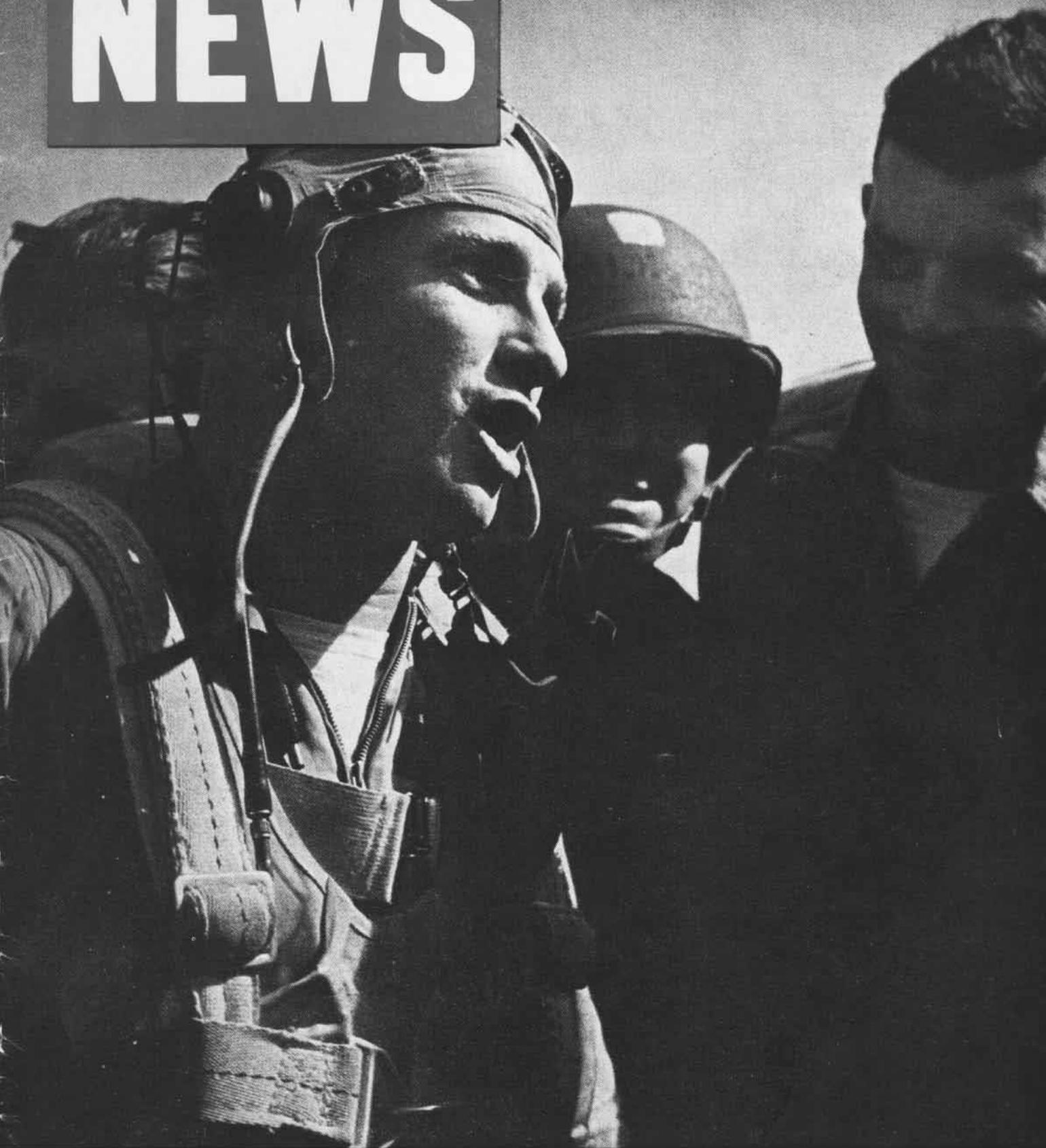


NAVAL AVIATION

NEWS



Jap Base Installations
Technically Speaking
Blimp Patrol • Index

Apr. 1, 1944
RESTRICTED



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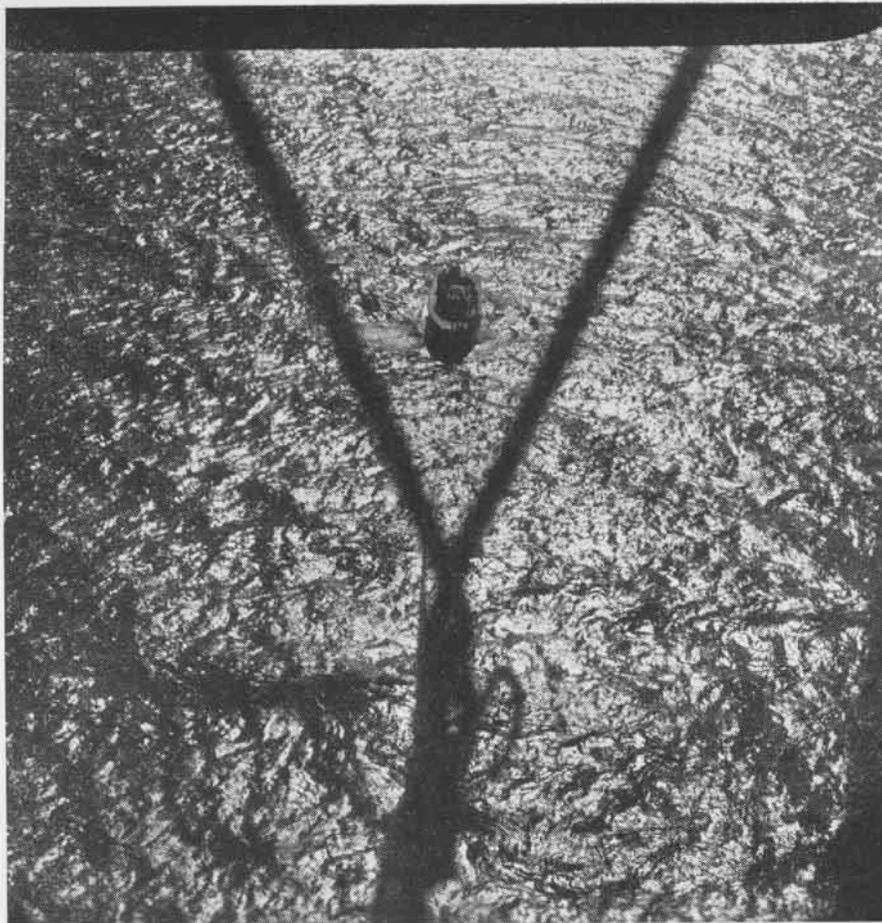
BLIMP PATROL

SINCE April 1915, when the Navy Department contracted for the first non-rigid airship, the blimp has been an integral part of naval aviation. Because of its inherent characteristics of staying aloft for long periods of time and of thoroughly covering assigned areas, the blimp has been recognized as being particularly adaptable to coastal patrol.

One of the blimp's most useful contributions has been in shipping control in coastal areas, helping to assemble convoys, getting the various sections together and locating and verifying the position of individual units or ships. Being specially suited to night flying and to areas of low visibility, the blimp has become an even more useful member of the Navy's coastal patrol team.

Armed with depth charges as well as machine guns and special detection equipment, the blimp has exercised defensive patrol work by its mere presence, preventing enemy submarines from maneuvering on the surface, thus facilitating the safe movement of shipping through coastal waters. The airship capitalizes on its low speed and high visibility, which makes it an excellent observation platform.

MANY ARE THE RESCUES attributed to the blimp as it patrols coastal areas. Seamen and airmen alike, adrift on rubber boats and small craft or clinging to some bit of wreckage, owe their lives to vigilant airship crewmen who sighted them and called surface craft.



BLIMP PICKS UP DISABLED 40-FOOT LAUNCH ON IMPROVISED TOW LINE LOWERED FROM AIRSHIP

BLIMP PICKS UP HITCH-HIKER

RESCUE MISSIONS assigned to airships have in the past been limited to searching for a disabled vessel, a forced down plane or a boat load of survivors. The assistance which an airship was able to give was limited mainly to the lowering of provisions and the calling of air or surface craft to the scene. However, an emergency rescue situation which arose recently revealed the

blimp to be much more versatile than it was supposed to have been, based on previous standards.

Instead of the usual procedure of standing by a disabled vessel until help arrived, the pilot of this airship successfully did what no other airship had attempted—take a disabled surface craft in tow.

After an hour's search, a 40-foot,

eight-ton disabled Army launch was found drifting in a rough sea at the approach of nightfall. There were no surface vessels immediately available and, to make matters worse, the launch was drifting towards neutral shores, where internment faced the crew. Immediate and effective assistance was imperative and towing the launch appeared the only solution.

A ROPE BRIDLE was rigged from the number two frame in the after-end of the airship car. By putting a serving of six-inch length, four inches from the middle, an eye was made, to which the towline, a drag rope and grapnel line was bent. A piece of 21 thread line approximately three feet in length was rove through both the shackle on the after outboard end of the car and the eye in the bridle, so as to prevent the towline from damaging the rear doors of the car.

Two marker buoys and a fruit can were secured to the other end of the towline to serve as a weight and it was lowered to the helpless surface craft, which had been notified of the experiment in aerial towing.

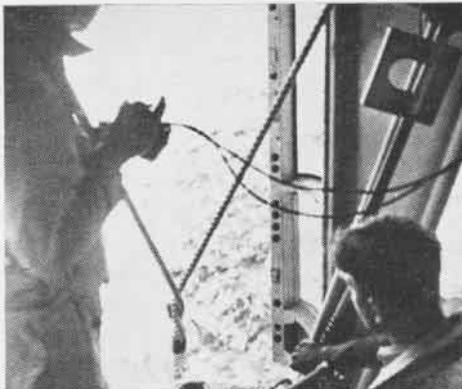
The blimp was on the light side and a steady wind of 12 knots afforded good control. As the airship made its approach to the launch, it lowered the line which was taken by the men in the boat and secured to a king post. At 700 rpm, the blimp began to tow the boat steadily and gradually, working up to 950 rpm. At this engine speed the launch was making about 20 knots over the surface.

THE AIRSHIP towed the Army vessel approximately seven miles to a point where further towing was accomplished by a surface craft which had previously been called to the scene by the airship.

To illustrate the practicability of the new rescue technique, a test re-enactment and demonstration of the aerial towing method was made a few days later, when these photos were taken.



INGENIOUS HITCH PREVENTS DAMAGE TO BLIMP



CREWMEN HANDLE GEAR AS BLIMP HEADS HOME



HITCH-HIKING LAUNCH MAKES 20 KNOTS SPEED

GRAMP AW PETTIBONE

Engine Bully

While practicing field carrier landings and take-offs, a pilot noticed his engine beginning to heat up and detonate. He continued his practice, however, and kept the cowl flaps closed at all times except during short periods while taking off. On the take-off after his sixth landing he noticed smoke and flames pouring from around the engine cowling. Complete power loss resulted in a forced landing in the water.

 *Grampaw Pettibone says:*

The Trouble Board was very good to this pilot; they assigned him only 50 percent pilot error (25 percent poor technique and 25 percent carelessness). Experts around here are of the opinion that if more than 100 percent pilot error could be assigned, this pilot is entitled to it. To *unnecessarily* continue high engine operation (take-offs and climbs in this case) with an overheated and detonating engine indicates either negligence or ignorance. Also, it is not understood why, after realizing his cylinder head temperatures were excessive, this pilot kept his cowl flaps (cooling flaps) closed.

"Carrier bounce drill," with its demand for continual high power output at low air speeds, presents one of the toughest engine cooling problems in aviation. It is so tough, in fact, that it is not considered in the design of the aircraft because designers do not want to penalize the airplane for its original purpose, namely, combat. Consequently, even when pilots observe proper technique (i.e., cowl flaps open, gear up, flaps up while going around), it may be necessary to break out of the landing circle occasionally and fly around awhile, in order to keep engine temperatures within the required limitations.

Keep Posted

An N2T pilot landed in the grassy portion of a municipal airport and soon after contacting the ground his airplane struck two ditches and was practically demolished. The pilot had been operating from this field recently and should have been familiar with all



conditions of the airport. Furthermore, the grassy area on which he landed was restricted from all traffic and was so posted in the *Weekly Notice to Airmen*.

 *Grampaw Pettibone says:*

Several other accidents indicate that the *Weekly Notice to Airmen* is not being given proper attention. You can't afford to overlook the fact that airports are frequently being repaired or under construction and that the *Weekly Notice* is the only means of disseminating such information. Cross-country pilots must keep posted through this bulletin. Even if you have been in a certain airport before, you should check for recent changes.

Don't Get Careless

The following is a representative group of accidents reported as being entirely due to pilot error, specifically "carelessness or negligence."

a. A pilot (1,831 hours) landed an F6F-3 with wheels up because he failed to go over the landing check-off list.

b. A pilot in an SBD-4 (274 hours) neglected to open his dive flaps before entering a dive. He started his pullout at 2,500 feet, but was still in a 45-degree dive when he hit.

c. The pilot of an SNJ-4 (900 hours) taxied into a gas truck while coming into the line. The gas truck was parked in an authorized area.

d. A TBM pilot (287 hours) wrecked his plane in a forced landing when he lost suction at low altitude. He had a

full tank of gas, but was not "gas conscious" and failed to shift in time.

e. An SNJ-3 pilot (230 hours) cracked up on his landing approach when his engine quit because he neglected to return his mixture control to full rich after having operated at altitude.

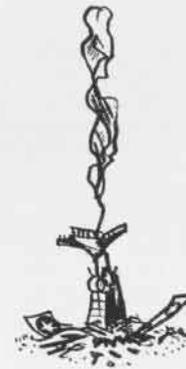
f. A pilot in an SNC-1 (1,844 hours) went into a severe groundloop when he prematurely unlocked his tailwheel during the landing run.

 *Grampaw Pettibone says:*

It is tough to see experienced pilots pull dumb stunts like these. They show a lack of respect for the dangers of aviation. And all too often the pilot concerned doesn't live to profit by his careless mistake. These are grim warnings to maintain eternal vigilance.

Tower at Fault

When a TBF pilot lost throttle control near the station field, he notified the tower and requested permission to make an emergency landing. Permission was granted and runway designated. The pilot was cut out on his approach, however, by one of a group of planes practicing field carrier landings on this runway. The TBF pilot had enough altitude and power to go around again. On his next approach, after



he was all squared away with flaps and wheels down, he was again cut out by an airplane which landed and stopped on the runway. The TBF could not go around again and was forced to make a landing at the end of the runway, where it overturned and was completely demolished.

 *Grampaw Pettibone says:*

The way this case was reported it looks like 100 percent tower trouble. Maybe they had never heard of "positive control."

Fouled Spark Plugs

A pilot was forced to cut his gun when his engine coughed and sputtered during the take-off run. He was unable



to stop before reaching the end of the runway, with the net result that both airplane and engine had to be given a major overhaul.

The pilot's statement indicated that he had not turned up the engine to take-off power before starting his run.



The Trouble Board gave as its opinion, "That malfunctioning of the engine was due to fouled plugs; and further, that this condition would have been apparent had the pilot turned up the engine to take-off power before commencing his run."

► **COMMENT**—Fouled spark plugs continue to cause numerous accidents similar to this. Most of them are due to carelessness and faulty technique on the part of the pilot. The following paragraph from the new BuAer Manual (now under revision) is quoted for information and guidance on this subject:

"When spark plugs are fouled it is frequently the fault of the pilot. Fouled spark plugs may result from abuse of an engine or improper handling procedure either in taxiing or in the air, however well the engine may be adjusted. The normal procedure for checking magnetos is not sufficient to assure clean spark plugs, particularly when the check is made some time previous to actual take-off. Prolonged idling will often cause overheating as well as fouling of spark plugs.

"There is nothing to prohibit the operation of any engine on both magnetos at maximum permissible manifold pressure and rpm for a few seconds on the ground to check engine performance. Therefore, the highest power run-up practicable under the operating conditions encountered shall be made before take-off, during which time care should be exercised not to exceed limiting engine temperatures. If the engine has idled for a long period before take-off, it is advisable to turn up part throttle for approximately 20 seconds to clear the spark plugs before the high power run-up.

"Prolonged glides with completely closed throttle should be avoided. In a glide an engine should be kept as close as possible to the normal operating temperature, otherwise abnormal cooling will cause contraction of the piston and result in oil pumping and fouled spark plugs. The throttle should be repeatedly opened to clear out the cylinders and the temperature controlled by the use of the adjustable cowl flaps or by proper adjustment of engine speed."

Security Sense

Recently an F6F airplane crashed, having been involved in a mid-air collision.

The pilot, acting quickly, managed to get clear and parachute to safety. The after part of the airplane, having been cut off at the baggage compartment, fell approximately a half mile from the rest of the plane. The pilot, landing safely, proceeded immediately to the tail section of the airplane. He removed the AKB and VHF equipment and returned with it to his station.



Grampaw Pettibone says:

This presence of mind is well worthy of note. It indicated that the pilot's thoughts were on his secret and confidential equipment even though his plane was a total wreck.

Use of Flaps

The pilot of a TBF-1 was on a familiarization flight, making touch-and-go landings on the station field. A normal landing with flaps was made and another take-off commenced. Flaps were retracted when the aircraft reached approximately 40 feet altitude. The airplane immediately started to settle and then dropped one wing. Upon striking the ground, it cartwheeled on its back and burst into flames.

It was the opinion of the commanding officer that the pilot had mistakenly raised his flaps instead of his landing gear.

► **COMMENT**—Another possibility is that the pilot deliberately retracted his flaps in an attempt to increase his speed. There is less drag when flaps are raised and hence the speed will increase. However, there is also a loss of lift when the flaps are raised, thus allowing the airplane to stall at a higher speed. While the decrease in lift is immediately effective, increased speed will only build up after an appreciable interval. It is for this reason that it is dangerous to retract flaps when near stalling speed. Sufficient excess speed to compensate for the decreased lift should be attained before flaps are raised.

See Technical Note 42-36, "Effect of Slots and Flaps in Take-Off and Landing," and also paragraph on "Use of Flaps" in BuAer Manual.



BEST ANSWERS

Quickies in Math

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

1. When one quantity is inversely proportional to another—

- a—a straight line graph shows the relationship between the two quantities
- b—a curved line graph shows the relationship between the two quantities
- c—as one quantity increases, the other quantity increases
- d—any value for the one quantity divided by the corresponding value of the other quantity gives a constant

2. The range angle for a bombardier is the—

- a—same as the angle of elevation of the airplane from the target
- b—same as the angle of depression from the airplane to the target
- c—angle formed by the vertical and the line of sight to the target
- d—angle formed by the horizontal and the line of sight to the target

3. The dimensions of a rectangle which most closely approximate "divine proportion" are—

- a—9' x 12'
- b—11' x 19'
- c—4' x 7'
- d—3' x 5'

4. Two objects on the ground are photographed from an airplane. If the focal length of the camera is fixed, doubling the height of the airplane—

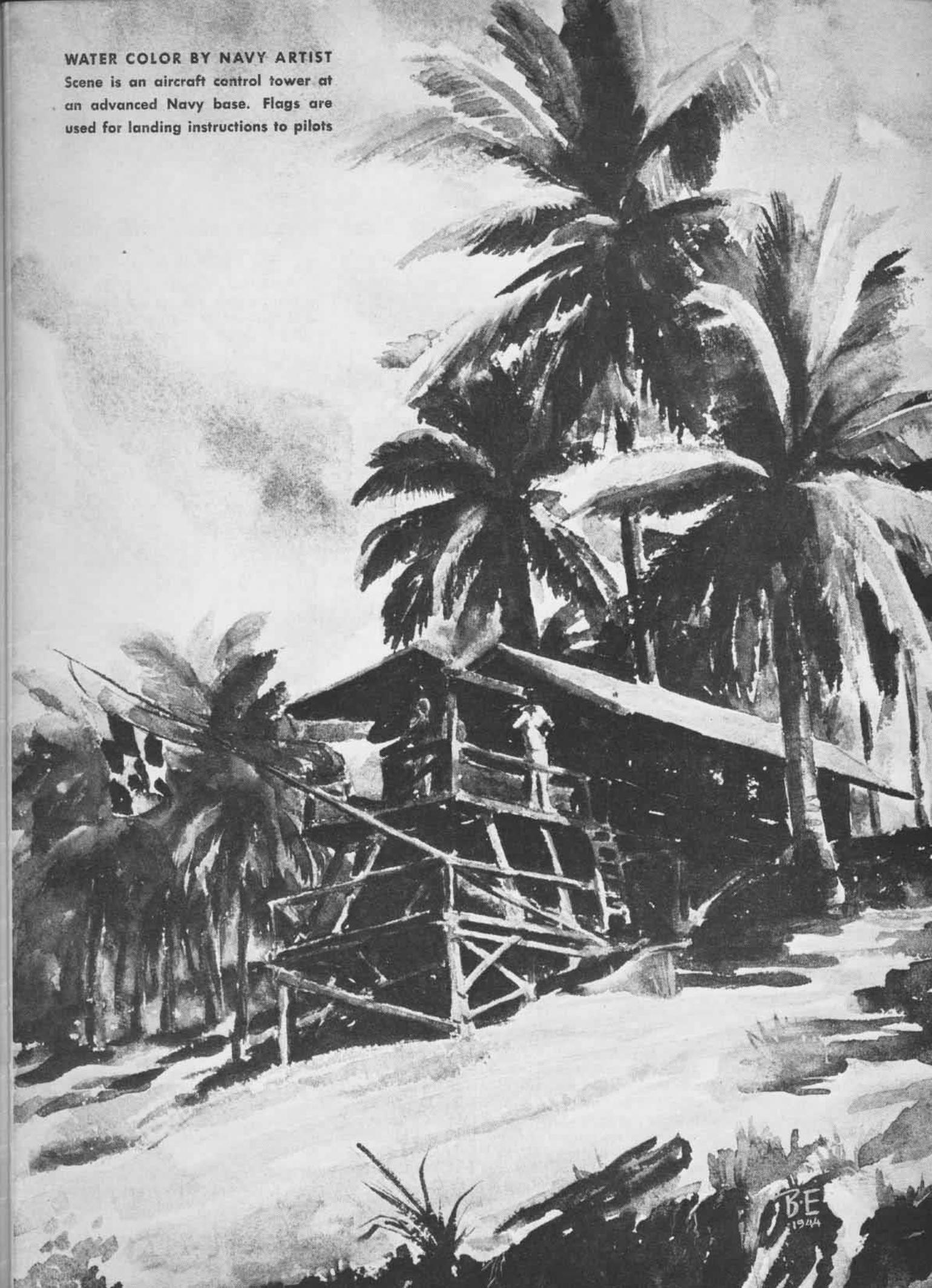
- a—doubles the distance between the objects on the photographic plate
- b—halves the distance between the objects on the photographic plate
- c—has no effect on the distance between the objects on the photographic plate
- d—quarters the distance between the objects on the photographic plate

5. It is true for any fraction that—

- a—dividing the denominator by a number multiplies the fraction by that number
- b—multiplying the denominator by a number multiplies the fraction by that number
- c—increasing the denominator, numerator remaining the same, increases the fraction
- d—decreasing the denominator, numerator remaining the same, decreases the fraction

WATER COLOR BY NAVY ARTIST

Scene is an aircraft control tower at an advanced Navy base. Flags are used for landing instructions to pilots



DID YOU KNOW?

Navy Sets Up Cable System Installing Overseas Wire Service

The Navy has set up a world-wide communications system which for the first time permits persons in United States to send personal radio and cable messages to most Navy, Marine or Coast Guard personnel stationed overseas, or vice versa.

Senders in this country or overseas will use Navy postal numbers and code words to address fixed text messages, popularly known as Expeditionary Force Message or EFM cables, Senders' Composition Message or SCM cables.

