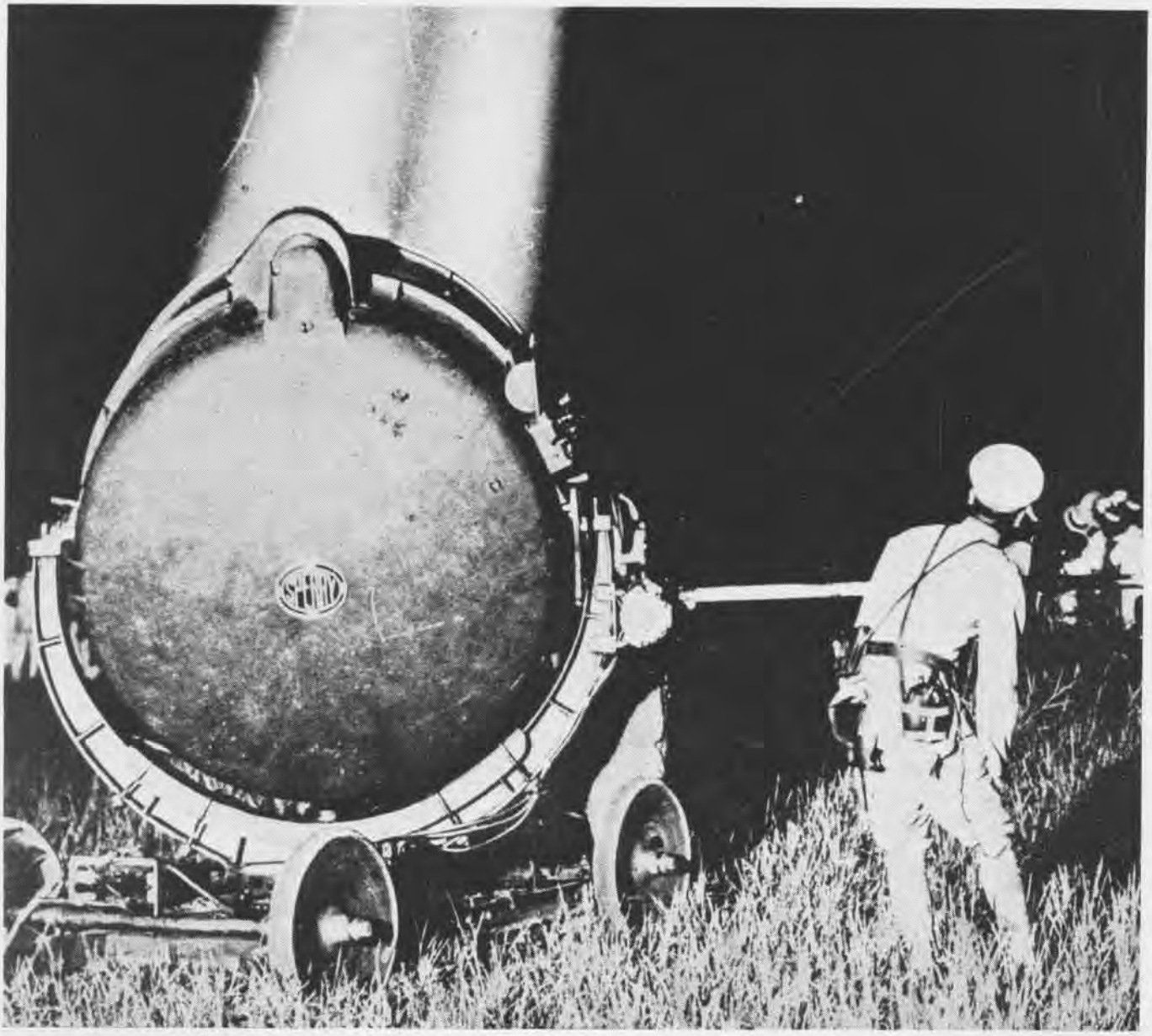
JAP ISLAND IS CAPTURED

THE Japanese barge supply route to north Solomons Islands was slashed when Allied forces, under a cover of Navy fighters and torpedo bombers, captured Green Islands, 40 miles northwest of Buka and 135 miles east of Rabaul. Minor ground opposition was crushed and American and New Zealand forces went ashore to consolidate gains. Balloons keep Jap planes high.

LST OPENS UP ON JAPS ASHORE WITH 40 MM. AND 3-INCH GUNS

LST'S MOVE INTO INNER LAGOON AS BALLOONS HOVER OVERHEAD

TORPEDO BOMBERS PATROL OVER LCI'S AS HIGGINS BOATS RETURN FOR MORE MEN AND SUPPLIES IN GREEN ISLANDS ACTION



JAPANESE SEARCHLIGHTS

CONTENTS OF ISSUE

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A KNOWLEDGE of enemy equipment, both how it looks from the ground and the air, and where it is located for use by the enemy, is a vital necessity in planning any military attack against that enemy. Spotting of such equipment and military installations is done from aerial reconnaissance photographs by photo interpreters who are trained to know characteristics of enemy installations and equipment, and the usual patterns they make in an aerial photograph.

For example, searchlights usually are set up in a definite relation to a battery position and the group together makes a distinctive pattern when seen in an aerial photo.

Spotting enemy searchlights like the one above is the job of the photo interpreter. In making an analysis of an enemy position, these specialists spot gun positions and searchlights, giving their exact locations and sizes, find hidden stores of ammunition or supplies, estimate the number of personnel housed in a given barracks area, and point out other vital information concerning targets to be bombed or obstacles to be overcome.

Mounted on a well-revetted camouflaged truck, this 98 cm. searchlight was captured at Little Kiska; truck generator gave power

At Tarawa, this was one of two 150 cm. searchlights located 100 yards on each flank of two-gun twin mount five-inch gun battery

CAMOUFLAGE HIDES SOME LIGHTS; TRUCKS FACILITATE FAST MOVING

JAPANESE SEARCHLIGHTS have several distinguishing characteristics which usually make them easy to spot from the air. They have a distinctive parabolic shape, particularly when canvas-covered, and cast a shadow of that shape. They are usually located adjacent to gun batteries and may be either on fixed or mobile mounts.

Those on fixed mounts have been found on the roofs of small, round concrete structures housing the generator equipment, some on wooden platforms located in high circular earth revetments, or on top of earth and sod mounds. Generators or other power sources are usually located nearby in protected locations.

Searchlights in mobile units may also occupy any of the installations prepared for fixed units. They may be in low, circular or rectangular excavated type earth revetments or on high, built-up type revetments with a director in a saucer-shaped revetment nearby. Some have been found in large "doughnut" shaped, double-walled revetments or in ditches or on paths leading from a communication route.

In addition to the above, searchlights may be mounted on trucks which may be fixed in a revetment, as at Little Kiska, illustrated in this article, or in a position of mobility. In all cases of the mobile-type searchlight, a break will be present in the revetment wall for removal of the light to a hide-out located nearby or to another searchlight position.

The diagram of Tarawa accompanying this article shows how Japanese handle distribution of AA and CD batteries and searchlights in building up defense of an island. Guns and searchlights are grouped together at strategic points around the perimeter. There were a total of 11 lights emplaced on Tarawa.

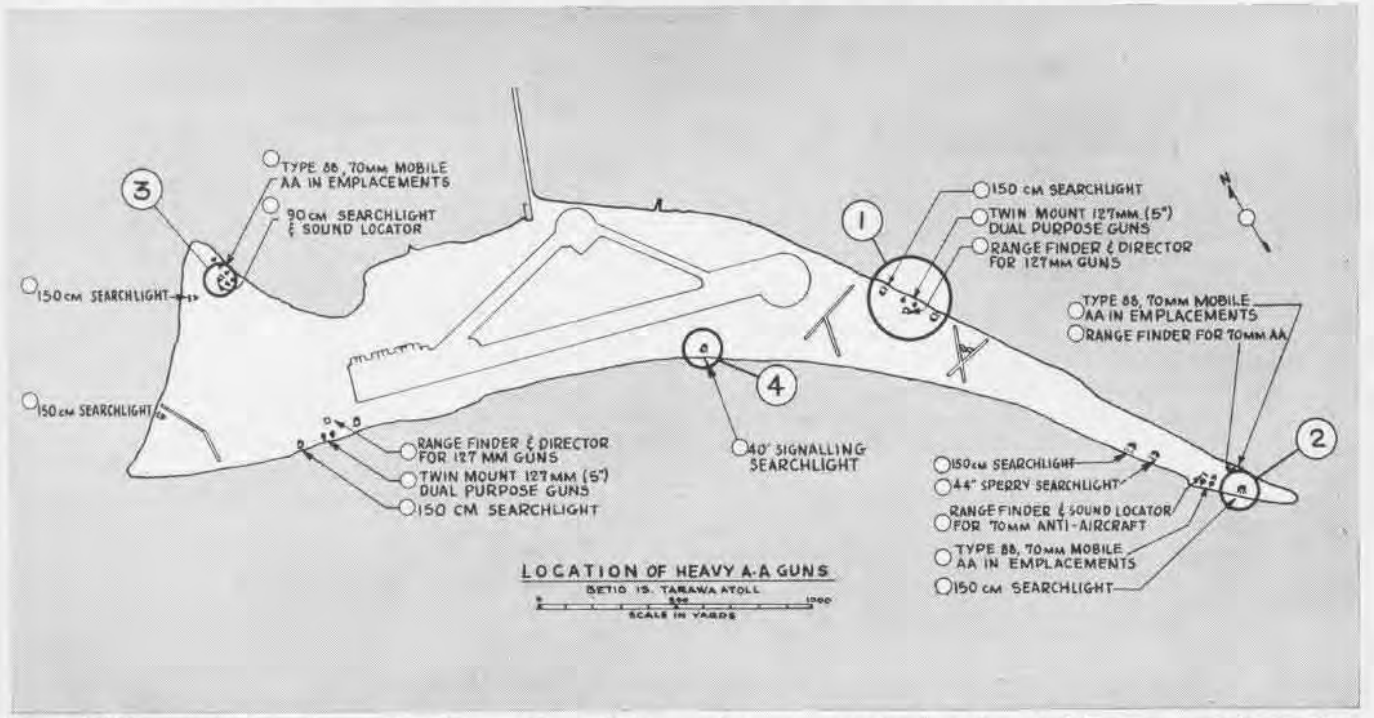
THEY WERE SET in four types of mount: one 90 cm. light was in fire control center; five 150 cm. lights were on top of rectangular concrete structures about eight feet high and 10'x12' in plan, housing the generator equipment for light; three 150 cm. lights were on circular concrete structures housing generator equipment, and one 110 cm. light in a circular revetment of sand and logs.

One 100 cm. signaling searchlight was located centrally on the south shore of Tarawa. It was mounted in a square, built-up type emplacement under a peaked roof type cover. Captured Jap lights have ranged in size from 60 cm. to 150 cm. and have been found in all Jap islands of any importance when taken. Two 60 cm. lights were captured at Kiska.

Oblique of a 150 cm. searchlight at Rabaul shows it mounted in a circular sandbag and wood revetment with generator underneath it

Paramushiru aerial photo shows light (B) near six-inch battery and command post, searchlight controlled by fire control center

Closeup view of dual-purpose battery along the beach at Tarawa, showing relation of searchlight to battery; a similar light position on the other flank of the battery does not show in this photo; searchlight is on right and five-inch guns are on left



Tarawa had 11 searchlight emplacements, 8 large 150 cm. lights, and one each of 110 cm., 100 cm., and 90 cm.; their location in relation to anti-aircraft and coast defense gun emplacements is shown in drawing above; lights tie in closely with armament

Tip of Tarawa showing a 150 cm. searchlight and 70 mm. mobile anti-aircraft batteries in emplacements; Jap searchlights were frequently linked with the director control for batteries and put near guns; some supporting installations were well built

In spite of terrific pounding, this 150 cm. searchlight is still standing on the beach at Tarawa; sturdy base housing generator, hit by shell, exposes structure

Searchlight is on high ground behind main Kiska camp; light used for harbor control ship unloading at night may have teamed with 75 mm. AA battery in night attacks

New Zealand officers remove canvas cover from mobile Jap searchlight captured on Kolombangara; sod revetment is only camouflage; wall break permits removal of light

MANY JAP SEARCHLIGHTS SIT ON HIGH PLATFORM TO BOOST RANGE

SOME CAPTURED Japanese searchlights have been cleverly camouflaged while others stood out with little attempt to conceal them from Allied observers. One captured on Kiska was mounted on a well-revetted camouflaged truck while one on Munda was concealed under a shelter made of logs and natural growth, with a runway for pulling the light out for action.

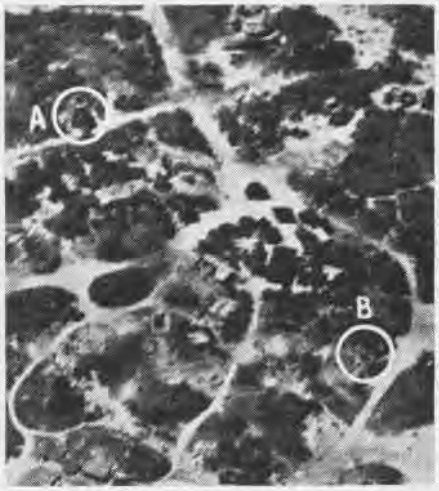
Mobile searchlights often are spotted in shallow ditches that lead off main roads. Such a position is chosen so that the light can be moved to any other position where it may be needed. Often a searchlight set-up of this type can be spotted in aerial photos by tracks leading in from the main road. Another method of spotting searchlights is from the distinctive shadows they cast—or the shadows of the low structures on which they are often mounted. Japs often disregard obstructions such as trees and locate their searchlights in positions surrounded by palms.

