swimmer is ready to develop specific survival knowledge and skills. He must learn to jump from a height into the water fully clothed, to swim under water, to support himself with debris or even a pair of pants blown up like a balloon. He must learn how to approach a swimmer who is in difficulties, how to break free from the stranglehold of a panicky swimmer and how to rescue men who are wounded or who can't swim. This means learning the technique of such things as the tired-swimmer carry, cross-chest carry, hair carry, clothing carries, two-man carry and various towing methods.

From long sea experience the Navy has found that there are many things a man should know and do in order to get away safely if the critical time ever comes when the order to abandon ship is given.

First of all, every man, regardless of how well he can swim, should have a lifejacket. A man may have to remain long enough in the water to tax even the best endurance swimmer, he may be injured and thus need the support of a lifejacket. If he doesn't need it, the chances are that he can find a shipmate who does. Every man also should have a canteen. There may be water, water everywhere, but thirst is just as tough in the sea as it is out of it.

A pair of gloves also is important. They protect the hands from minor injuries which can be desperately serious to the man who needs to use them for survival. More than 350 men aboard the *Wasp* when it was torpedoed burned their hands so badly sliding down lines to the water that they had to have hospital treatment when they were picked up.

A primary rule when abandoning ship is: *Never dive and don't jump unless it is absolutely necessary.* A man who dives runs the risk of hitting debris or men in the water with his head, and his chances of survival are slim. The man who jumps also runs the danger of hitting objects in the water. It is best to climb down a net, ladder or line, being careful not to slide and thus burn the hands and other parts of the anatomy. If a man has no choice but to jump he should be careful to pick a spot clear of debris and men. If the jump is a long one he should throw his lifejacket into the water ahead of him. When worn in a jump, lifejackets have a habit of clipping a man in the chin and knocking him cold even if they don't break his neck. For protection against injury he should keep his legs together, his arms at sides.

If the ship is listing, it is best to go over the side away from the list so that there is no danger of the ship's capsizing on top of a man after he is in the water. He should, however, be careful to estimate the list so that he doesn't land on a lower deck or hit the side of the ship going down.

To get to the surface after a jump, almost any stroke is good, dog paddle, side stroke, back stroke or breast stroke. It is best to come up carefully in case there are other men, debris or flames on the surface.

If there is a thin layer of oil on the surface, the swimmer can get through it by using a sweeping breast stroke, splashing the oil away, and clearing a path for men behind him. If the layer of oil is thick, it is best to remove or deflate the life jacket and swim underwater, surge up for a breath of air and go under again. The same technique is used for swimming through flame—a sweeping breast stroke if the flames are small, swimming under water if the flames are high. Whether swimming through oil or flame, the swimmer must remember to work to windward in order to get clear.

Student swimmers climb down net into pool full of cork blocks. This training simulates abandoning ship in debris-filled ocean

Coast Guard LCVP rescues survivor on D-day off Normandy coast. The rescue came in nick of time. Man in the water is unconscious

After Making a forced landing, fighter pilot quickly inflated his rubber life raft. He is now about to take to the high seas

A WISE SWIMMER GETS AWAY FAST AND STICKS WITH HIS SHIPMATES

ONCE in the water, the object is to get away from the ship as fast as possible. The degree of suction created by a sinking ship is highly variable, but it is wise to take no chances of being sucked under. There are also many other reasons why the area near the ship is dangerous. Boats, timbers and other buoyant objects that have gone down with a ship may break loose and come to the surface with the force of rockets, fly into the air and come down again as equally deadly missiles. There may be underwater explosions, fumes and fire. There is the danger of men landing on top of the ones already in the water. Finally, the ship may still be a target for enemy fire.

As a man swims away from his ship, he should keep his eye out for debris that can be used for support. The debris doesn't have to be large enough to climb on. The water will do most of the work of keeping a man afloat, and an object which will support only slight pressure is enough to furnish the buoyancy which allows him to rest in the water.

WHEN he is well clear of the ship, it is wise to look for shipmates and to stick with them. A group of men in the water is easier for rescue craft to spot, and companionship, even in the drink, does wonders for morale.

With the appearance of rescue planes or surface craft, the ordeal is not yet over. A plane taxiing on the water often is not easy to maneuver, and whirling props are dangerous. Men in the water should be careful to stay clear of props and follow signals given from the plane. The ap-

approach a swimmer who is in difficulties, how to break

If safety in the form of land is near, the swimmer must take particular care as he gets inshore. A swimmer who watches the waves can use them to help him toward shore by riding the crests and swimming only in the troughs. In breaking waves he can dive through them and thus avoid an exhausting pounding. If there is a current going against the swimmer, it is always best to swim through it diagonally.

Only two of more than 4,000 men aboard were lost when transport SS *President Coolidge* hit a mine and sank in South Pacific

THESE MEN SURVIVED—COMBAT SWIMMING SAVED THEIR LIVES

"THE BIG Martin *Mariner* sighted groups of survivors swimming and clinging to pieces of wreckage. In the rolling sea the *Mariner* could not taxi close to the survivors. The crew tossed out inflated life rafts with lines attached and trailed them astern. Survivors managed to struggle to the rafts and cling to them until they were hauled alongside the flying boat.

"There were scores of survivors in the water, some of them badly wounded. Two officers in a small float plane began taxiing through the water, gathering them up. When all they could handle were clinging to the pontoons they would taxi back to our destroyer and then go out for another load. They must have rescued over a hundred."

REAR SEAT MAN SAVED HIS PILOT

"DISENGAGING himself from the wreckage of his plane when it was forced down in the Caribbean, George Varzaly, ARM3c, swam to his pilot, who was badly wounded, and saved him from drowning by keeping his head above water until rescued by a passing freighter."

David Hayes, AMM2c, was a plane captain aboard the *Wasp* when she was torpedoed. "Some of the boys burned their hands sliding down the small lines I found a fire hose and came down hand over hand. I had no life jacket. I trailed along in the water hanging on to the fire hose. I hated to turn loose. Finally I got up enough courage and started swimming. Just about the time I got clear of the ship and the oil slick I recognized my second mech, Woskiewicz. I called to him and he came over. I held on to him and kicked and we were both able to stay afloat on his life jacket. When we got to the top of a swell we could see where we were. We saw a life raft several hundrd feet away and headed for it. About 15 men were hanging on it, but made room for us."

HE GOT CLEAR, SWAM LIKE HELL

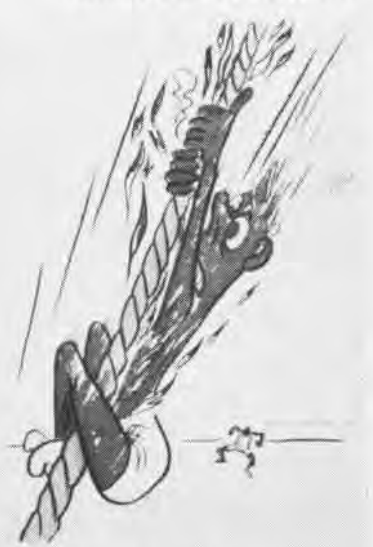
A DAMAGED plane went over the barrier and crashed. It knocked Lt. K. over the edge of the flight deck. He landed on the forecastle rail below, looked up and saw his own plane coming down on top of him: "I had to push myself over the rail or be crushed, so I went tumbling 40 feet or more down into the water, the plane just a foot behind me. I hit on my shoulders with my feet in the air and managed to get a few feet under before the airplane crashed. I got clear and swam like hell. . . . I was an awfully long time reaching the can. It was dead in the water, or seemed so, apparently waiting for the waves to wash me nearer. Then someone threw me a line. I wrapped the line around me several times and waited to be pulled in. All of a sudden, the destroyer started astern full speed and I was skipping across the surface like an Hawaiian on an aquaplane. (Someone said later that there was a sub nearby.) Then they slowed down and I was pulled aboard."

Charles J. Schultz, AMM3c, was a rear seat man in an SO3C. A Navy blimp found him perched on the pontoon of his crashed plane and dropped a raft. "Schultz jumped from the pontoon, attempted unsuccessfully to grab the line in mid-air, then swam to the life raft and pulled it back to the pontoon on which he hung by one arm as he inflated the raft. Within a few minutes he had climbed aboard the boat."

DOWNED MARINE FOOLED THE JAP

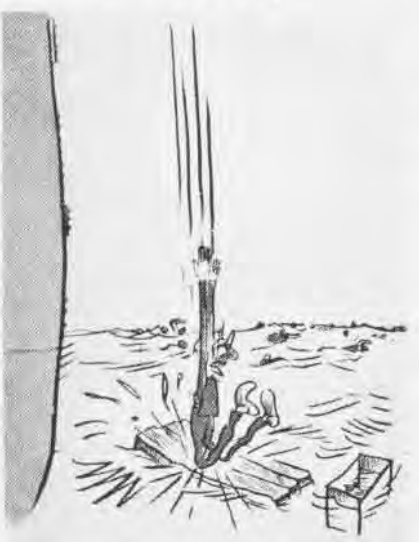
Second Lt. Kenneth D., a Marine fighter pilot, was forced to bail out while returning from a mission over Kahili. He inflated his life raft and climbed aboard. Later, a Jap float plane came out looking for him. "The pilot passed within 300 feet of me and I thought he was going on when he banked sharply and I knew he was coming down. I jumped out of the raft, turned it over and got under. Its bottom is dark, and I prayed that the Jap wouldn't be able to distinguish it from the water. I heard him flying around for 30 minutes, but he never saw me."

Dilbert Is Notorious for Error of His Ways—Never Follow His Example



Dilbert's special Airdip and SCORCH Technique

Dilbert never got the habit of checking his Mae West for rats and valve failure!



Dilbert didn't believe in LOOKING before you Leap!

TECHNICALLY SPEAKING

Propeller Cart Saves Time

Is Made from Salvaged Materials

MAG-11-A propeller cart for installing, removing and checking propellers and governors on TBF-1 and F4U-1 aircraft has grown out of difficulties experienced at this station. The newly-designed cart has a platform 5′, 6″ from the deck, and a boom height of 13 ft from the deck. The wheels turn 360°, and can be maneuvered in close quarters. A crew of two men is required to operate the cart. One man operates the winch from the ground while the other man guides propeller on shaft.

PROP IS CARRIED ON CART IN THIS POSITION

This cart was made from salvaged materials and, since its completion more than six months ago, has been in operation almost continuously by this and other squadrons of this station. Salvaged materials used to make this cart consisted of one bomb cart, boom from bomb truck, an 8-in. box beam, standard winch from bomb truck and scrap.