The Navy has assigned coded cable addresses to each Navy postal number for which cable service is available. Commercial telegraph, cable, and radio offices have been provided with a list of these coded addresses. Most of the naval personnel required to handle messages in this country will be enlisted WAVES, some of whom will be stationed at outgoing "gateways" through which cables are routed when they are relayed to an overseas address.

GPO Has Aerology Books Series Nos. 1 to 5 Are Available

The following aerological publications may now be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.:

Aerology Series No. 1—*Ice Formation on Aircraft*

Aerology Series No. 2—*Thunderstorms*

Aerology Series No. 3—*Fog*

Aerology Series No. 4—*Air Masses and Fronts*

Aerology Series No. 5—*The Warm Front*

Cost of pamphlets is 10 cents each. Cash, check or money order may be sent, but not stamps, when ordering booklets direct. It is possible, however, to make arrangements for Ships Service Stores to obtain these aerology booklets in quantity and carry them in stock for resale.

Where this is done, station personnel will be saved the trouble of placing individual orders as well as the delay.

Is Recognition Training Aid Offering Prizes in Identification

MCAS MOJAVE—Teaching the important business of recognition has been done in an interesting manner by this station. A contest open to all hands



POST DAILY RECOGNITION QUIZ AND ANSWERS

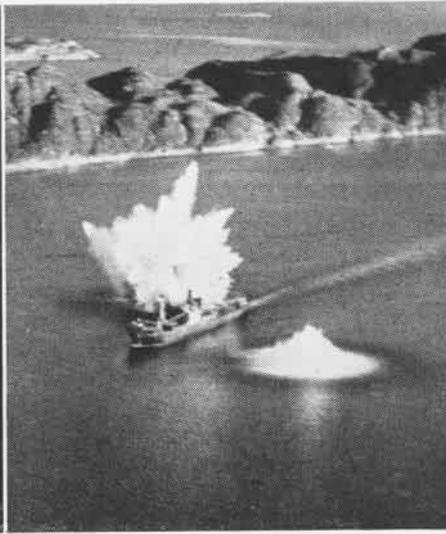
consists of identifying a series of 25 airplane and 25 warship pictures. Each day a picture of a different plane and ship is posted on the contest board. The following day they are moved down to lower panel with a card giving complete description accompanying each picture.

For an entry fee of a quarter, each contestant is given 25 slips. Each slip has spaces on which to list type, nationality, and class or name of ship or airplane. Contestant having the highest percentage of correct answers receives entry fees as prize.

Future Pilots Must Be Fit Physical Training Being Stressed

Physical fitness, a "must" for all naval aviation cadets, will receive continued emphasis in the aviation training program. This conclusion was developed at a recent week-long conference in Washington of physical and military training officers attended by the Chief of Naval Air Training Command.

The conference marked the end of 22 successful months during which the physical training program has enjoyed marked success, greatest proof being



Planes operating from the Ranger, first vessel of the U. S. Navy to be designed and constructed as an aircraft carrier (1934), have written an impressive obituary list of German merchantmen sunk by their bombs and torpedoes. Especially notable among the Ranger's strikes was the raid on Nazi shipping off the coast of Bordo, Norway, last October, when her planes sank 40,000 tons of shipping that included four merchant vessels, a tanker and an oil barge. The Ranger participated in the invasion of North Africa and has ferried many Army Warhawks across the Atlantic. In April, 1943, six months before the Norwegian strike, the Germans announced that the Ranger had been sunk, and Hitler conferred the Oak Leaves to the Knight's insignia of the Iron Cross upon Lt. Otto von Bulow, the submarine commander credited with the feat. But Herr Hitler has been wrong before.



PILOT FITNESS PAYS DIVIDEND IN EMERGENCY

the good it has done naval aviators in combat. At the meeting, teamwork in every respect was stressed as the keynote of naval aviation training, as it represents the deadliest weapon that can be used in an enemy engagement.

PBY's Are Still in the Fight Lash at Jap Base; Sink U-Boat

Navy PBY's may be considered slow for combat duty, but the tough *Catalinas* still are holding their own on the firing lines from the South Atlantic to the North Pacific.

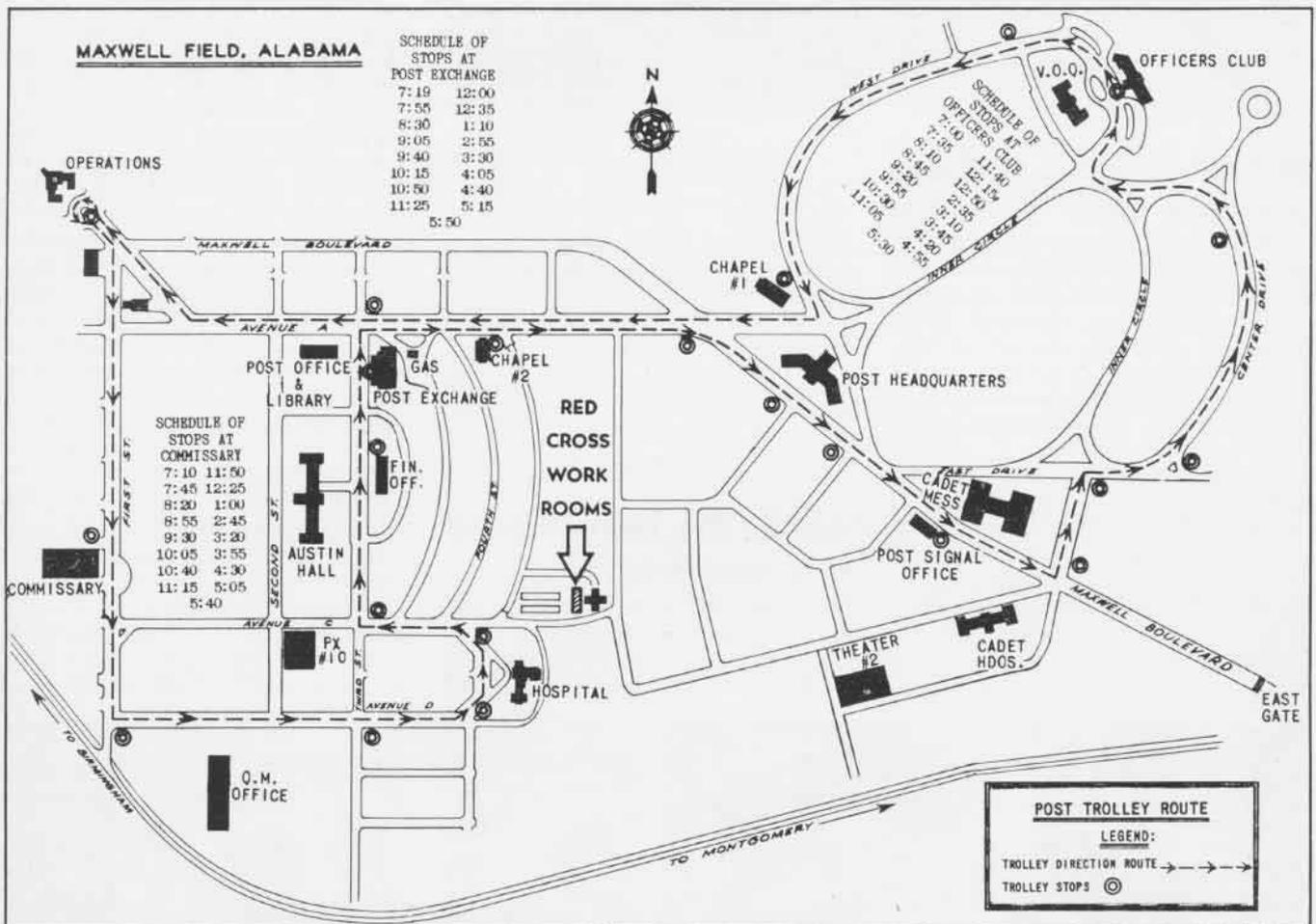
Immediately preceding the shelling of Paramushiro Island by Navy surface forces, PBY's from Aleutian bases dropped out of the clouds to give the Japs a last-minute bombing. They accomplished their mission without mishap.

At the other end of the world, a *Catalina* in the South Atlantic sank a German U-boat after having been hit by heavy flak from anti-aircraft guns on the submarine. The aircraft dropped a



SURVIVORS OF SUB, SUNK BY PBY, ARE SAVED

life raft to survivors seen struggling in the water and 16 days later the U.S.S. *Siren* picked them up. The PBY's are making a name for themselves in the South Pacific picking up pilots and air-men who were forced down in the water.



COURTESY TO VISITORS PAYS OFF



Stations that give visiting pilots that extra iota of attention are reaping rich rewards in the publicity they get in the entire aeronautical organization. Pilots are human and appreciate the courtesies extended them after a long flight, particularly when they wind up at an airbase or activity that is new and strange.

When they leave, they talk up the fine treatment they received at the station. Now and then, of course, there is the case of a station that is careless about these little conveniences. That too gets noised abroad.

Army Air Forces are finding that a pilot made comfortable is a friend stored up . . . and a reputation gained. NAVAL AVIATION NEWS has received the circular of Maxwell Field on which information to visiting officers is listed in generous detail, as well as a few helpful tips on local regulations. Included is dope on automobiles, bank, barber shop, check cashing, churches, clubs, entertainment, golf, map, meals, post exchange and other tidbits of useful information.



THREE TYPES OF SEAPACK LUGGAGE WHICH HAVE BEEN SENT OUT FOR SALE TO AVIATION PERSONNEL

Seapack Luggage Is Ready Allocations Made to Stations

Instructions on procurement, replenishment, distribution and sale of Seapack luggage have been revised by a joint BuAer and BuSandA letter. Under the new plan, the sale of Seapacks is authorized to be made within continental U. S. to aviation personnel of the Navy, Coast Guard, Marine Corps and Allied nations.

This luggage is built to Navy specifications and is sold at all naval flight preparatory and pre-flight schools, Navy, Coast Guard and Marine Corps air stations. Seapacks, expressly designed with specific problems in mind, may be bought separately or in combination. Advantages to aviation personnel so frequently on the move are:

1. Adequate capacity for uniforms and other wardrobe items
2. Uniforms are kept ready to wear
3. Stowage of gear is simplified
4. Uniformity of all luggage pieces is provided, supplementing neatness and military appearance.
5. Luggage is sold at cost on a non-profit plan

Approximate cost of each piece of Seapack luggage at the present time is as follows: Ditty Box \$8.50; Duty Case \$15.50; Duty Locker \$19.50.

Save in the Navy Manner Make Bond Sales Soar in '44

In a recent letter to his staff discussing War Bond allotments, the Commander-in-Chief, Pacific Fleet and Pacific Ocean Areas, said: "I hope that all

officers and men will seriously consider saving in this, the Navy manner."

That War Bond buying is saving in the Navy manner is shown by the \$299,116,307 in bonds purchased by naval personnel in 1943. Purchases in 1943 were almost triple those for 1942. Bond buying in 1944 is off to a fine start.

Establish New AEO School Located at NAS Jax, Pensacola

Accidents attributed to failure of survival equipment or failure on the part of personnel properly to utilize this equipment have led to establishment of an aviation safety training program. Instructions in survival equipment and safety procedures and practices at the Oxygen Officers' School, NAS Jacksonville and Pensacola, have been supplemented with a four-week course, the name being changed to Aviation Equipment Officers' School.

During the course, the student receives instruction in use and maintenance of oxygen equipment, life rafts and jackets, parachutes, emergency kits, safety belts and harnesses, and other special flight gear. He is schooled in methods of survival in various regions, Central and South Pacific and Arctic. Accident prevention is taught. He is given practical work in laboratory sessions where he disassembles and assembles various items of safety equipment. Field trips give him an opportunity to observe how installations of oxygen and survival equipment are made.

Since the dual purpose of the aviation equipment officer is technician and teacher, he is given instruction in how best to instruct others. He must cooperate closely with flight surgeons in safety measures, with material officers in procuring equipment and with service units in repair and modification.



POSTERS made from enlarged photographs are being used to depict naval aviation in action at naval air bases, stations, schools, hospitals and aboard aircraft carriers. About 2,000 sets of these displays have been distributed to shore and ship activities, and a number of sets have been circulated among manufacturing plants that make parts for Navy airplanes to keep employees posted.



The pictures here illustrate the use Eastman Kodak Company is making of the enlarged photographs, and may suggest similar treatment to naval air activities. Mounted on small, portable billboards, the displays may be moved from place to place in accordance with the flow of pedestrian traffic. The view above shows the displays aligned on the wall inside the Eastman auditorium.



Hellcat nearly bounces
overside, with its
propeller slicing way into steel and wood



Ship's carpenters calk oakum in deck of
carrier to repair damage to wood planks



Axes flying, men of crew chop away wood
of deck to release damaged Hellcat prop

CARRIER REPAIRS

Propellers, hooks damage flight deck

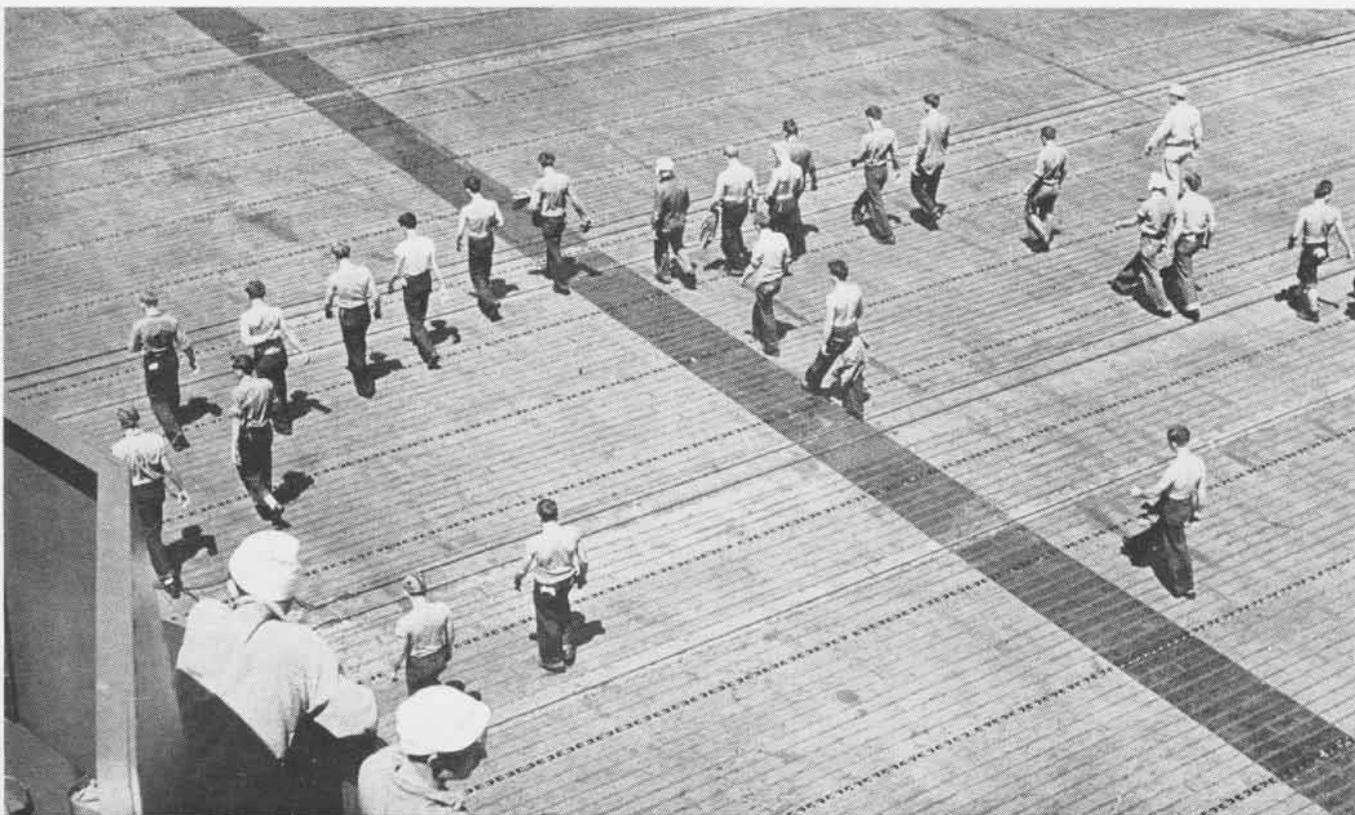
KEEPING the flight deck of an aircraft carrier in good condition so that planes can land on it safely is one of the tasks for ship's carpenters. Whether the damage is caused by enemy bombs or shells or by the ship's own aircraft, it must be fixed as soon as possible to keep the deck always cleared for opera-

tions, an important point in the war zone.

Occasionally aircraft make bad landings and their propellers plow furrows in deck planking. Crashes may tear up a section of wood and gouge into steel beneath. Illustrations on this page show some emergency repairs being made to the flight deck of one of the larger car-

riers, after errant *Hellcats* dug their props into the planks and had to be chopped out.

If the deck crew is hurried because of naval action, it may cut the blade with a blow-torch instead of chopping it out, leaving the tip in the deck to be removed later. In the case of larger damage to the flight deck from bombs, emergency planking must be laid down in a hurry so that the carrier's aircraft can return to refuel and rearm. Later, when the carrier gets back to port, it can remove the planks and put down permanent repairs. Speed is a primary consideration while far away from base.



CARRIER CREW SWEEPS DOWN DECK IN FOOTBALL-LIKE FORMATION, HUNTING PIECES OF TARGET PRACTICE SHRAPNEL WHICH MIGHT CUT PLANE TIRES

BIRDS AND BEASTS AS FOOD

All birds and mammals are edible. Learn to catch them

BIRDS AND MAMMALS are usually the least abundant or available forms of animal life. First seek the lower animals such as fish, reptiles, insects and crustaceans for food. They are easier to obtain. When you have satisfied hunger pangs by eating them, consider ways and means of catching birds and mammals. This is only a general rule, and there are exceptions. In the far north, mice and rabbits are often the most numerous and available source of food, and birds in nesting colonies may be caught by the hundreds.

As all birds and mammals are edible, it is not necessary to recognize specific ones, but you must know their general and, where possible, their specific habits in order to obtain them for food.

2. By trapping along animal trails and runways, you eliminate large areas of ground less suitable for good hunting.

SURVIVAL HINTS—NO. 6

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

3. Birds and mammals are creatures of habit. If you observe their daily activities of eating, sleeping, drinking and traveling, you can anticipate their movements and trap them successfully.

5. In some environments such as tropical rain forests and desert regions, more mammals are active at night than during the day. Thus a country which seems to be without life may "become alive" at night. Hoofed animals forage day and night. Some animals are active only at night, while others are active early in the morning and late in the evening, but are quiet in the middle of the day.

6. Birds detect danger by sight and hearing, not by sense of smell. Most mammals have a keen sense of smell in addition to good eyes and ears.

7. The movement of naturally camouflaged animals makes them visible. Stop often when hunting. By so doing you become less visible and the animals that have "frozen" at your approach begin to move. You may see more animals in an hour of sitting than in several hours of hiking.

Here are a few of the countless ways in which you can utilize animal habits in your search for food: When you enter an area of open country where mice, lemmings and other rodents are abundant, you will see trails and ground tunnels criss-crossing through the grass and weeds. If the vegetation is matted or snow-covered, you may have to kick under it to observe these signs. In addition, there will be tiny droppings in the trails and in some cases the bases of bushes and trees will be white where the bark has been gnawed. This is a place to stop and get food. On closer observation you will probably see mice scurrying ahead as you walk. Lift up logs and kick into all matted or dead grass. Knock hollow logs and stumps and investigate around all nests. You can club these small animals or step on them.

Wherever rabbits or hare are abundant, you will jump seven or eight in an hour's walk. You will find them bedded down in grass on a sunny hillside, in brambles or at the bases of trees and logs. If you approach slowly, you can shoot or club them. At night set snares in runways. In the north, rabbits seek out the swamps during the winter. If you jump a rabbit, don't shoot at him on the run. If you whistle, the chances are he will stop before disappearing into the brush. That's your chance for a still shot while he satisfies his curiosity.



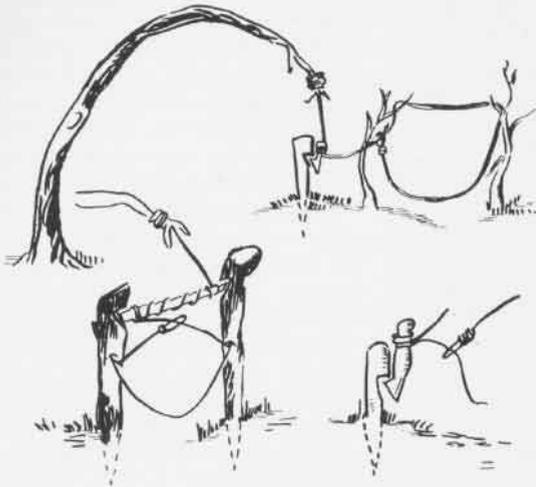
KEEP AN EYE OUT FOR NESTS WITH EGGS. A GOOD FOOD, EGGS ALSO INDICATE BIRDS NEARBY

A FEW GENERAL principles concerning birds and mammals will prove helpful in hunting or trapping them:

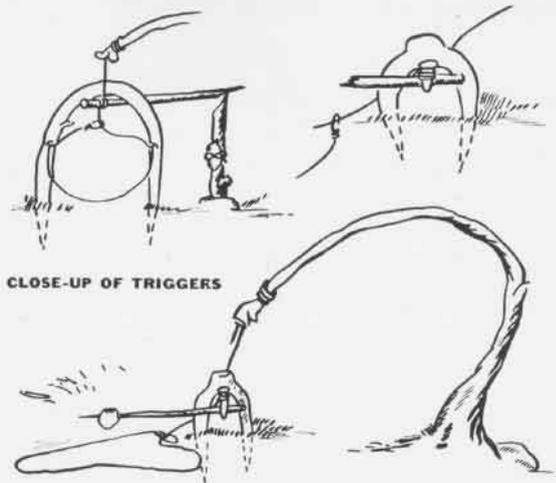
1. Land animals leave conspicuous signs, such as tracks, droppings, runways, dens and feeding marks which indicate their presence and relative abundance. These signs will tell you clearly whether or not to stop to hunt.

4. Birds are less fearful of man during the nesting period than at any other time, and with patience you can catch them. Their nests are generally well hidden, but they can be located by watching the parent birds which leave and return often and regularly. In the tropics some birds are nesting the year round. Spring is the season to look for bird eggs in temperate or cold regions.

VARIOUS TYPES OF TRAPS AND SNARES

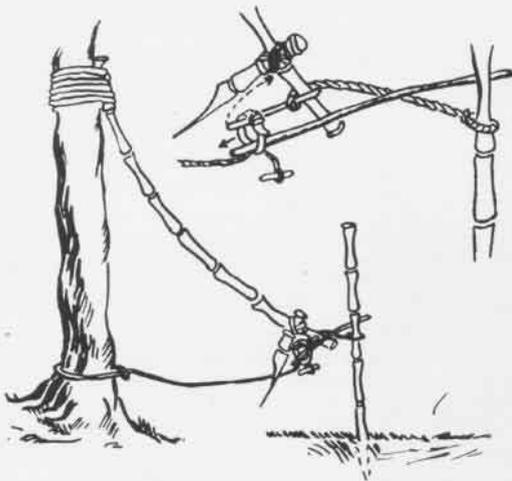


HANGING SNARES SET ON TRAIL.