Some have been found mounted on high conical structures like a miniature lighthouse, while others have been almost buried from sight inside earthen revetments. Those which are placed high usually have their generators underneath them while those at lower levels customarily have their power plants nearby, sometimes buried in the earth for protection.

Occasionally the Japs place their searchlights in close proximity to sound detection equipment. Unless low-altitude photographs are available, sound equipment would be hard to detect. At Paramushiru, searchlight installations were noted consisting of two parts, light and director. Director equipment was housed in a concave saucer-type revetment about 35' inside diameter.

THE SEARCHLIGHT was located in a round, vertically walled revetment with inside diameter of about 30'. Both emplacements had a broken wall to allow movement of the equipment. A six-gun heavy AA dual-purpose battery was located about 750' north of the installation, well revetted.

Camouflaged searchlight is concealed under shelter made of logs and natural growth; shelters built adjacent to revetments with an opening for concealing from view



This Wake Island searchlight (A) is mounted on high, conical structure which may be pillbox or may house generator; at (B) another light perches on raised structure

Oil drum revetment protects generator at Vila; drums are filled with dirt and coral rock and stood on end in circle, with palm fronds acting as camouflage

GRAMPAW PETTIBONE

Fly-by-Night Ferry Pilot

A ferry pilot made a late afternoon take-off. When engine trouble developed, he was obliged to make a deferred forced landing one hour after sunset. Serious material damage resulted.

As the Trouble Board pointed out, this night landing would not have been necessary had the lead pilot complied with Aviation Circular Letter No. 35-43, which requires pilots to plan their flights so as to arrive at destination BEFORE sunset.

Watch Your Octane

The pilot of an FM-2 gave his plane a high power turn-up prior to take-off. Upon becoming airborne, the engine began to misfire with resultant loss of power. A forced landing was made off the end of the runway and the airplane came to a halt after striking a steel wire fence.

An immediate investigation into the cause of the power plant failure disclosed that the airplane had been fueled with 91-octane gas.

The Trouble Board assigned 100 percent power plant failure as the cause of this accident and stated that the aircraft should have had a red placard in a conspicuous place in the cockpit stating that it had been serviced with 91-octane fuel.

▶ *COMMENT*—**The service unit which originally fueled the airplane with 91-octane fuel is considered entirely responsible for this accident.**

This was a new airplane being ferried to an operating squadron. Technical Order 117-43 specifies that FM-1 type airplanes with Pratt and Whitney R-1830 engines installed shall be ferried with 91-octane fuel, but paragraph 8 of this same T.O. definitely states that FM-2 airplanes with Wright R-1820 engines must use at least 98-octane fuel.

The remarks of the Trouble Board concerning the red placard obviously referred to this same T.O. Since the FM-2 is not authorized to be ferried or operated on 91-octane fuel, however, such a placard would not have covered the error. Had the pilot known that 91-octane fuel had been used, he should have refused to accept the airplane for flight.

Units should check T.O. 117-43 carefully to insure they are using the proper grade fuel in all aircraft for ferrying. Pilots must be familiar with the requirements of the particular type airplanes they are flying.

Maintenance Checks

Case 1. While climbing to rendezvous after dive bombing practice, the engine of an SBD-5 lost power and the pilot made a forced landing on the beach. It was found, upon investigation, that the power loss was due to the throttle control rod becoming disconnected from the throttle lever. The nut on the clevis bolt which secures this connection had not been cotter keyed, and the bolt had worked out due to vibration.

Case 2. After recovering from a practice dive, the pilot of an SBD-5 advanced his throttle several times with no response from the engine. A forced landing was then made in shallow water. Investigation revealed that the lock screw had become sufficiently loosened to allow the throttle rod to unscrew from the barrel at the throttle quadrant. The rod had not dropped down far enough to enable the pilot to see what was wrong.

The initial 240-hour check had been completed on this airplane and upon return from this flight it was scheduled for a 30-hour check. It was the opinion of the Trouble Board that the lock screw could not have worked loose since the 240-hour check, but had been working loose over an extensive period of time.

▶ *COMMENT*—**Both of these accidents were due to improper maintenance inspections. During engine, auxiliary and flight control checks, it is not enough merely to move the cockpit controls to see that they are working freely. Each connection from the cockpit to the actual mechanism must be carefully inspected, especially for tightness of locknuts and rods and for security of all cotter pins.**

Wanted: Mental Precision

On a routine training flight, a pilot noticed at 7,000 feet that his propeller remained in high pitch with both automatic and manual controls apparently inoperative. He returned to the base field, only to find planes practicing carrier landings. He called the control tower and the field was cleared. His first approach was high and fast, so he elected to try again. On his second approach, he misinterpreted the signal officer's "high" as a "wave-off." This time, altitude could not be maintained and the pilot was forced to land in a swamp, resulting in strike damage.

The Trouble Board criticized the pilot for the following:

1. Failing to experiment, before descending, to determine amount of available power. Had he done so, he would have realized the necessity of landing on the first approach.
2. Not being able to land on initial try. This denoted poor judgment and bad technique.
3. Misinterpreting signal. Since pilot was qualified in carrier landings, he should have known that signal officer was not waving him off, but merely trying to help him land.

Pitot Tube Covers

Pilot's Statement:

"After taking off I discovered that the cover had not been removed from the pitot tube. When I went in to land to remove the cover, I forgot to lower my wheels."

One station has whipped this hazard by tying red flags to pitot tube covers.

"I Did Not Familiarize Myself"

While on a dive bombing flight, the pilot of an SB2C-1C noticed a loss of hydraulic pressure and requested permission to proceed to a nearby field. Prior to landing, he lowered the gear by closing his main system hydraulic valves and opening the No. 3 by-pass valves. He failed, however, to close the No. 3 valves, so that in landing he received brake pressure from the brake accumulator only. This was insufficient to maintain control and the plane groundlooped, but without doing any damage.

Upon discovering that there was insufficient repair facilities at the field, the pilot immediately took off again and proceeded to the base field. On landing the second time, the pilot didn't have enough brake pressure to keep the plane from swerving into a ditch, where it was damaged almost beyond repair.

From the pilot's statement: "It is my opinion that the whole accident can be laid to the fact that I did not familiarize myself enough with the SB2C hydraulic system and consequently did not close the No. 3 valves after using them."

The Trouble Board pointed out that the pilot had two good chances of preventing this accident: first, by knowing how to operate his hydraulic system, and second, by having sense enough to stay on the ground when he found, on the first landing, that his brakes were defective.

Grampaw Pettibone says:

This is a warning for all pilots. Anyone not completely familiar with his hydraulic system should rectify this serious deficiency immediately. Where hydraulic systems are complicated, a squadron lecture and demonstration would appear to be in order.

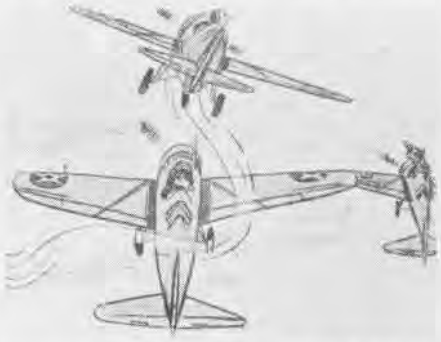
The lack of common sense, mentioned by the Board, is another matter and you can't pick that up from a lecture. Experience is the best substitute, but you even have to mix a little brains with that to produce good judgment. This pilot had plenty of experience (575 hours), but he certainly didn't use his bean when he took off the second time.

Join-Up Technique

In a recent accident analysis, mid-air collisions were found to be second only to spins in number of fatal accidents. The greatest number of collisions occurred during formation join-ups. The following cases are typical:

Case 1. A four-plane division of F4F's was joining up in right echelon at 7,000 feet. The division leader and the second section were already in position, with a space of approximately 100 feet left for the division leader's wingman. While attempting to join up from below and behind, the wingman flew into the underside of the second section leader.

Case 2. With the exception of the No. 2 man in the first section, all planes of a six-plane division were in position in right echelon. The No. 2 man overtook the formation in a turn, overshot



his position, and in attempting to skid back into place, pulled up into the leader of the second section.

Case 3. After completion of gunnery practice in F4U's, the flight leader signaled to join up and then began a gentle right turn. The No. 3 man joined up on the inside and then attempted a cross-under to left echelon. His maneuver was fast and poorly executed, with the result that he pulled up into the No. 2 man.

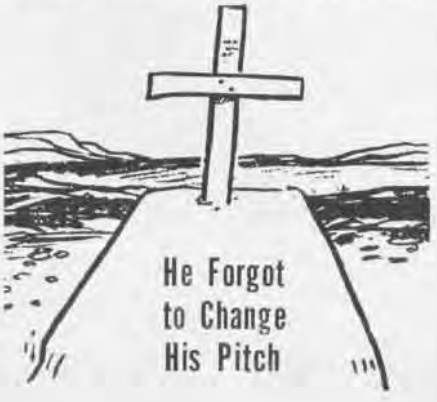
Grampaw Pettibone says:

These three collisions were entirely due to pilot error on the part of brash, young pilots (200-280 hours).

You can't just fly into a formation, put on the brakes and stop in position. An airplane requires time and space in which to decelerate and the heavier and faster it is, the more space and time it requires. The final join-up must be performed cautiously, using a very small speed differential. You just e-a-s-e into position.

One other point, never join a formation, or even a single plane, that doesn't know you are coming in. This warns the leader to avoid radical maneuvers and enables your wingmen to give you as much room as possible. That is why join-up doctrine requires you to fly parallel to the formation for a moment before you *ease* into position.

Don't try any fancy stuff! As a matter of fact, no pilot ever gets hot enough to join a formation in any way except this orthodox manner. The best pilots automatically do so—from common sense and experience. Commanding officers and flight leaders should force all others to comply.



Balance

A PBY-5 pilot (2,624 flying hours) commenced take-off, using 45" Hg. manifold pressure, and 2700 rpm's. The run was normal until the aircraft was about to become airborne, at which time the plane settled back into the water with the port float low. This caused a turn to the left, which resulted in the starboard float submerging in the swells and being damaged. The plane could not be kept afloat and had to be beached on some coral heads, which are not exactly soft.

The Trouble Board said: "Failure of the pilot to keep passengers well forward on take-off is considered a contributory cause of the accident. Four men instead of the standard two were in the blister compartment."

Grampaw Pettibone says:

Taking off across swells is tricky enough without letting the crew add spice to the maneuver by shifting around. Take-off and landing positions of the crew should be *fixed*, not only for the proper location of the C.G., but also for safety purposes in case of accident.

Glassy Water

Case 1. A fighter plane was flying a few feet above a calm sea. The aircraft nosed over slightly and crashed; apparently the pilot misjudged his altitude above the glassy surface.

Case 2. The patrol plane commander of a PBY made a contact approach while executing a night landing on smooth water in a sheltered bay. He failed to break his glide in time, and the plane hit the water with such force that structural damage to the hull's forward section resulted. The aircraft then nosed over in a violent crash.

Case 3. While investigating an obejct in the water, an OS2U pilot descended to a low altitude over the smooth sea. During a turn, his wing float contacted the water, causing the plane to crash. The pilot later stated that he did not realize he was so low.

▶*COMMENT*—Apparently pilots can not be warned too often against low flying over glassy water. With no nearby reference points, it is practically impossible to judge altitude under such conditions. Aviators who have not had seaplane training are apt to be deceived by this and even experienced pilots sometimes forget, as in *Case 2*.

Because of decreased visibility, this danger usually is increased at night. Use of plane landing lights will not improve depth perception over glassy water and often may impair it. Seaplane pilots are reminded always to play it safe by making standard power-stall landings at night and on glassy water.

TARGET AIRCRAFT

Radio-controlled craft gives aerial, ground gunners practice

THE NAVY is procuring several thousand radio-controlled target aircraft with 12-foot wingspread, for use in training anti-aircraft and aerial gunners from Bizerte to Brisbane.

Designed and developed originally by the Army, the TDD's (target drone Denney) are modified by the Navy to produce greater speed and adaptability to its needs for training gunners in firing at moving targets.

The little plane can be controlled either from the ground or from another aircraft flying nearby. It is powered by a six-hp, single-speed engine, with two counter-rotating propellers 26" in diameter. It is 104" long, weighs 110 lbs. and flies an hour and 15 minutes on 1.8 gallons of gas. Later revisions provide an eight-hp engine, single propeller and no landing wheels.

Usefulness of a high-speed moving aerial target, capable of simulating fighter attacks and maneuvering quickly to dodge bullets, readily can be seen as a gunnery training aid. Experiments are under way to test adaptability of the TDD for fighter runs on SBD and other operational plane formations, with the control plane in the formation.

Up to now, most of them have been flown by ground unit control. This limits somewhat the range over which the target aircraft can fly, since it has to be within sight of the "pilot" on the ground so he can keep it in correct flying attitude. By using the radio transmitter and auxiliary power unit on the ground, he can give the TDD in flight left or right rudder and up or down elevators It has no ailerons, but seven-degree dihedral improves stability.