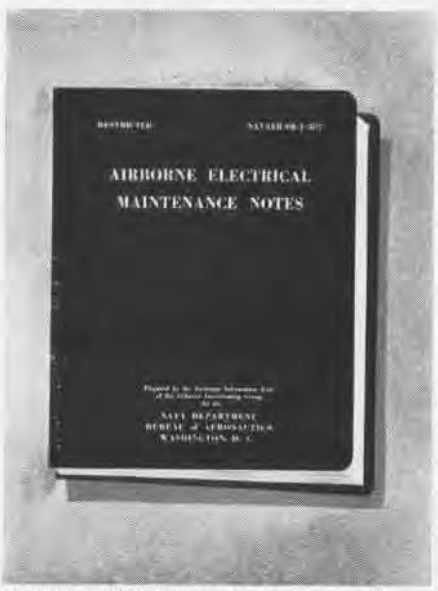
[Designed by T-Sgt. John A. Smith]

▶*BuAER COMMENT*—This dolly is capable of handling only one propeller at a time, and the method of supporting the propeller may easily lead to damaging the projecting blades. A better method is to support the propeller by a propeller hub stub shaft on the dolly so that the propeller blades are vertical. There should be ample equipment available for lifting propellers thereby eliminating the need for a special propeller blade hoist on the dolly.

ACG Publish New Monthly

Airborne Notes Are Loose-Leaf

Airborne Electrical Maintenance Notes (NavAer 08-1-507) is a new restricted monthly loose-leaf publication prepared by the Technical Information Unit of the Airborne Coordinating Group. The subjects covered are those of interest to personnel who maintain airborne electrical equipment such as generators, batteries, voltage regulators, reverse-current cutouts, controls, M-G sets, dynamotors, inverters, auxiliary power units, starters, motors, position indicators, and wiring. The first issue is a "basic" issue to which should be added the succeeding issues. The first and second issues have been mailed.



RESTRICTED MANUAL IS FOR MAINTENANCE MEN

Copies of AEMM can be ordered through official channels from the Bureau of Aeronautics, Publication Section, but before ordering, make sure there are no copies filed somewhere in the activity. Automatic distribution is made to CO's of all naval air activities.

Novel Indexing Attachment

Used to Hex and Square Small Nut

MCAS Santa Barbara—A machinist from Illinois makes use of his civilian trade at Marines' Santa Barbara air station, and recently devised an attachment used primarily to hex and square small nuts. Many work-hours of milling machine have been transferred to shaper by using this novel attachment.

The index plates are identical to those used on the mill and can be interchanged. It works on the same principle as the Index Head of the Mill using a 1-to-1 ratio instead of 40-to-1. The attachment does require a set of arbor, to be used on other jobs.

This attachment was not designed to do heavy work but will work up to 2½-inch stock satisfactorily. The process is simply inserting a piece of stock into the attachment turning out not only hexagon, but octagon or square nuts. This new method cuts production time.

ATTACHMENT SAVES MANY WORK HOURS FOR A&R

[Designed by S/Sgt. Weldon White]

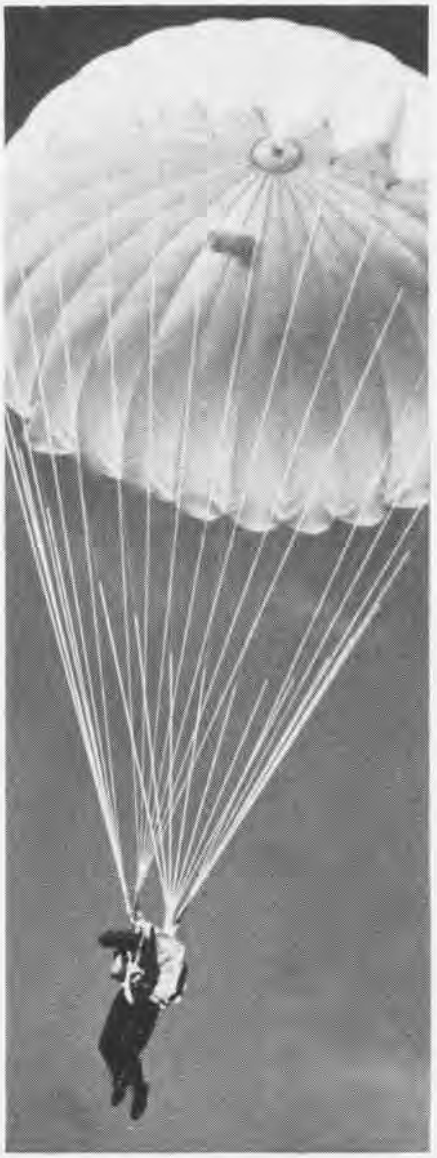
▶*BuAER COMMENT*—This is a very good idea, and should be made available to all activities.

LP Air System in Carriers

Won't Modify CVE's in Service

It was previously stated in NANews [10/14/43, p.26] that the LP air system in aircraft carriers was to be modified to provide 200 lbs. p.s.i. pressure. This statement, it has developed, applies to CV's and CVL's, but not to CVE's except the forthcoming CVE-105 class.

No CVE's in service will have their LP air system increased in capacity CVE's in service will continue to use Aerol High Pressure hand pumps and gasoline-powered Par Compressors to supplement the existing LP system when it proves inadequate for inflation needs.



CHUTES REQUIRE SPECIAL CARE IN COMBAT REGION

THE CARE and preservation of parachutes, always important, assumes particular significance in combat areas, where climatic conditions often are so extreme that unusual methods must be employed. However, initiative and energy on the part of parachute riggers usually can overcome these problems.

Dampness is one of the worst enemies of parachute silk and must be treated accordingly. Squadrons that will be operating in hot, wet and high humidity areas should take with them at least 50 lbs. of naphthalene flakes to overcome the mold and mildew tendencies to silk and other fabrics. Silk is extremely hydroscopic and will absorb 35 percent of its own weight in moisture. A small amount of naphthalene flakes sprinkled between the folds of the canopy will help reduce mold and mildew. A good simple method is to use a can with a cover. Punch a number of holes in the bottom of the can, fill with naphthalene flakes, and sprinkle between each fold while packing.

PARACHUTES may be cared for properly even in extreme emergencies. Elaborate facilities are not necessary. Parachutes can be aired by selecting a clean, grassy or sandy site and allowing the wind to inflate the chute for 20 or 30 minutes. This can be accomplished without too much effort by driving a stake into ground and securing harness.

When repacking the parachute, several smooth mess tables, a long strip of canvas on the ground or any other clean suitable material may be used. Every effort should be made to keep the parachute clean when packing in this manner. By hooking the vent to a stake in the ground and by using a weight at the connector link end, sufficient tension can be attained on the shroud lines. When re-packing on mess tables, nails may be used for the stake and weight.

Squadrons should make every effort to acquire at least two types of heating units: one gasoline or kerosene heater and one electric heater, to be used when electricity becomes available. Electric light bulbs, if sufficiently large, are good substitutes when electric power is utilized. These units should be installed at the base of the drying rooms.

A GOOD METHOD for keeping spare chutes dry and in good condition is to construct a locker with several shelves. Drill a number of holes in each shelf and install a series of electric light bulbs at the base—but watch fire hazards! The heat from electric bulbs will flow through the holes in the shelves and help keep the chutes dry. Parachutes normally are kept in planes in combat areas and by the use of heated storage and rotation of chutes every few days, the mold and mildew threat will be reduced.

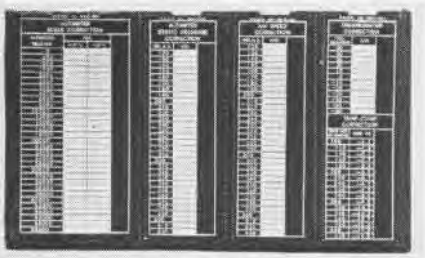
Parachutes should never be repacked while damp conditions prevail, such as after a heavy rain or early in the morning. Wait until the silk is thoroughly dry even if the delay is several hours. This advice holds particularly when metal drying towers are used.

The proper time to determine parachute care requirements in advanced areas is before leaving the training base. Equipment should be portable.

Correction Cards Provided

Charts Have Fluorescent Lettering

An article in the Nov. 1, 1943, issue of NANEWS described the following correction cards which were being pro-



INSTRUMENT CORRECTIONS LISTED FOR BOMBER

cured for use with instruments in the air bomber compartment:

FSSC No.	*For Correction of*
88-C-154	Airspeed Indicator
88-C-179	Altimeter Scale
88-C-192	Altimeter Static Pressure
88-C-224	Free Air Temperature Thermometer

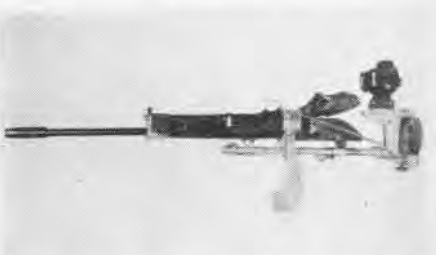
These cards now are Army-Navy standard equipment. All four cards bear fluorescent markings and are designed for use with the multiple card holder, FSSC 88-H-510. The combination of four cards in one holder affords a convenient source of calibration information for air bombers. Operating activities desiring cards and holders may secure them from NASD Norfolk, ASA Oakland and NASD Philadelphia.

Gun Stock is Put on Mount

Adaptation Cuts Down Accidents

NAS QUONSET POINT—A chief of the armory staff has incorporated a sawed-off stock into his spade grip shotguns to prevent accidents from flying driving springs and to add weight.

The addition also has improved the appearance of the gun. The only precaution necessary is to make the stock short enough so that it does not recoil into the sight. An angle iron, solid in contrast with the former cutaway type



GUN STOCK IS ADDED TO CUT DOWN ACCIDENT

used, has been added to make mount firmer, prevent buckling, reduce wear of parts.

For the past year, AFCU Quonset has mounted its guns upside down to keep them clean, simplify loading and to aid in the job of removing reversed shells.

Water Injection Is Useful

Saves Life of Ace Navy Aviator

Water-injection into an airplane engine to give it an added burst of power in an emergency is credited with saving

NAVY ACE USES WATER-INJECTION TO FLEEJAPS

the life of the current Navy Ace, a lieutenant (jg) with 16 planes to his credit.