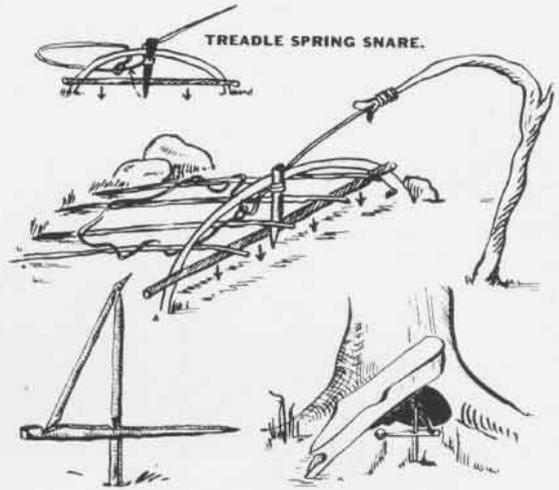


CLOSE-UP OF TRIGGERS

BAITED HANGING SNARES AND TRIGGERS



SPRING AND SPEAR TRAP



TREADLE SPRING SNARE.

DEADFALL WITH FIGURE FOUR TRIGGER



Fixed rabbit snare across a trail. Compare size of noose with the man's hand



Rabbit in hanging snare. Snare has lifted rabbit off the ground and strangled it



Setting snare in runway. All traps must be set with a knowledge of animal habits

YOU CAN BUILD SNARES AND CATCH SMALL ANIMALS IF YOU KNOW THEIR HABITS

TRAPS MUST be constructed and set with a knowledge of animal habits. A trap set at random to catch whatever chances to come along is worthless. Decide upon the kind of animal you wish to trap, bait your snares with the kind of food it eats, and keep the surroundings as natural as possible.

The fundamental principle of trapping is to determine what the animal you wish to trap is going to do and then catch him doing it.

A snare is a noose that will slip and strangle or hold an animal caught in it.

A hanging snare is fastened to the end of a bent pole or sapling and spread open in a runway or in front of an animal den or nest. The size of the loop will vary with the kind of animal to be trapped. Make it large enough to admit the animal's head, but not its entire body. On a rabbit trail the loop should be about 4" in diameter and hang 1½" to 3" above the ground. The trigger or cross-piece of a hanging snare holds the sapling down until an animal puts its head in the noose and jerks the trigger free. The bent sapling lifts the animal

off the ground and soon strangles it.

Fixed snares are fastened to stationary objects such as logs, trees or a forked stick. In the jungle, small mammals, and especially birds, are more readily snared by building a low fence of sticks on either side of the runway to lead them to the trap. The treadle spring snare is very effective for such a set. A spear trap should be used for large animals.

Deadfalls will trap both birds and mammals, and the basic principles can be infinitely varied to meet specific conditions. The trigger should be long and the weight tilted at a steep angle. Place a small flat stone under the upright so that it will not sink into the ground. Bait the trigger and the trap will fall when the bait is disturbed. Be sure to tie on the bait before the trap is set.

SOME PLANTS FROM WHICH CORD, LINES AND ROPES MAY BE MADE

Throughout the world there are numerous plants whose roots, outer and inner barks, and leaf and stem fibers can be twisted and used as

cord or rope for fishing, lashing and climbing. Fiber from palms, rattans, bamboo and various vines are common in the tropics. The tough in-

ner or outer bark of trees is the easiest and simplest material to use. Soaking often helps to separate the fibers and makes them easier to work.

NAME	PART USED	WHERE FOUND	NAME	PART USED	WHERE FOUND
Leather wood (<i>Dirca</i>)	Strands of split bark.	Eastern North America.	Coconut palm (<i>Cocos</i>)	Fibers of the coconut husks and midrib of the leaves.	Throughout tropical countries.
Basswood or Linden (<i>Tilia</i>)	Shredded layers of inner sapling bark.	Temperate countries of northern hemisphere. Rich humus soil.	Liana (<i>Entada scandens</i>)	Whole smaller stems and fibers of large stems.	Native of tropics of both hemispheres. South Pacific Isles. Also furnishes drinkable sap.
Mulberry (<i>Morus</i>)	Inner bark of trunk and roots.	Temperate regions of northern hemisphere.	High climbing fern (<i>Stenochlaena palustris</i>)	Wiry stems, very durable under water.	India and South Pacific Islands. Another species in Africa and Madagascar. Found in swamps or near the sea.
Spruce (<i>Picea</i>)	Barked rootlets.	Cold climates of northern hemisphere. Southern mountainous country.	Climbing Cane (<i>Flagellaria</i>)	Stems.	India, Australia and South Pacific Isles.
Hemlock (<i>Tsuga</i>)	Fibers of roots and roots themselves.	Northern North America and Southern mountains.	Climbing or scrambling aerial plants (<i>Freycinetia storckii</i>)	Flexible stems.	Indian Archipelago, New Zealand, Pacific Islands, etc.
Tamarack (<i>Larix</i>)	Fibers of roots.	Cold climates of northern hemisphere. Swampy wet region.	A climber of open country (<i>Pachyrhizus erosus</i>)	Stem fibers.	Tropical America, East and West Indies, South Pacific Islands. Found in thickets in open country.
Elm (<i>Ulmus</i>)	Shredded bark of trunk and roots.	Temperate climate of northern hemisphere.	Common tropical weeds (<i>Urena sinuata</i> and <i>lobata</i>)	Fiber from inner bark.	Common in tropics.
Indian Hemp (<i>Apocynum</i>)	Bark fibers.	Temperate regions of northern hemisphere. Open land.	Shaw trees (<i>Sterculia</i>)	Fibrous inner bark. Rope not affected by wetness.	Tropics of both hemispheres.
Yucca	Fibers in leaves.	Southern United States, Mexico, tropical America. Many are semi-desert plants.	Wild Hibiscus (<i>Hibiscus cannabinus</i>)	Stem fibers.	South Pacific Islands.
Breadfruit (<i>Artocarpus</i>)	Strands of inner bark.	South Pacific Islands, Malaya, Southern Asia.	Screw pine (<i>Pandanus</i>)	Leaf fibers.	South Pacific Islands.
Plantains and Bananas (<i>Musa</i>)	Fibrous tissues in mature leaf stalks. <i>Musa</i> produces manila hemp.	Throughout tropical and sub-tropical countries.			

TRAPPING AND HUNTING "KNOW-HOW" WILL HELP YOU CATCH DINNER

IF YOU LEARN a few trapping techniques, if you are resourceful and, above all, if you observe the habits of wild life, you should be able to obtain enough wild meat to sustain you.

Also learn a few do's and don'ts of hunting. The hunting principles that follow are especially applicable to large game such as deer, antelopes, caribou, sheep, goats and wild boar.

1. The greatest advantage you can have is to see your quarry before it sees you.

2. Look for signs such as tracks, beds and warm or moist droppings.

3. In woods or in the open, peep cautiously over ridges, examining first the distant and then the closer ground.

4. In woods move slowly; stop often. A motionless man has an immense advantage over a moving animal.

5. One of the surest ways to get a shot is to locate a water hole, feeding ground, or trail and wait quietly for the game to come to you.

6. In dense forest where range of vision is limited and game must be closely approached to be seen, silence is essential. Avoid treading on dry sticks and leaves or brushing against bushes.

7. In open or mountainous country game is generally seen and shot at a distance. Silence is not as important as in woods, but you must keep under cover.

8. Whether looking for game or stalking it, never move down wind.

9. In open country it is easier to shoot with the sun behind you and you will be less visible to the game.

10. If your quarry has seen you, do not approach it directly; tack back and forth across your line of approach. Freeze when it looks up.

11. Get above mountain game; it seldom suspects danger from above.

12. Camouflage your clothing so it blends with the landscape and never silhouette yourself on a skyline.

13. Never make a shot unless it is the very best you can do. Take your time; a miss will scare the game.

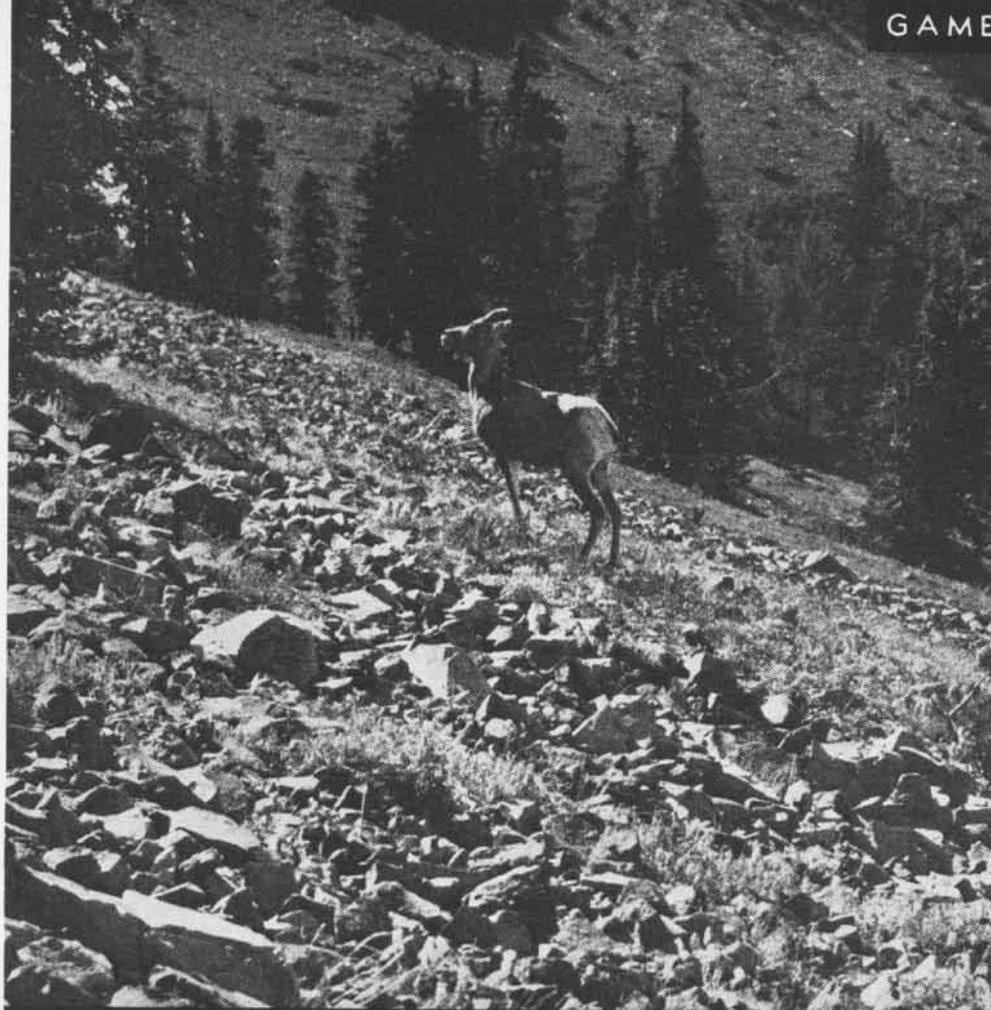
14. Many animals are curious of strange noises and objects and can be made to stand for a good shot, if you whistle or wave a cloth.

15. The head, neck and the point just back of the shoulder are vulnerable spots on many animals.

16. Don't follow a wounded animal too closely; give it time to weaken.

17. Don't be discouraged if at first you are unsuccessful.

IN THE NEXT ISSUE: FIREMAKING AND COOKING



MOUNTAIN SHEEP—WITH PATIENCE YOU CAN GET CLOSE ENOUGH FOR A SHOT IN THE ROUGHEST COUNTRY

ELK—IN HUNTING YOU MUST KNOW HOW TO FIND GAME, HOW TO APPROACH IT AND HOW TO SHOOT





ISLAND NATIVES ENTERTAIN MARINE PILOT

Lt. S. pursued the *Vals*, shot at about seven of them, and scored three. Before he could raise the ante, *Zeros* attacked. The Marine lieutenant made a left turn, maneuvered to avoid the *Zeros*, and then headed west. His plane had received many hits—one of which knocked out the oil system, and he was forced to bail out. Lt. S. was picked up by natives that evening, and returned to base the following day. His experiences describe combat conditions which fliers can expect to find in the Pacific.

I was with Capt. C. when we first sighted the enemy, followed him in his original dive away from the flight, and was on his wing when we made our attack on the bombers over X base. I didn't fire when we followed them in on X base, but on peeling off, there were nine to a dozen *Vals* about fifty feet off the water heading in an easterly direction. Didn't see Capt. C. after our initial run; however, someone to my right and slightly behind me was firing at the *Vals*.

They skidded from side to side in front of me attempting to avoid my fire. I put good long bursts into five or six that were about fifty feet off the water. I was anywhere from 100 to 1,000 feet. I saw one plane catch fire, but couldn't see what happened to the others, because I had terrific speed and passed over them. Capt. C. must have

MARINE CORPS REPORT

been with me, but behind, as I could see his tracers passing me. On one *Val* I made a very fast beam run, at about 90-degree angle from the left, but pulled up over it before I could see what happened. I fired at a couple of *Vals* after this, but don't know what happened to them.

After making these last two runs, I pulled up to the left to go back when two *Zekes* attacked me from the rear, above and slightly to the left. I was at about 1,000 feet and the *Zeros* were at 1,500 to 2,000 feet. When I first saw them, they were just getting in range and started firing at me. I still had terrific speed. A bullet hit the windshield in front of me. I pulled up as abruptly as I could, made a wing over, in hopes that I could fake a crash, leveled off and gave the plane everything it had. One *Zero* stayed on my tail, but I was able to outrun it. I was headed in a southerly direction when my oil pressure started dropping, so I knew then that I was either going to have to make a water landing or bail out. I first decided to make a water landing, but changed my mind and climbed to 1,500 feet to see if my engine would keep going; at this time

I jettisoned my hood. I had about 140 knots. My engine started coughing, so I rolled the plane over and parachuted, landing safely in the water about one mile off the northeastern tip of Y island. When I decided to parachute, I misjudged my position, and thought I was over Z, so I called over the radio that I was parachuting in that area.

All my reserve equipment worked perfectly. I got into my rubber boat and made my way to a small island. Shortly after reaching shore I made myself as comfortable as possible. Just as I was preparing to spend the night, a native found me and took me to his village.

The natives presented me with a package of Twenty Grand cigarettes, prepared special food, and even offered me Army rations. While we all ate a native kid played a ukulele and sang to me. One of his songs was "Say Good-by, Say Farewell," another was "The Girl of My Dreams." He played well. After a good night's rest I started on my way and eventually returned to base.

As an experience, it wasn't bad at all. I received no serious injuries—just wrist abrasions, resulting from the bullet that hit my windshield. A couple of my guns in the right wing stopped once, but worked after I recharged them. The plane worked all right until it was shot, but the radio wasn't working.

SHORE STATIONS

► **NAS PENSACOLA**—Corry Field, oldest of the outlying fields which make up the Naval Air Training Center, had its first anniversary as a Naval Auxiliary Air Station on January 15. The anniversary was just another day of training fliers for Uncle Sam's fighting Navy.

► **NAS BANANA RIVER**—New recreation rooms, just completed, are open to Navy, Marine and Coast Guard personnel. The rooms contain eight bowling alleys, five pool tables, three ping-pong tables, and many writing tables. Bowling leagues have already been formed to take advantage of the new facilities.



► **NAS LIVERMORE**—Realizing that many pilots coming in for landings were concentrating on the landing itself rather than the tower, operations is experimenting successfully with additional positive control installed on the crash truck. Three flashing red lights have been installed on the cab of the truck, each light 30 degrees apart in beaming. When the course is changed, these lights, in addition to the usual signals, are lighted, thereby indicating to pilots attempting landings that the field is closed. The crash truck is placed facing traffic at the windward end of the field. In event of crash, the truck's three red lights are turned on, the truck proceeding from its original position upwind directly to the scene of the trouble upon signal from the tower. Operations officers, highly pleased with the additional control, feel that it is a valuable additional safety precaution.

► **NAS OLATHE**—Confronted with an unusually difficult transportation situation, this station has solved the problem of transferring patients from local dispensary to a naval hospital by using a Howard GH-2 ambulance plane. Train travel to the Great Lakes Naval Hospital or the Naval Hospital, Norman, requires seven to 10 hours plus a 30 to 60-minute ambulance trip at either end. Flying time to either of the naval hospitals is a little over two hours. Air transportation has obviated the difficulties of securing train transportation, eased the problem for the patient and insured a rapid means of transportation in case of medical emergency—a point of some importance, if only from the psychological angle, to both medical and non-medical personnel.

The Howard GH-2 ambulance plane is a high-wing monoplane with radio equip-

ment. It is fitted to carry two patients on stretchers. When these are not in use it becomes a four-place passenger plane.

► **NPFS ATHENS**—Milton Caniff, creator of the popular comic strip "Terry and the Pirates," at the annual meeting of the Georgia Press Institute here, delighted his audience with on-the-spot drawings of his characters, and told of an official complaint he once received from the Navy Department.

In the Navy's traditional style the communication was headed, SUBJECT: Comic strip, "Terry and the Pirates," error in. The message followed:

1. The subject named comic strip, release of 17 January, depicted a character wearing a uniform represented as Navy dress whites.

2. The uniform shown is not in accord with present uniform regulations, as amended 12 January.

3. Watch that stuff kid.

► **NAS ASTORIA**—The firehouse zoo has a new addition, a two-year-old buck deer named Johnny. The firehouse now boasts a bear, named Elmer, a doe, Jennie, in addition to the new arrival, who came here because he was a bad boy. He was the pet of a family living in or near Astoria until he became a juvenile delinquent.



Johnny is patriotic, but ignorant. He didn't know that Victory Gardens were planted to help win the war. His fondness for tender young fresh vegetables led to many varied calls in person and by telephone to Johnny's former owner.

Not wishing to see Johnny become venison steak and especially not an undignified venison stew, the owner placed an emergency call to the game commissioners. They, in turn, knowing that sailors are tender-hearted cusses to all animals except Japs and Nazis, called the station. The result is a new boy friend for the doe, Jennie.

Who knows? Perhaps by this time next year, Astoria boots will be knitting little antler covers.

► **NATS PATUXENT RIVER**—The American Red Cross, Washington, D. C., chapter has provided VR-1 with 10 subscriptions to each of the following newspapers and magazines for shipment overseas: *New York Times*, *The New Yorker*, *The Saturday Evening Post*, *The Reader's Digest*, *Washington Post* (Sunday edition), and *Wash-*

ington Star (Sunday edition). This reading matter, plus candy, razor blades, shoe polish, chewing gum, etc., is delivered weekly to the air transport officer, Washington National Airport, for delivery to the transportation officer. The latter prepares the material in packages for shipment overseas on a space-available basis. At point of receipt the material is distributed among American military personnel abroad.

► **NAS NORFOLK**—Last year 260 enlisted men, an average of 22 per month, were



admitted to non hospital as a result of serious accidents caused by autos, trucks and street-cars. Naval personnel are expressly directed to discontinue the hazardous and unmilitary practice of standing in streets or

highways to pick up rides, according to an order issued by Commandant of the Fifth Naval District. This does not forbid requesting rides properly while standing on the curb or on the roadside.

The commandant recently changed the liberty uniform to white hats for enlisted men in order to increase their visibility at night. He has also directed that all hands be instructed to walk to the left, facing oncoming traffic, where there are no sidewalks.

► **NAS ARGENTIA**—In addition to their regular duties, the officers attached to this station are participating in a broad program of personal improvement. Every officer is engaged in the physical fitness program and attends weekly lectures and demonstrations. Others are voluntarily engaged in additional activities for individual improvement in military knowledge and skills.

A considerable percentage are developing skill in the use of small arms such as machine guns, sub-machine guns, shotgun and pistol. Others are continuing their practice at identification of ships and aircraft. At present, 43 percent of all officers attached are enrolled in correspondence courses offered by the Naval Reserve Educational Centers. This includes both regular and reserve officers.

A mandatory information curriculum is being offered which includes a variety of practical topics dealing with problems likely to arise in future billets. Two one-hour periods each week are devoted to the study of different problems. Such topics as the following are included: Anti-personnel mines, booby traps and other harass-

ing instruments of warfare; safeguarding military information; prisoner sense; logs and log-keeping; responsible and sound personnel procedures of division officers; aerial torpedoes, bombs, rockets and armament; regional diseases and their prevention.

The intellectual personnel fitness program is supplemented by compulsory physical fitness activities which consist of ice skating, hiking, athletic games and calisthenics.

The total program is designed to keep the officers of this station physically and mentally fit and at the same time constantly improve personnel effectiveness.

► **NAS OTTUMWA**—Small "keyed" maps of this area are now in every training plane and have aided in identifying the location of pilots making forced landings. Sections of the area surrounding the station are listed by letters and number. The pilot who is forced down asks the oop to dispatch help to him in "section 13 of the larger area shown in L 21." Letters designate east-west locations and numerals north-south locations. Larger copies of the same map are in the oop's office and a copy is used both by transportation and the rescue party.

► **NATC PENSACOLA**—Construction of two new buildings to contain classrooms for flight student gunnery instruction will begin at this station soon.

The north taxiway of Corry Field is being widened to 125 ft. to allow for taxiing and parking planes. It also will help to accommodate the increased number of large planes using the field.

The dust clouds that have often all but hid Whiting Field will soon be eliminated. A project for the strip sodding and seeding of large areas on the reservation has been approved. It is estimated that the project, which will include the seeding of 1,500 acres and 500,000 linear feet of strip sodding, will cost \$165,000.

► **NATTC MEMPHIS**—Ship's Service at this station, which began in September, 1942, on \$1,500 borrowed from Ship's Service, NAS Jacksonville, had a total sales volume of \$1,749,333.62 in 1943. It is expected that 1944 sales will be well over two million dollars.

More than 900 items are sold in the stores and there is a special order department to fill requests for other items. Candy leads all sales in popularity. In one recent month a record was set, a per capita consumption of 49 candy bars.

The organization is in excellent financial condition. It has net assets of \$197,672.31 and a "C plus one" Dun & Bradstreet credit rating, the highest attainable. Yet as a result of a recent 10 percent slash in the cost of chit books some items are sold at less than cost. Approximately one cent is lost on every package of cigarettes sold.

The organization operates four stores, four soda fountains, a laundry, shoe repair shop, tailor shop, five barber shops, three Coca-Cola houses and a Coca-Cola truck.

TOKYO TALKS

—TO JAPAN

Tokyo notes the appearance in the Southwest Pacific of a new model *Typhoon*, with a 24-cylinder engine.

—TO NORTH AMERICA

Although admitting that it is possible for the Allies "to bomb our industrial centers in Japan," Radio Tokyo declares that Japanese power in the Pacific will prevent the U. S. and Britain from opening a second front in Europe, and that the Japanese are able to smash the U. S. Fleet in the Pacific whenever they wish. The *Nippon Times* is quoted as saying the U. S. had to "mobilize a force of 50,000 men and countless warships and aircraft to take the meagerly defended and remote island outpost of Tarawa," which shows "she is in no position to spare any of her men and

materials for a major offensive in western Europe." The "mighty" Japanese Navy, however, its main strength still intact "after sinking a total of more than 447 enemy warships and damaging 241 others in the past two years," is in a position "to go into action to cripple the entire U. S. Fleet."

—TO MANCHURIA

On "Manchukuo's" 12th anniversary, a Tokyo broadcaster revealed that the "Japan mainland has been extremely dry recently—most unusually so." It was not known whether he was referring to the weather or a curtailment in the consumption of sake, Japan's reinforced rice wine. The Japanese Domei agency recently disclosed that under a new set of "emergency" measures adopted by Premier Tojo's cabinet, "high-class entertainment," including that at "eating-plus-Geisha girls entertainment houses"—had been ordered suspended and "all bars, cafes and dancing places" closed.

—TO ASIA

Two measures approved by Premier Hideki Tojo's cabinet "to cope with the decisive war" are for the "speeding up of trials and prosecutions" and the "strengthening of surveillance" on the home front. Other measures include "the simplification of national livelihood, the renovation of the labor structure, the conversion of various businesses to render them more efficient, the strengthening of essential transportation, the renovation of sea transportation administration, the increased production of food and the strengthening of air defenses."