Bongee-powered catapult shoots TDD in air; BuAer furnishes special catapults for ship use; airplane can do many stunts to evade gunners

Radio control officer on left can loop or roll TDD at will, using miniature "stick" to control the elevators and rudder of the little plane

1 Throw the raft overboard from top escape hatch, followed by "Gibson Girl" (emergency radio set). Be sure to hang on to bow line so the raft will not drift away before someone can take to water and control it. Top hatch is usually best for quick exits

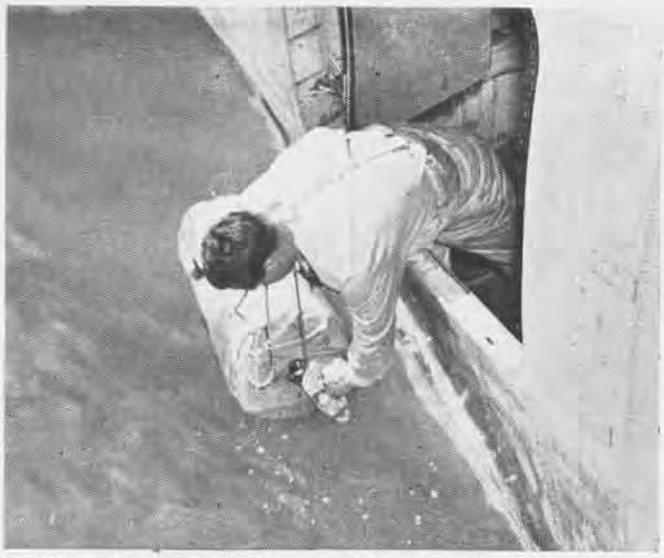
HOW TO USE RUBBER LIFE RAFT AT SEA

SPEED IN abandoning a plane forced down in the water often is absolutely necessary, especially in the case of smaller aircraft which can go down in a few seconds. Photographs in the accompanying picture story show the procedure used for abandoning ship with the Mark 7, type D, life raft capable of holding seven men.

The raft, resembling an oversized luggage bag, is heaved overside, with the thrower holding onto the handline to prevent its drifting away before survivors hit the water. He then jumps in, still holding to the line, and pulls the CO_2 bottle hand-line. Within three seconds the raft inflates.

Salvaging the raft cover, which may be used to catch water later, the next job is to get aboard. Best method is to flutter-kick, keeping the head low so as to roll into the raft. This is a difficult job and holding the head upright keeps the man's weight outside the raft so that he cannot roll.

Once aboard, the survivor can unlimber collapsible oars, pump up remaining compartments of the raft and pick up his mates. Oars should be kept in oarlocks to prevent losing overboard.



2 If the plane is sinking slowly, the raft can be launched from side emergency hatch. Notice left hand holding release handle

3 Life raft can be opened from the water by pulling the carbon dioxide release handle. Raft will drift fastest when inflated

4 Raft is opened after pulling release handle. Important thing to remember is hang on to raft so wind, waves do not drift it

5 Boarding the raft is difficult unless head is kept down on the chest and a brisk flutter-kick used to roll body into the raft

6 Keep the head down and kick hard. Mae West life preserver may be a hindrance. This is hardest part of getting aboard

7 To control the raft, assemble the demountable oars which are in the large pocket seen in the left-hand side of the photo

8 **Pull injured** to raft, place crossed hands up on sides, putting weight on his hands. Pull injured man under his armpits

9 **Pump up** remaining two sections of the life raft with hand-operated pump and balance the raft as others climb aboard

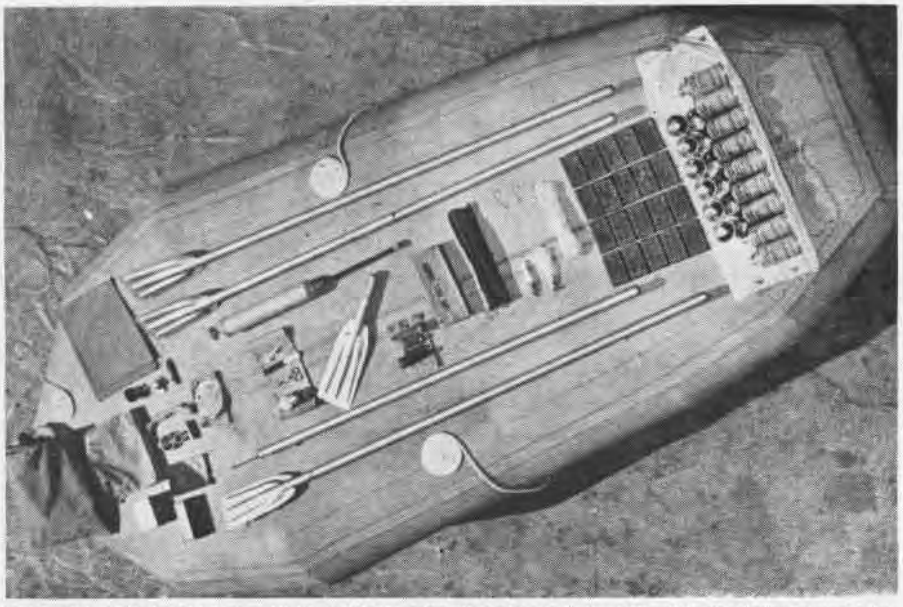
10 **Rafts drift easily** with the wind and waves so oars must be manned to keep it close to survivors till they can get in

11 **MK 7 raft** overloaded with eight men, using shortened oars as paddles. Boarders should avoid grabbing lines or seats

STOW FOOD IN RAFT

THE MARK 7 life raft has many things designed to make life a little more comfortable for men adrift. In a detachable waterproof pocket on the starboard bow is a fishing kit with harpoon, *option* signal flag, 25 ft. of line, fog whistle, scout knife, compass, waterproof holder with safety matches, clamp for smoke grenades to be attached to an oar and two packages of D field rations.

Another small package contains 24 of these D rations and 15 cans of fresh water. The raft also contains a reflecting mirror, patching kit for bullet holes, bullet lugs and charts and current data for the area in which operating. Any one of the oar handles can be used as an attachment for the harpoon and used as a harpoon spear. Two or four men can man the oars, whichever is handier.



LIFE RAFT CONTAINS FOOD, PYROTECHNICS AND CHARTS—ALMOST ALL THE COMFORTS OF HOME

SHORE STATIONS

▶ SoPac—Who's wacky when Weiss Whacks Weiss was decided recently in a palm-fringed coconut grove during one of the "goofiest" boxing matches ever boxed.

The fight was a battle of brothers which is certainly not uncommon, but the brothers involved in this bout were twins. Not only were their looks and fighting togs alike, even to white shoe laces, but they fought in exactly the same style.

To complicate matters further, another set of twins acted as seconds and when the fighters switched corners at the end of round two (at least they said they switched) even their handlers found it impossible to tell them apart.

When the judge was tipped off to the incident, he came up with a decision to top all decisions. Everyone cheered loud and long when the chaplain, acting as announcer, stammered: "The winnah—Weiss," and pointed to both corners at the same time.

▶ MCAS Cherry Point—An undisclosed number of squadrons from this station have transferred to the former Congaree Army air field in South Carolina. This has relieved congestion at the station and eliminated further construction.

Transfer of the field relinquished by the Army was in accordance with the practice of using all available bases for tactical and training needs rather than build new bases.

▶ NAS Pensacola—A special military patrol, composed of petty officers, first class, has been inaugurated here to maintain order and discipline and increase general military smartness of enlisted personnel on the station.

Patrol members pay particular attention to the manner in which personnel salute and wear their uniforms. They also assist in maintaining cleanliness of the station grounds by seeing that all waste material is placed in refuse containers.

▶ NTS Chicago—Since the commissioning in September '43, this school (Aircraft Instruments-W) has graduated more than 200 enlisted Waves as aircraft instrument technicians. These women are now on duty at naval aviation activities throughout the United States.

The 15-week course consists of three weeks of basic training in shop work and 12 weeks in any of three different fields: mechanical, electrical or gyroscopic instruments. Graduates of this school are eligible for rating of aviation machinist's mates (1).

▶ MBDAG-41—To avoid unnecessary delay in cases of lost tow sleeves on gunnery flights, two planes are now being used with cannister attachments and full loads of ammunition.

If the towing plane loses the sleeve, it joins flight and the alternate tow plane streams his sleeve, allowing gunnery runs to be completed. This system has worked well in view of the fact that the gunnery area is some distance from the base. In the past, lost tow sleeves have made it necessary for the entire flight to return to the base, take off again with a new tow sleeve, thus wasting valuable time.

▶ NPFS Iowa City—Two series of exercises which will either make a man of you or kill you have been drawn up by the gymnastic and tumbling department.

One of the series on how to wear yourself out in 30 minutes is a suggested daily routine without use of equipment. A nine-page booklet complete with illustrations is used as the bible.

The other routine is designed for work in the individual development room, and is guaranteed to erase a paunch and build the muscle. Minimum requirements are: Chest weights routine, 50 times; rope skipping, 50; rowing machine 25; sit-ups, inclined board, 10; barbell, two-hand press, 5; punch heavy bag 5 minutes; chinning, 5; push-ups, 15; leg squats with barbell on shoulders, 10; wrist twist, 5.

▶ NAS Pensacola—Following in the photographic footsteps of his father, W. L. Richardson, Jr., PhoM2c, graduated recently as the top-rated man in his class at the Naval Training School (Photography), the establishment his father helped plan nearly two decades ago.

The senior Richardson was the naval air station's first photographer, although he was rated a cook at the time, and he was instrumental in developing the Navy's photographer-training program. His son finished the four-month course with a final mark of 3.7.

▶ MCAS El Centro—Construction of a chapel has been approved for this station, and work is expected to start immediately.

The chapel will be built in the shape of a cross, and will have one large room seating 600 for all congregations, and two small chapels on either side—one Catholic and the other Protestant.

A revolving altar will be installed in the large chapel to allow for Catholic, Jewish and Protestant services held every Sunday.

▶ MCAS El Centro—Why one Leatherneck went from Arkansas to California is revealed in the following story.

The incident occurred back in the pre-recruit days when the Marine, a burly lad from the hill country, reported to the induction center. He was walking around barefooted after a medical examination when a Marine major, who was standing by, ordered him to put on his cowboy boots.

The lad explained that he could not get them on because he had gotten his feet wet. Unsatisfied by that explanation, the officer shoved the lad and barked a harsher command to "Put on those boots."

"Look here," retorted the inductee, "I'm still a civilian and if you shove me again, I'll wrap these boots around your neck." A likely prospect, thought the major.

▶ NAS Minneapolis—Personnel at this station boast of the most colossal water show since Noah's Ark, presented recently in their beautiful indoor swimming pool.

The aqua-carnival was composed of a 75-star cast, all station personnel, and 20 acts which included a trampoline exhibition and an AAU underwater speed record swim. But the *pièce de resistance* rivaled only Billy Rose's productions. That was the Waves' water ballet.

▶ NATC Corpus Christi—Approximately 1,120 men are making their off-duty hours count and preparing themselves for better jobs after the war. Men are receiving instruction in 31 classes organized by the Educational Services to obtain high school and college credits.

More than 100 officers and men are studying Spanish, French, German and Japanese, using phonograph recordings and charts available at no charge to personnel of the armed services. More than 450 men are studying by correspondence courses.

Besides classroom and correspondence study, there are books designed for self study covering 26 subjects; the most popular are calculus, bookkeeping, shorthand.

▶ NAS Hutchinson—For the convenience of service men who are prohibited from hitch-hiking along state highways the Hutchinson Chamber of Commerce and the local Building Trades Council have cooperated in erecting three catch-a-ride booths near the outskirts of the city along state roads. The booths are lighted and have benches for waiting bluejackets. They also have prominent signs indicating their nature to approaching motorists. The plan has worked to the advantage of enlisted men on liberty. All service men are welcome.

▶NAS St. Louis—Contributing their own time to the entertainment of personnel, the "Shipmates of Rhythm," composed of men from various departments on the station, have made a musical name for themselves in the entire St. Louis area.

Their band has played for many war bond rallies and patriotic meetings in St. Charles and Hannibal, in addition to war plants, motion picture theaters in the city, and recruiting drives.

Augmenting the Shipmates' band is a group which makes the crew a complete entertaining unit, including a master of ceremonies, magician, and soloists.

▶MCAS El Centro—The transportation department now boasts "over a million miles a year." Station expansion in the past year meant many trials for the department, but accomplishments have been great.

With no railroad siding on the base, it is necessary to truck in all provisions, public works supplies, and ordnance.

Transportation has now instituted a program of preventive maintenance, whereby each motor vehicle is inspected weekly or on a mileage basis. This ties in with the policy of conservation of equipment, which is being emphasized at every opportunity on this station.

▶SoPac—The Melanesians, rusty pipe-smoking natives of the islands in the South Pacific, may not understand the theory of flight, but they are rapidly becoming air-minded, according to a recent traveler.

"I saw a group of men standing by a *Mitchell* one day and decided to have some fun. I went up to the oldest in the group and pointed at the ship and said, 'You likem Thunderbird?' He turned to me and replied, 'Ug, looks more likem B-25 to me.'"

▶NATC Corpus Christi—Airplane crash and rescue school designed to save lives first and property second is conducted at this station for two-week sessions. The fire fighter and rescue course includes both classroom and field work climaxed with rescuing a dummy pilot in the cockpit of a blazing mock-up plane.