The pilot, a member of the Skull and Cross Bones squadron, was flying his *Corsair* over Rabaul when he found himself with only 50' altitude and three *Zeros* on his tail, two astern and one on the left. Boxed in, the pilot reported to his squadron mates by radio, "This looks like the works, boys."

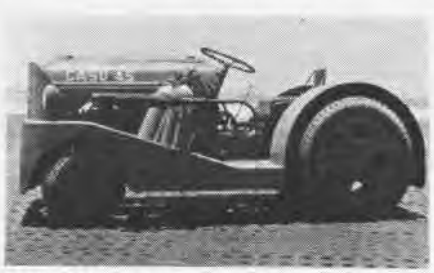
He turned his engine to full speed and used his water-injection in the fuel system to get a spurt of speed which carried him ahead of his pursuers. They chased him over Rabaul at rooftop level, low over anti-aircraft guns and out to sea, but could not catch him. Over the ocean he turned and one of the *Zeros* slapped a wing tip into the water and was destroyed. (See *WEP Is Engine Adrenalin*, NANEWS 7/1/44.)

Increasingly, Navy planes powered with 2,000-hp. engines are being equipped with water-injection.

CASU Has Safety Equipment

CO$_2$ Bottles Put on Towing Tractor

CASU 45—This command has installed fire-fighting equipment on its plane-towing tractors as a safety feature. The device, contributed by operations department, practically eliminates



CASU IDEA SPEEDS FIRE-FIGHTING OPERATION

danger of destructive fires on the line.

▶ *BuAER COMMENT*—**Installation of these two 15-lb. pressure units weighing 53 lbs. each should prove effective, being immediately available in combating small line engine fires due to the proximity of tractors to aircraft operation on a field,**

Lower F4U Sight Bracket

Changes Position of Gun Reflector

A Marine fighter squadron (VMF-451) has submitted a method of lowering the sight reflector in *Corsairs* with

LOWER SIGHT BRACKET ON F4U HELPS GUNNERY

raised cockpit. This method can be used where desirable pending the retroactive installation in all raised cabin F4U-1 type airplanes of the bulletproof glass windshield as the reflector plate and an alternate position for the sight bracket one inch lower.

The reflector is lowered by adding a pair of brackets to the sight reflector. They may be made from ¼" aluminum or any suitable stock. No existing parts need be modified or removed in order to effect this change.

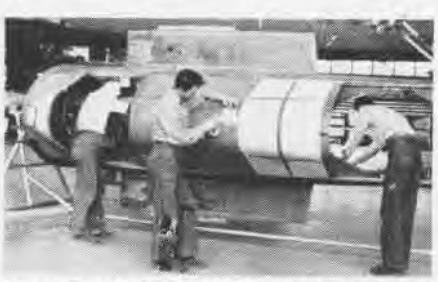
The accompanying photograph is presented to assist service personnel in making this change. The brackets shown in the picture were reported to lower the reflector 1¾", did not cause double image, and still allowed a lead of more than 100 mills over the engine cowling.

It will be necessary to reboresight the sight onto the target lowering it the same distance as the reflector is moved.

Fuselage Rotates on Dolly

Kodiak Speeds Assembly Line

NAS KODIAK—The A&R Department's fuselage rotating dolly has made more accessible the "hidden" sections of the OS2U and OS2N fuselages. This simple iron fixture is mounted on casters.



DOLLY MAKES WORK EASIER, CUTS WASTE TIME

The fuselage can be rotated about its longitudinal axis through 360° and locked at 90° positions. Dolly eliminates time wasted in climbing in and out of fuselage for tools and materials and increases efficiency, particularly in cleaning, stripping, also in painting.

Special Devices Announced

New Sinkable Kite Is Developed

BuAer's Special Devices Division recently announced these late developments in training aid equipment:

MODEL PLANE SIMULATES REAL PROP IN ACTION

• Night fighter attacks can be simulated on the 3-A-2 free gunnery trainer by painting all bulkheads black and by projecting the image on a bulkhead instead of the screen. Attacks in fog and moonlight can be practiced by using deep blue or powdered glass filter.

• Sinkable kite, new version of Target Kite (NANEWS 6/15/44), does not leave telltale trace when used at sea. New kite is made of lightweight metal but operates in same manner.

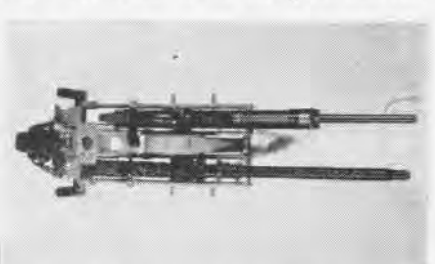
• Machine Gun Link Strain Gage, Device RG-5, records highest tension to which ammunition belt is subjected. Device tests design of ammunition feed systems in new planes.

• Photographing propellers of model planes actually in motion gives more realism than can be achieved by faking blur or sheen by retouching. Each stroke of retoucher's pencil represents his opinion of how propeller would appear in motion, while photo of metal prop with light source representing sun's illumination simulates spin of prop.

Shotgun Is Put on Mount

.30 Cal. Machine Gun Mount Used

NAS QUONSET POINT—An ingenious conversion of the twin .30 cal. mount, Mark 11, Mod. 3, to shotgun use has



SHOTGUN IS INSTALLED ON MACHINE GUN MOUNT

been made by a chief here. One .30 cal. gun has been replaced with a Remington semi-automatic shotgun. Its advantages over a single spade-grip shotgun are obvious; it gives the feel of the real mount and offers practice in swinging real guns of standard weight.

Oxygen Unit Demonstrated

Represents Handy Portable Unit

VD-1—A portable oxygen instruction unit has been devised to replace a complete low pressure oxygen system, as used on all PB4Y aircraft, assembled on a portable mount and used in instructing combat aircrews in the proper use of oxygen and equipment in day and night flights.

This portable unit, with a total weight of 30 lbs., consists of the following items:

1. G-1 oxygen cylinder with shut-off valve
2. Instrument box, containing A-3 blinker, type A-12 regulator, K-1 pressure gauge, flexible breathing hose and clamp
3. Type 14 oxygen mask

Particular emphasis is made on the mechanical operation of the A-12 regulator and physiological need of such a regulator on high altitude flights. All essential data given the combat aircrews in lectures adhere to the information issued by BuAer in latest ro.

A need has been found in the field for such equipment, among newly arrived combat aircrews. The new crew members often do not understand the

TEACH AIRMEN PROPER OXYGEN PROCEDURE

absolute need or the proper method of using oxygen. Some feel they are sissies if they ask questions and proceed to operate their regulators by guess.

It has been found that the reluctant feeling about asking questions will leave the average crew member after his arrival in the combat zone. The men retain nearly all information given them, also rectify any erroneous ideas they may have had, through discussion with the instructor after lectures. They leave with a more perfect operating knowledge of the complete oxygen system and confidence in their own ability to carry on at high altitudes.

(Succeeds List of June 27, 1944)

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

July 18, 1944

Engine	Bulletin	Date
Pratt & Whitney		
R-985	182	7-3-44
R-985	183	5-30-44
R-1340	201	5-30-44
R-1340	202	5-27-44
R-1340	203	7-3-44
R-1830	None	
R-2000	67	6-14-44
R-2000	68	5-2-44
R-2000	69	4-29-44
R-2000	70	5-11-44
R-2000	71	5-11-44
R-2000	72	5-11-44
R-2000	73	5-23-44
R-2000	74	5-25-44
R-2000	75	Being issued
R-2000	76	Being issued
R-2000	77	7-3-44
R-2800	None	
Wright		
R-760	None	
R-790	None	
R-975	None	
R-1820	358	Being issued
R-1820	35	Being issued
R-1820	360	Being issued
R-1820	361	Being issued
R-1820	362	Being issued
R-1820	363	7-3-44
R-2600	133	6-1-44
R-2600	134	Being issued
R-2600	135	Being issued
R-2600	136	Being issued
R-2600	137	7-3-44
Continental		
None	None	

Engine	Bulletin	Date
Lycoming		
R-680	13	7-5-44
Ranger		
770 None		

General Engine Bulletin	Date
46	5-29-44
47	5-11-44

Auxiliary Power Plant Bulletins	Date
15	6-22-44

Propeller Bulletins	Date
Curtiss	
None	
Hamilton	
None	

General Propeller Bulletin	Date
None	

Power Plant Accessories Bulletins	Date
None	

Former Locking Device Used

New Improvements Incorporated

MCAS EL TORO—The improved carbon pile voltage regulator No. D-111144, manufactured by Eclipse, was approved and put into use on F4U aircraft, on June 2, 1943.

At that time, it was noted that the locking device used on the old type regulator which bears the same serial number 3 D-111144, was eliminated from the improved model. This locking device, which is considered quite important, is now being made and used in the instrument and accessory shop.

Reasons for the importance of the lock device are:

1. Maintains constant bench checked voltage regulation
2. Rheostat range effects generator output by approximately 14 volts. Thus, careless handling of the instrument could damage the electrical system.
3. The rheostat cannot be set accurately unless proper equipment is available

The locking device made in the instrument and accessory shop is similar to the device used on old model voltage regulators with these improvements:

a. 1/16" higher from base, over all
b. One less bracket retaining base screw
c. No limiting stop. Rheostat on new model is self-limiting

The device is made of a piece of .081 cold rolled sheet steel 9/16" x 2½" bent into the shape of a **U** with one side ¾", the bottom ½" and the other side 1¼". A 3/26" hole is drilled in the ¾" side, concentric to a ¾" hole on the 1¼" side. A locking screw-nut and washer 3/16" in size is used to complete the device. The locking principle is similar to that used on tapped adjustments.

[DEVISED BY S/SGT. RUSSELL C. KUHN]

▸ *BuAER COMMENT*—R&E plans to issue a technical note recommending the addition of a locking bracket to regulators.

Cradle Helps in Refilling

Boosts Safety During Recharging

NATC PENSACOLA—A time-saving device which also adds to safety of the CO_2 bottle recharging job has been set up in the A&R Department here. It is a special adjustable, quick-clamping cradle and back stop secured to the platform of the weigh scales used to measure the charge of liquid CO_2. Drawings are available on request to the Plant Division, A&R Department.