—TO SOUTH AMERICA

The Japanese occupation authorities in Java have formed a new "people's organization" called "Djawa Hokakai" to get the natives used to the "material difficulties of the war." The new "people's organization" replaces an old "people's organization" known as the "Poetera," which was abolished by the Japanese simultaneously with the introduction of forced labor in Java. The main job of "Djawa Hokakai" is to help the natives in "resisting spiritual as well as material difficulties caused by the war." Some of its other tasks are: "Development of the character as well as the intelligence of the inhabitants," "expansion in the use of the Japanese language," and "intensification of determination for the defense of GEA."

—TO THE U. S.

A new reason was recently given for the failure of Japanese pilots to answer "numerous night attacks" carried out by Allied planes over an unnamed Japanese base in the South Pacific—presumably Rabaul. "For the first few days the enemy carried out numerous night attacks against our positions, but not a single Japanese plane left the ground to challenge the attackers. It was simply because our pilots were confident the enemy was unable to hit objectives even if they took careful aim, though there were times when the enemy—in dropping their bombs at random—managed to hit our military objectives."

SHOW ME THE WAY TO GO HOME



Celestial Navigation

On December 31, 1943, a navigator of a transport plane in DR position Lat. 27°-05' N, Long. 95°-53' E, on course 049°, GS 138 k, flight level 8,000 ft., takes the following sights with a bubble octant having an I.C. + 3':

	Sun	Venus	Moon
ZT	10 ^h -55 ^m -03 ^s	10 ^h -59 ^m -20 ^s	11 ^h -04 ^m -18 ^s
Hs	38°-41'	34°-17'	14°-03'

Complete the following:

'a'

Zn

ZT 1100 fix Lat.

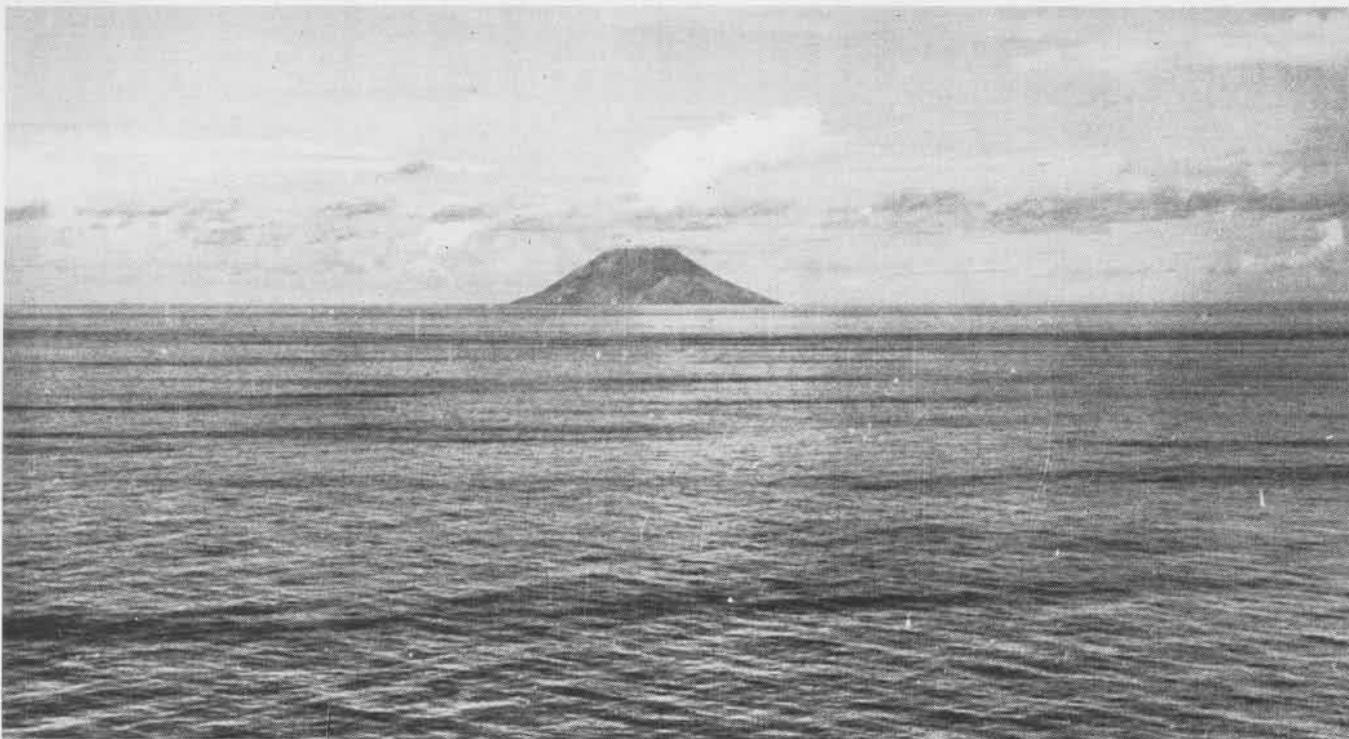
Long.

(Answers on page 40)

JAP ISLAND INSTALLATIONS

Air activity and photo interpretation play dominant rôles in unmasking enemy defenses before our amphibious attacks are unleashed





VOLCANIC ISLANDS POKING INTO THE SKY STAND OUT IN SHARP RELIEF AGAINST THE COMPARATIVELY PLACID WATERS OF THE PACIFIC OCEAN

FIRST BARRIERS ARE NATURE'S WHEN AMPHIBIOUS YANKS ATTACK

IN THE PACIFIC battle area, there are two major geological types of islands: 1. VOLCANIC ISLANDS, whose terrain is rugged and mountainous, and, 2. CORAL ATOLLS, or islands which, being flat and of low altitude, cover only a small area.

VOLCANIC ISLANDS vary greatly in size, but none of them, except New Guinea, is large enough to pose problems of distance that are continental in scope. Volcanic islands rise to great heights, particularly those in the Melanesian area of the Pacific, which includes New Guinea and the Solomon

Islands. Summits of the large mountains are barren and, as they pass downward, vegetation becomes dense, then jungle.

A CORAL ISLAND is usually an atoll, a series of small islets on an oval or circular reef. The reefs, and thus the islands themselves, enclose lagoons (bodies of water of varying size and depth). The beaches on both sea and lagoon sides of the atolls consist of sharp coral. Coral islands are small and flat, and vegetation is limited to a few varieties of trees, principally coconut, pandanus and scrub brush. Climate is healthful; hot but never too humid.

Knowing terrain is a vital cog in the amphibious strategy of U. S. forces. What the Pacific Fleet aerial units do in photo interpretation makes it possible to assess the characteristics of these targets before operations get under way. The attack then can be directed against specific objectives.



Coiled like a sleeping serpent, the jagged terrain of volcanic islands favors defender's positions, complicates the job of invader



In marked contrast, flat atoll stretches out at sea level. This type is covered with vegetation, and cloud formations are common

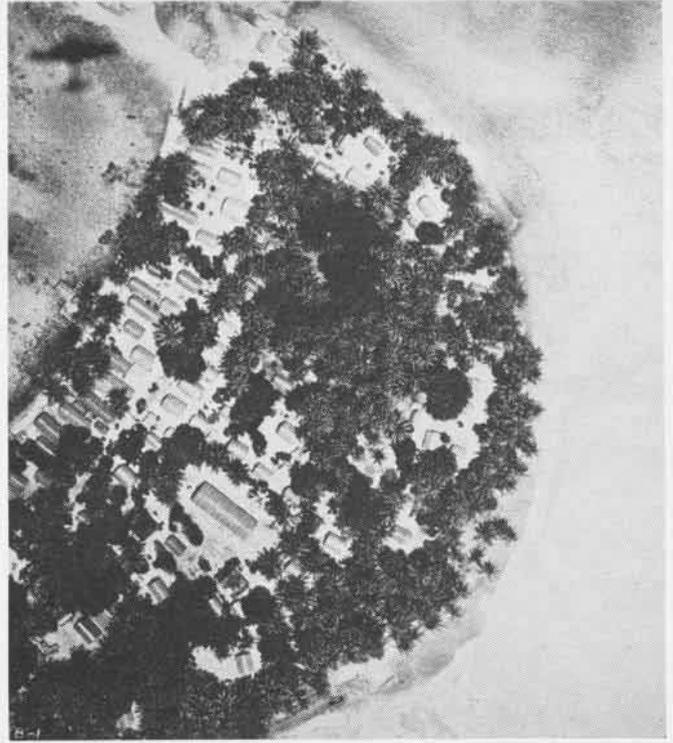
NATIVE VILLAGES HIDE DEFENSES

FOR THOUSANDS of years, the natives of Pacific island villages have lived a simple idyllic existence, supplying their needs from the vegetation and animal life about them, and trapping fish in the surrounding sea. Exploration of these regions by European nations began as early as the Fourteenth Century. But it was not until recent years—the close of the Nineteenth Century—that the powers took an interest and brought evidences of modern civilization to the islands. Aviation, needing landing fields in midocean, has given new importance to island positions.

Japan's administration of certain Pacific islands came as a mandate from the League, with the provisions that natives were not to be pressed into military service, except for policing needs, and military installations were not to be erected.

Villages in the Pacific area are characteristically small, comprised of from 50 to 150 inhabitants. On the larger islands, most of the villages are on the coast. Hill villages, where they exist, are built upon any ground that will sustain life. The interior of New Guinea is the only region in which there may be distances of fifty miles between villages.

Native villages often are laid out in regular pattern. From the air they can be mistaken for military camps. Often native shacks resemble Quonset huts. Clear photographs and a sharp eye are needed to distinguish between living quarters and hidden installations, as the Japs have made every effort at concealment of their weapons from Allied aerial cameramen.



Village huts, arranged in regular pattern, often resemble Quonset huts. This site easily could be mistaken for a military camp



Native village built along water's edge. Photograph, taken by Pacific Fleet air units, reveals coral formations under water and

dense foliage under which village has been constructed. Natives on beach look up at plane as aerial photographers record scene

AIRFIELDS, REVETMENTS: JAPS EXPLOIT NATURAL CAMOUFLAGE

IN BUILDING AIRFIELDS and revetments to protect his planes, the Jap takes advantage of whatever camouflage Nature offers on the island base. When an island or atoll has little or no vegetation, the Jap has to make the most of his open position without any attempt at concealment by natural camouflage.

Runways and airfields on barren atolls are simply constructed by leveling and filling the ground and orientating the field to take advantage of prevailing winds. Size and shape of the atoll determine the area which can be used for runways. Buildings, installations and emplacements must be exposed because of the lack of natural camouflage.

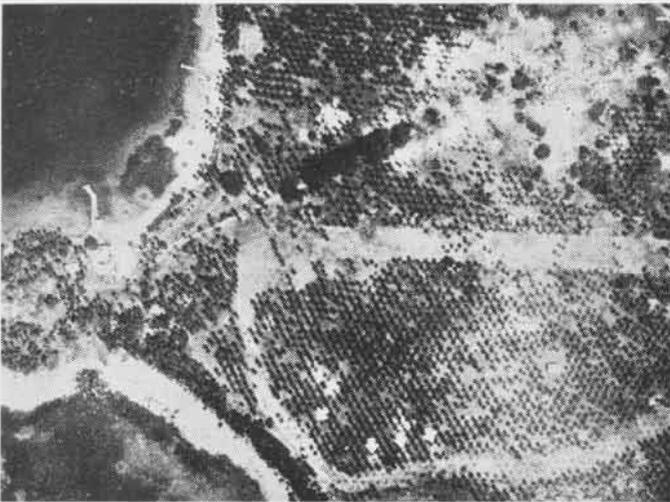
When the islands have thick vegetation, the picture from the air changes. Airfields on these islands usually are constructed in coconut plantations near the coast. The ground already is partially leveled and cleared of undergrowth.

Plantation buildings are available for administration, communications, supplies and repair. Supplies brought in by sea are loaded on piers. Dense foliage camouflages stores and activity of Japanese personnel.

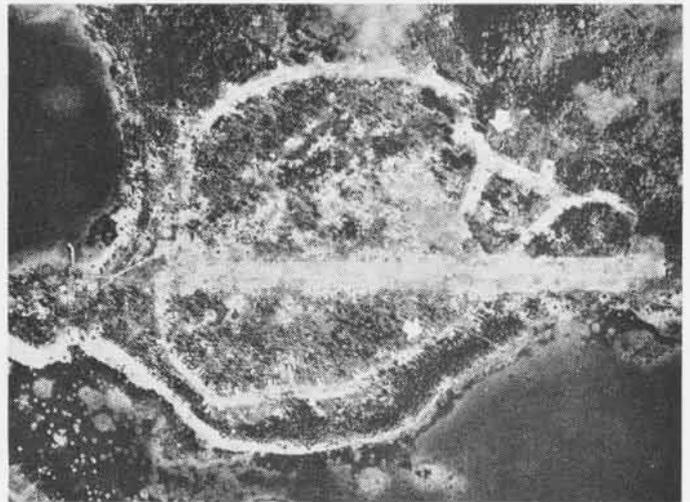
Runways on these bases usually are single strips ranging from 3,000 to 4,900 feet, orientated to take advantage of prevailing winds, and surfaced with hard earth, crushed coral or macadam. Paved taxiways are in loops on either side of the runway or parallel to it.

Plane revetments and blast shelters are hidden away between trees at the edges of taxiways. They may be square, rectangular, semi-circular or octagonal, and from 35 to 100 feet in diameter, depending on whether their use is for fighters or for bombers. Both types have been observed.

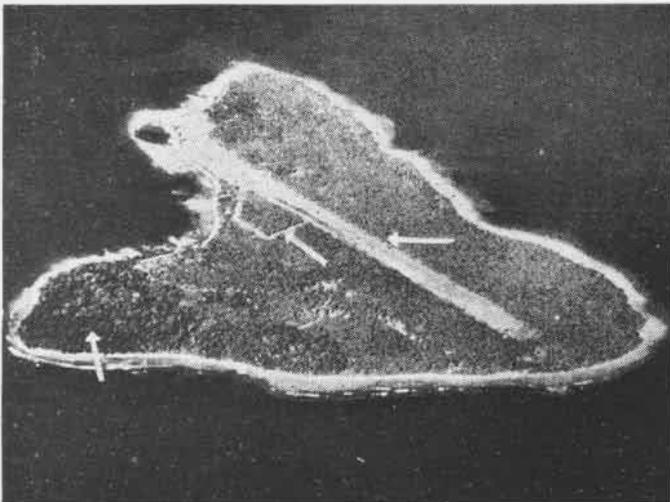
THE JAP takes every advantage of the natural cover to conceal buildings and installations. Planes are painted black and mottled colors to resemble their environment, and dispersed among trees. Damaged planes and dummies are left in the open as decoys, buildings covered with earth, and trees left standing as long as possible while construction is under way. This makes detection difficult and lessens the danger of strafing. A Jap airfield can be built in 14 days.



Naval air photography records development of typical Japanese airfield in a coconut grove. Plantation buildings and pier facilities are visible. Runway and taxi strips come into sight as Japs begin to remove trees. Four fighter revetments are in progress



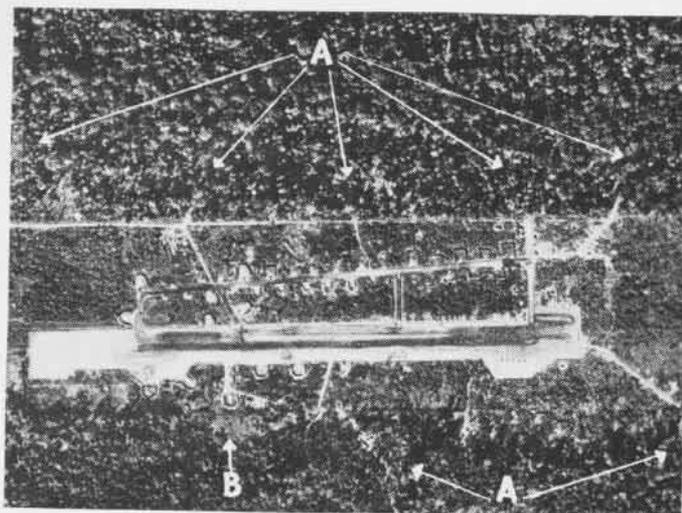
Later photograph shows entire field complete with elaborate runways and many fighter and bomber revetments. The Jap plane base has already been hammered from the air, causing considerable destruction to facilities. Plantation building has been erased



Typical development of Jap airfield in coconut plantation on small island. Only runway and small taxi strip have been developed, and no clearings as yet have been made for AA positions. Trees effectively camouflage stores, personnel, activity



Later photo reveals that island and airfield have been completely developed for action and defense. Where trees have been cleared there is nearly always AA emplacement. Other clues to strategic positions are roads that reveal locations of important centers



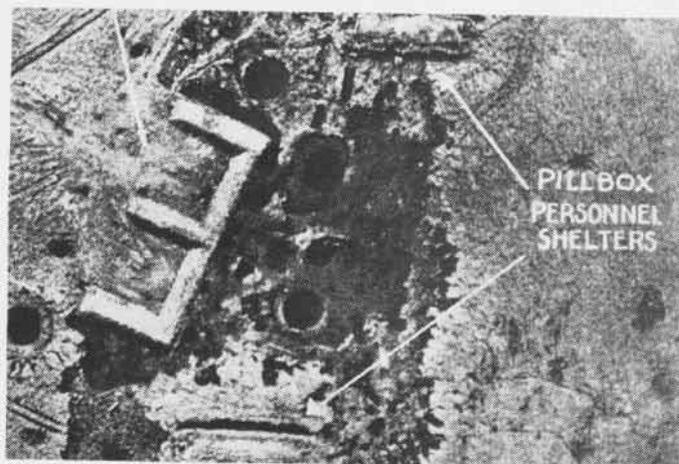
Airfield with taxiway paralleling runway is typical of Japanese practice. Letter A indicates supply and dispersal areas, with planes lodged under cover of trees. Letter B indicates AA positions. Area covered does not indicate main AA emplacements



Revetments have not been built for this airfield and planes are parked along edges of runway or beneath trees nearby. Planes on runways are *Nells*. Adjacent position of hospital (building with cross) indicates Jap attempt to gain immunity from bombing



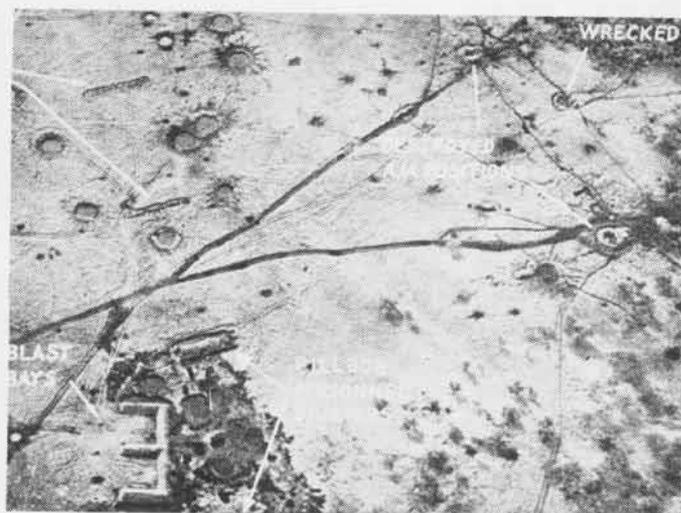
Octagonal revetments under construction. Sides are timber, filled in with coral and earth. Alternative method is to create protective bulwarks by raising earth and rock mounds. Revetments built of cement are not common in Central and South Pacific area



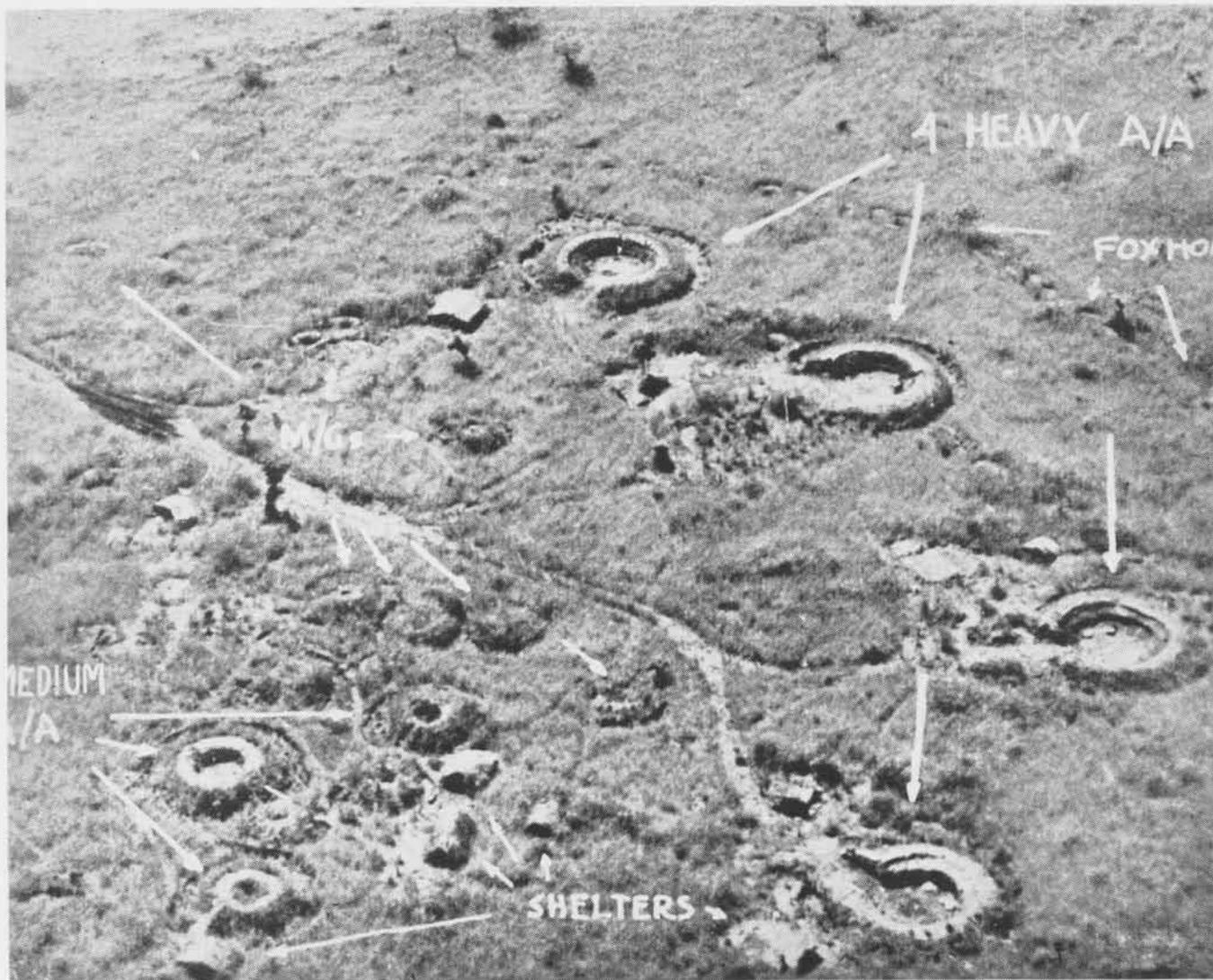
Revetments or blast bays in this picture provided sufficient protection against bombs that struck alongside. Deep crater pockets show intensity of U. S. bombing. Elaborate Japanese defenses on Pacific island bases are being systematically shattered now



Revetments with openings on two sides (left center) also are used by the enemy. Another device of Japs is to use dummy or damaged aircraft to lure bombs, thus divert them from actual targets. Here damaged *Haps* are left idle alongside plane revetments



Broader view of picture directly above shows thoroughness of bombing, involving damage to AA positions and fire control stations. Photo interpretation serves joint purpose of revealing targets before attack and of assessing damage that follows raids



HEAVY, MEDIUM AND LIGHT EMPLACEMENTS FROM WHICH THE GUNS HAVE BEEN REMOVED. PERSONNEL SHELTERS LEAD TO CIRCULAR REVETMENTS

COAST DEFENSE, AA BATTERIES FALL INTO SET JAP PATTERNS

RECONNAISSANCE and photo interpretation units of the Navy have seen to it that the Jap enjoys precious little privacy in building and servicing his island base defense setup. Cameramen of the air have brought back evidence on film which, when given skilled interpretation, reveals details of defense that make a dependable assessment of overall strength possible.