▶MCAS El Toro—Ceremonies inaugurating the new construction program at this station were recently conducted by the Assistant Commandant of the Eleventh Naval District.

The first shovel of dirt gave the signal for heavy earth-moving equipment to start work on the new parallel runways. The 18-million-dollar program includes additional barracks, bachelor officers' quarters, control tower, assembly and repair shops, hangars, photographic laboratory, and an auditorium which will seat two thousand people.

▶MCAS Santa Barbara—Marine Air Transport Service was organized at this station recently, and runs are now being made to Sacramento, San Francisco, and San Diego with authorized stops en route.

Written authorization from commanding officers serves as a ticket and allows 40 pounds of baggage. Freight and mail also are carried on this embryonic airline.

TOKYO TALKS

—To North America

The "Manchukuan Railway Patrol General Corps," which is charged with the job of guarding vital railway lines against guerrillas and saboteurs in Japanese-dominated Manchuria, was recently incorporated in the puppet régime's regular army as a uniformed "Railway Patrol Army."

—To Japan

Premier Hideki Tojo's government will shift thousands of new "colonists" to Manchuria this year from Japan, Korea and the occupied southern areas of Asia to implement plans for stepping up food production in territories close to Japan. The Tojo government is seeking to increase food production in Manchuria to offset the loss of rice imports from South Asia caused by the necessity of shifting scarce Japanese shipping space to the transport of such basic war materials as bauxite.

SHOW ME THE WAY TO GO HOME

Celestial Navigation

A navigator of a PBY in DR Latitude 28°50′ N, Longitude 78°45′ W at GCT 0330 March 22, 1944, on course 348°, ground speed 132 k, true heading 339°, true air speed 120 k, flight altitude 5,000 feet, took the following observations. Watch error 14 seconds fast on GCT. Instrument correction + 6′.

WT	BODY	Hs
03-25-24	Arcturus	34°13′
03-30-08	Alphard	50°55′
03-34-15	Capella	29°11′

1. What is your GCT 0330 fix?

Lat. .....

Long. .....

Your last fix was at GCT 0230 at Lat. 26°40′ N, Long. 78°13′ W.

2. What is your wind between fixes?

From .....

Force .....

At 0340 you change heading to make good your destination Latitude 30°09′ N, Longitude 79°04′ W.

3. What is your new true heading?

.....

4. What is your ETA?

.....

(Answers on page 40)

—To China

A new railway line linking the town of Wuyu in the Chinese coastal province of Chekiang with the Chekiang-Kiangsu Railway at Kinhwa has been opened for traffic. This branch line will greatly accelerate the exploitation of natural resources in the area around the delta of Yangtze. More than 1,700,000 laborers were used for construction of the line.

—To Japan

A recent *Nippon Times* editorial on the subject, "A Protracted War," said that "the Anglo-American peoples have been vastly disappointed by the fact their leaders now are warning against a long and disastrous war, a war in direct contradiction to their earlier promises of brief hostilities." The newspaper stated that "setback after setback in both Asia and Europe have dealt disastrously with the Anglo-American hope and increase their apprehension of a protracted war of the most calamitous nature."

—To Japan

New war damage insurance regulations adopted by the Diet were designed to meet contingencies arising from expected Allied air raids on Japan. Finance Vice Minister Matsukuma of Japan explained them to his people.

"The present situation is such that we must believe that there will be air raids in the future in Japan" and because of this possibility, "a new system of damage insurance had to be established."

A main feature of the new regulations is a provision that "those who have adequate fire insurance coverage will not have to apply for war damage protection, but will have automatic war damage coverage as far as the congested areas are concerned." He explained that "congested areas" are those in which the possibility of air raids is stronger.

A top limit of 50,000 yen was placed on coverage of all Japanese-owned property in Japan's "co-prosperity sphere" although "rates have been reduced considerably despite the broader coverage."

—To Japan

"Plans for the invasion of Western Europe by American and British forces are just aimless propaganda, and there are no signs that these plans will be materialized," the Japanese were recently told. "One of the main reasons why plans for the invasion of Western Europe are just loud talk" is a lack of "seasoned officers" in Gen. Dwight D. Eisenhower's command.

—To Asia

The "worst enemies" of the little Japanese wooden ships which ply the South Pacific are "dengue fever and Boeing planes," Domei says. "Huge enemy task forces ply in between our supply bases and the front lines. The enemy has made passage of larger transports infinitely difficult, so the heavy responsibility of safe transportation of food and supplies has fallen upon the crews of these wooden ships. The wooden ships "by day conceal themselves in the shadows of the islands and carry out their duties at night to fool all opponents."

SEASHORE SURVIVAL

Beaches provide large variety of nourishing mollusks, fish

SEA BEACHES and shores of the world contain more easily obtainable wild food than any other division of the earth. An aviator stranded on the seashore in a warm climate should have little difficulty in sustaining himself indefinitely.

Types of oysters, mussels, scallops, crabs, lobsters, shrimp and prawn are found along all seashores. The best hunting will be in the shallow water below the tidal zone and in the tidal pools.

On sandy beaches can be found bivalve mollusks and sand crabs. The loose, soggy soil of salt marshes and mud flats is the home of the fiddler crab, the mud snail, and various other types of mollusks and crabs. The latter also inhabit mangrove swamps throughout the tropics. In all these swamps, oysters, barnacles and mussels are found fastened to mangrove roots near the water line and in the mud.

Oysters and fish are numerous at the mouth of mangrove rivers and streams. Catfish are often plentiful, but the most abundant fish in such areas is the mud skipper. It is small but edible, and will be seen out of water on rocks, limbs, roots and mud banks. On the mud flats at the seaward edge of mangrove swamps, small rays and sharks may be speared as they come in with the tide. Wings or flaps of the ray may be eaten. Birds such as ibis, egrets, herons, flamingos and ducks generally are present in great numbers.

Some fish can be obtained best at night near the surface. In shallow lagoons, mullet and other bottom-feeders can be spotted with a torch and speared or slashed with a machete. In daytime at ebb tide larger fish can be shot as they swim over the reefs with their backs out of water. They frequently swim into the pools on top of reefs at high tide and can be trapped there by building a net across a channel. A seine of coconut leaves is useful for driving fish into a trap.

Crabs and lobsters may be speared, caught with the hands, bait-trapped or caught with a scoop net. As far as is known, all crabs and lobsters, whether fresh water, marine or land forms, are edible. Salt water crabs can be eaten raw, but all fresh water and land crabs should be cooked. Marine shrimps and prawns may be found anywhere in shallow water, but they prefer rocky coasts and reefs. They can be captured best with a dip net.

Marine mollusks, such as oysters, clams, scallops, welks, periwinkles, barnacles and conches, form a large part of the food supply of natives all over the world. Sea cucumbers found on almost all rocky shores and reefs are edible, raw or cooked. Strip out the long muscles inside the cucumber's body which are more edible than pretty.

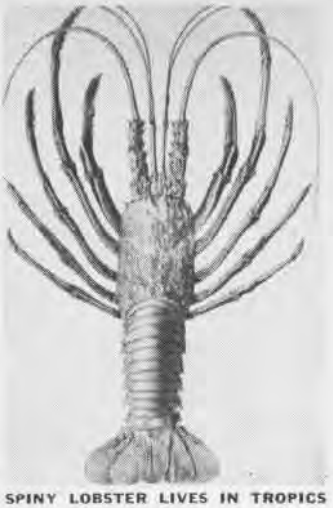
SURVIVAL HINTS—NO. 10

This is the tenth 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.*

THREE PACIFIC FLEET AIRMEN SLIGHTLY FATTENED UP AFTER SURVIVING 34 DAYS IN LIFE RAFT

COMMON LOBSTER IS GOOD EATING

BLUE CRAB IS EXAMPLE OF MANY EXCELLENT SHELLFISH FOUND ON BEACHES



SPINY LOBSTER LIVES IN TROPICS

TWO MOLLUSKS ARE POISONOUS BUT FEW FISH ARE INEDIBLE IN SOUTH PACIFIC

THERE ARE ONLY two groups of mollusks that should be avoided—cones and terebras. They have poisonous teeth and their bite can be fatal. They are distributed principally throughout the tropical and sub-tropical shores of the world, but are nowhere common, and they are easily recognized.

In the north Pacific area the black mussels living on exposed reefs at low tide are occasionally poisonous, though normally edible. The poison is derived from a tiny, one-celled protozoan on which mussels feed.

Some fish are poisonous to eat because of poisonous alkaloids within their bodies, poisonous foods they have eaten or bacterial decomposition. Principal symptoms of fish poisoning are nausea, vomiting, diarrhea, itching, cramps, paralysis and a metallic taste. Symptoms appear suddenly, from one to six hours after eating. No antidote is known and the poison is not destroyed by cooking. Such sickness is not to be confused with the far more common fish poisoning caused by bacterial decomposition which may be destroyed by cooking. In either of the above cases, as soon as symptoms appear, drink sea water and force vomiting.

Poisonous fish seldom are found in the open sea, but shore forms such as pufferfish, porcupine fish, trigger and parrot fish possess toxic substances in their flesh. These fish do not have true scales. Their bodies are covered with smooth skin or by a rough shagrin, bristles or spines.

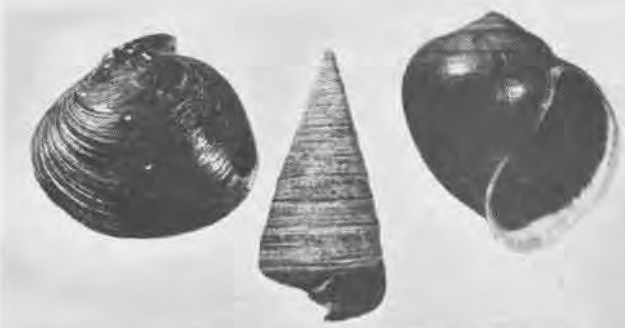
In certain seasons in localized areas, the red snapper and parrot fish around tropical islands are said to be poisonous, and these should be eaten sparingly until proven to be non-toxic. It is thought that these fish become poisonous by eating poisonous marine organisms or plant-like growths around these islands. In certain regions, large barracuda have been reported as poisonous, but this probably was ptomaine poisoning.

All the fish along shores of the north Pacific and in the Arctic Ocean are good to eat. No poisonous varieties are known. Eggs of some sculpins are deadly poisonous. Therefore, don't eat any eggs found on rocks, logs or reefs. Seashores also furnish birds and plants.

SHELLFISH GATHERED AT LOW TIDE PROVIDE MANY RACES WITH FOOD

BIG CRAWFISH CAUGHT IN SHALLOW WATER IS EDIBLE COOKED OR RAW

EDIBLE MOLLUSKS



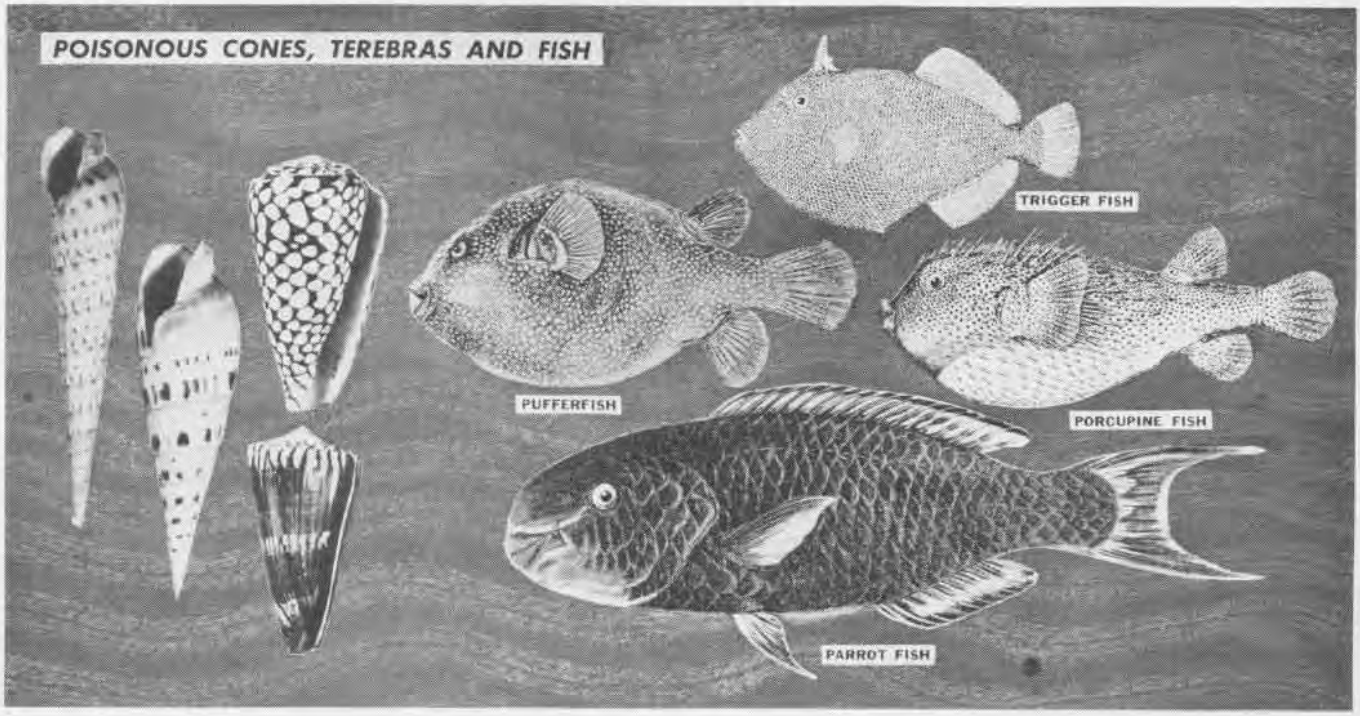
SOME EDIBLE FRESH WATER MOLLUSKS OF SOUTHWEST PACIFIC

SOME EDIBLE MARINE MOLLUSKS OF ALASKA AND THE NORTHWEST PACIFIC

SOME COMMON EDIBLE MARINE MOLLUSKS OF SOUTHWEST PACIFIC

SOME EDIBLE MOLLUSKS OF AFRICA

POISONOUS CONES, TEREBRAS AND FISH



SHIP-TO-SHORE BOMBARDMENT SPOTTING BY VO-VCS SQUADRONS SIMPLIFIED BY MODEL ISLAND; SMOKE POT EMITS PUFFS TO SIMULATE SHELL HITS

BOMBARDMENT TRAINING AID IS DEVELOPED

THE VO-VCS squadron at NAS Jacksonville has developed a new training device to simulate ship-to-shore bombardment, complete even down to miniature puffs of smoke to show where shells burst. With this bombardment board, students practice spotting ship's fire on enemy targets ashore.