Safety Is Feature of Jig

Fixture Supports Wing of Corsair

MCAS MOJAVE—A fitting to support the wing of a *Corsair* in a semi-folded position was designed and fabricated in the local A&R shop. Its use permits work on the upper surface of the wing beyond the joint at a point not usually

FITTING PERMITS WORK ON TOP WING SURFACE

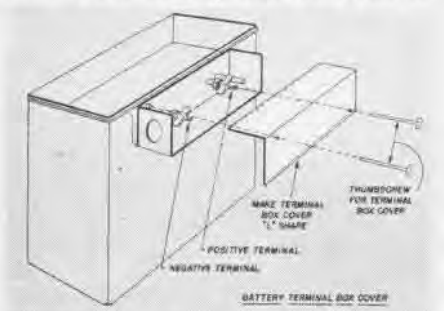
supported by the jury rig. Since the fitting will prevent the wing from moving into the closed position, it will eliminate the danger of personal injury to men working in the limited space.

Box Permits Quick Access

Battery Terminal Lid Is Improved

In battery installations in certain airplanes such as PBY's, removal of the cable terminals from the battery terminal posts is difficult and must be done blindly because only the front of the terminal box can be removed and the top is an obstruction.

To overcome the difficulty, a method was worked out to simplify battery installation in PBY's. The sketch indicates how the top of the battery terminal box is sawed off and a new elbow-shaped piece fabricated to form both top and front. Then the top and front can be



THUMB SCREWS RELEASE ELBOW-SHAPED COVER

removed merely by unscrewing the terminal box thumb screws, and easy access to the battery terminal posts and a clear view of them are obtained.

[DESIGNED BY JAMES HOLLIDAY, ARM1c]

Oxygen Service Is Mobile

Truck Converted into Repair Shop

VD-1—A mobile oxygen service and repair shop has been developed by this squadron by converting and equipping a 1½-ton Ford bomb service truck. The bomb hoist was removed, an oxygen cylinder rack was constructed, rigged

OXYGEN TRUCK HOLDS COMPLETE REPAIR SHOP

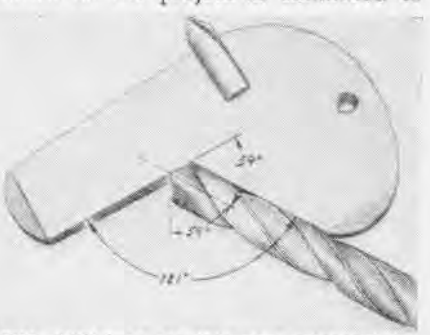
up with a high pressure manifold system.

The interior of the truck is provided with a work bench, needed tools, a spare parts locker and the required test equipment to check and repair oxygen masks and regulators needed in the upkeep of the plane's oxygen system. Lights are provided for use in night repair work, supplied by a spare battery in the tool box.

More on Dzus Key Project

NATTC Defends 121-Degree Angle

NATTC CHICAGO—The BuAer comment on the Norman Dzus Key Training Project [NANEWS 7/1/44, p. 29] is correct as to the recommended angle's being 118° for grinding drills, Naval Air Technical Training Command in Chicago admits. But the angle of 121° shown on the project as submitted to



DRILL ANGLE IS 118 DEGREES, PATTERN 121

NANEWS is correct, and is arrived at as shown in the sketch. Norman even considered marking off one side of the angle into 1/16" or ⅛" to check the length of the cutting lips of the drill.

Tool Removes Metal Plugs

Prevents Damage to Engine Parts

NAMC PHILADELPHIA — A civilian mechanic here designed a tool for removing exhaust plugs and won an award in the beneficial suggestion program.

Tool is a specially designed punch

SPECIAL TOOL ELIMINATES FINGER INJURIES

with an arrow-shaped tip. It has integral stop pins to prevent too deep penetration and has a collar against which the sliding sleeve is driven to force the point through the plug. Once plug has been pierced, removal is easy.

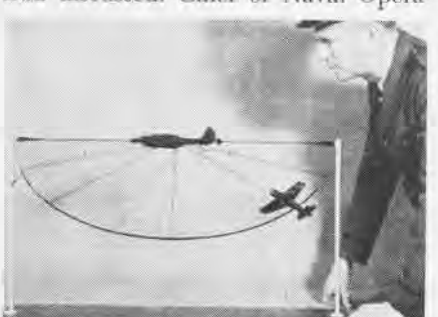
[DESIGNED BY LEO A. BOSCHE]

New Position Firing Device

NAS Pasco Suggestion Approved

The Aviation Free Gunnery Unit at NAS Pasco has constructed a simple device to be used for demonstrating position firing to student gunners undergoing training.

The various angles of attack are marked off on a semi-circular piece of plexiglas that revolves around the fore and aft axis of the bomber. The attacking fighter can be positioned on any of the angular lines and the appropriate lead discussed. Chief of Naval Opera-



GUNNERY UNIT DEVICE GETS PRAISE FROM FGSC

tions approved this device, on the recommendation of the Free Gunnery Standardization Committee, and suggests that other units devise similar demonstrators for firing deflection shots.

SYNTHETIC GUNNERY

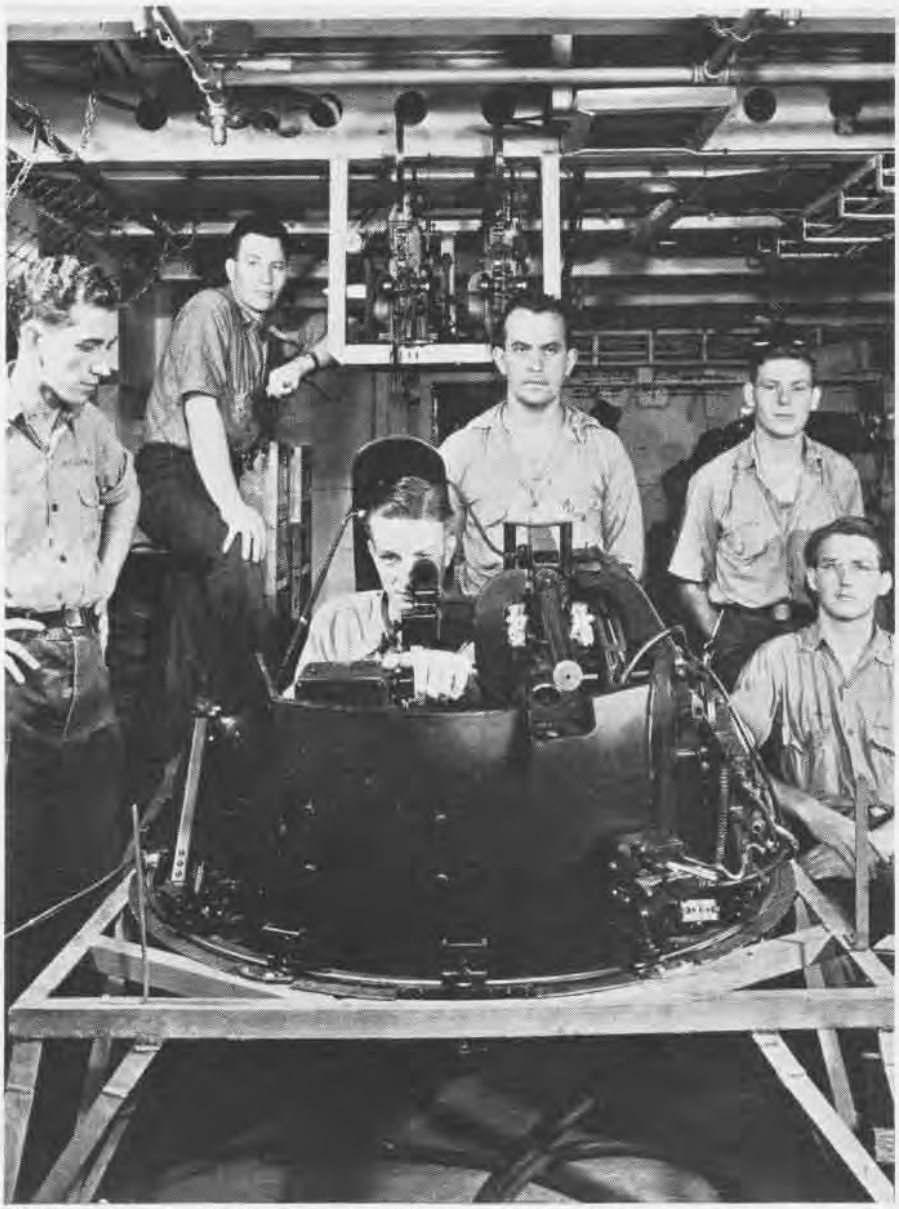
SYNTHETIC gunnery trainers are going to sea to keep the shooting eyes of aircrewmen and antiaircraft gunners sharp. The 3-A-2 dual projection trainer, familiar to all free gunners, has been placed on nearly all battleships, as well as carriers and ships of other types.

The trainer gives the gunners realistic training in proper target lead. He needs to know not only the theory of gunnery, but his skill requires constant refresher work to keep it ready for combat.

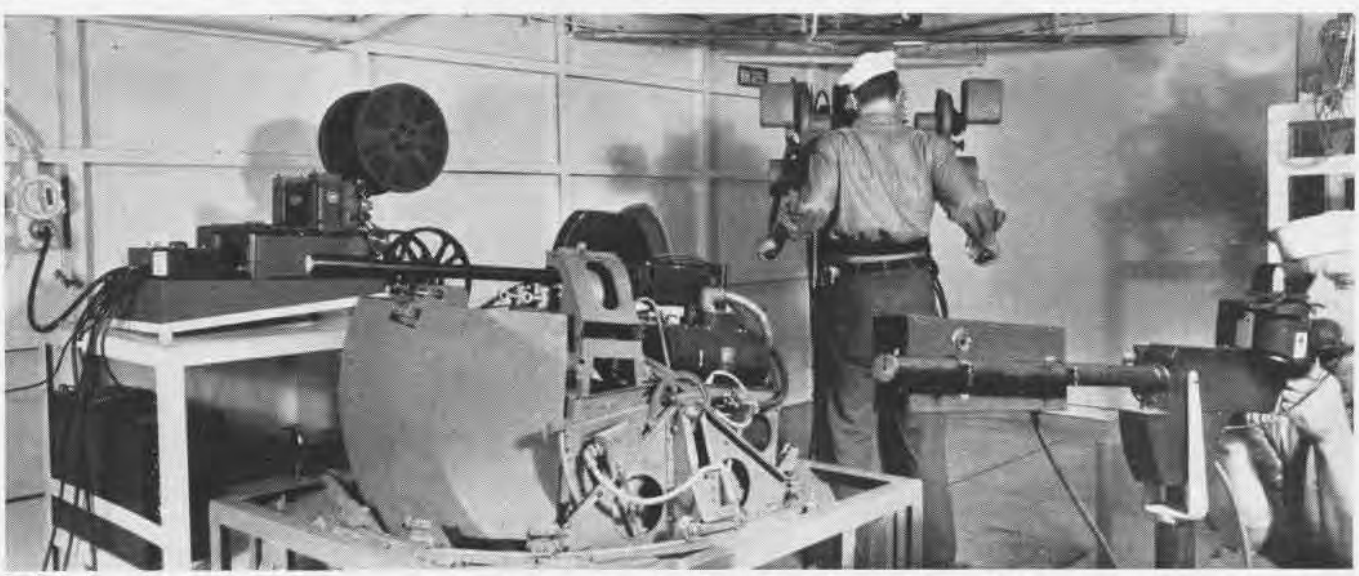
This means the gunner needs to keep in practice, especially when he is a member of a crew of a carrier-based plane, because he may be called upon to show his proficiency at any moment. To provide this practice, 3-A-2's have been put aboard carriers below deck.