As to guns, the Japs were found to be using, generally speaking, three main types in their batteries. **LIGHT:** includes machine guns and other light weapons up to and including 20 mm. Gun revetments are 12 feet and under in diameter. **MEDIUM:** Guns over 20 mm. up to and including 3 inches. Gun revetments are from 12 to 18 feet in diameter. **HEAVY:** Guns over 3 inches. Gun revetments are 18 feet and over in diameter.

By keeping photographic sorties going on schedule day after day, it has been possible to observe the Japanese method of emplacing their batteries and adding to them. The first step is building the revetment. (Gun positions in almost all batteries are circular in plan.) Additions to the

revetment, such as protuberances for ready magazines, blast walls before entrances, drainage ditches and entrance ramps, usually are constructed after the battery has been emplaced. The enemy will build a circular revetment and emplace one or two guns, then, later, add more guns to complete a larger battery.

Entrances to the revetments are of several kinds. They may be single gaps (some unprotected, some protected by blast walls), which are the most common type. Zig-zag entrances and gaps cut at a tangent to the revetment circle also have been seen, as well as tunnel and ramp entrances. Among other types noted are: double revetments, peanut-shaped revetments, and those having a rectangular shape.

THE JAP plan of placing AA batteries is calculated to afford greatest protection to defended areas. AA batteries usually are found within a mile of airfields or camp sites, greatest concentration of guns being between them and sea approaches, or along shore lines. Medium AA batteries rarely are placed outside the one-mile radius, except along beaches. The heavies have been observed four miles from defended areas.

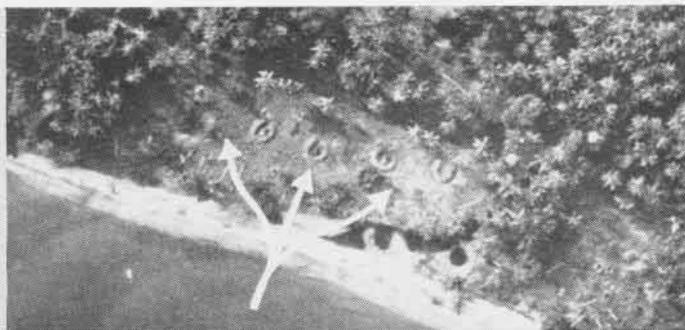
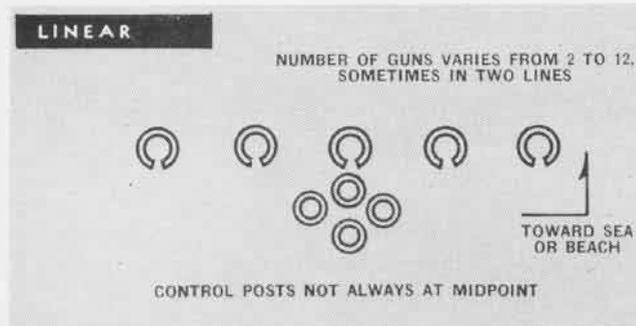
Battery positions along the shore are set up to command beach approaches. In the South Pacific, batteries often appear in natural clearings, or in clearings that have been enlarged. Usually they sit on ridges, sides of the ridges and encircling trees being used for shelters and supplies.

JAPS ARRANGE AA'S FOUR WAYS

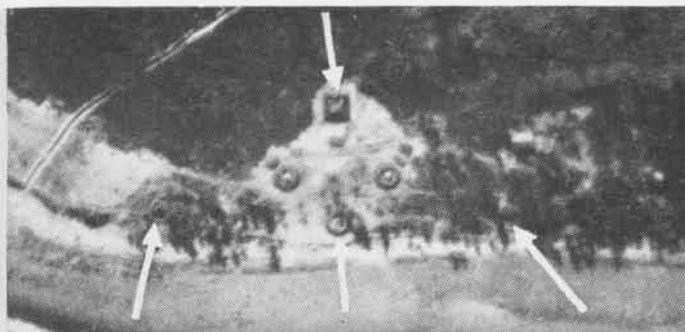
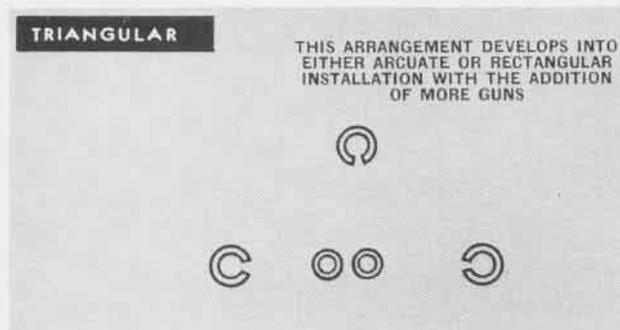
IN GROUPING their gun positions the Japs utilize, roughly, four patterns: LINEAR, TRIANGULAR, QUADRILATERAL, ARCUATE (see diagrams below). The most numerous are two- or three-gun positions arranged in a line or in a triangle. Batteries above four guns are of the four- and six-gun ARCUATE type, which are the most typical in north and south Pacific areas. The layout does not indicate the gun caliber, as similar layouts govern batteries of varying caliber.

AA emplacements have the support of machine gun positions placed either within the battery group or at a short distance from it. When the AA battery appears on the beach or immediately inshore from the beach, supporting machine guns are placed on the edge of the beach.

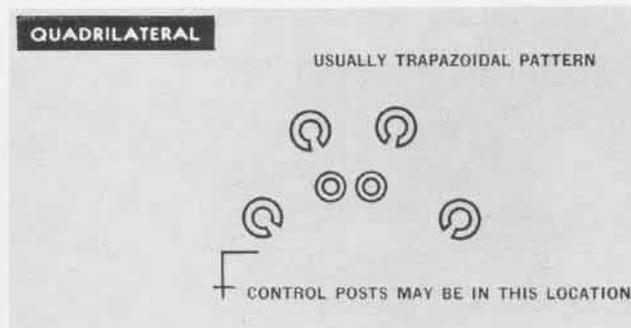
The ability of the U. S. naval air force to perform photographic missions and bring back the story of enemy defenses in detail warrants a high place among the achievements of naval aviation. Photographic interpretation among the Allied forces received its first big push by the British, who, after Dunkirk, found themselves for the time being cut off from sources of communication to and from the continent.



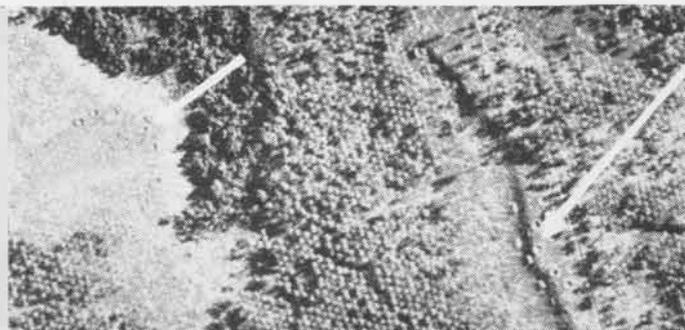
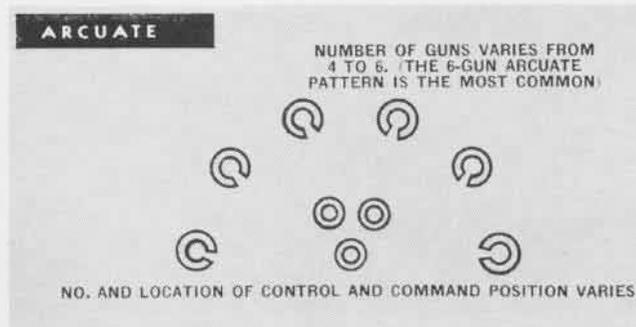
LINEAR ARRANGEMENTS OF EMPLACEMENTS IS REVEALED IN THE PHOTOGRAPH ABOVE. BOMB BURSTS FROM OUR AIRCRAFT APPEAR AT THE TOP CENTER



TRIANGULAR ARRANGEMENT OF EMPLACEMENTS REVEALS ALSO COMMAND POST IN BACKGROUND (C). REVETMENTS (B) ARE POSSIBLY FOR FIRE CONTROL



QUADRILATERAL ARRANGEMENT OF EMPLACEMENTS IS LOCATED IN THE NORTH PACIFIC, BUT IS TYPICAL OF LAYOUTS IN SOUTH AND CENTRAL PACIFIC



IN ARCUATE ARRANGEMENT 6-GUN PATTERN IS MOST COMMON. JAPS SELDOM DEPART FROM A REGULAR PATTERN IN THEIR AA BATTERY ARRANGEMENT

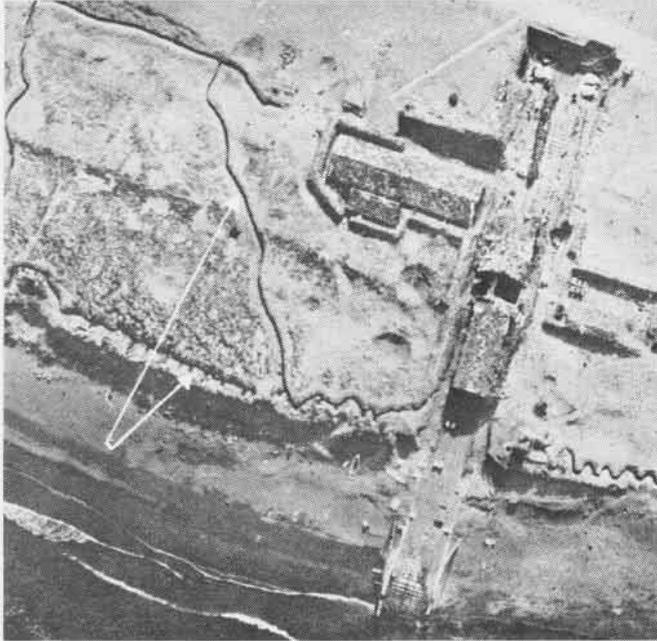
PREVIEW OF A JAP STRONGHOLD SAVES AMERICAN LIVES LATER

IN ALL THEIR amphibious attacks, U. S. forces had to be prepared to hack their way through mazes of barbed wire, revetments and tank obstacles, while shelling the enemy in fox-holes, trenches, rifle pits and personnel shelters. At Tarawa it cost many American lives to crack through the natural and man-made obstacles to exterminate the enemy there. At Kwajalein, previous heavy aerial bombardment and shelling from warships shattered a great proportion of the enemy's defenses, and the toll in lives was less.

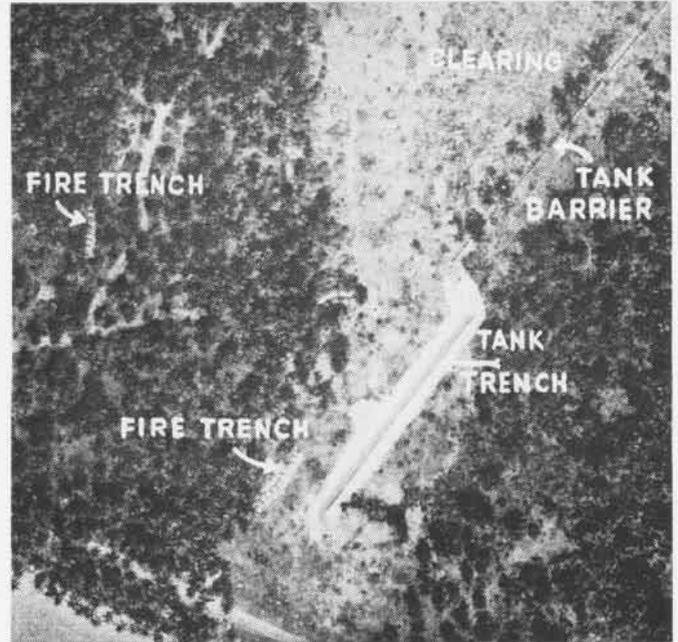
Japanese island defenses characteristically begin offshore,

with lines of barbed wire and landing boat obstacles. Along the beaches are coastal defense guns, AA and machine gun emplacements, trenches, and rifle pits. Further inshore, the invader has to tackle and overwhelm strongholds consisting of AA and machine gun positions.

The enemy has the advantage of shelter in prepared fox-holes and pillboxes, from which he has to be smoked out. Barbed wire fences, trenches and tank ditches are intended to slow down the American invader, while Jap snipers and machine gunners harass him from well-defended positions. Another device of the Japanese is to make clearings diagonally across long, narrow islands or atolls. These are intended to prevent advance on land if the invader succeeds in gaining the beach at an unprotected part of the island. In the Americans' swift advance into Jap territory, all defenses have been penetrated and shattered, despite their strength.



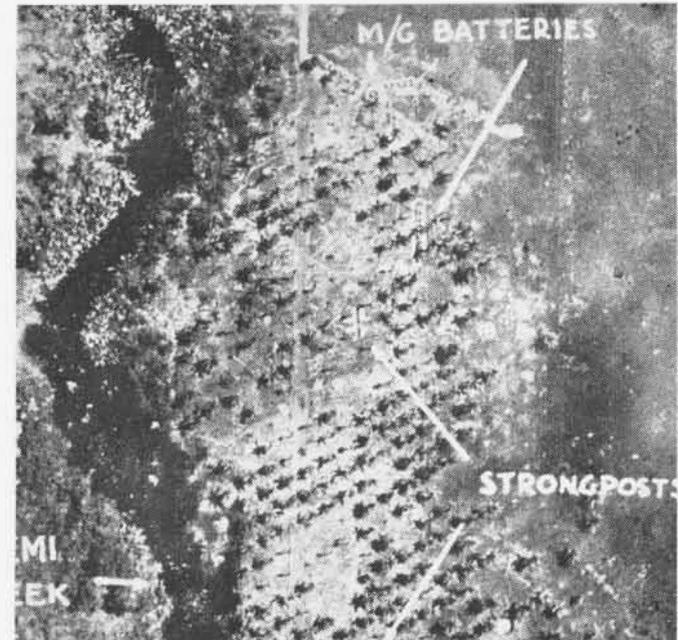
Defense trenches with rifle pits and communications trenches reveal systematic military preparations against expected Yanks



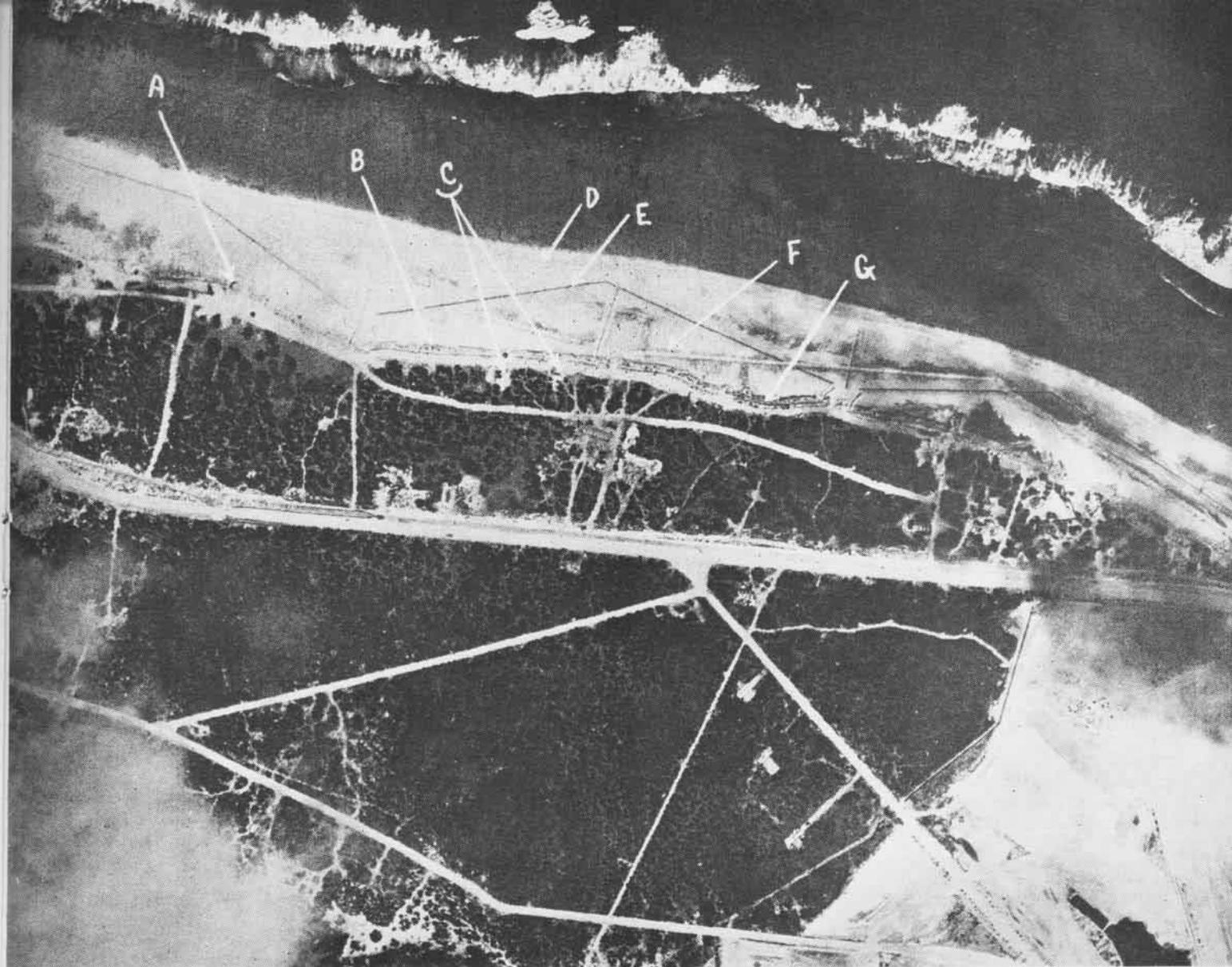
Burrowed through island-wide clearings, anti-tank trenches are supported by tank barriers and barbed wire strung into ocean



Pillboxes are strategically placed in difficult terrain, where Jap has defense advantage as enemy enjoys no protective cover



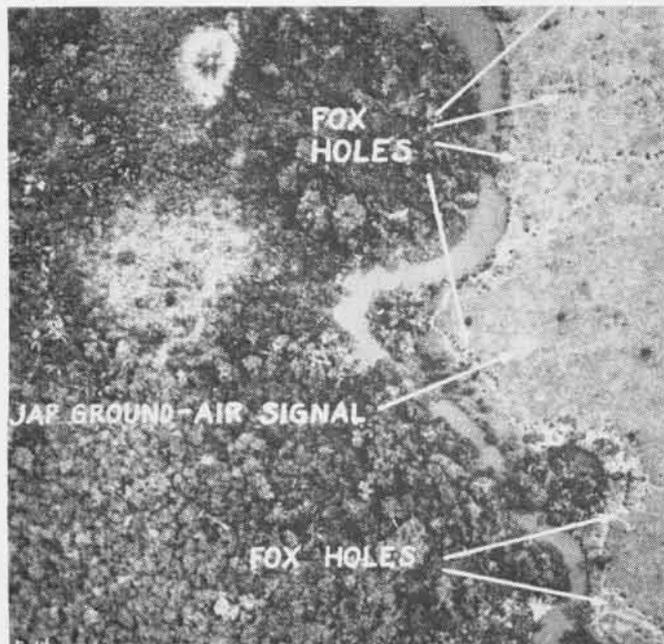
Typical arrangement of strongposts and machine gun batteries which Japs fondly hoped would be impregnable to American forces



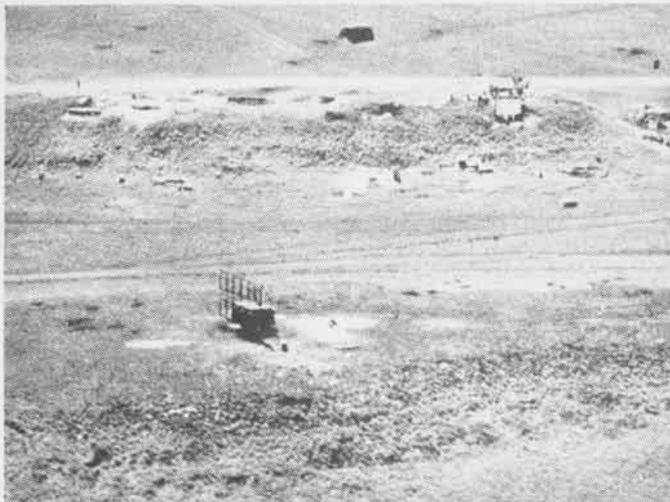
A. MEDIUM AA. B. MACHINE GUN. C. HEAVY AA. D. BARBED WIRE. E. BARBED WIRE TRENCH. F. TRENCH. G. RIFLE PITS AND MACHINE GUN BAYS



Crooked trench has numerous blind alleys for rifle pits and machine gun positions. Photo from air betrays entire Jap pattern



Repeated photographic sorties by Navy airplanes gave U. S. command detailed picture of strength of Jap resistance to be overcome



Jap radar grid is found in open space on elevation where beam is not obstructed. Power sources usually are discovered nearby



Seaplane and floatplane anchorage show *Mavis* and *Rufe*. Any wind-protected bay or harbor in strategic area may serve this purpose.

AIR VIEWS SHOW JAP ACTIVITY

ANXIOUS to maintain a reef of ocean airfields from which to defend their newly appropriated empire, the Japanese lost no time and spared no effort to build up immunity to a smashing U. S. attack which they knew must inevitably come.

Since late November, with U. S. occupation of the Gilberts, and continuing through February, when daring U. S. Fleet advances tore through the Marshalls and performed sobering encores at Truk and Saipan, both the strength and

the weakness of Jap island defenses have been tested with the sword. Leading up to these advances, photographic flights of naval air units plotted on film the pattern and strength of Jap defenses, so that air, sea and amphibious forces would know where and how strongly to concentrate their spearheads of attack.

Aerial photography not only records major fighting weapons, but also brings back evidence of auxiliary defense facilities and scenes of intimate native life which the Japs often exploit to their military advantage.

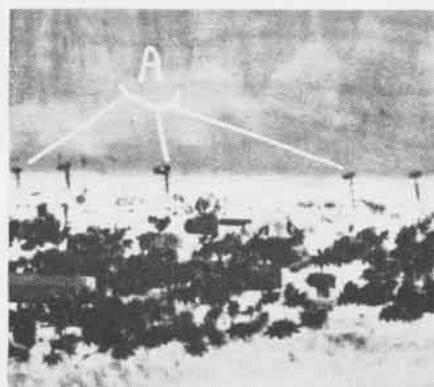
Thus the composite of facts found in a series of sorties enables headquarters to plan attacks with a precision that would be impossible without the previews given the Navy.