The device is in keeping with the growing emphasis on amphibious operations and the use of scout observation planes to direct fire against enemy installations. Designating targets of opportunity by the grid method, specifying types of fire, spotting salvos, anticipating results, and planning succeeding moves—all these shore-bombardment techniques are included in the possibilities of the device.

The table-like board is constructed with an oval base of ¾" plywood, 13' long by 9' wide. It stands 3½' high, on 4" x 4" legs with 2" x 4" braces. Vegetation, buildings, gunnery emplacements, roads, landing fields, bridges, ships, and all other features are made to scale and finished with surprising realism. An apron 1" x 4" extends across the front to represent a bay, in which the attacking Allied ships are located.

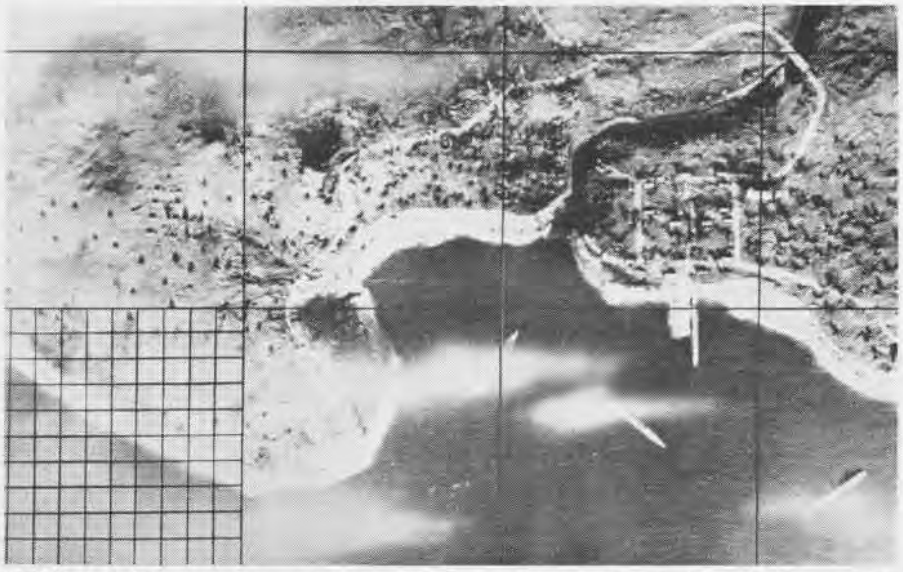
From the hangar balcony, student spotters view the scene much as they would see it from an OS2U. By radio to the moving ships, they designate enemy targets to be destroyed, indicate the type of fire to be used, and then direct the ship's fire.

For example, a bridge is chosen as target for bombardment. Using the "M" square grid, which is imposed upon his photograph, the student finds that the bridge is in square "M6630." He tells the ship's gunnery officer, who has a grid map identical to his own, to direct fire upon the designated area. By means of a smoke-producing device, an operator at the board sends up six puffs of smoke in a salvo pattern somewhere near the chosen target. The air spotter then corrects for range and deflection.

It is evident, therefore, that in conjunction with this board, the student is taught map construction and reading.

BY USE OF a smoke can, a bellows and plywood "head," which emits puffs to imitate the realistic effect of shell bursts, the operator is able to add realism to the spotting practice. The smoke is carried to the proper place on the board by means of the plywood head, which is connected to the smoke can by a flexible metal conduit. Holes are bored through the map itself at regular intervals to produce the spurts.

The Special Devices Division of BuAer, after inspecting pictures of the Jacksonville training aid, said that development of the idea may be attempted by the division to make it more available.



"M" Square grid imposed over photograph helps spotter to orient shell hits and report his corrections in range and deflection back to ship; miniatures help simulate reality of action

THUMBING NOSES *at the Japs, Central Pacific style. Three aircraft carriers and a battle wagon lay at anchor off Kwajalein atoll a few days after an American task force captured Roi Island. Crewmen banish post-battle nervous strain by taking a swim in the warm waters of the tropics. The U. S. task force presented such a spectacular display of aerial and naval strength the Japs were afraid to challenge them as they lay at anchor.*

Navy Gets New Exam Rules

Officer Must Pass Test Ashore

The Navy has issued new orders directing physical examinations for officers assigned to duty outside the continental limits of United States "so that forces afloat and foreign stations may have some assurance that officers assigned them from shore duty are physically qualified for their new duties."

A joint BuMed and BuPers letter directed such examinations for any officer who had not passed a complete physical examination within the six months prior to his date of detachment or who had not corrected any correctible conditions previously noted. A letter suggesting such examinations was received from the *Saratoga* because some officers were arriving at a distant base for sea duty, only to fail to pass a physical.

"The above procedure is adopted in an attempt to relieve forces afloat of the burden of correcting defects which could and should have been corrected prior to the officer's departure from the continental limits," the joint letter said.

Swimming Pool Is Provided

Spring Fills a Jap Bomb Crater

A well-placed Jap bomb during an air raid on Roi in the Marshalls has provided Marines there with an island replica of the old swimming hole. The crater filled up with 15 feet of fresh water from an underground spring, and is now the social center after hours.

Previous to creation of "Crater Lake Junior," bathing was in the ocean.

TBF's Capture Jap Vessel

Menacing Guns Force Surrender

During the Sicilian campaign a naval patrol plane captured 150 Italian ground troops, herding to nearby American troops by firing at their heels. A sequel to this story comes out of the Central Pacific where a squadron of naval aircraft captured a small Japanese surface craft.

After having silenced a Jap 5-inch gun at Kwajalein atoll, the TBF's were bound back to their carrier when they spotted a 25-foot motor sailboat in the sea below. The craft apparently was crewless, but when one *Avenger* swept low over it and was joined by the others, four Japs popped up from hiding and waved their hands overhead in token of surrender. The TBF's circled the vessel until a destroyer arrived to take possession of their prize.

Seapack Bag Is Improved

Travel Luggage Sold at All NAS

Improvements have been made in the Seapack *Ditty Box*, which is available at all naval air stations in continental United States. The new DB, designed as an overnight travel kit or as an auxiliary luggage piece on longer trips, has a capacity for one service uniform on the lid side.

IMPROVEMENTS ARE MADE IN SEAPACK DITTY BAG

The box side has ample room for a toilet kit, one pair of shoes, shirts, socks, night gear and accessories. A detachable lid facilitates packing and strengthens the case. The folding partition in the lid provides essential clothes protection and retainer web straps in the body section complete the new furnishings.

Gunman Sprays Jap Target

He Blasts Foe With Trusty .45

VF-24—The following combat report was turned in on a pilot of this squadron: "Lieut. (jg) X, while cruising over Blank Island at 10,000 ft., rolled back his cockpit canopy, whipped out his .45 pistol and fired three rounds into target area at a 45° angle. Although Lieut. (jg) X is considered a good shot, damage was not determined. Personal satisfaction considerable."

▶ *CNO COMMENT*—**CNO notes the aggressive spirit of this pilot. His fighter will henceforward be classed as a VF, equipped with both fixed and free guns.**

Dine in Swanky Mess Hall

Building Is Mahogany, Teakwood

To duplicate the Marine mess hall at one South Pacific advanced base would cost an estimated quarter of a million dollars, if built anywhere in the U. S.

The rectangular building is constructed completely of mahogany and teakwood cut from dense jungles nearby. The foundation, walls, doors, roof, ceiling and even kitchen drainboards are made from this precious wood.

The Marines stomp in and out of their "South Pacific Mahogany Room" three times a day to take on "chow."

NAVAL AVIATION

NEWS

Jap Searchlights
Target Aircraft
Corpus Christi

June 1, 1944
RESTRICTED

SHARE THIS COPY

TECHNICALLY SPEAKING

Makes Worm Gears Cheaply

Device Wins Worker an Award

A beneficial suggestion award has been given a Portsmouth, N. H., machinist who perfected a way of making small worm gears on a limited production basis. A small milling machine thread-cutting set-up was duplicated on the lathe by inserting a milling cutter on an arbor betwen the lathe centers and mounting the holder for the worm to be cut on the tool post.

Production of the desired lead is obtained by correct designing of the work-holding mechanism. Basically, the thread to be cut is the same as the thread-actuating movement of the piece.

In operation, the crank turns a worm which engages a gear keyed to the shaft having a screw of the same lead as the worm to be cut. The center line of the shaft may be set at any angle to produce the lead angle desired. A spring-adjustable bearing on the left of the attachment slides with the blank as it is cut. Depth of thread is obtained by setting a stop on the transverse feed on the lathe.

DEVICE TURNS OUT WORM GEARS VERY CHEAPLY

[Designed by E. S. Lary]

Bulletins Tell About Planes

ASO Gives Combat Ship Data

Containing unofficial, spot news for maintenance and supply personnel, Technical Supply Bulletins now are being published by the Aviation Supply Office on the following combat planes: *Helldiver* (SB2C, SBF, SBW), *Avenger* (TBF-TBM), *Hellcat* (F6F), *Corsair* (F4U-1, FG-1, F3A-1) and *Wildcat* (F4F, FM).

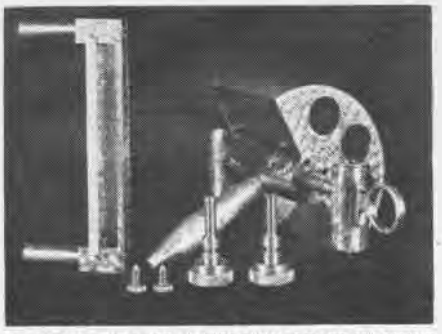
Intended to answer the frequent criticism, "Why doesn't someone tell us these things?" they attempt to anticipate questions of supply arising in the field. They contain information on critical items and corrective measures being taken, spares and spare parts additions or deletions, interchangeabilities and supersedures, packaging and shipping information, and contract changes.

Copies are distributed selectively to material officers, A&R officers, supply officers and engineering officers of activities concerned with the subject plane, with the suggestion that they be passed down the line to all personnel.

"Mec" Makes Skin Grafter

Argentia Need Filled Quickly

NAS Argentia—An essential part of the equipment necessary to perform skin grafting operations is an instrument known as a "dermatome." When this activity was unable to procure one recently the A&R Department built one for the senior medical officer.



MACHINIST'S MATE MAKES SKIN-GRAFT MACHINE

Using only a picture and a drawing taken from the *Navy Medical Bulletin* and suggestions from a commander of the hospital staff, a machinist's mate manufactured the first instrument from scrap pieces of corrosion-resistant steel.

The instrument is accurate to within .001 of an inch. After it had proved satisfactory in use, another was made for a Seabee unit just before it was detached from this activity.

[Constructed by AMM1c Reeves]

To Check Routing Requests

Technical Orders Give Answers

In a number of cases, activities have submitted requests for load adjusters to the Supply Officer (or ASO), NASD Philadelphia. Technical Order No. 77-43, paragraph 11, furnishes complete instructions for such requests which should be directed to BuAer.

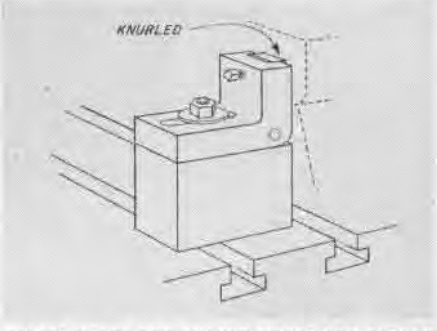
Information outlining reason for need of computer, airplane serial number and model should also be included in request. The only exceptions to this procedure have been the instructions for specific replacements of SNB, JRC and JM load adjusters in applicable airplane bulletins.

Holds Odd-Shaped Pieces

Device Wins Worker an Award

A work-holding device which should prove valuable at any air station's A&R shop has been developed by a Navy yard machinist under the beneficial suggestion program.

The device is in effect a portion of a vise and when used in multiple makes possible effective clamping of hard-to-hold and irregular shaped workpieces.



DEVICE HOLDS ODD-SHAPED PIECES FOR PLANER

To date it has been used mostly on milling machine operations but possibility of application on reciprocating machines of planer type are numerous.