There, whenever time is available, gunners may be given further training. Good reports on results of this up-to-the-last-minute training have been received from the fleet by BuAer's Special Devices Division.

As antiaircraft gunners also need to maintain top form at every moment when in combat areas, it has been found possible to use the 3-A-2 for training in firing at antiaircraft targets. This has resulted in placing the device aboard many carriers, to be used by crews of 20 mm. guns. Other vessels are also interested in protection afforded by AA gunners, so ships of several types are receiving 3-A-2 installations.



TBF gunners on the U.S.S. *Lexington* firing at attacking fighters which appear on the 3-A-2 screen to keep their shooting eyes keen for action against Japanese and Nazi planes



Typical view of gunnery trainer use on carriers is scene aboard U.S.S. *Hancock*. The 3-A-2 at left projects antiaircraft targets on the fore bulkhead for practice with Mark 51 director while machine on right projects aircraft targets for TBF turret and free gunner

Pensacola Modifies 3-A-2

Improves Beam, Quarter Attacks

A modification of the 3-A-2 Free Gunnery Trainer has been developed at the Aviation Free Gunnery Unit, NAS Pensacola. The Free Gunnery Standardization Committee conducted tests on the device in June and recommended that BuAer's Special Devices Division procure it for advanced free gunnery training activities. It will be known as the 3-A-35.

The purpose of the modification is to further simulate attacks with 3-A-2 trainer on a screen where it has been necessary to pan the film. It permits the attacking plane to move through the full 90° angle. With the present 3-A-2 screen it has been necessary for the film contractor to pan the film to give the effect of beam and quarter attacks. This materially reduces actual angular change of the target plane to the gunner, and makes it difficult for the gunner to orient himself. The modified version eliminates the weaknesses of the present 3-A-2 on beam and quarter attacks.

This is accomplished by swinging the 3-A-2 projectors on a circular track about a central point in such a way that they are always the same distance from a semi-cylindrical screen. The projectors are rotated at a rate that is equal to the rate of panning present in film.

Reference points for the initial angle of the projectors can be established by a preliminary run of the film. Most films showing beam and quarter attacks reveal some section of the bomber's wing. Superimposing the image of the wing upon a similar wing painted on the screen at the proper point will give the initial angle of the projectors. Then by rotating the projectors at such a rate that the background and clouds of the picture appear motionless on the screen, the target plane is permitted to move through a full 90° arc.

Cap Form Stamp Is Useful

Grosse Ile Makes Many Small Items

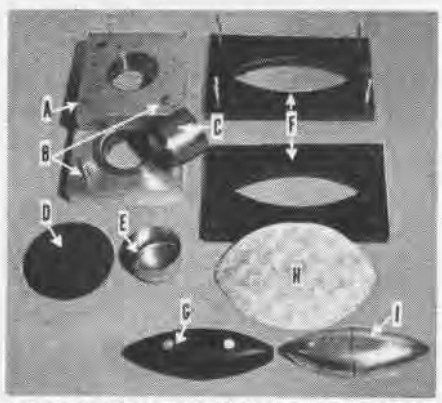
NAS GROSSE ILE—A&R Department has devised a form for stamping wheel dust caps and wing tip light caps which has proved both simple and economical. The picture shows the form for stamping N2S front wheel dust caps (*left*) and the wing tip light caps (*right*).

Two square blocks of steel with a round hole in the center (A) is held together with two bolts at (B). A steel punch (C) is used to make the cap, pushing the round metal blank (D), which has been placed between the two blocks and bolted so when forming it will not buckle. Finished cap is shown at (E).

The photo also shows a form for stamping N2S wing tip light caps. The form consists of two fiber blocks (F) with the shape of the cap cut through the center, and a fiber punch (G), the metal blank (H), and the finished stamping (I), which is shown with a black trim line.

[DESIGNED BY H. K. HAMANN, AMIC]

▶ ***BuAER COMMENT*—A&R shops have several ways of doing this, but this method**



FORMS MAKE STAMPING WHEEL DUST CAPS EASY

is extremely simple, especially adaptable for use on Class C stations. It is recommended that Grosse Ile make drawings available to stations desiring to adopt this useful idea.

Armor Change Is Outlined

SBD Equipment Fits Other Planes

The rear gunner's armor in the OS2U's and OS2N's has always been a rather uncomfortable fit, particularly for smaller gunners. Armor for the rear gunner in SBD's, while of the same type, has smaller vertical dimensions and is somewhat more comfortable, permitting increased ease of operating the gun.

The SBD rear gunner's armor can be adapted to the OS2U rear seat by addition of certain Douglas parts, including the armor plate. Some units may be in locations where necessary parts can be obtained either from stock or from salvage. NAS Norfolk, A&R Department Engineering Instruction No. 1678, Subject: Model OS2U-3 and OS2N-1 Airplanes, Ordnance, Gunner's Seat, Modification of, lists the parts to be removed, Douglas parts required and contains instructions for effecting the change. Units desiring to make the installation may be able to get the parts from salvage available at any station.

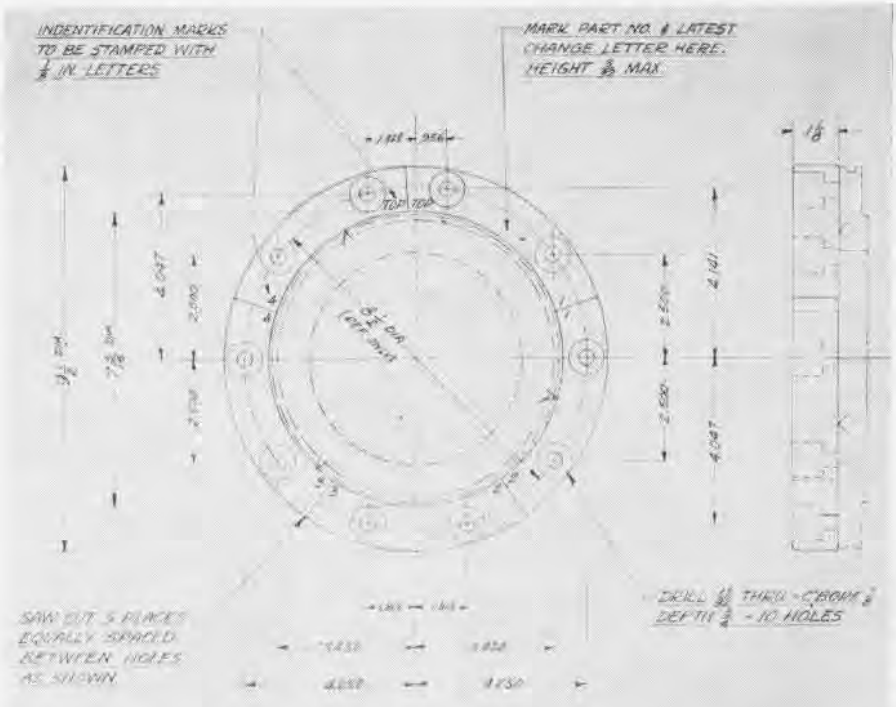
PHOTOGRAPHY

Types of Photographs Now in Demand

Photographic officers should check the following list where any doubt arises as to what photographs are desirable to forward to the Navy Department:

1. *Combat*—All available.
2. *Aerial Strikes* — Selection of best photos from each strike.
3. *Captured Enemy Bases* — (Installations) Dugouts, revetments, defenses from all angles necessary to show their construction and character. (Material & Equipment) At least one shot of all important items (guns, Radar, radio, transportation, planes).
4. *Ships*—(Enemy) All available. (Allied) All available. (U.S.) All photos subsequent to construction changes, or showing ships under unusual and interesting circumstances.
5. *Aircraft*—(U.S.) All photos of new types, good formations, individual flight shots near and far from different angles and distances, especially in combat zones. (Enemy) All available. (Allied) Same as U.S. as available.
6. *Advance Bases*—(Aerials) As often as significant changes occur. (Ground shots) Such photos as show significant features. (Activities) All showing interesting or informative work, recreation, living conditions, scenes, significant or unusual construction.
7. *Air Fields*—Near and approach obliques from different angles of all fields; verticals. As often as significant changes occur.
8. *Shipboard Activities* — All interesting and significant shots from standpoint of technical, historical or news interest, especially under combat, emergency or specialized conditions.
9. *Personnel* — Interesting shots of personnel, officer and enlisted, at work, in recreation, awards. Activity photos should be stressed.
10. *Repair and Salvage*—Photos of jobs done under unusual circumstances, improvised equipment or facilities.
11. *Equipment*—Photos of all types of equipment (water and land) under actual service conditions, particularly of unusual conditions, illustrating performance and use. Inclusion of operating.
12. *Ordnance*—Guns and equipment in action, handling.
13. *Camouflage*—U.S. and foreign.
14. *Medical*—Interesting and informative shots of treatment, handling, and removal of casualties, hospital activities and scenes, operations.

▶ Recent tests with Sonne stereo continuous trip cameras have produced remarkable results. For extremely low-altitude reconnaissance photography by high-speed airplanes this camera offers great possibilities. Camouflage experts will have difficulty combating such a camera, however strong enemy anti-aircraft installations covering *hot spots* may limit use somewhat.



RING STUD PROTECTOR FOR R-2800 ENGINE PROVES BENEFICIAL DURING MINOR BARRIER CRASHES

Protect Engine With Ring

Engine Change Is Unnecessary

A stud protector ring has been developed for R-2800 to prevent the barrier wire from being wrapped around the stud bolts on the engine nose section in event of minor barrier crash. The ring is made up in five sections as illustrated so that by removing only two stud bolts at a time it is not necessary to remove the propeller to install the ring.