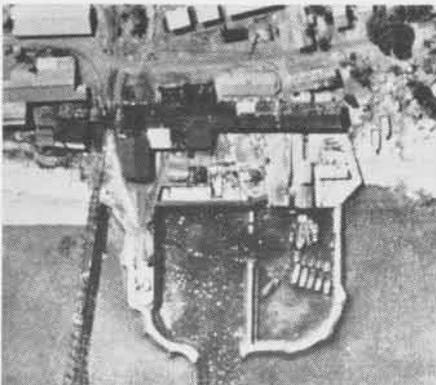
Wrecked and dummy planes are placed near airfields to divert Yanks from real targets



Track activity often is only clue to supply areas, ammunition dumps and centers



Native latrines (A) are common in Pacific, but might well be dock with machine gun



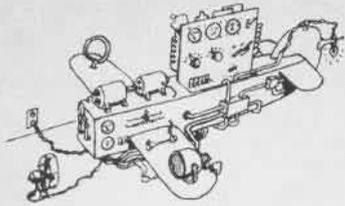
Dock facilities in industrialized island. Five craft in row are standard landing barges



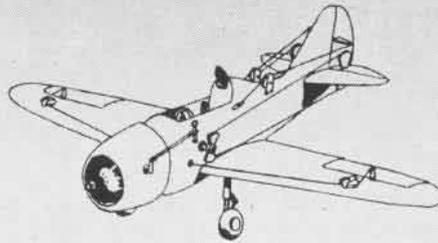
Corduroy road is typical of those seen in swampy land. Island marshes are common



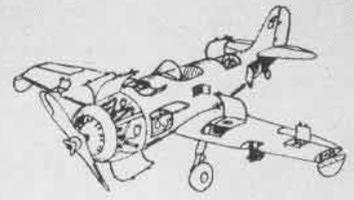
Typical fish traps set in water by natives are not direction signals. (A) indicates shore



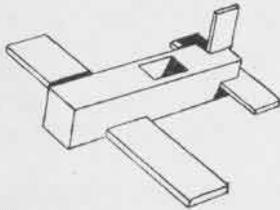
ELECTRICAL GROUP



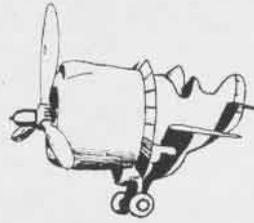
CONTROLS GROUP



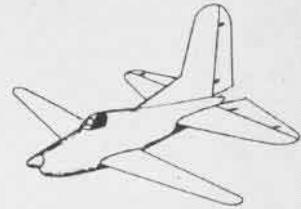
SERVICE GROUP



LOFT GROUP



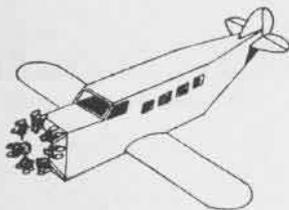
POWER PLANT GROUP



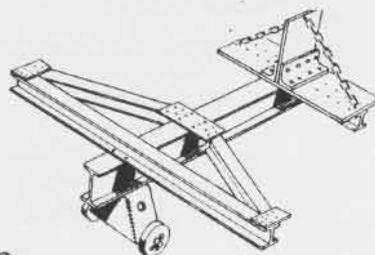
EMPENNAGE GROUP

DREAM AIRPLANES

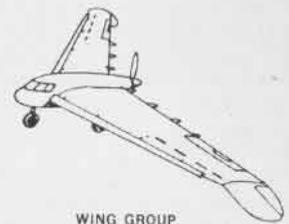
THE DESIGNER of aircraft often finds a gift for juggling, or sleight of hand, a real asset to his work. It is especially helpful in reconciling all the recommendations, many of them conflicting, for developing a plane's performance. If all had to be incorporated, the finished product would be perfect on the ground, or in Madame Tussaud's Wax Museum. But the airplane wouldn't fly. These caricatures, which are not intended to discourage recommendations, represent one idea of how a plane would look if each champion had a free hand at design.



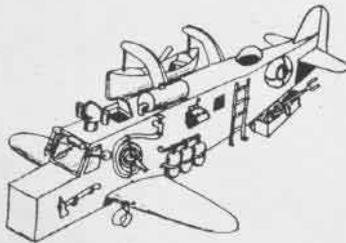
FUSELAGE GROUP



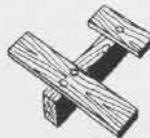
STRESS GROUP



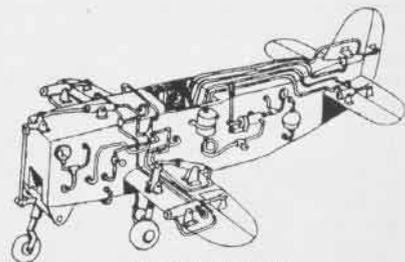
WING GROUP



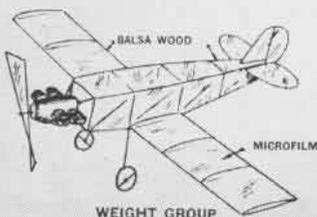
EQUIPMENT GROUP



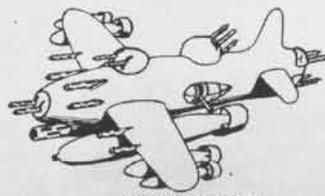
PRODUCTION ENGINEERING GROUP



HYDRAULICS GROUP



WEIGHT GROUP



ARMAMENT GROUP



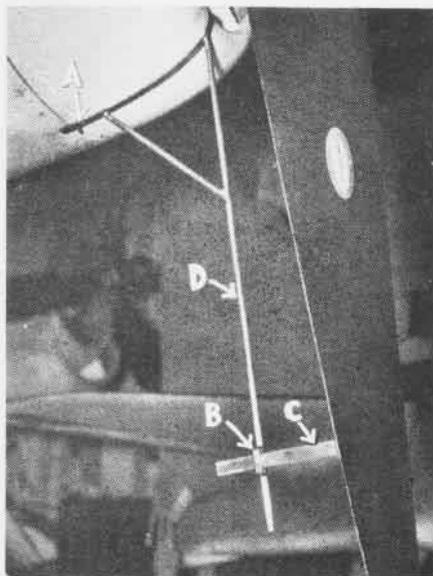
AERODYNAMICS GROUP

C. W. MILLER

TECHNICALLY SPEAKING

Tests Propeller Alignment Quick Combat Method Needed

U.S.S. BARNES—During a brief period of operations, it was found that several occasions came up requiring the testing or checking of propellers after they had struck the deck, barrier wires or other objects. This had to be accomplished as rapidly as possible during combat.



U.S.S. BARNES DEVELOPED RAPID PROPELLER TEST

It was found that a simple instrument gave a quick and easy check of propeller blades. The instrument was designed for F6F's and could be attached in less than five minutes, since it was held in place by only one cowl-screw (A). A movable clamp (B) was designed to move to any position up and down rod (D). A piece of flat iron (C) was mounted so that it could be extended any distance to contact the propeller. The engine was then turned through and each blade checked as it came by bar (C).

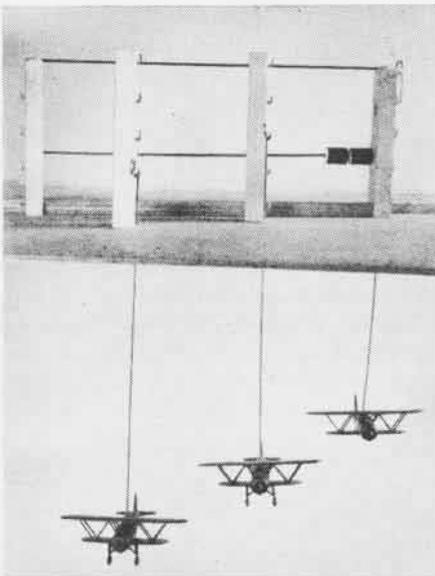
While not recommended as the best possible method of checking a propeller, this procedure was found accurate enough and by far the fastest this activity has seen.

Device Uses Model Planes Aids Teaching Formation Flying

NAS MINNEAPOLIS—A flight instructor has invented a training device to demonstrate formation positions, utilizing a few pieces of plywood and wire. By

raising or lowering model planes on wires, instructor can demonstrate the three-plane "Vee" and echelon positions.

Device consists of a plywood panel, 32" x 24", in which are drilled two 1/4" holes and one slot, 3/4" x 16". Through these holes and slot pass wire rods on which planes are mounted, with opposite end hooked to catch on uprights.



PLYWOOD DEVICE TEACHES FORMATION FLYING

By raising and lowering these wires, planes assume "step down" and "step up" positions. To demonstrate a turn, planes are put in their proper position and panel tilted to the desired bank.

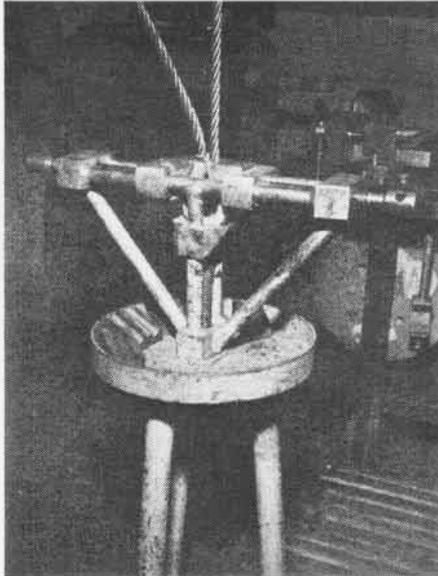
Use Clamp on Large Cable Vertical Clamp Is Handy Device

NAS CORPUS CHRISTI—Splicing of large size cable is now possible in the A&R Department here because of a riggers vertical splicing clamp designed by a civilian employee under the beneficial suggestion program.

This clamp allows worker to splice cable from 3/8" to 1 1/2" in diameter. Four

different size jaws are used. One end of cable is secured to a chain hoist supported above clamp, and other end is placed in clamp as worker desires.

Device replaces present horizontal clamp used for splicing which is inefficient because worker has to crawl under his work to complete splice. Vertical clamp permits operator to have a clear view of his work at all times



VERTICAL CLAMP PERMITS WORKER CLEAR VIEW

and makes it easier for him to roll his strands down in the splice. Worker has a greater amount of leverage with the marlin spike in seating home the strands. Vertical clamp cuts down splicing time about 50 percent, depending on size of cable being worked.

[DEVELOPED BY DAVID H. STEVENS]

Using New Flow Test Sheet Eliminates Much Hand Copying

NAS SAN DIEGO—A saving of four man-hours a week has been effected here through development of a carburetor flow test and specification sheet, as part of the beneficial suggestion program.

All flow test and overhaul data are contained on one specification sheet and in one file, whereas previous methods required two or more sheets and two files. Much of data printed on sheet formerly had to be copied by hand, the new method ending this job.

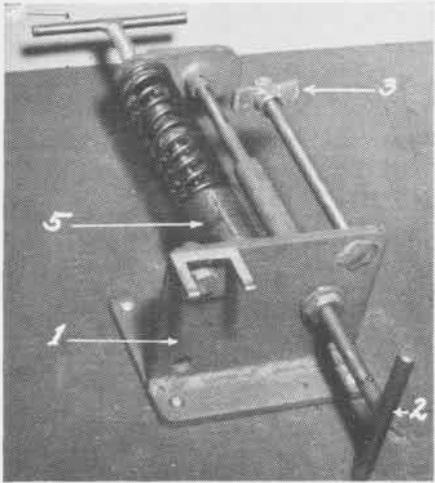
[DEVELOPED BY H. A. FOUTS]



Assemble Oil Buffer in Jig Simplifies Dangerous Operation

A jig for assembling oil buffer springs has been developed in the Accessories Division of the A&R Department, NAS San Diego, and has proved a definite time saver in simplifying an otherwise dangerous operation. This assembly job is difficult owing to the necessity of hooking piston hook pin over guide while spring is under compression.

The jig is composed of the following parts: 1. Stand, 2. pull rod, 3. lock,



LOCK SECURES COMPRESSED SPRING ON BUFFER

4. piston rod hook, 5. chuck. To operate, buffer to be assembled is placed in the chuck. A spring with its guide is slipped over the piston rod. Pull rod (2) is drawn back and secured by lock (3), thus securing the spring under compression.

Piston rod hook (4) is then used to pull piston rod out of its guide, where it is entered with its pins in line with grooves of guide. By turning piston rod hook (5) approximately 1/6 revolution, piston rod is locked in its guide. Assembly may then be removed from jig.

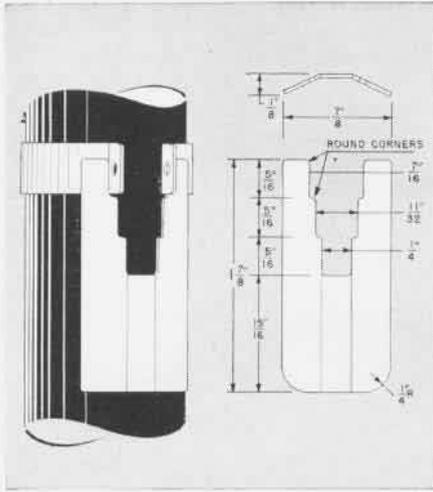
[DEVELOPED BY F. S. BURGI, A&R]

Change Is Made on Pedals Norman Alters Training Planes

NAS NORMAN—A recent complaint from pilots of N2T-1's about brake pedal placement has been remedied by A&R Department through a slight change in the angle of rudder pedals. Alteration was made by installing new arms (part 3-70034) and making them 11 1/2" between pin centers.

This extension permits pedals to lean forward, hence does away with foot fatigue as well as improving pilot's ability to apply brakes in the proper manner. This has proved especially advantageous when wearing winter gear.

► **BuAER COMMENT**—On first N2T-1 delivered, Trial Board disapproved rudder pedals on the basis of fatigue and manufacturer was instructed to correct this difficulty. This has been accomplished by Timm Service Bulletin No. 52 which is the basis for Model N2T-1 airplane. BuAer change No. 31 is now in the process of being duplicated for issue. The manufacturer is furnishing materials. There is no objection to temporary use of the Norman idea, but it does not preserve parallel linkage in rudder controls and on receipt of new rudder pedals, BuAer Change No. 31 should be accomplished rather than continued use of the temporary measure.



STEPS ADAPT THE HOLDER TO VARIOUS SIZES

Clamp Holder Aids Worker Gives Mechanics an Extra Hand

NAS LAKEHURST—Mechanical workers securing various articles to tubular frame members with the use of band clamps have often wished for three hands, one to hold the clamp, another to slip bolt through ears of clamp and an extra hand to screw on the nut.

As an answer to this prayer, a handy clamp holder has been devised and submitted through the beneficial suggestion program. This simple tool holds band clamp in position, leaving worker's hands free to complete the process. Jaws of holder have steps to adapt it to different sizes of clamps and tubes.

[DEVELOPED BY CHARLES W. HOFFMAN, A&R]

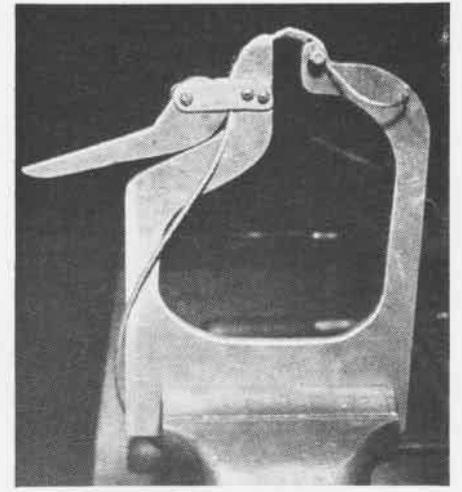
► **BuAER COMMENT**—Through the use of this tool many man-hours will be saved in aircraft maintenance. It lends itself especially in facilitating the installation of bonding and electrical clamps on metal tubing.



NAS Worker Makes Clamp Eliminates Slow, Difficult Job

NAS CORPUS CHRISTI—An A&R civilian employee here has developed a splicing cable clamp for making MK 119 bomb handle release cables. It is a beneficial suggestion.

Formerly the manufacture of bomb release cables was a difficult and slow process. This was because there was no clamp or device made to hold cable in correct position while worker was making wrap splice. Clamp permits one



ONE MAN CAN DO JOB WITH NEW CABLE CLAMP

man to make wrap splice whereas it took two men from five to ten minutes to make it before.

Old method was to form cable to approximate shape with pliers. One worker would secure cable in vise, then get a helper to hold it while he made wrap splice. Clamp permits user to make uniform splice at all times.

[DEVELOPED BY JOYCE E. MARTIN]

Devise Charging Adapters Fills Bottles With Compressor

Field Torpedo Unit 6 has found their compressor unit suitable for charging small capacity, high pressure (1,800-lb.) air bottles used in turret actuating systems of PB4Y-1 and PB2Y-3 airplanes. Charging adapters enabling this work to be done were made in the shop.

Devise Patch Drying Lamp Portable Lamps to Dry Fabric

NAS DALLAS—Airplane maintenance crews here use two banks of portable drying lamps to dry dope on patched fabric, thereby saving four-fifths of the time formerly required for this operation. This problem in the past, while not acute, was somewhat embarrassing,

especially under unfavorable temperature and humidity conditions. It was almost impossible to get airplanes back to the flight line on time owing to prevalent unfavorable doping conditions.

The patch-drying device consists of an upright post, about 6 ft. in height, supported by brackets at base. Upright is made of $\frac{3}{4}$ " pipe perforated at 6" intervals to provide for adjustment in height of two arms that support banks of drying lamps.

At the end of each arm is a ball-type universal to give free movement to a 2" x 4" x 2'6" wooden support on which a bank of three drying lamps is secured. Actual tests were made using drying lamps on wet patches to get a comparison between time required to dry dope under lamps and time required under ordinary atmospheric conditions. Results were:

Time for one coat of dope to dry in air—15 minutes

Time for one coat of dope to dry under lamps—3 minutes

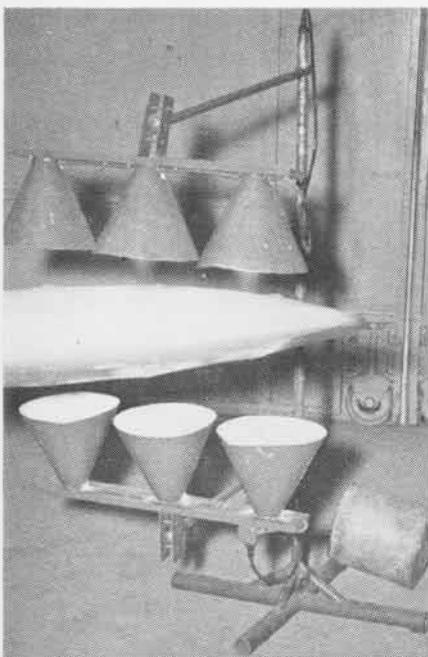
Time for two coats of dope to dry under lamps—3½ minutes

Time for three coats of pigment to dry under lamps—2 minutes

Time for four coats of pigment to dry under lamps—3 minutes

Atmospheric conditions at time of tests were: Temperature 37° F, humidity (relative) 74 percent, barometer 1024.0 mb.

Both banks of lamps can be concentrated on the side of fuselage, thus quickly drying a doped patch under unfavorable conditions. Lamps can be adjusted above and below a wing or empennage surface, conveniently sandwiching wet patch between sources of heat. In order to prevent generation of



TEXAS DRYING LAMPS PROVE REAL TIME-SAVERS

LATEST AIRCRAFT CARRIER, ARRESTING GEAR, AND CATAPULT BULLETINS, PLUS CATAPULT AND ARRESTING GEAR CHANGES			
February 18, 1944			
Type	Number	Title	Date
Aircraft Carrier	6	Aircraft Carrier Lights for Night Flight Operations (Conf.)	2- 2-44
Arresting Gear	9	Pressure Gages—Test of (Restr.)	1-30-44
HII-1 Catapult	17	Supplementary Instruction for Reeving Cables	1-20-44
HIVA Catapult	10	Launching F6F-3, F6F-3N	2- 8-44
HIVB Catapult	10	Launching F6F-3, F6F-3N	1-29-44
HIVC Catapult	11	Launching F6F-3, F6F-3N	2- 8-44
Changes			
HII-1 Catapult	8	Modification to Preventer Piping	12-24-43
HIVA Catapult	8	Replacement of fixed & buffer sheave spacers	1-30-44
HIVB Catapult	8	Replacement of fixed & buffer sheave spacers	1-30-44
HIVC Catapult	8	Replacement of fixed & buffer sheave spacers	1-30-44
Arresting Gear	2	Arresting Gear Constant Pressure Valves, Maximum Allowance Pressure (Restr.)	1-29-44

too much heat and consequent fire hazard, a conical shade was put on each lamp.

► **BuAER COMMENT**—Make entire outfit from explosion-proof equipment.

Bottle Drains Fuel System Device Reduces Spillage of Gas

MCAS CHERRY POINT—A headquarters squadron of Third Marine Aircraft Wing has devised an aircraft fuel pump draining appliance which has proved experimentally successful in eliminating spillage of fuel on personnel, damage

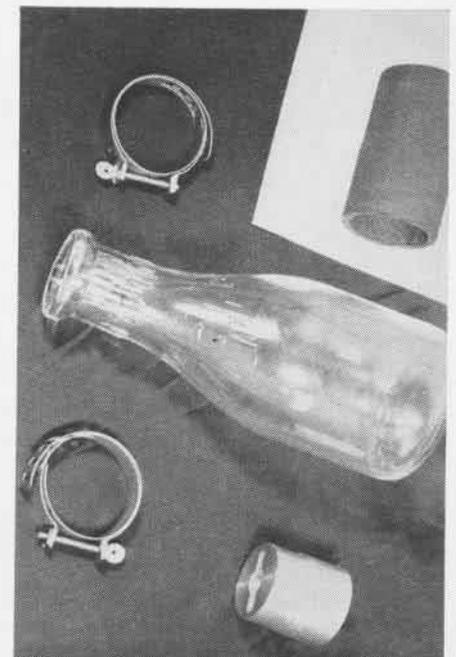
to drain cock, difficulty of determining transition point from water to fuel while draining, and excessive time required to drain by ordinary means.

Essential parts of appliance are milk bottle, short length of rubber hose to fit over bottle neck, metal bushing and two hose clamps. Metal bushing is slotted at one end to fit tightly over drain cock.

► **BuAER COMMENT**—This appliance has limited application due to inaccessibility of some installations. Container as large as milk bottle is not necessary. Recent installations incorporate drain tube which prevents spillage of gasoline on the hands.