The case of the device is clamped to the bed or platen of the machine or to some fixture. It is placed sufficiently close to the workpiece to permit the movable jaw to contact the workpiece after little movement of actuating screw.

If the operation is repetitive, the workpiece is easily removed by simply releasing the holding jaws of the several devices used on the job. Devices may be used in conjunction with other accessories to adjust to any desired height.

[Developed by C. E. Strother, Machinist]

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Reflectors for Illuminated Sights

Adjustable reflector assemblies for Illuminated Sights Mark 8 and Mark 9, and for Torpedo Director Mark 30, have been designed and now are in production. The reflector is designed to depress the line of sight of the observer to enable him to preset dropping angles for low-altitude and masthead bombing, or to allow for gravity drop of forward firing rockets under any given conditions.

Movement of the reflector plate is accomplished by a simple rack and pinion

ILLUMINATED SIGHT MARK 8 REFLECTOR READY

arrangement (for the Illuminated Sight Mark 9) or a worm and quadrant gear (for the Illuminated Sight Mark 8 or Torpedo Director Mark 30). Since the reflector plate of any illuminated sight acts basically as a mirror, a one-degree rotation of the plate will produce a two-degree angular displacement in the apparent position of the target image.

Reflectors now in production allow approximately 25-degree depression and five-degree elevation of the line of sight. Nomograms have been prepared (see C.L. V23-43) from which dropping angles for any given conditions of air speed, altitude and type of bomb may be calculated.

The adjustable reflector assemblies may be obtained as units and the accepted nomenclature for ordering is: *1* Reflector, adjustable, Mark 2 Mod 1, for Illuminated Sight Mark 8 and Mods. 2 Reflector, adjustable, Mark 3, for Illuminated Sight Mark 9 and Mods. 3 Reflector, adjustable, Mark 1 Mod 1, for Torpedo Director Mark 30 and Mods.

Applicable publications are: *1* OTI FV1-44, dated 11 Feb. 1944, for the Illuminated Sight Mark 9 and Mods. 2 OTI FV2-44, dated 18 Feb. 1944, for the Torpedo Director Mark 30 and Mods.

Since the Torpedo Director Mark 30 is similar in operation to Illuminated Sight Mark 8, no pamphlet has been issued covering adjustable reflectors for the latter. These reflectors are available only in limited quantities and distributed through fleet air commands. Requests should not be directed to BuOrd.

BuOrd Produces Stand-by Ring Sight

Necessity for a good stand-by sight which could be employed effectively in air combat, in case of failure in the Illuminated Sight Mark 9, has long been recognized. While open ring and post sights have been used as stand-bys in the past, they have not been satisfactory because of great limitation in eye-freedom they imposed, as well as focusing difficulties they presented.

To overcome the inherent faults in open ring and post sights, the Bureau of Ordnance recently designed an optical ring sight for attachment as a stand-by auxiliary to the Illuminated Sight Mark 9. It can be pivoted quickly into sighting position, in the event of a power or lamp failure in the illuminated sight. When not in use, this stand-by can be folded downward out of the line of sight.

An ordnance publication (OTI FV10-43) was distributed to all interested naval activities shortly after design of this optical stand-by was completed. Unfortunately, quantity production was found impossible at that time, owing to difficulties encountered in manufacture of calcite crystals necessary for the optical system. With the recent increase in production of synthetic calcite crystals, the main obstacle to mass production has been removed, and quantity

BUORD DESIGNS STANDBY OPTICAL RING SIGHT

distribution schedules have been set up.

There are several outstanding advantages of this sight over open ring and post types. The eye freedom permitted is almost as great as it is in the illuminated sight itself. In addition, the collimated rings are clearly in focus for all target distances, and hence practically no parallax errors are introduced when sighted on a distant target. The radius of the innermost dark ring is 35 mils.

This radius can be fixed at any value by the manufacturer; the radii of the outer, multi-colored rings are controlled by the choice of the radius of the inner ring.

Disadvantages of this stand-by sight are (*1*) the rings of the reticle pattern are broad and (2) it contains no center "pip."

Combine Camera and Sight

Trainer Teaches Aerial Gunnery

VSB 125—An aerial gunnery trainer has been devised by a group of officers and enlisted men in this squadron by adapting an Mk 9 sight and CSAP camera combination into a hand-held device. When the attacking aircraft's flight path will not permit a sleeve to be towed for live machine gun firing, the device is used to teach proper lead and assess the results of the gunner's dry sighting.

Using only the camera and sight, the unit weighs 6 lbs., is 13½" x 4" x 6½" and plugs into the Aldis lamp receptacle. It is small enough to use in the astro-hatch and the developed films show the attacking airplane and the

GUNNERY CAMERA IS COMBINED WITH MK9 SIGHT

image of the reticle of the Mk 9 sight, thus both lead and range estimation can be assessed.

▶ *BuAER COMMENT*—VSB 125 does not mention the method of assessing exposed film for error in lead. When the attacking fighter is in a pursuit curve, error in lead cannot be assessed unless the angle off the fore and aft axis of the bomber at which the fighter plane appears is shown directly on the film and the true air speed of the bomber is known. Unless these two factors have been taken into consideration, correct assessment of lead errors cannot be made.

Subject device does not simulate any gun mount and therefore would be limited in its value as a tracking trainer. There is unquestionable value in having a gunner view pursuit curve attacks made upon his bomber and there may be some value in having a film record to reproduce these attacks for him on the ground.

Attention is invited to the March, 1944, issue of Naval Aviation *Confidential Bulletin*, No. 3-44, pages 27-32. A description appears there of the Free Gunnery Self-Assessing Camera, developed by the Gunnery Section of Special Devices Division, with an evaluation by the Free Gunnery Standardization Committee. When this camera gun has been used, a gunner sees projected on the screen not only the ringsight and attacking plane, but also the correct point of aim in relation to his own point of aim. It is expected that this device will be ready for use in training squadrons soon to help develop their shooting eyes.

PIX QUIZ

WHAT DO YOU KNOW ABOUT FOREIGN RANKS & RATES?

IGNORANCE of foreign military insignia can prove extremely embarrassing. Consider the many cases of foreign dignitaries being insulted with such remarks as "Say, George, call me a taxi," "What time does the next show start?" etc. And there was the American major who suddenly found himself collecting fares at a Greyhound stop out west. All in all, it's best to know your ranks and rates. Try these, then see page 40.

[QUESTIONS FROM VISUAL QUIZ FILM NO. 63, UNIFORM IDENTIFICATION]

Write your answers here

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

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

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

1

This Russian officer is a:

1. Major
2. Colonel
3. Captain
4. Lieutenant Colonel

2

The German in center is a:

1. Corporal
2. Lance Corporal
3. Sergeant
4. Master Sergeant

3

Identify rank of this Russian as:

1. Major
2. Captain
3. Lieutenant
4. Senior Lieutenant

4

Identify rank of this Polish officer as:

1. Major
2. Colonel
3. General
4. Brigadier General

5

Identify Chinese officer as a:

1. Major
2. Lieutenant
3. Major General
4. Lieutenant General

6

Rank indicated on Italian officer's cap is:

1. Colonel
2. Field Marshall
3. Lieutenant General
4. Brigadier General

Bullet Belting Plan Is Fast

Ammunition Painting Is Simple

CASU 23—Large-scale gunnery operations of squadrons serviced by this unit necessitated a change in ammunition belting and painting methods. The following is an outline of steps involved in supplying painted ammunition.

▶As belted ammunition leaves the machine, the projectile tips protrude through painting jig and are painted with a brush. The bench carrying belt is marked off so the man guiding the belt may indicate to machine operator when to cut belt to obtain number of rounds required. The cut length is immediately led into a box.

AMMUNITION PAINTING SYSTEM SAVES ON TIME

This production line principle has resulted in space requirements cut 50 percent, number of men reduced 35 percent, and at least 50 percent less physical effort required of personnel.

Practice Angle Estimating

Device Is Used for Position Firing

NAGS JACKSONVILLE—An angle estimation trainer for position firing has been developed at this station, consisting of a simple semi-circular ring of ¾" plywood counterbalanced to enable the instructor to swing it freely on its axis which consists of two axles resting in two grooved posts. The estimator is placed on the stand so that the axis parallels the assumed fore and aft axis of the student's aircraft.

The instructor stands beneath the ring, and in this position he can sight through the iron ring sights which are installed at the position firing angles (90°, 45° and 22½°).

Students are stationed near the stand and while a plane makes runs on it, the instructor sings out a count (usually from one to 20). During the run each student listens to the count while estimating the desired angle and upon completion of the run, writes down the number heard when he estimated the plane passed the desired angle. The correct answer is noted by the instructor, who gets it by following the plane until it crosses the proper sight on the estimator.

When the run is over, he gives this correct solution to the students who compare it with their estimates. Students are scored by adding total errors. Only one angle is asked for on each run, and it has been found that most practice is required on the 45° angle, with the plane neither directly above nor directly overhead. A few attempts to estimate angles accurately will convince most instructors that practice must supplement the textbook knowledge of position firing. Although scheduled airplane runs are desirable, the estimator can be used on any passing aircraft.

NAGS DESIGNS TRAINER FOR POSITION FIRING

▶***BuAER COMMENT***—**Although the Free Gunnery Standardization Committee does not feel that this device is the final answer to angle-off estimation, it is hoped that it will stimulate other free gunnery activities and encourage work on this important phase of the training of free gunners.**

Computers Meet Air Needs

BuAer Rejects Many Requests

In the past few months frequent requests have been received by BuAer for issue of computers of a specialized nature. Upon investigation of these requests, it has been established that in almost every case one of the standard Navy-issue computers could perform the same function as the requested type. Experience of both BuAer and Army Air Forces has indicated desirability of issuing only standardized equipment. For this reason, it has been necessary to request cancellation of several requisitions for non-standard computers.

While there is no desire to deprive the service of needed navigational equipment, it is felt that current standard issue computers fulfill all needed functions of navigation computers at present and that the non-standard computers requested merely perform a specialized task which is equally well performed by one of the more adaptable standard devices.

Thus, if each request were filled, it would involve procurement and distribution of scores of computers, many useful for only one calculation performed in navigation, confusing not only the supply problem, but also the navigator or pilot who would have to equip himself with a battery of computers.

One of the reasons for these numerous requests may be that the service is not aware of types of Navy equipment issued and all its uses. Below is a list of standard Navy computers available with a short description of uses of each item:

1. FSSC 88-C-1150, Navigational Computer (Mark 8)—for determining ground speed, altitude and air speed correction, time and distance problems.
2. FSSC 88-C-1151, Navigational Computer (Mark 8A)—similar to the above, but incorporating a density altitude scale.
3. FSSC 88-C-963, True Air Speed Computer—for use of high speed and high altitude airplanes. This computer incorporates the factor of compressibility of air.
4. FSSC 88-C-770, Plotting Board for Mark 2A Chart Board—for vector problems, radius of action, compass heading, wind direction and velocity and interception problems.
5. FSSC 88-C-790, Plotting Board for Mark 5A Plotting Board Base—same as No. 4.
6. FSSC 88-C-1160, Square Search Computer—for true air speed of 130 knots.
7. FSSC 88-C-1165, Square Search Computer—for true air speed of 150 knots.
8. FSSC 88-C-1120, Dead Reckoning Computer (E-6B)—for vector, ground speed, compass heading, wind direction and velocity, interception and radius of action problems.
9. FSSC 88-C-77, Cruising Calculators for TBF-1 and TBM-1 airplanes—gives pertinent information regarding fuel consumption. Other cruising calculators are being developed for various airplanes.

FSSC 88-C-83, Cruising Calculators for SB2C-1 and SB2C-1C airplanes—same as No. 9.

FSSC 88-C-85, Cruising Calculators for F4U-1, F3A-1, FG-1 airplanes—same as No. 9.

The above equipment can be used for more extensive purposes than those listed. It is desired that full use be made of these standard issue items. If it is found that any of the computers lack certain desirable features, or if a computer is needed to perform some special function that cannot be done with the above, a complete report on it should be submitted to the Bureau.

NATS PLANE HAS STREAMLINED ADF LOOPS, FIXED ANTISTATIC LOOP, "T" SENSE AND RANGE ANTENNAS, 75 MC. RECEIVING ANTENNA

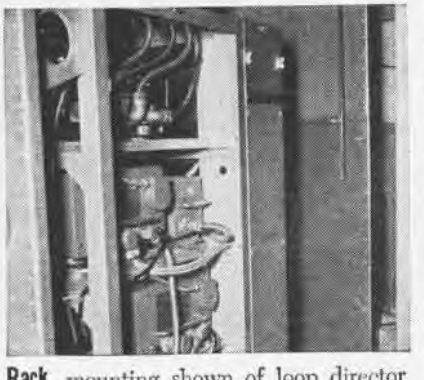
NATS RADIO GEAR

THE DOUGLAS R4D-5 fleet of Naval Air Transport Service is rapidly being equipped with radio gear to meet specific needs of scheduled air transport operation, especially to facilitate navigation under fog and other difficult conditions.