The device has proved beneficial in eliminating engine changes in minor crashes and is expected to be even more useful on smaller type carriers.

Instruments Are Modified

Change Autopilot, Gyro Horizon

A number of oral reports have been received indicating dissatisfaction with the operation of the Jack & Heintz J-1 autopilot and the J&H gyro horizon indicator. When first produced these two instruments had several defects: The autopilot follow-up systems tended to jam due to lubrication and other difficulties. The gyro horizon would not erect if uncaged with the airplane in an attitude more than plus or minus 6° horizontal. The autopilot difficulty has been remedied in production and service. The gyro horizons were modified both in production and service so that they would erect from any pitch attitude up to the tumbling limit. However, in order to retain the small turn error feature of the design no change was made in the bank axis erection system and the plus or minus 6° limitation still holds. (See BuAer Technical Note 18-44). Modified autopilots and gyro horizons were marked with a yellow "M" in a yellow circle.

BuAer would appreciate receiving reports of any other malfunctioning of these Jack & Heintz instruments so that further corrective action may be taken. Reports should indicate whether it is a modified or unmodified instrument.

Change Brings on Accident

Control Member Fails to Hold Up

A recent crash of a large transport was attributed to failure of a control member made of non-magnetic material which had been introduced by local change to avoid disturbance of a compass transmitter.

The non-magnetic material replaced a stronger steel member which had caused deviations in the compass. Service activities installing compasses are cautioned to undertake the substitution of non-magnetic members for steel members only after approval has been secured from an authorized source. Extreme consideration should be given whenever such a substitution involves a structural member upon whose strength the airplane's safety depends.

Correction

In the article entitled "Electric Gun Charger Remedies Jams" (Aviation Ordnance column, July 15) it was erroneously stated: "As long as the bolt is making intermittent contacts with a bolt-operated switch, the charger remains in operation." The electric charge remains OUT of operation under the above conditions.

Oxygen Unit is Portable

Apparatus Could Be Shifted Easily

NAS ALAMEDA—The portable low-pressure oxygen units supplied with the JM-1 aircraft are not of sufficient size to permit prolonged flights at oxygen altitudes. In order to surmount this difficulty, it was decided to install a portable high pressure oxygen system, which would not only insure adequate oxygen for long hops, but also would make it possible to shift the apparatus from one plane to another.

This set-up was designed primarily for photographic units to be used in high altitude mapping work, but has also been adopted by several of the VJ units attached to this station.

[SUGGESTED BY ENS. FORST D. FULLER, USNR]

▶*BuAER COMMENT*—Individual diluter-demand units, in two sizes, 295 and 96 cu. in. cylinders, are being produced for ready installation and removal from naval aircraft. Such individual units may likely have wide and diversified usage, particularly in certain bombers, patrol planes and transports. The units now under development seemingly will incorporate features of both weight and space saving over the attached design, and aircraft mounting provisions are contemplated.

SHIFT PORTABLE UNIT FROM PLANE TO PLANE

New Way to Swing Compass

Use of Rose Is Eliminated in PB4Y

A method has been suggested by VB-106 for compass swinging in PB4Y type aircraft when no compass rose is available. The procedure is of particular value in view of the difficulty of turning a large, heavy airplane about a fixed position in the absence of special handling equipment. This suggestion is also applicable to other aircraft.

The method suggested is based on the fact that 1° of arc is approximately 17′ per 1,000′. If a bearing is taken on

an object 6,000' distant the cord of 1° of arc would be 102'. Therefore, if an airplane equipped with a suitable sighting device is taxied within an area having a diameter of 102' the line of bearing of an object 6,000' distant will not be changed by more than one degree, 6,000' being considered the minimum distance for the sighting object.

The line of bearing should be laid out using a surveyor's transit. On PB4Y type aircraft the sighting device may consist of a pelorus drift sight mounted on the pilot's escape hatch on the fore and aft axis of the ship. The azimuth base should be aligned with the fore-aft axis.

The airplane may then be taxied into various positions within the 102' circle and relative bearings taken with the pelorus. Simultaneously, the compass readings are taken. Knowing the line of bearing and the relative bearings, the magnetic heading of the airplane may be determined and deviation computed.

Additional information on compass swinging may be obtained from Army-Navy Specification AN-C-106.

Puller Removes Gear Pins

Lambert Field Develops Adapter

DEVELOPMENT SPEEDS REMOVAL OF GEAR PINS

In an attempt to reduce the number of failures in cam-drive gear pins located in the accessory case of Continental R-670 engines, several stations have devised pullers for removing pins so that they may be magnafluxed at overhaul.

Standard Inertia Puller Removes Pin

NAS Lambert Field has developed an adapter that can be screwed on the end of the cam-drive gear pin. This allows the pin to be removed with a standard inertia puller. The adapter is made of 4130 steel, heat-treated to C-40 Rockwell.

For best results in removing the pin, case should be heated to 180° F in an oven, and for installation the case is heated to 180° F and pin frozen.

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

BuOrd Produces a New Bomb Lift Truck

From time to time the Bureau of Ordnance receives from operating and training squadrons suggestions for improving ordnance equipment in common use in the Fleet. Very often these suggestions, based on complete knowledge of the capabilities and requirements of the equipment concerned, are quite valuable, and are either incorporated into a modification of the device, or contribute to an entirely new design. The Bomb Truck Mark 6 Mod 0 is an example of a piece of ordnance equipment that was conceived outside BuOrd. Hedron 9-1 submitted the original design.

The truck is equipped with hydraulic jack, or lift arm, capable of lifting a 1,000-lb. load a distance of 72" above the deck. Raising the lift arm without a load is accomplished by actuating either a foot-operated lift pedal, for quick lifting, or a hand-operated lift handle, for slow lifting. The latter handle is also used as a draw bar for the truck and for raising the lift arm with a load thereon.

MARK 6 MOD 0 TRUCK LIFTS 1,000-LB. BOMB

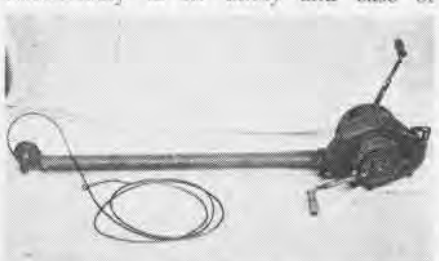
An important feature of this truck is the bomb cradle located on the after extremity of the lift arm. This cradle is supported by four rollers which permit up to 2" athwartships movement of the cradle from the center line of the lift arm, thus permitting small adjustments in positioning the bomb for loading into a rack or shackle without moving the truck itself. Canvas cushioned bomb cradle rollers provide support for the bomb-load and, also, allow rotation of the bomb on its axis to facilitate its attachment to the rack or shackle. Means for tilting the cradle about its athwartships axis is also provided.

Wheels are 12" in diameter, solid rubber capped. The two rear wheels are mounted on a fixed axle; those in front are free-swiveling with wheel alignment locks. Brakes applicable to the rear wheels are operated by cam locking levers at the forward end of new bomb hoisting truck.

Initial distribution of this truck has been set sentatively for November 1, 1944.

Bomb Hoist Has More Lifting Capacity

A new item of aviation ordnance equipment, the Portable Bomb Hoist Mark 8 Mod 0 is soon to make its appearance in the Fleet. This hoist, which bears a close outward resemblance to the Portable Bomb Hoist Mark 7 Mod 1, possesses a number of features which add considerably to its utility and ease of



PORTABLE BOMB HOIST WILL BE ISSUED SOON

operation. Important among these features is the increased lifting capacity, 2,240 lbs., made possible by the use of a ¼" cable. The specified lift is 120".

Two handles are provided, each of which may be telescoped from a minimum radius of 8" to a maximum radius of 11½". This arrangement permits the hoisting of the maximum load of 2,240 lbs. with a force of only 10 lbs. per crank, when the cranks are extended to their largest radius. Contained in the left-hand crank is a ratchet, the pawl of which may be placed in two positions. The first position engages the crank for hoisting. The second position permits the crank to move freely in both directions, thus preventing the crank from "windmilling" when lowering a load by means of the right-hand crank.

A shoulder sling snapped onto the hoist handle renders the new hoist immediately distinguishable from the well-known Mark 7 Mod 1 hoist. In addition to facilitating transportation, the shoulder sling will assist in the rearming of heavy loads by leaving both hands of the operator free to actuate cranks.

To prevent fouling of the cable across the lands of the drum it is intended that a tension roller and an inner tube (inside the extension tube) will be employed. The function of the inner tube will be to keep the cable straight and to feed it properly to the drum as cable is reeled in. The tension roller will contact the drum at all times and serve to keep the cable firmly seated in the drum grooves.

It is emphasized that the Mark 8 Mod 0 hoist was designed for single cable hoisting of torpedoes and bombs weighing more than 1,600 lbs. It is not intended that this hoist shall replace the Mark 7 Mod 1 hoist now in common use. Deliveries of the Portable Bomb Hoist Mark 8 Mod 0 are scheduled to start during October.

SURVIVAL QUIZ

Correct answers on page 40

1. **If caught in an Arctic blizzard, you should—**

- ☐ *a*–continue to hike as fast and as long as you can
- ☐ *b*–try to make a fire
- ☐ *c*–dig a hole in the snow to get out of the wind and try to sleep
- ☐ *d*–hike toward camp or base until you get there or get lost

2. **If overside in shark-infested water—**

- ☐ *a*–swim quietly with clothes on
- ☐ *b*–splash and kick
- ☐ *c*–keep on underwear only
- ☐ *d*–use sea dye marker to keep sharks away

3. **To be effective, a signaling mirror must be—**

- ☐ *a*–flashed at intervals
- ☐ *b*–sighted
- ☐ *c*–aligned with sun behind mirror
- ☐ *d*–used with other signals

4. **The most serious beach hazards are—**

- ☐ *a*–wild animals
- ☐ *b*–water snakes
- ☐ *c*–coral cuts
- ☐ *d*–poisonous fish

5. **The rattan palm (vine) supplies—**

- ☐ *a*–food, water, cordage
- ☐ *b*–water only
- ☐ *c*–water and cordage only
- ☐ *d*–nothing of any value

6. **Arctic shelters should not—**

- ☐ *a*–be closed on three sides
- ☐ *b*–be bedded with balsam and spruce
- ☐ *c*–be large and airy
- ☐ *d*–allow minimum air circulation

7. **Which tinder won't ignite in wet weather?—**

- ☐ *a*–interior of dead tree
- ☐ *b*–loose bark of live birch
- ☐ *c*–resinous pitch in pine knots
- ☐ *d*–small dead limbs

8. **It is difficult to shoot game if you—**

- ☐ *a*–move slowly, stopping often
- ☐ *b*–wait near a trail or water hole
- ☐ *c*–move downwind
- ☐ *d*–utilize the habits of the animals

Flares Are Moved in Cart

Vehicle Is All-Metal and Fireproof

NAS OTTUMWA – Station personnel have constructed a cart for the transportation of flare pots used during night flying. It was built entirely out of scrap and surveyed materials. Flare pots formerly were transported in pick-up trucks, but the pots often tipped over. On two occasions the kerosene that spilled into the trucks caught fire.