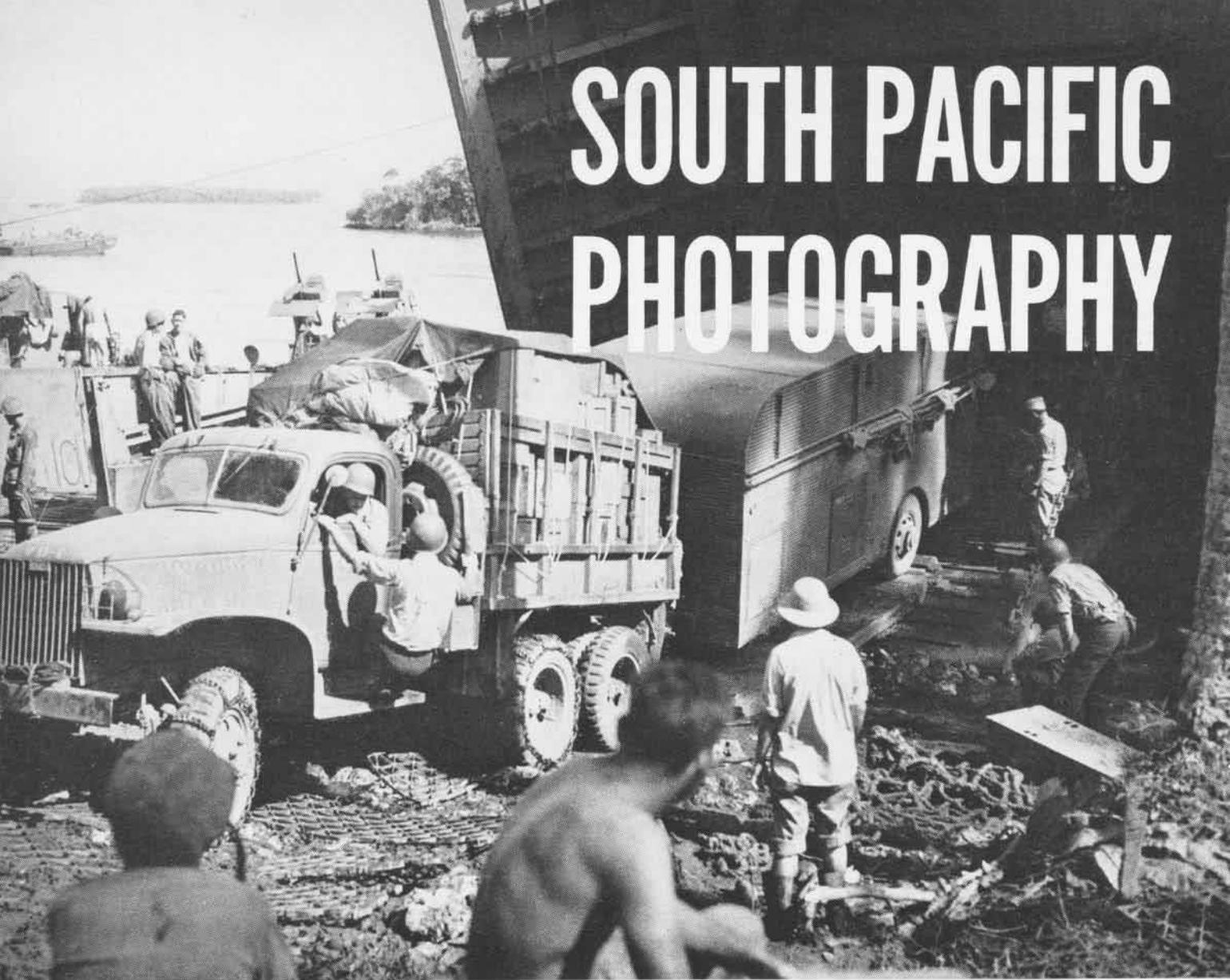


NEW DEVICE IS INSTALLED ON QUART BOTTLE



SIMPLE PARTS ARE USED TO MAKE DEVICE

SOUTH PACIFIC PHOTOGRAPHY



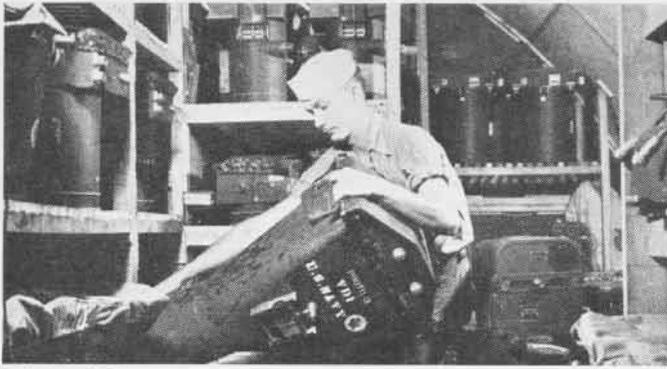
KNEE-DEEP MUD AND JAP BOMBS FAIL TO HALT UNLOADING OF PHOTO TRAILER FROM NAVY LST, USED BY VD-1 IN PICTURING JUNGLE CAMPAIGNS

VD-1 Masters Many Tropical Problems

PHOTOGRAPHY on tropical South Pacific battlefronts is not as simple as snapping pictures with a box camera in United States and developing film in cool darkrooms. VD-1, whose activities are portrayed on these pages, has to solve plenty of problems to get the Navy, Army and Marines fast, accurate data on Japanese installations via aerial photography. Great care has to be taken to keep cameras dry to prevent them from rusting. Coming down from high-altitude work, cameras collect puddles of water inside on their lenses. Hot, damp darkrooms with little ventilation make controlled development of prints and film difficult. Negatives refuse to dry quickly when developed and keep poorly when taken out of tropical packing before exposure. Refrigerators must be used to store film before use. Photographers remove it only a few hours before use so it can warm up and any moisture present can dry off. Cameras sometimes freeze up at high altitudes where photo planes fly.



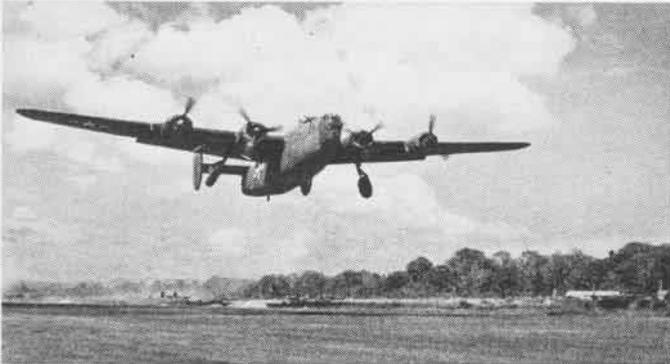
Camouflaged by lush tropical verdure, specially built Navy photo trailers are set up to expedite processing of film; technicians prepare developing tanks to take rolls of film



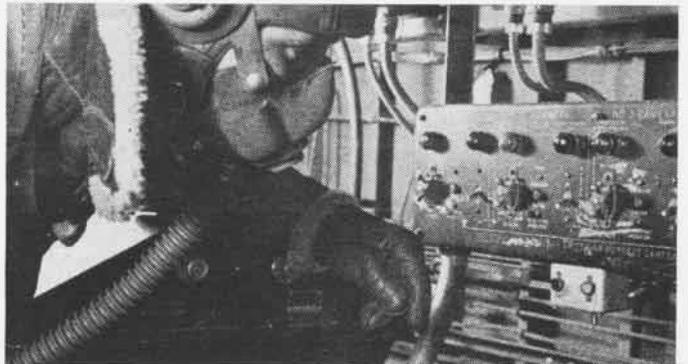
Bulky aerial cameras with long focal length lenses are put in special rust-preventing rooms where infra-red lamps burn to take moisture from air; fungus also is hard on equipment



Crew of Liberator used as photographic plane loads a K-18 aerial camera into bomb bay racks; plane's first photographer checks flight log by recording camera, film numbers



From steel landing mat, one of VD-1's PB4Y's takes off with four aerial cameras and 3,000 gallons of gasoline, heading for Jap areas; long, smooth runway is needed to take off



Bundled in complete cold weather flight gear, a Navy photographer, who a few minutes ago was sweating in tropical heat, levels off his K-18 camera prior to starting its mechanism



Seeking out camouflaged Jap barges is one of the vital tasks of this F-56 camera with huge 40-inch lens, a type widely used for obliques of enemy installations and shoreline area



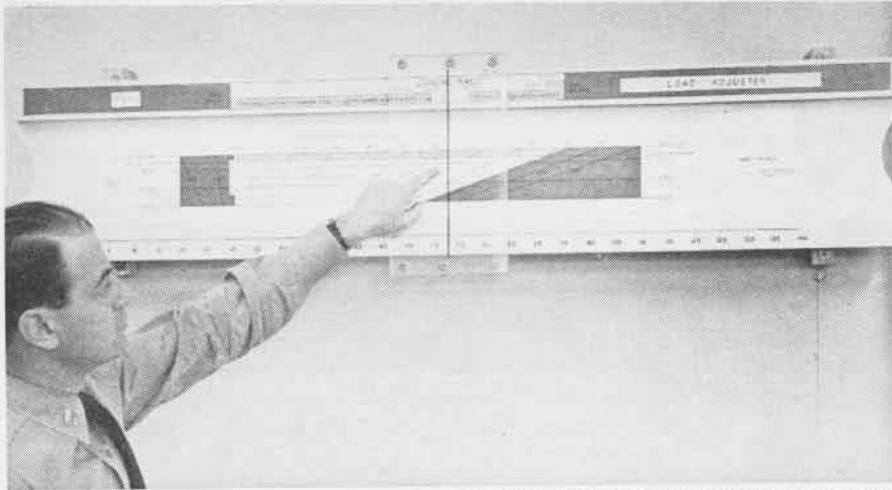
Until Munda airport was captured, VD-1's photographic aircraft flew over Jap installations making pictures then dropped film to Rendova Island film lab for rapid processing



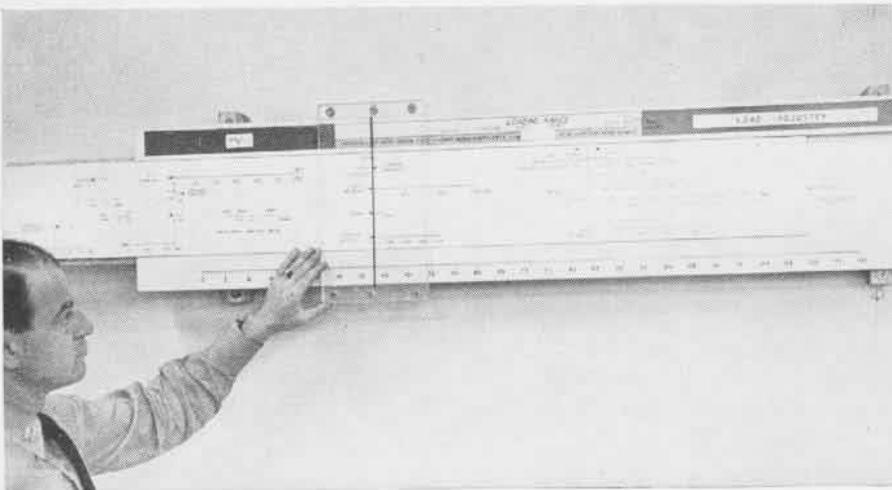
Film parachuted from photo plane is developed swiftly so that enemy data can reach headquarters; special refrigeration units help laboratory handle heat as well as humidity problem



Quonset hut is erected to house precision copying cameras which are used to make aerial mosaic maps of Jap islands; Army, Navy and Marine units all use maps to lay out attacks



LARGE SCALE MOCK-UP CAN BE PROFITABLY STUDIED BY ENTIRE CLASS IN WEIGHT AND BALANCE



BUILT LIKE GIANT SLIDE RULE, PV-1 LOAD ADJUSTER CAN BE ADAPTED TO OTHER PLANE TYPES

Make PV-1 Load Adjuster Enlarged Mock-Up Used in Class

NAS LAKE CITY—Ground training classes in weight and balance have been definitely aided by the use of an enlarged PV-1 Load Adjuster mock-up. Dimensions of the slide rule are 1' x 5', which is large enough to be seen and studied by an entire class.

The mock-up was built of plywood, sprayed with lacquer and rubbed slightly to remove the gloss. Lettering was done with India ink and sprayed with clear lacquer for protection. The hairline slide was made of plexiglass. The device is adaptable to other twin and four-engine airplane types.

► **BuAER COMMENT**—Lake City personnel are to be congratulated on their

ingenuity. A complete instruction program is currently under discussion with Naval Air Training Command to cover the service weight and balance program established by TO No. 77-43. Giant Load Adjusters, identical with the standard Load Adjusters in general appearance and face plate material, about 7" x 49" in size, can be procured for training purposes and will be considered in connection with the program.

Eliminate Removing Rudder Find Easy Way to Replace Parts

NATS ATLANTIC—A time saving of approximately 30 hours has been made in replacing worn rudder hinge brackets on PB2Y-3R aircraft by the simple expedient of drilling a one-inch hole in web of rudder above rudder hinge bolts.

These bolts can be backed up into the opening and rudder hinge bracket and bearing, an integral unit, can be removed from rudder, worn bearing replaced in bracket and entire fixture replaced without removing rudder.

By using this method one man can do the job as contrasted with a team of five required for such a task when removal of entire rudder was necessary.

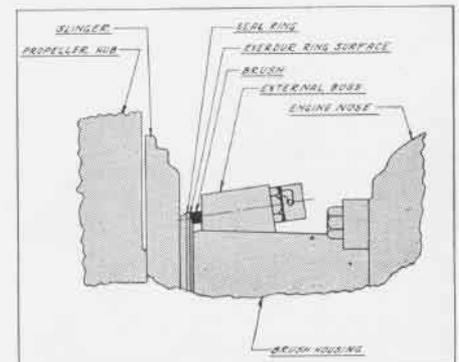
Noise in Radio Is Cut Down Propeller Interference Is Reduced

A frequent source of radio interference has been the Curtiss electric propellers manufactured prior to July 1943. This interference is due to inadequate grounding of propeller and associated rotating parts, trouble which has been remedied by manufacturer's installation.

It has been a common belief that grounding is obtained through crankshaft, but this has been demonstrated to be fallacious. When the engine is turning over, metal-to-metal surfaces, which in a stationary position might have made good electrical contact to airplane structure, are then separated by a film of oil, thus insulating propeller from ground.

The result is that radio interference fields generated by electrical equipment are radiated to metal propeller structure which assumes the RF voltage and then re-radiates radio interference (noise).

To correct this trouble, manufacturer has developed external grounding brushes on a brush housing which rides against rotating oil seal ring (see illustration). Curtiss-Wright Report No.



EXTERNAL BRUSHES CUT RADIO INTERFERENCE

124-S, *Bonding of Curtiss Electric Propellers, Navy Equipment*, describes these bonding assemblies for the several types of Curtiss electric propellers now in service without adequate bonding provisions. This report will be printed in full in an early issue of *ACG Digest of Airborne Radio and Radar News*.

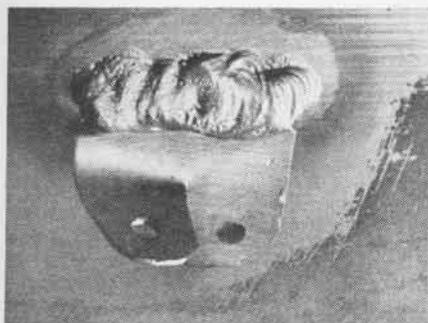
Recent designs of electric propellers provide necessary grounding by addition of an internal slip ring.

Bonding Clips on Gas Tanks Civilians Suggest New Method

NAS RICHMOND—Two civilian employees here have submitted a suggestion for bonding clips on airship gas tanks. At present tanks have two single clips, one on each end. According to the beneficial suggestion, it is recommended:



In place of the single clip, when necessary to renew, weld on multiple clip, leaving all ears flat to tank until the first in use is broken or of no further use, then bend up another clip. This procedure eliminates removal of



WHEN FIRST CLIP BREAKS, SECOND IS READY

tank, 24-hour steaming and all the work it entails.

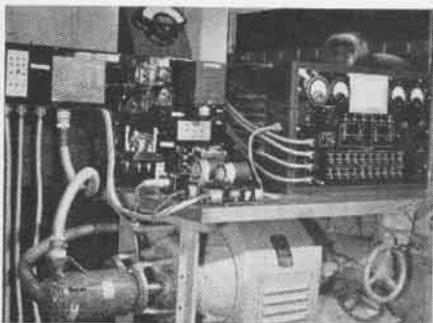
[DEVELOPED BY T. R. CALLAHAN AND EMANUEL RUDDY]

Reduce Generator Test Time Kaneohe Panel Device Is Useful

NAS KANEOHE BAY—Accessory division of the A&R shop has devised a panel addition to the standard generator test panel which has cut in half the time formerly required to test generators.

The supplementary panel has two voltage regulators, electrical relay, and electrical tachometer as permanent installations. Five distinct conduits are provided for generator connections, each for a different generator type. Conduits terminate in plug connections having different sizes of electrodes so that errors in connecting up generators cannot be made. All connections are of the quick-connecting type.

The installation accommodates not only generators proper, but voltage regulators and cut-outs as well, and has proved so successful that it has been installed on all generator test benches in the accessory division. Any A&R Department can make the installation. Blueprints, wiring diagrams and all necessary data will be sent to interested activities on requests directly to NAS.



HAWAIIAN STATION PERFECTS GENERATOR TEST

Modifies Crankshaft Thread

Instrument Saves Time, Money

NAS PENSACOLA—An A&R Department employee here has designed a



TOOL SIMPLIFIES CRANKSHAFT THREAD CUTTING

tool for modifying crankshaft threads as specified by engine bulletins. According to the designer, tool will cut cost of material and time in performing job.

Previous method used to cut thread (with thread file) took 30 minutes. New tool can do job in five minutes. It has been used successfully at Engine Overhaul to cut away inner end of crankshaft thread. A slight modification was necessary to prevent galling of threads when prop is installed.

This is a beneficial suggestion.

[DESIGNED BY THAROUS A. NEWTON]

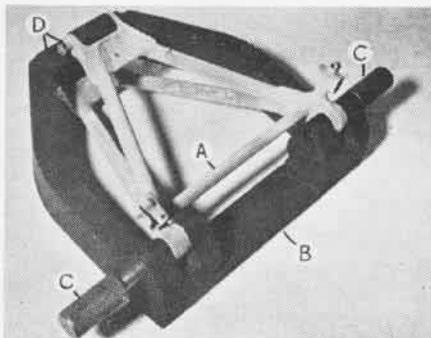
Devise New Tail Wheel Jig

Grosse Ile Produces a New Item

NAS GROSSE ILE—A jig for realigning and repairing damaged N2S tail wheel trunions has been manufactured at this station. The jig is made of steel and welded together. It is line reamed and milled to tail wheel trunion dimensions.

Trunion (A) is held in jig (B) with two large pins (C) and two small pins (D), as indicated in the accompanying photograph. A trunion that is out of line can be heated and forced into jig, then patch or new tube installed on damaged section. The jig will hold trunion in line while repair work is being done.

[DEvised BY H. K. HAMANN, AMMIC]



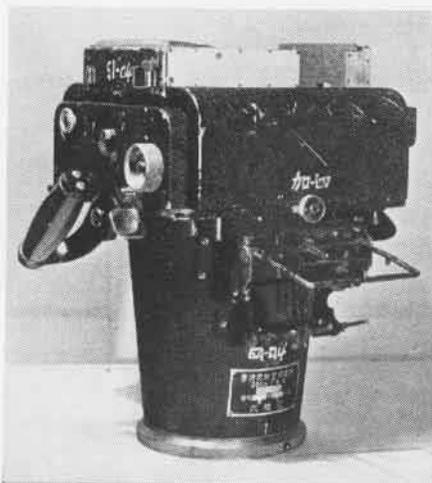
JIG USED TO REPAIR DAMAGED N2S TAIL WHEEL

PHOTOGRAPHY

PHOTOGRAPHIC DIVISION BUAER

► A new technical bulletin deals with the loading of GSAP camera magazines. A drawing intended to aid in building a small but efficient loading board for this work should greatly benefit ordnancemen engaged in this work.

► Photographers will be interested in a report on a captured Japanese aerial lens made by Bausch & Lomb Optical Co. It reads in part: "The lens has no unusual mechanical or optical properties which would warrant a detailed study of its design. Its performance falls below the per-



JAPANESE LENS INFERIOR TO AMERICAN MAKES

formance of similar American lenses such as, for example, Bausch & Lomb Aero Tessar 10" f/4.5."

► A new combat camera is now in the process of manufacture. Brief specifications are:

1. TYPE—similar to Speed Graphic but with fixed dark chamber of wood
2. LENS—5" focus, speed f/4.5, fitted into helical focusing mount
3. FILM SIZE—Graflex type back for 4" x 5" cut film magazines
4. SHUTTER—between the lens and Graflex focal plane
5. FLASH EQUIPMENT—built in synchronization with detachable lamp socket and reflector.

Standard photographic stock list number will be 18-C-235. The camera will not be available for issue from photographic supply depots until July 1944 or later. BuAer requests that no inquiries be made for earlier delivery as this entails unnecessary correspondence.

Two other cameras considered for future development and purchase are:

a. A lightweight inexpensive hand camera, size 120 or 6-20, to supplement the Medalist

b. A lightweight pistol-type camera for commando and limited aerial photo work.

Design Hydraulic Test Set Check 20 mm Cannon Operation

CASU I—A new hydraulic test set for the 20 mm cannon has been developed to provide a better and easier method of checking its operation. Action of the set is theoretically the same as in the plane, thus also providing an excellent method of training personnel.

Needed equipment to make the set are a gun-charger valve, hydraulic hand

fitting of valve connects with charging unit on gun, while a line from the return side of valve leads back to tank.

[DESIGNED BY R. E. TUTHILL, AOM1G]

Tests N2S Running Lights Method Tells If They Are On

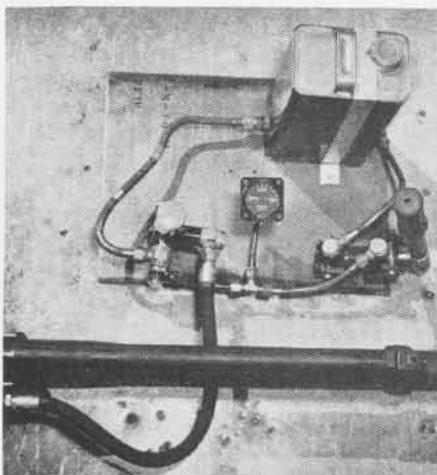
NAS DALLAS—A simple method of letting pilots know whether running lights on N2S aircraft are operating has been developed at this station. A small

shine on the lower wing tip. The hole is then doped to remove rough fabric edges. A small grommet of thin plexiglass over the hole keeps out moisture.

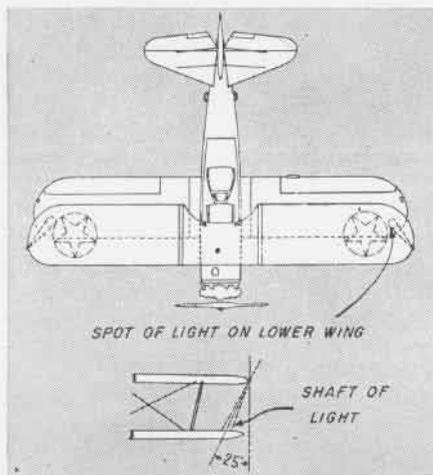
[SUGGESTED BY M. W. SMITH, ACMM]

New Mask in Use at Norman Windshield Is Flexible, Clear

NAS NORMAN—A flight officer has developed a winter flight mask which obviates some of the flaws of the cloth-



COMPACT HYDRAULIC CHECK UNIT IS PORTABLE



HOLE BORED IN LAMP LIGHTS UP LOWER WING



NORMAN OFFICER DESIGNS WINTER FLIGHT MASK

pump, hydraulic pressure gauge, gallon can of any type, metal plate for 14" x 14" stand, various hydraulic lines and fittings suitable for connecting set, brackets and gun mounts. Most of the material can be fashioned from scrap metals processed in the machine shop.

A line runs from the reserve tank to hydraulic hand pump. Outside of pump connects to inside of gun-charger valve with a T-fitting in this line leading to the pressure gauge. Line from outside

hole is drilled in the under side of the running light which permits a shaft of light to fall upon both lower wing tips.

Night flying operation suffers constantly from the hazards of mid-air collision and the occasional failure of running lights, plus their invisibility from cockpit, does not help the problem.

A 7/32" hole is bored through each running light at a 25° angle inboard and at 13° aft, allowing a shaft of light approximately six inches in diameter to

type and is nothing more than a windshield of flexible transparent material.

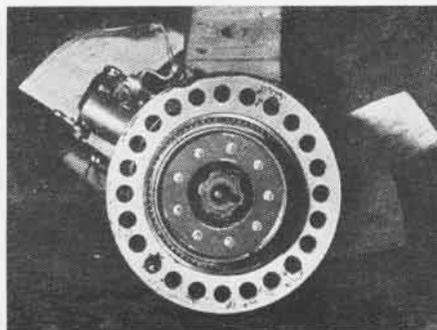
Around the edge is a strip of fur cut from a surveyed coat. Flexible glass is laced onto a frame made of heavy bronze wire with the gosport mouthpiece attached to the bottom of the shield. An elastic band holds the mask on the head and the mouthpiece does not touch the lips. Goggles are unnecessary. Ventilation is provided from the bottom, the shield being open around the chin. Tests showed the mask would steam up somewhat when worn on the ground, but remain clear in the air.



HAVING A LITTLE TROUBLE?