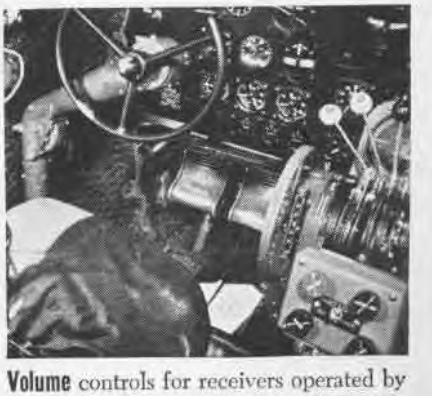
The installation, which already is in service on the transcontinental and Alaskan routes of NATS, is one of the most complete and up-to-date in any air transport field. The installation is built around standard airline radio equipment, or the military counterpart thereof, with the addition of certain pieces of apparatus not yet released commercially.

Each plane is equipped with Bendix RTA-1b ten-channel, transmitter-receiver combination and 2 Bendix MN-31 automatic direction finders. The MN-26K receivers of this system may also be used as range receivers. Other equipment includes Bendix MN-26L radio range receiver, also used as an auxiliary communications receiver; AN/ARN-8 75MC marker beacon receiver and AN/APN-1 dual range radio altimeter. For radio operation in areas where radio telegraphic communication must be utilized, liaison receivers and transmitters are used.

Overhead of cockpit contains tuning controls for two ADF receivers, toggle switches, loop rotators and selector switches for operating ADF equipment



Rack mounting shown of loop director unit, range receiver, dual audio unit, radio altimeter, beacon receiver, RTA-1b communications unit of an R4D-5



Volume controls for receivers operated by pilot are shown, together with switch to connect antistatic loop to the range automatic direction finder receiver

Build Chute for Film Can

BuAer Passes on Timely Advice

MBDAG-41—The parachute and fabric shop, in conjunction with photographic laboratory, has devised a small cargo chute to drop a 5-lb. can of film.

The container is cylindrical in shape, and material used in construction is aircraft grey canvas lined with ¼" felt. One end of the container has a flap lid and is held closed with lift-the-dot fasteners. On the outside are sewn loops to stow shroud lines. Flaps to cover lines and canopy are then added. The chute is connected to the outside of the container by an adapter and 1,200-pound webbing, sewn to the container.

There are 16 shroud lines, 94" long, and of 500-lb. tensile strength. The canopy is made of airplane cloth cotton, with a diameter of eight feet, and a vent of three inches. This makes a small, compact bundle, which is easily handled. It is closed by tacking with 24 x 4" cord. The static line is 500-lb. shroud line, looped through tackings of the 24 x 4 closing cord, also attached to the canopy peak by a 30 x 3 cord, which insures positive opening.

▶ *BuAER COMMENT*—**The assembly described above appears to be excessively strong and heavy for the weight to be lowered. With a parachute of this size, there will be a considerable drift in any wind, unless the drop is made from a relatively low altitude. The standard pilot chute should be adequate for dropping a five-pound can of film. In fact, it is believed that film could be properly packed in a container filled with resilient material to act as a shock absorber and be dropped without use of a parachute.**

Device Helps Gun Loading

Belting Pulls Ammunition Up

A device has been developed at NAS Eagle Mountain Lake to facilitate loading ammunition from ammunition cans up through guide chutes and booster motors to the feedway of guns in Martin 250CE upper turret.

The belt leader consists of a strip of inch belting three feet long and an inch wide with a single half of a .50 cal. M2 link riveted to one end. A wooden plug half-inch in diameter is attached six inches from the end by a lanyard.

In use, the ammunition belt leader is dropped down from the gun feedway to the ammunition can and fastened to the double link on the end of the ammunition belt by the wooden locking pin. Ammunition then may be lifted easily up to the gun.

BuAer Gets Cable Testers

Checks Controls in Airplanes

BuAer is procuring a number of cable testers designed to evaluate efficiency of swaged-type terminals applied to aircraft control cables to insure safe performance in service.

With this equipment, such a test may be applied to aircraft control cable assemblies fitted with Class A, B, C, or D terminals manufactured in accordance with Army-Navy Aeronautical Specification AN-T-2, either immediately after application, or as part of a general inspection and overhaul at intervals.

The unit operates on the hydraulic principle and may be fitted with replaceable cable grips and terminal adapters for accommodating standard 7 x 19 flexible aircraft control cables in sizes from 1/16" to ¼" inclusive. The unit fully assembled and ready for operation weighs only 30 lbs. It is capable of exerting a direct tensile load of 4,000 lbs. on terminal-cable assemblies.

Pressure is applied by means of a fine pitch screw, and a hydraulic gauge graduated in both total pounds per square inch of applied pressure and cable diameters (60 percent of listed cable strength) readily enables the operator to apply the proper load.

This equipment is particularly advantageous because it is portable and convenient to operate, which makes possible accurate testing and inspection of swaged-type terminal-cable assemblies inside the plane. Such a test offers definite and conclusive proof that terminals will develop efficiency of this fitting.

One of these cable testers is being procured for each Class A, B, C, and D Maintenance Activity and Marine Air Group Squadron. ASO stock number R66-M-625 has been assigned to this unit. Testers are furnished complete with fluid, gauge, carrying case, 4 sets of bronze grips for cables in sizes from 1/16" to ¼", operating instructions, etc.

DEVICE HELPS PULL AMMUNITION INTO CHUTE

BUAER PROCURES TESTERS TO CHECK CONTROLS

POWER PLANTS

Rough Operation of R-2800-8 and -10

Several activities operating F4U and F6F airplanes have recently encountered rough engine operation, intermittent popping in the exhaust and excessive drop in rpm on one magneto. Exhaust popping generally occurred during ground run-up and on either mag when making an ignition check. Roughness has been reported at take-off rpm and, in some cases, in flight.

Trouble has been traced to a large clearance of the main center electrode gap in the distributor on the R-2800-8, -10 engines and in some cases to excessive air pressure in the distributor bowls. The latter affects only the R-2800-8 engines in the F4U equipped with Bosch magnetos, because these are more tightly sealed than Scintilla units.

Service corrections may be made in this manner. Adjust the distributor electrode so that installed gap clearance is .020" plus or minus .010". To accomplish this, remove distributor covers and withdraw center electrode (banana plug) approximately .070" out of the bushing. To prevent cocking of the electrode, be sure the pilot on the plug is partly in the bushing of the insulator. Reassemble the cover, making sure the rubber ring gasket is in the proper position and all screws are pulled up evenly. The electrode on the banana plug will seat on the rotor electrode and move back into the bushing, leaving the electrode gap clearance at zero.

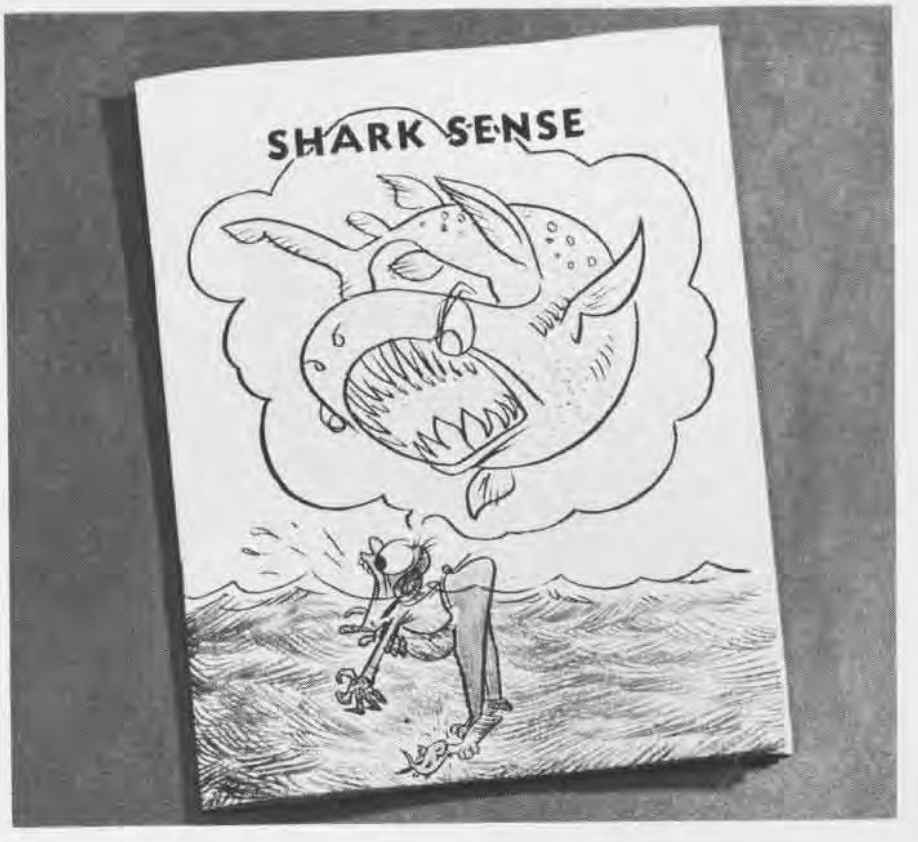
Next remove the cover and measure the space between the bushing in the cover insulator and the under shoulder of the electrode. This space represents original installed gap clearance. If in excess of .030", an adjustment is necessary. This may be accomplished by pulling banana plug out of bushing and shimming it up until desired gap clearance is obtained. For shimming, use $\frac{3}{32}$" dia. brass, steel or dural discs, approximately .020" thick. The proper number of these discs are placed in the bottom of the bushing to give the desired electrode gap clearance. The electrode is lightly tapped down into the bushing to make sure it is solidly in place. Check the space under electrode shoulder, then reassemble the cover.

In order to reduce the air pressure in distributor on the R-2800-8 engines, it will be necessary to redrill the two vent plugs on the breaker section on all DF18RU (Bosch) magnetos. Remove the two plugs and open the existing bleeds from $\frac{3}{64}$" dia. drill (.016") to $\frac{3}{64}$" dia. drill (.047"). Reduction in distributor pressure is necessary in order to prevent distortion of the distributor covers which is encountered when excessive pressure is present. This change will not affect the altitude characteristics of the ignition.

The foregoing information is furnished as an expedient, to be used only if vital.

SHARK SENSE

New manual published by Aviation Training Division puts sharks in proper place



MEN WHO KNOW most about sharks fear them the least.

With this opening shot, *Shark Sense*, newest pamphlet published by the Aviation Training Division, Office of the Chief of Naval Operations, proceeds to debunk Sammy Shark and the unsavory reputation he has built for himself since the first sailor put to sea.

Paraphrasing the toastmaster's old saw, "To know sharks is *not* to love them." Nobody *loves* sharks, or even has a casual fondness for them. Deep-sea sailors often fear them. Commercial fishermen hate them. Scientists have not dignified the breed with a great deal of intensive study. As a result landlubbers will believe any shark story they hear, provided it is gory enough. It is true that, if you get forced down in any tropical waters, you may come in contact with sharks. However, the more you know about them and the fewer legends about them you believe, the happier you will be in your predicament. Calm, intelligent conduct will enhance your chances of survival more than anything else known to date.

Shark Sense was prepared for the information of naval personnel who may encounter sharks in tropical waters. It represents a digest of the known pertinent data, and the considered opinions of serious-minded commercial shark fishermen and sponge fishermen whose daily work brings them in close contact with all kinds and sizes of sharks. It is the opinion of these men who know *that there is practically no danger that an unwounded man floating in a life jacket will be attacked by a shark.*

In the interesting and humorous style of previous *Sense* pamphlets, the manual goes into the habits and habitats of the shark and winds up with a few things to keep in mind if you find yourself in close contact with tropical waters:

1. There is very little danger from sharks.

2. People suffer more from shark fright than from shark bite.

3. Staunch a bleeding wound as soon as you are free from your parachute. This not only may prevent sharks from being attracted to you, but it may keep you from bleeding to death.

4. Keep your head while waiting to be picked up by rescue plane or boat. You can't win from a shark in a biting match, but you can win in a thinking match.

5. Don't believe anybody's shark stories, even if he can show you the ocean in which it happened. A shark is a fish, and a fish story gets quickly out of hand. All fish stories are not lies, but very few are ever handicapped by statistics.

6. If you are on a life raft instead of in a life jacket, don't dangle your bare feet overboard. A fish, and not necessarily a shark, may mistake your toe for a new feather spinner and strike for it.

USE THIS FORM TO ORDER PAMPHLET

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

FROM: _____
(Unit commander)

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

SUBJECT: Pamphlet—Request for.

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

COPIES	PAMPHLET
_____	Shark Sense

SIGNED: _____

Delivery _____

Cut here **Address:** _____

PLASTIC PROFESSORS

Teaching by transcription proves popular training method

THE NAVY'S NEWEST METHOD of teaching—with phonograph records—has been received favorably by students, instructors and commanding officers.

The first recordings for this purpose were produced about three months ago to explain checkouts in pilot cockpit replicas, step-by-step, instrument-by-instrument. Now, a special project has been set up by BuAer's Special Devices Division to prepare and distribute them to training commands with training devices.

Designated Device 12-ZR, these first recordings are intended primarily for use with Pilot Cockpit Replicas, Device 12-Z (NANEWS May 1, 1944). However, they may also be used with Cockpitrainers, Device 17-A, or in hangar instruction in the operational plane. They may be used to instruct one student at a time as he sits in the cockpit or its replica, or may be set up in multiple for training several students simultaneously.

The teaching-by-transcription technique helps standardize instruction and is geared to give the student plenty of time to master each step. If he doesn't get the word on operation of the device the first time, he moves the needle back and hears the "plastic professor" speak again.