The flare pot cart has separate compartments that hold each of the required 32 pots upright. Cart is made

CART HOLDS POTS UPRIGHT, PREVENTS SPILLING

wholly of metal and therefore is fireproof. Can be drawn by tractor or jeep.

▶*BuAER COMMENT* — This method of transporting flare pots is considered to be a great improvement over previous method wherein a standard pickup truck was used. However, in view of previous fires, it is recommended that flare pots not be lighted until in place on ground.

SNV's Used to Tow Targets

Pensacola Develops Attachment

NATC Pensacola, recently designed a tow target installation for SNV airplanes. Drawings of this installation are included as references to NATC Pensacola, A&R Department, Local Specification No. 49-44; Subject: Model SNV-1 and SNV-2 Airplanes, Target Towing Gear, Installation of.

The installation consists of a tripod mounted in the center line of the bottom of the fuselage from which the target line streams. Handles for releasing the targets from tow target containers carried on bomb racks and handles for releasing the target line from the tripod are installed in the front cockpit.

Units desiring to make such installation in SNV's should request copies of the local specification and drawings from NATC Pensacola.

Machine Tests Oleo Strut

Reveals Whether Fluid is Leaking

NATC PENSACOLA—A simple but effective device which will test landing gear pistons for fluid leakage and thereby enable mechanics properly to adjust the gear before it is installed on the

DEVICE TESTS LANDING GEAR PISTON LEAKAGES

plane itself has been designed by two officers in A&R Department. The device is in daily operation.

It is powered by compressed air. The landing gear with wheel attached is firmly secured above a flat floor surface. By turning on the compressed air, the floor surface is raised quickly to exert pressure against the wheel and give it virtually the same effect as pressure applied upon a real landing.

Between 75 and 80 pounds of air pressure may be used and, to give it a more realistic test, up to 20 strokes a minute may be applied to give the gear a "bounce" effect. While the device is designed for SNJ-type planes, it is also adaptable to SNV-type.

[DESIGN BY LT. R. H. STEWART AND ENS. P. T. OWENS]

▶*BuAER COMMENT*—This landing gear tester is considered satisfactory and is similar to ones used to break in new oleo struts at various strut manufacturer plants. Manufacturer uses 40 to 120 strokes to break in. By eliminating the tire and substituting an adapter to take its place on the plunger for a solid connection, and making the top bracket adjustable, all struts can be tested.

AIR-SEA RESCUE

MOST WELCOME SIGHT IN WORLD FOR DOWNED AVIATORS IS PBY TAXIING UP TO RESCUE THEM AFTER TOSSING LIFE RAFT TO KEEP THEM AFLOAT

Navy Saves Hundreds of Its Pilots, Aircrewmen By Battle-Area Patrols

A HEAVY RAID was in progress on the Japanese base at Kavieng. Torpedo bombers, fighters and dive bombers gave the New Ireland town a terrific plastering, leaving it a mass of flames. They also left eight planes beneath the blue Pacific waters, victims of heavy anti-aircraft fire.

Fifteen airmen were saved, however, by the daring crew of a Navy *Catalina*, whose pilot put the craft in the harbor in the face of hot fire from shore guns, to rescue his comrades. The PBY made four landings to pick up the men.

Hundreds of Navy and Army pilots and aircrewmen are back in the air fighting today because of the Navy's air-sea rescue operations such as those at Kavieng. United States fighting forces do not hit and run, leaving their stricken fliers to drown or fall into enemy hands. The effect of the rescue program on their morale is terrific.

When attack planes take off from a carrier deck or advance base for a strike, each man aboard knows that if his plane is shot down no effort will be spared to rescue him from the ocean or the Japs. No knowledge could be more comforting. PBY's, *Kingfishers*, SOC's, submarines and sometimes even PT boats throw a protective net around a strike area to pick up downed airmen. Usually survivors are picked up within an hour after they hit the water. Their chances of living are enhanced if they know their ditching procedure, life raft operation and how to use other life saving materials provided for them.

Rescue operations probably date back to the first days of the war, but records are incomplete. About a year after the war started a squadron of PBY boats began to make a name for itself as the *Black Cat* squadron, operating around Guadalcanal.

The squadron picked up 10 men from a B-17 crew at sea and followed by rescuing an Army pilot a few days later. In 1943 rescue missions were better organized, with detachments of patrol squadrons assigning part of their planes to *Dumbo* duty. Today the Navy has rescue squadrons whose sole job is saving airmen. It also is perfecting a system of Air-Sea Rescue Task Units to operate on the Pacific, Atlantic and Gulf coasts and also overseas. The West Coast rescue unit already is operating in cooperation with the Coast Guard.

DURING the first seven months of 1943 a total of 161 flying personnel was rescued by *Dumbo* missions in the South Pacific. Battle reports are filled with heroic rescue stories of *Dumbo* pilots who put their planes down in high seas which sometimes half-buried their props, to rescue downed airmen.

EVEN RESCUED AIRMEN CLING TO WINGS OF OS2U KINGFISHER IN TRUK LAGOON; SUBMARINE TANG SAVES THEM AFTER FIVE HOURS OF TAXIING

SUBS, PBY'S SAVE MEN UNDER JAP GUN FIRE

THE BEST KNOWN rescue story of the war so far is the feat of the submarine *Tang*, which cruised around Truk last April 29-30 until it saved 22 men. Navy fliers knocked down 60 Jap planes on that strike and shot up 60 more on the ground, but 35 men went down. Twenty-two of those were rescued by the *Tang*. Assisting in the feat was a *Kingfisher*, which pulled seven men out of the water and taxied around five hours with them sitting on the wings before the sub got to it. By then the plane was ruined by water and had to be sunk by the sub.

Sometimes the *Dumbos* operate with fighter cover and sometimes alone. On one occasion P-40's strafed Jap ground guns to keep them occupied while a PBY landed close offshore and saved six Army fliers. Another PBY hauled aboard a *Liberator* crew, some unconscious, from several rafts and took off in a heavy sea that almost stove in the hull. Despite expert piloting, several *Dumbos* are banged up each month.

Daily communiques tell a story of air-sea rescues which sound prosaic in print but explain why aviators in the Pacific regard the P-boats as their favorite kind of plane. When U.S. Navy planes shot down 750 Japs in the Marianas strike, their loses were 122 planes shot down by the enemy or forced to land in the water. All but 73 of the men were rescued by submarines, planes or ships. An earlier strike at Palau saw 25 planes shot down, many with several-man crews, but only 18 men were lost. Float planes from cruisers and battleships forsook their spotting duties that day to help rescue fliers downed at sea.

ONE SQUADRON has had five pilots rescued by subs at Palau and Wake. They call themselves the *Submarine Airdale Club*. In attacks on remaining Jap strongholds in the Marshall Islands, three Marine *Corsairs* were shot down. Destroyers picked up two of the pilots. At Nauru Island, out of 45 sorties, only one plane was lost and its crew was rescued by a plane.

The confidence fliers have that *Dumbo* will rescue them is illustrated by remarks of one Marine F4U pilot who parachuted near Rabaul and spent nine days in the jungle. "I knew *Dumbo* would pick me up if I could get out to sea," he said when rescued. "I buried my parachute, but saved my jungle kit and raft and headed for the sea. After seven days I came to a river. I inflated the raft, got aboard and floated downstream, finally reaching the ocean. I knew all I had to do was wait for a *Dumbo* plane. And here you are."

THE FIRST JOB of the rescue plane, of course, is to get the men aboard without injuring them further. A heavy sea can sweep a raft into the props or under the tail and kill the occupants. When it is airborne with survivors, the plane's crew give them first aid until they can reach medical aid. *Dumbo* crews are given first aid training.

Before special rescue squadrons were formed, patrol squadrons in the Pacific, besides providing *Dumbo* service, were called on to make sea searches, rescues from designated islands, to transport supplies, evacuate men from enemy territory, do convoy duty and patrolling.

DO PILOTS LIKE DUMBO? SMILES OF MEN SAVED AT RABAUL TELL STORY

BIPLANE LANDS NEAR TBF OFF PALAU AND PICKS UP TWO AIRCREWMEN

SURVIVAL KNOWLEDGE SAVES PILOTS' LIVES

SIXTY-FIVE percent of the naval aviators who are shot down at sea are rescued, a Navy communique disclosed.

That means smiles on the faces of the three TBF men on a raft off Palau as a sub surfaces and takes them aboard while Jap shore artillery shells them. It means a wan look on the *Hellcat* pilot after 20 days in his tiny raft in the wide open spaces of the Pacific as he sees a PBY circling overhead. He is too exhausted to smile but to him the big lumbering plane is as near to an angel as he expects to see in this life.

It means something more than cold figures and statistics on how many dollars worth of pilot training is conserved when 161 flying personnel are rescued by *Dumbo* operations in the Solomons area in days when pilots were scarce. The big, inestimable worth of air-sea rescue is in pilot morale.

Because he knows he has better than a 50-50 chance of coming out alive if he is shot down off some Jap-held island, the pilot is a better fighting man. He can think more about tactics and less about survival. But he knows, too, that his chances of being rescued depend partly on the rescue planes and subs and partly on his ability to make the water landing, inflate his raft and use his life-saving equipment correctly so he will be afloat when they arrive.