Starter Spacer Is Developed Permits Re-use of Old Assembly

NAS CORPUS CHRISTI—The beneficial suggestion program here has produced



CORPUS EMPLOYEE DESIGNS STARTER SPACER

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

a spacer to be used under the adjusting nut on type 444 starters, making possible the re-use of worn clutch plate assemblies. Installation of spacer requires only the loosening of adjusting nut. This simple operation saves the hour's time that it takes to install a new clutch assembly. New clutch assemblies cost \$4.87 each, plus one hour's labor at \$1.26. Spacer costs \$1 and 30 minutes time. It is a 25% replacement part.

[DESIGNED BY JESSE H. WOOLF]

Aerological Books Available Should Order Direct From CNO

Since publication of NAVAER 50-1R-91, *List of Aerological Publications*, in February, the following have become available. They may be obtained from CNO, Aerological Branch.

NAVAER NO.	TITLE
50-1T-6	<i>Aerological Aspects of Night Photography. Rabaul, Truk, Occupied China, The Philippine Islands, Japan.</i> Confidential.
50-30T-1	<i>Aerology and Amphibious Warfare—The Invasion of Sicily.</i> Confidential.
50-1T-4	<i>A Climatic Summary of the Caroline Islands.</i> Confidential.
50-1R-92	<i>Hurricanes Affecting the Atlantic Coast, The Gulf Coast, and the Southern California Coast of the United States.</i> Report No. 636, Headquarters, Army Air Forces.
50-1R-90	<i>Information on One-Man Aerological Units Afloat.</i>
50-1R-95	<i>Methods for the Preparation of Six-Day Forecasts</i> by Edgar A. Aime and Earnest C. Johnson, Edited by Garnett De Mott. U. S. Weather Bureau, Washington, Nov., 1943.
50-1T-7	<i>Weather Conditions Affecting the Target Area of Indo-China, Thailand, Burma, Malay States, and Occupied Southern China.</i> Confidential. Report No. 473, Headquarters, Army Air Forces.
50-10RA-1	<i>General Climatic Information Guide, Nos. 1-25, Revision Sheet.</i> Headquarters, Army Air Forces.

NEW GENERAL CLIMATIC INFORMATION GUIDES

50-10R-96	No. 96 Palau Islands (Pacific Ocean).
50-10R-97	No. 97 Jaluit Islands (Marshall Islands).
50-10R-99	No. 99 Davao (Philippine Islands).
50-10R-100	No. 100 Taihoku (Formosa).
50-10R-101	No. 101 Niigata (Japan).
50-10R-103	No. 103 Ujelang Atoll (Marshall Islands).
50-10R-104	No. 104 Yap Island (Caroline Islands).
50-10R-105	No. 105 Ponape (Caroline Islands).
50-10R-106	No. 106 Amoy (China).
50-10R-107	No. 107 Canton (China).
50-10R-108	No. 108 Nagoya (Japan).
50-10R-109	No. 109 Tainan (Formosa).
50-10R-110	No. 110 Naha (Japan).
50-10R-111	No. 111 Ishibaki Ryuku Islands (Japan).
50-10R-112	No. 112 Cherbourg (France).
50-10R-113	No. 113 Le Havre (France).
50-10R-114	No. 114 Nantes (France).

ANSWERS TO WEATHER QUIZ

on inside back cover

1.1 2.2 3.2 4.3 5.1 6.2

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

Inventions Lead to New Equipment

The Bureau of Ordnance is constantly striving to design new and better aviation ordnance equipment, but it is often the men in the field who suggest additions or changes that really make the equipment efficient. Gadgets designed to do something easier, quicker, better, as well as ideas for improving equipment, should be sent in. The little ones are needed, just as much as the "million-dollar ideas."

Suggestions having merit, when sent to BuOrd, will find their way to cognizant sections in the form of items for this column, official letters, new tools, new and better equipment. The following are a few direct results of suggestions from men who are working with the equipment:

1. A hydraulic high lift truck is being designed to load bombs in PV-1 aircraft
2. Safety pins are being provided for bomb racks and shackles so that this equipment may be tested without unloading bombs from plane
3. Mark 11 adapters have been modified and the design has been changed to reduce breakage of Mark 9 sight
4. Tube lock on the .50 caliber BAM gun has been redesigned to prevent stoppages caused by the tube lock shifting aft
5. Strengthening of the tail section of Mark 7 Mod 5 aircraft target in current manufacture and installation of shackles in the grommets just aft of the nose ring of target to assist in launching when target is dragged from the ground
6. A new dive-bombing target which is now being manufactured

Suggestions will be given the most careful consideration. They should be addressed to the Bureau of Ordnance.

Helps Prevent Premature Explosions

In investigating the cause for reported premature explosions of aircraft depth bombs, it is believed a contributing factor may be loss of tail vane or damaging of tail vane on impact, with consequent tumbling of the bomb.

The tail vane of a round-nosed depth bomb receives a very severe shock in the case of ricochet. It is therefore essential that flat nose attachments be used in all low-altitude, high-speed work. Such flat nose attachments must be properly filled with plaster to be effective. When so used, they not only cause bomb to enter the water more cleanly but also reduce the shock impact on tail vane in the event of a ricochet.

Provide Bomb-Fuse Instruction Unit

There are now 15 mobile bomb and fuse instructional units operating in the various theaters. These units are designed to bring all personnel up-to-date on the latest types of bombs and fuses. In the event instruc-

tion is desired for a particular activity, the services of the nearest mobile unit should be requested through the task or type commander. Arrangements are now being made to include instruction in rockets in the curricula offered by mobile units.

BuOrd Lists Ordnance Pamphlets

Bureau of Ordnance recently distributed several new technical publications that have proved of definite aid in maintaining aviation ordnance equipment now in use. These publications were written for the ordnancemen who actually do the work of keeping the equipment operating.

Too often these publications are lost, misplaced or misrouted. In many cases such publications end up in the central files or some other place not convenient to ordnancemen. Most of these publications are either unclassified or restricted and serve their best purpose on the workbench in the armory.

Some of the more important publications on aircraft machine guns which should be available to all ordnancemen are listed below. If they are "lost, misplaced or stolen," additional copies should be ordered from the nearest major supply point. If copies are not available there, send a letter request to BuOrd.

ORDNANCE PAMPHLET 1015—Preparation, adjustment and lubrication of Cal. 30, Cal. 50 RAM guns for firing.

ARMY TECHNICAL MANUAL TM 9-1225 of April, 1943—Browning machine gun, Cal. 50.

ARMY TECHNICAL MANUAL TM-9227 (O.P. 829) of June, 1943. 20mm. Aircraft automatic gun AN-M2.

ORDNANCE TECHNICAL INSTRUCTION OTI GV30-43—Lubrication and preservation of aircraft guns.

ORDNANCE TECHNICAL INSTRUCTION OTI GV35-43—Maintenance of maximum belt lifting capacity in Browning aircraft machine guns Cal. 30 and Cal. 50.

New BuOrd Tow Target Reduces Drag

Bureau of Ordnance will have an anti-aircraft sleeve target ready for distribution shortly which will have lower drag than any target heretofore supplied. This target is a truncated cone 30 feet long with the breech closed and is made of special rayon fabric treated to obtain low porosity.

There are three variations of this target: Mark 17, Red; Mark 17, Mod 1, Black; Mark 17, Mod 2, White. Tests of relative amount of drag of this target show the following comparisons: Drag of a Mark 17 type target at 200 mph, indicated 500 lbs.; drag of a Mark 7 type target at 200 mph, indicated 950 lbs.; drag of a Mark 15 type target at 200 mph, indicated 1200 lbs.

It is apparent that this target will permit higher towing speeds than previously have been possible with sleeve targets.

Not only will this ease mechanics of towing but it will be simpler for gunnery planes to stay near the plane with the target. This will be a decided advantage.

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Carburetor Idle Mixture Adjustment

Recent troubles with engines in a certain group of airplanes reveal a general need for closer attention to adjustment of idle mixtures. The common practice of idling at high RPM's to avoid spark plug fouling indicates the prevalence of excessively rich idle mixtures. This practice probably may be due to lack of appreciation of correct idle mixtures and an erroneous impression that excessively rich idle mixtures are necessary for good acceleration.

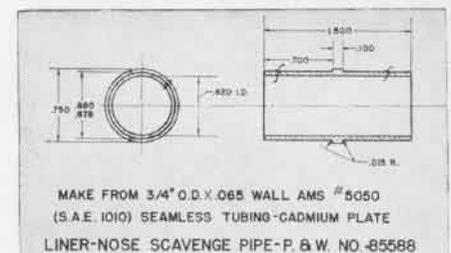
BuAer General Engine Bulletin No. 2 outlines correct procedure for making idle mixture adjustments on all aircraft engines. It is important for all activities to be familiar with this bulletin and realize necessity of correct idle mixture adjustment for satisfactory engine idle operation without spark plug fouling, which too frequently results from relatively short periods of idle operation prior to take-off.

Manual mixture control in cockpit provides a ready means for daily check of idle mixture. Movement of this control from auto-rich to idle cut-off should cause a momentary increase in idle speed before RPM falls off from lack of fuel. The momentary increase should not exceed 10 RPM. An immediate drop in RPM upon placing mixture control in idle cut-off indicates idle mixture is too lean.

If faulty acceleration is experienced with correct idle adjustment, accelerating pump and main metering system of carburetor should be checked. In this connection, all pilots should be cautioned against opening throttle abruptly, particularly when cruising with propeller in low RPM settings.

Nose Scavenge Pipe Connections Fail

Several failures of the nose scavenge pipe connections on R-2800 engines have been reported. Failure of these connections



LONGER HOSE IS USED WITH NEW METAL LINER

results in loss of oil and subsequent engine failure. A hose liner is now being installed at these connections and a longer hose having four hose clamps instead of two is being utilized. (See BuAer P&W R-2800 Engine Bulletin No. 93.) It is recommended that hose liners and longer hose be installed at the first opportunity. Where hose liners are not available, they may be fabricated in any naval air station machine shop in accordance with the Liner-Nose Scavenge Pipe drawing reproduced above.

LETTERS

PUBLICATIONS

WRITE TO PUBLICATIONS SECTION BUAE

SIRS:

While disbursing officers at NAS Ottumwa travel about their station in a truck to speed up pay day for the crew (NANEWS, Jan. 1, 1944), NAS Pensacola is using an airplane for the same purpose.

To facilitate payment to men on temporary duty at four auxiliary air stations, a pay officer is flown to the fields in a Beechcraft. Pay line forms in a convenient hangar. Elapsed time in visiting the four auxiliaries and covering the approximately 160 miles is three and a half hours.



COMMANDING OFFICER
NATC Pensacola

SIRS:

Your story of "Women in the Marine Corps" was extremely interesting and the account of the 350 women Marines in World War I doubly so.

CORPORAL, WOMEN'S ARMY CORPS
WAC Detachment, Stout Field,
Indianapolis, Indiana

SIRS:

The enclosed photograph demonstrates the method used at NAAS Ellyson Field, Pensacola, to emphasize the necessity for safety in handling shotguns. It shows a chief and a group of naval aviation cadets



attending memorial services for *Dilbert* at the station gunnery range. The fictitious *Dilbert* is presumed to have failed to carry out the safety precautions. Burial of *Dilbert* is a routine ceremony for incoming

cadets. His tombstone reads: "*Dilbert*. Born Oct. 1-21; Died Jan. 1-44. *He Didn't Think the Gun Was Loaded.*"

COMMANDING OFFICER
NAAS Ellyson Field

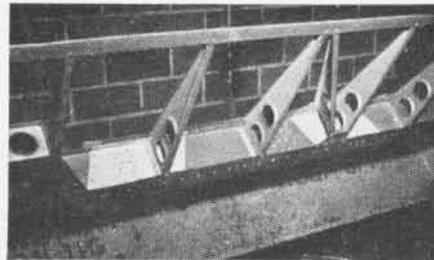
SIRS:

It is requested that this command be furnished with 50 additional copies of the January 1, 1944, issue of NAVAL AVIATION NEWS.

COMMANDER FLEET AIR, SEATTLE

Ottumwa Repairs Ailerons Speed Up N2S Splicing Process

NAS OTTUMWA—Repair of N2S ailerons has been speeded up and improved by a method of splicing the spar so that



SPAR-SPLICE IDEA SPEEDS AILERON REPAIRS

future buckling of aileron will occur at the point desired.

As the majority of ailerons with major damage have the spar buckled at No. 3 outboard hinge fitting, repair is made so that on subsequent buckling only inserted piece of spar need be replaced. The splice reinforcement is cut at an angle to allow a longer section of unreinforced spar at the point of common failure under excessive stress.

A jig was built to hold aileron on the fittings so damaged portion can be cut out and a spar section spliced in. In the last three months 96 ailerons requiring a spar splice have been repaired. A similar number of new covered ailerons would have cost \$5,200.

The following Aviation CL, TN and TO have been issued since March 1.

AVIATION CIRCULAR LETTERS

- ACL No. 8-44 *Dissemination of Information, Emergency Take-offs in the Open Sea—Technique.*
- ACL No. 9-44 *Posting of Navigational Aids and Information.*
- ACL No. 10-44 *Special Airframe Hand Tools in Organizational Types Kits—Information Regarding.*
- ACL No. 11-44 *Airport Lighting—Army and Navy—Civil Requirements for Parts Missing From Transferred Aircraft.*
- ACL No. 12-44 *Installation of External Power Line Filtering.*
- ACL No. 13-44 *Pesco Hydraulic Pump 1p-203-HA—Conversion From Torque Drive to Spline Drive.*
- ACL No. 14-44 *Installation of Righting Lines on Mark II, Mark IV, and Mark VII Life Rafts.*
- ACL No. 15-44 *Overheating of Nose Mounted Ignition Equipment When Operating Propellers in Reverse Pitch.*
- ACL No. 16-44 *AAF Technical Orders on Army for Navy Airplanes.*
- ACL No. 17-44 *Gyro Horizon Indicators Manufactured by Jack and Heintz.*
- ACL No. 18-44 *Notes on Night Vision.*
- ACL No. 19-44 *Compressibility Effects in High Speed Diving.*
- ACL No. 20-44 *Parachute Packing Tool.*
- ACL No. 21-44 *Physiological Effects of High Acceleration.*
- ACL No. 22-44 *Portable Voltmeters—Checking of Airplane Voltage.*
- ACL No. 23-44 *Portable Voltmeters—Checking of Airplane Voltage.*

TECHNICAL NOTES

- TN No. 8-44 *Index of Effective TN and TO.*
- TN No. 12-44 *Elimination of Water From Dioxide Cylinders.*
- TN No. 13-44 *Installation of External Power Line Filtering.*
- TN No. 14-44 *Pesco Hydraulic Pump 1p-203-HA—Conversion From Torque Drive to Spline Drive.*
- TN No. 15-44 *Installation of Righting Lines on Mark II, Mark IV, and Mark VII Life Rafts.*
- TN No. 16-44 *Overheating of Nose Mounted Ignition Equipment When Operating Propellers in Reverse Pitch.*
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- TN No. 22-44 *Physiological Effects of High Acceleration.*
- TN No. 23-44 *Portable Voltmeters—Checking of Airplane Voltage.*

TECHNICAL ORDERS

- TO No. 9-44 *Eclipse Series 310, 314, and 1308 Generators, Securing Flexible Coupling Against Axial Displacement.*
- TO No. 10-44 *ATB Transmitting Equipment Changes in Transmitter Microphone Jack Lead Dress.*
- TO No. 11-44 *Restrictions on Maneuvering.*
- TO No. 12-44 *Model PB2B-1 Airplanes, Model PBN-1 Airplanes, Model PB7-5 Airplanes, Model PBY-5A Airplanes, Model PBY-5B Airplanes, Model PB2Y-3 Airplanes, Model PB2Y-2 Airplanes, Model PB2Y-3R Airplanes, Retraction of Wing Tip Floats.*
- TO No. 13-44 *Model FM-2 Airplanes, Restrictions on Maneuvering.*
- TO No. 14-44 *Model PV-1 Airplanes, Restrictions on Maneuvering.*
- TO No. 15-44 *Model SNV-1 Airplanes, Model SNV-2 Airplanes, Restrictions on Maneuvering.*
- TO No. 16-44 *Aircraft Radio, AN/APN-4 Power Switch—Changes in.*
- TO No. 17-44 *Model SNB-2 Airplanes, Model SNB-2C Airplanes.*
- TO No. 18-44 *Diluter-Demand Oxygen Regulator—General Information.*
- TO No. 19-44 *Diluter-Demand Oxygen Regulator—Test Data (Pioneer 2851-A1).*
- TO No. 20-44 *ARB Receiving Equipment.*
- TO No. 21-44 *Model TBF-1 Airplanes, Model TBM-1 Airplanes, Model TBF-1C Airplanes, Model TBM-1C Airplanes, Restrictions on Maneuvering.*
- TO No. 22-44 *Daily Flight and Thirty-Four Inspection Forms.*
- TO No. 23-44 *Electric-Driven Auxiliary Fuel Pumps—Operation of.*
- TO No. 24-44 *Model SB2A-2, SB2A-3, and SB2A-4 Airplanes, Restrictions on Maneuvering.*
- TO No. 25-44 *Daily Inspection of Airplane Hydraulic Systems.*
- TO No. 26-44 *Modification of Field Leads of Type 2CM70B2, 2CM70B2A, 2CM70B5 and 2CM70B5A Generators.*

BEST ANSWERS

to questions on page 4
1.b 2.c 3.d 4.b 5.a

ANSWERS TO NAVIGATION PROBLEM

on page 16

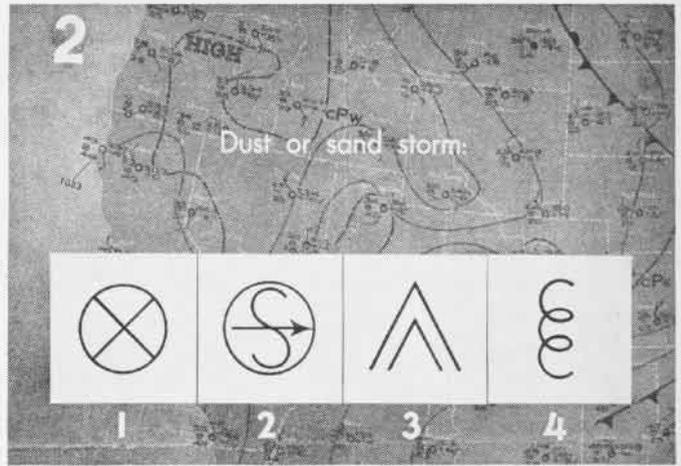
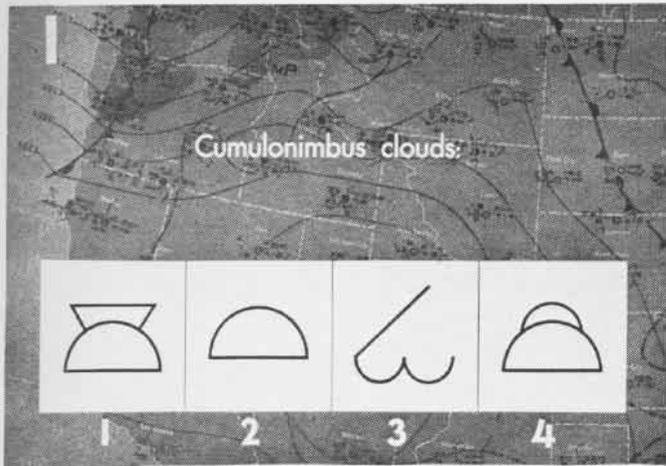
'a' 0 5 miles away 4 miles toward
Zn 167° 222° 112°
ZT 1100 fix Lat. 27°-08' N.
Long. 96°-06' E.

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

CARRIERS

LET NANEWS HEAR FROM YOU!





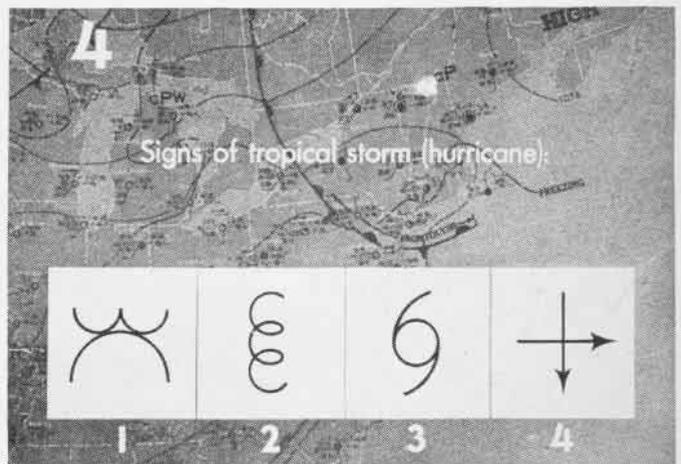
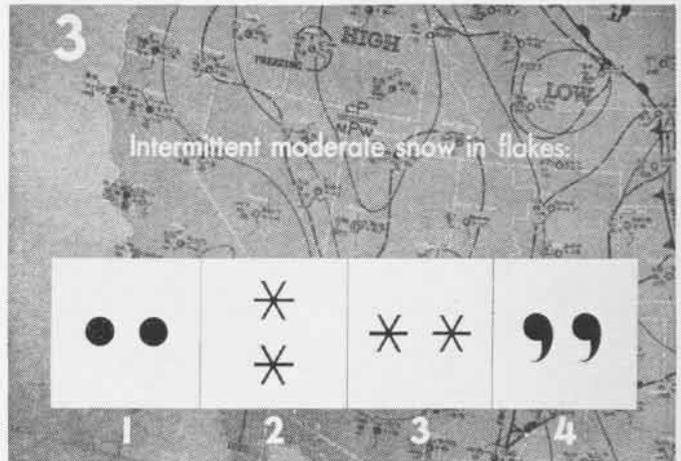
PIX QUIZ

WHAT DO YOU KNOW ABOUT

WEATHER SYMBOLS?

To the layman, the symbols on this page probably resemble hen scratches, doodlings, or, in one case, domino figures. But to aerologists and pilots, they are highly important. And they denote meteorological conditions that have a great deal of significance in naval aviation. Weather calculations must be absolutely precise for successful plane operations. A ship can function in a severe storm, but often a plane cannot. Test your knowledge and then see answers on page 37.

[QUESTIONS FROM VISUAL QUIZ FILM NO. 44, WEATHER MAP SYMBOLS]

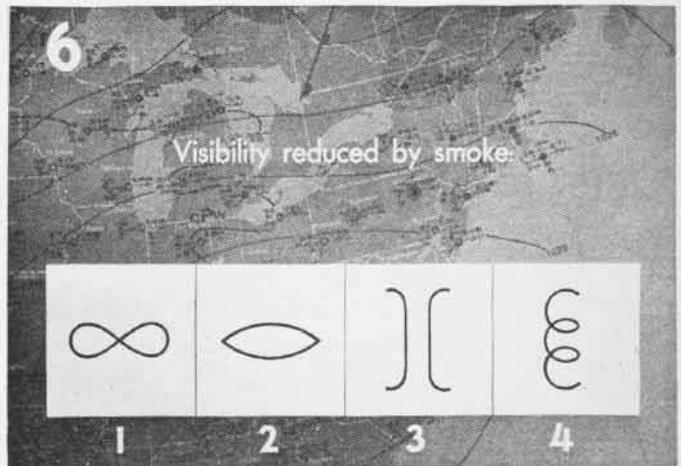


Write answers here

1..... 4.....

2..... 5.....

3..... 6.....





ATTACKS ON ROI & NAMUR

The Navy's February 1 attack on Kwajalein's islets crashed through the periphery of the Japanese mandated island kingdom for the first time. Top photo looks southeast at smoking Namur, then (in order) Ennugarret, Ennumennent, Ennubirr and other islands in the chain. Another shot of Namur below shows portion of Roi (right) being invaded.



NAMUR ON NORTHERN TIP OF KWAJALEIN SMOKES, DAY BEFORE INVASION
LANDING CRAFT STREAK TOWARD NAMUR AND NEIGHBOR ROI FOR LANDING