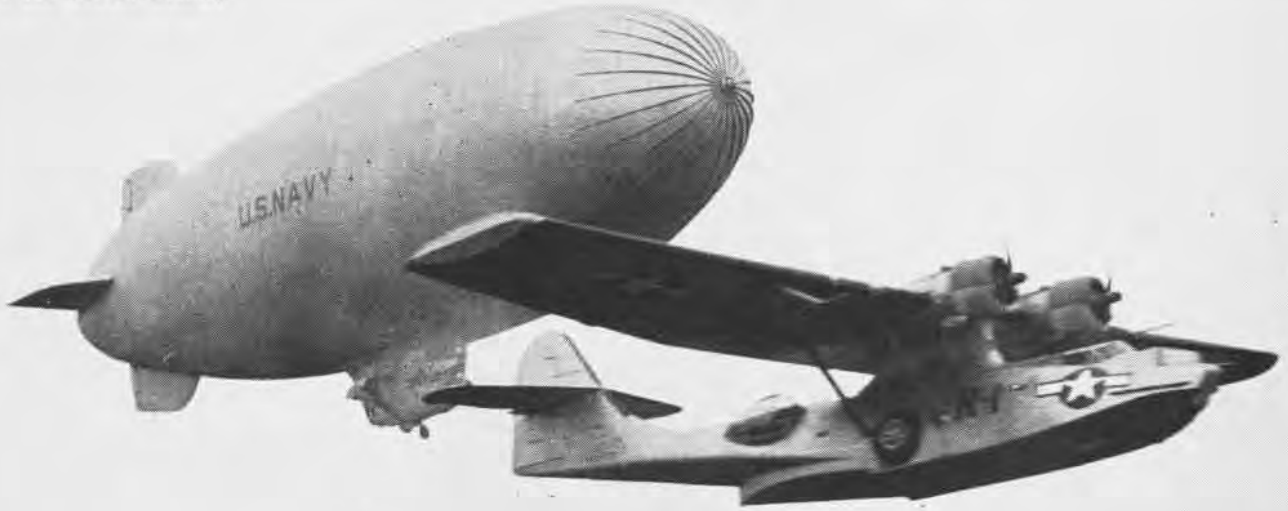
IT IS not enough that the Navy keep a constant patrol of *Dumbos* and subs around Palau or Truk during a strike. Sea battles cover wide areas and a fighter pilot easily can plop in the ocean without being seen. Proper use of life rafts, oars, sails, dye marker, pyrotechnics and signal mirrors pays dividends—the pilot never knows which one actually will bring about his rescue. For his own skin's sake, he has to know how to use them all. One naval aviator was saved recently because a nurse flying in a commercial air liner 8,000 ft. up saw his dye marker.

The Navy cannot save pilots and crewmen who do not know their ditching procedure well enough to come down all in one piece. The 35 percent the Navy fails to rescue includes the men who didn't learn where to station themselves so they would not be smashed up in the water landing. The non-swimmers are in that 35 percent too. There also is the Dilbert who never learned to operate his signal mirror or who stowed the life raft where it could not be launched quickly. They never read NANEWS survival stories.

CREWMEN OF TANG HELP NAVY FLIERS ABOARD DURING TRUK ACTION WHEN IT SAVED 22 AIRMEN

RICKENBACKER RESCUE BY NAVY SCOUT PLANE WAS ONE OF OUTSTANDING SEA RESCUES OF WAR

NAVY PBY SAVES ARMY BRIGADIER GENERAL AND STAFF IN PACIFIC AFTER FIVE DAYS AT SEA



AIR-SEA RESCUE TASK UNITS ARE CREATED

NAVY BLIMP AND COAST GUARD PBY JOINTLY SEEK PLANE SURVIVORS OFF CALIFORNIA COAST UNDER NEW AIR-SEA RESCUE TASK UNIT PROGRAM

THE AIR-SEA Rescue Task Unit set-up on the Pacific Coast saved more than 80 lives in plane crashes during four months of operations, demonstrating the value of an organized system of picking up pilots and aircrewmen in downed planes.

The new organization teams Navy and Coast Guard seaplanes, rescue boats and blimps under a unified command. Similar units are being set up on the Atlantic and Gulf Coasts and in the combat zones.

Central commands were set up in San Diego, San Francisco and Seattle, with planes and boats at numerous strategic points along the coast. Except in cases of long-range flights, only 34 minutes elapse on the average before a rescue plane, blimp or boat arrives on the scene of a crash. One pilot parachuted into the sea a few feet from a rescue boat. Ninety-eight percent of the survivors of plane crashes at sea in the California sector were rescued.

Blimps and seaplanes act primarily as scouting craft, although the planes do land and pick up survivors. The 63-foot crash boats make the rescues whenever possible because of extreme maneuverability. They stand by in areas where planes practice dive-bombing or strafing. PBM's are used in heavy seas.

Air control, San Diego, is coordinating agency for direction of air-sea rescue operations in Southern California sector, West Coast Sea Frontier. Air controller, left, serves as quarterback, dispatching rescue craft from one or more bases to downed plane

When crash report comes in, Air-Sea Rescue Task Unit officers plot the position of the crash and rescuing craft on plotting board. Large map of southern sector of Pacific Coast enables the office to keep good picture of rescue operations then being made

Crew members of Navy blimp make ready to drop a rubber life raft to survivors of an air crash at sea as their craft glides low over the water. Blimps usually do spotting, depending on boats or planes to pick up pilots down during flights off the coast

Flying at a low altitude, the blimp circles as crew members prepare to aid airmen in rubber raft at sea. Rescue unit on West Coast saved 80 lives in four months of operations, many of them pilots out on gunnery or navigational hops over Pacific Ocean

Low-flying Coast Guard *Catalina* drops two-man life raft into sea after spotting survivors of plane crash off Southern California coast. Attached to bundle is 150-foot line with floats attached, which enables them to work their way gradually toward the raft

Within a space of minutes—an average of 34—after radioing the position of their plane about to be forced down, these two airmen were picked out of their rubber life raft by a Coast Guard aircraft rescue boat. Men prepare to haul them up on cargo net

After it had dropped a rubber life raft and smoke bomb to mark position of two airmen forced down, a Coast Guard PBY attached to Air-Sea Rescue Unit landed to pick up the survivors. Medical supplies, first aid equipment are carried in planes for injured

Lives of aviators forced down at sea often depend on how well they have learned to operate their life-saving equipment. Use of dye marker, pyrotechnics or signaling mirrors suddenly becomes important when a plane drops in ocean far from carrier or land

LETTERS

Sirs:

Your article and pictures dealing with this Station are exceptionally interesting and well written. The entire section devoted to PB4Y training is factually correct and presented in the most interesting manner. By demonstrating to PB4Y pilots, aircrewmen and ground crewmen the importance the Navy attaches to their work, it has provided a lift for morale.

COMMANDING OFFICER
NAS Hutchinson

Sirs:

With reference to an article in your May 1 issue on the *Aviation Supply Catalog* you may be interested in know-

ing that we have received to date over 400 requests for catalog sections.

We incorporated the article in a promotional piece and mailed copies to approximately 15,000 persons in naval activities.

ASS'T TO AVIATION SUPPLY OFFICER
Philadelphia

BOMBING PIGEON

Broad-breasted, pigeon-white and fleet of wing,
The land-bred *Liberator* skims the sea,
White wings and whitecaps sound a symphony
Such as the quiet heart was wont to sing.

With dreams of peace the warring heart is stirred
Watching the flight of such a beauteous bird.

But let not beauty lead you to believe
This creature harmless: borned seaward by its wings
Are bombs to blast the U-boats: Sneaking things.
Out to deliver death, must death receive.

—VICK LINDLEY, ART1c, CASE 22

ANSWERS TO QUIZZES

- **SURVIVAL QUIZ** (on page 34)

1.c 2.a 3.b 4.c 5.a 6.c 7.d 8.c

- **BEST ANSWERS** (on page 8)

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

- **NAVIGATION PROBLEM** (on page 16)

A—Scorpio B—Dschubba C—Antares D—Shaula

Sirs:

Request is made to place this office on your mailing list to receive the issues of NAVAL AVIATION NEWS.

This publication will be used for reference purposes only in connection with our work as military analysts to the Coordinator of Inter-American Affairs. It will not be quoted but used for background material only.

LIEUT. COL., F.A.
Office of the Coordinator
of Inter-American Affairs

Sirs:

You will be glad to know that NANEWS is very popular out here and we are beginning to see it everywhere. The breezy presentation and the pix go over big. Grampaw Pettibone is possibly the best liked feature. I have one suggestion—a pin-up gal would really go over big, believe it or not.

LIEUT. (jg) USNR
ComAirSoPac—Staff

Sirs:

When on liberty Winnifred Wallace Higgins, PhoM3c, does a bit of shrewd bargaining with Arabs over the price of a rug.

FAIRWING 15
FPO New York

CONTENTS

PUBLISHED TWICE MONTHLY BY AVIATION TRAINING DIVISION, OFFICE OF CHIEF OF NAVAL OPERATIONS AND BUREAU OF AERONAUTICS, NAVY DEPARTMENT, NUMBER 223

PUBLICATIONS

Flight Instruction Handbook Is Issued

A new type of *Pilot's Handbook of Flight Operating Instructions* now is being distributed to naval aviation activities. Its presence alone is not guaranteed to solve all personal differences that may exist between the pilot and his plane, but it is a streamlined, complete, readable and helpful presentation.

New handbooks differ from the old handbooks in many respects. Most obvious change is in size. Larger pages mean that type is easier to read, that illustrations and charts have been expanded to give more information and greater clarity.

In the new handbooks there are only a few references to TO's, TN's and other documents to which some may not have immediate access. Not that such important documents have been ignored in preparation of the handbook, but where they have been used the information has been included in the text. Where such TO or TN references do appear, they merely supplement information already in the handbook.

The new handbooks are designed to give all information necessary for operation of a particular model airplane. Every piece of equipment has a meaning all its own and the handbook gives operating instructions and advice for handling each piece. Flight engineers, gunners, bombardiers, in fact, all crew members will find their specialty discussed, explained and illustrated where necessary by photographs, cartoons and diagrams.

The important airplane systems—fuel, oil, oxygen and others—are presented schematically and are illustrated in color where cross-hatching and shading do not give sufficient clarity.

This new style handbook does not pretend to be the handbook to end all handbooks. It is designed solely for use of pilots and crew members who work and fight with the planes. The loose-leaf feature has been kept so that the book can be kept up-to-the-minute with currently issued revision pages. The best suggestions for revision will come from the field. Pilots are asked not to be gentle with their constructive criticism nor shy with their suggestions. It is their book and to a great extent will be as good as they make it.

TO & TN Index Published

Is Being Distributed as TN 61-44

The July 1944 issue of the *Index of Technical Orders and Technical Notes* has been published as TN No. 61-44 and is now being distributed throughout the aeronautical organization. The publication is a detailed alphabetic index to the subject matter of all Bureau of Aeronautics technical orders and technical notes in effect on June 30, 1944.