A set of recordings has been made by Special Devices Division for each of the latest SBD-5, SB2C-3, TBF-1, F4U-1, FM-2, F6F-5, BTD-1, SNJ, SNV and SNB. Each album consists of a series of recordings. For example, one series is for familiarization. It gives a checkout on the location of all standard instruments and controls in the cockpit, with a brief description of each. A second series gives directions for folding and spreading wings for handling radio and oxygen equipment. A third series tells the student about cockpit procedure, from starting the engine to landing, with all check-offs described. Another series introduces common failures and emergencies and gives instructions for standard solutions to these problems.

WHAT OTHERS SAY

"The records will prove a valuable training aid."

—CNAT.

"They're excellent. I wish I had had them when I was in training. They will help familiarize students with planes in a hurry and will be especially useful in helping a pilot transfer to another type of plane. Every squadron will use these records."

—ComFair West Coast Ground Training Officer.

"The recordings will be of great assistance in maintaining the increased quota of pilots by helping to supplement the present training program."

—Head of Ground Training, NAOTC.

Pauses in the recordings allow the pilot plenty of time to become familiar with instruments and controls, absorb directions and follow instructions in routine procedures. Educators agree that this is an excellent training method.

A SPECIAL SHELF is hung over the side of the cockpit to hold the phonograph and album. The pilot turns on the phonograph and plays the records in proper sequence. The individual student uses a headset. A loudspeaker may be used to teach large groups.

"The purpose of this record is to introduce you to the cockpit of the F6F *Hellcat* fighter," the student hears as he starts a recording. "In order to make everything clear and simple, we'll start in one corner of the cockpit and work our way around gradually. As we call off the instrument, you find it and touch it. Okay?"

The student becomes alert and ready to go through each step.

"Let's start with the emergency release handle for your arrester hook. You'll find it on the bulkhead behind your seat . . . on the left-hand side of the cockpit—down near the deck. It's that T-handle connected to the cable. . . ."

With such step-by-step instruction, the student learns the controls quickly, and after hearing the series of recordings and going through steps as described, he can change over to the real plane in short order.

Other devices for which recordings have been made include the generalized flight engineer's panel, Device 12-E-1-D, sectionalized .50 cal. machine gun and 20 mm. aircraft cannon, Device 11-D-4.

Response to the recordings has been so good that numerous other devices are being considered in the project. Teaching by transcription gives instruction, saves time, personnel and expense.

RECORDINGS RECEIVE ACCLAMATION OF NAVAL AIR TRAINING HEADS

INSTRUCTION IN GENERALIZED FLIGHT PANEL IS AIDED BY RECORDS

PHOTOGRAPHY

Camera, Equipment Technical Orders

BuAer has just initiated a program which eventually will make available to all photographic units a technical order complete with manual of instructions and spare parts list of all cameras and photographic equipment either now in use or under procurement. As each project is completed these technical orders may be obtained from NavAer publications. Additional information will be published as the work progresses. They should not be requested until listed in the NavAer Publication Index.

▶ Recently a very good series of photographs showing landing operations and occupation of an enemy-held island arrived in the Navy Department. Such photographs are valuable for many purposes.

▶ BuAer is preparing books of instruction on fixed installation of cameras in aircraft. This information will be distributed at the earliest possible date.

Advanced Base Labs Serve All Units

When islands are captured from the Japs and new outfits move in, it is a poor time to argue about what laboratory services whom. Facilities of the first laboratory established should be used to its fullest capacity with definite recognition given as to what particular job rates priority. Teamwork among the various branches of the service ran the Japs off Guadalcanal. Likewise, the gates of Tokyo can and will be crashed.

Map Laying With Waterproof Paper

Some units have reported difficulty in getting prints to adhere to the prepared map laying board. To overcome this trouble, rub back of prints with acetone to remove thin coating of waterproofing material. Very little acetone is required for each print, but be certain that waterproofing is removed from edges of the print in order to avoid curl at the edges when mounted.

This trouble will be eliminated on future supplies of waterproof stock photo paper.

Model K-20 Is Fixed Focus Camera

Some suggestions have come to BuAer regarding converting the present K-20 camera to a focusing model. The British RAF has found the K-20 to be a very desirable combat camera and some of their units have made individual efforts to modify it into a focusing model. Their report to the Fairchild representative states that the camera so modified would be the nearest thing to an all-purpose camera.

Owing to engineering difficulties involved, period of time necessary to make the change, and the fact that most naval units have other focusing model cameras, BuAer does not at the present time contemplate making alterations in the K-20.

Design Communications Aid

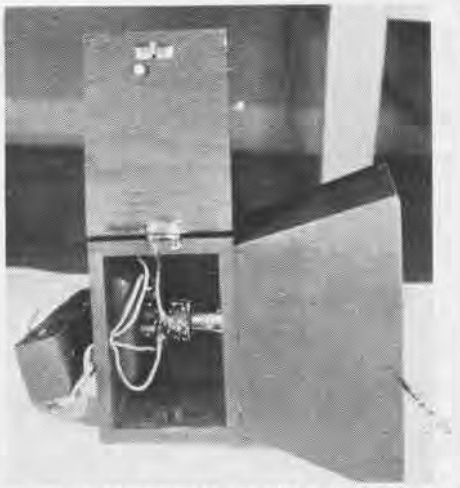
NAS Uses New Training Device

NAS SANFORD—Two officers at this station have designed a synthetic device for ground training and blinker communication that has four distinct advantages over units previously used:

1. It eliminates afterglow completely; *2.* reduces eye fatigue; *3.* has sharp visibility, free from distracting shadows or reflection, and *4.* closely simulates a filtered blinker light seen 2 to 4 miles.

Since the device has been in use here, the rate and accuracy of reception have increased an estimated 20 percent. The heart of the device is a 2¾-watt Argon lamp bulb of pastel orchid color. It contains no filament and consequently has no afterglow. Each dit and dah is clean cut. The bulb operates on 110-120-volt ac with a sending key interposed in the line.

Besides the bulb, materials used are an ordinary lamp socket, two hinges, one snap closure, a small quantity of ⅜" plywood and flat black paint.



BLINKER HAS ADVANTAGES OVER OTHER TYPES

Beading Tool Wins Award

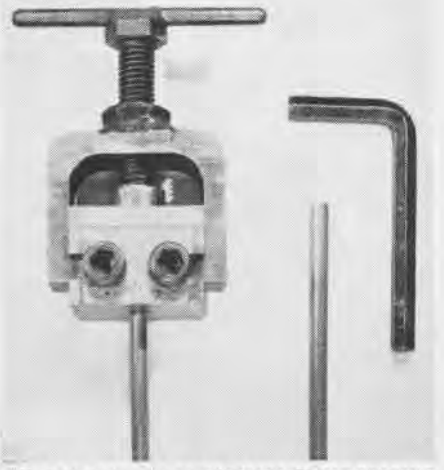
Works on Tube Still in Plane

A worker at the Naval Air Material Center, Philadelphia, has received an award under the beneficial suggestion program for perfecting a quarter-inch beading tool which works on the compression of tubing principle.

Main value of the tool is its portability, which allows beading without removing tubes from planes. The tool consists of a clamp, tightened by Allen-type screws, which firmly grips the tubing about a quarter inch from the end, and a screw press arrangement for pushing the end of the tube until it buckles into a bead.

To operate the tool, the tube is pushed through the Allen-head screw die and into the square plate until flush. The parts are then assembled, leaving about 1/16" between the screw die and the square plate. When this gap is closed by turning the hand screw, a bead is formed.

[DEVELOPED BY EUGENE FINNEY]



WORKER WINS AWARD FOR TOOL TO AID BEADING

TRAINING SQUADRON *at* NAS *Dallas is cosmopolitan in its make-up, to say the least. On the station there are naval officers, Marine officers, Coast Guardsmen, Navy enlisted men, Marine Corps enlisted men, French A-V (P) officers, WTS instructors and aviation cadets. The picture above gives an idea of the variety of student naval aviators in the training squadron and the variety of uniforms to be seen any ordinary day on the station.*

MISSING: ONE FIGHTER PILOT

Lt. M. was serving his first tour of duty as a fighter pilot when he was shot down during a bomber-escort mission in the Pacific. Blinded by an explosive shell and his plane out of control, Lt. M. jumped.

A blurred, misty view of trees below, followed again by complete blindness, and an almost immediate landing in a dry creek bed—convinced him that he could not have been more than 500 feet above the ground when he jumped.

Regaining consciousness after the crash, the Leatherneck found he had suffered a sprained right wrist, split nose, and a few bruises. His left eye was completely closed; he had partial vision from the other.

I DOVE FOR THE jungle as soon as I regained consciousness because I was certain the Japs would send out patrols to find my burning plane. Well hidden, I rested and listened to the 50-caliber bullets from my crashed plane exploding. After awhile I took a chance and crawled back to the creek bed to get my emergency jungle kit and rubber boat from my parachute. I succeeded in bandaging my wounds all right, but didn't have the strength to hide the 'chute.

My equipment was in pretty good shape—wrist watch and compass both worked—and I had plenty of jungle rations. The mountain streams offered plenty of fresh water. I had just two thoughts: *1.* I wanted to get away from the Jap concentrations around their airfields; 2. I wanted to get back to the coast and out into the ocean where our search planes might spot me.

I was in mountainous country the first three days, and had to work my way down by the streams. I was nervous, even jittery! You see, I had no depth perception in my one eye, and I imagined Japs and unfriendly natives all over the place. In fact, the first day I hid out all afternoon, and started moving again after dark.

The third day I had to back-track. The mountain stream I was following suddenly became a waterfall going hundreds and hundreds of feet down. I walked back up the stream, climbed up the steep banks, and worked overland to the jungle below. I came out not far from the base of the waterfall, and found that my mountain stream had become a sluggish jungle river.

There was nothing to do but wade slowly down the river. I saw all kinds of fish, some little ones and some big ones, but I didn't depend on them for food. Jungle rations kept me going as I worked my way towards the coast. It's a good thing I had those rations as I saw no wild foods at all on the mountainside or in the jungle. I didn't even see a coconut until I was a short distance from the coast.

I'll never forget the next afternoon. It was my sixth day in the jungle. The river suddenly widened, and I could hear breakers in the distance. I inflated my rubber boat, loaded it with coconuts, and floated to the mouth of the river. I was blown to sea by an offshore wind.

At dawn I spotted a ship moving through the mist. It went by silently not far away—a Jap submarine! Around noon, I saw nearly a hundred of our planes high overhead on the way back to the base. Not one of them saw me. Later a lone PV flew over quite a bit lower.

I was determined to catch his attention. I did—thanks to my mirror. He circled, dropped some more rations within 25 feet of my rubber boat, circled for an hour and a half, and then disappeared for help. Later that afternoon, another PV circled overhead and dropped a dye-marker, but because of the rough water, he didn't spot me.

That evening a Jap fighter plane flew overhead and I saw another one of their submarines. I must have been living right. They didn't see me. The next afternoon I was picked up by a PBY.

BEST ANSWERS

Survival

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

1. If a pilot asleep in the jungle wakes up to find a snake in his bunk, he should—

- ☐ *a*–lie perfectly still
- ☐ *b*–flash a light on the snake to frighten him away
- ☐ *c*–grasp the snake tightly below the head
- ☐ *d*–get away from the bunk as fast as he can

2. As a general rule, a pilot forced down in the jungle should eat—

- ☐ *a*–only small game
- ☐ *b*–any animal he can catch
- ☐ *c*–monkeys and lizards, but not snakes
- ☐ *d*–snakes and monkeys, but not lizards or water rats

3. A person in the jungle should not eat—

- ☐ *a*–raw fresh water fish
- ☐ *b*–anteaters
- ☐ *c*–bats
- ☐ *d*–iguanas (lizards)

4. The greatest dangers of the jungle generally result from—

- ☐ *a*–wild animals
- ☐ *b*–unfriendly natives
- ☐ *c*–the heat
- ☐ *d*–insects

5. A person in the jungle shows fever, slow pulse, weakness, and has black vomit. He is probably suffering from—

- ☐ *a*–malaria
- ☐ *b*–sleeping sickness
- ☐ *c*–dysentery
- ☐ *d*–yellow fever

6. Men adrift on the open sea should eat any fish—

- ☐ *a*–except those which glow green at night
- ☐ *b*–caught out of sight of land
- ☐ *c*–except those brilliantly colored
- ☐ *d*–found along rocky or coral reefs

CORPUS CHRISTI

Here at the world's largest naval air training center, aviation cadets up from primary schools fly advanced plane models to earn Navy wings. This mighty citadel of naval aviation has trained thousands of fliers to fight the Axis.

Corpus Is University of the Air

CORPUS CHRISTI, the Navy's University of the Air, is the largest naval aviation training activity in the world. Located in a state for which many superlatives are claimed, Corpus Christi sprawls over three counties, covers approximately 20,000 acres, and has 997 hangars, shops, barracks, warehouses and other buildings.

Corpus Christi is headquarters for the Chief of Naval Air Intermediate Training. Under NAITC are NATC Pensacola, NAS Atlanta and NATC Corpus Christi. The latter consists of NAS Corpus Christi, and the six naval auxiliary air stations at Rodd, Cabaniss, Cuddihy, Kingsville, Waldron and Chase Fields.

Located at Corpus Christi but not under NATC are the U. S. Naval Hospital, equipped and staffed to serve the Eighth Naval District, as well as the training center; the Naval Air Technical Training Center at Ward Island, and the U. S. Naval Section Base.

LESS THAN four years ago the site of NATC was a sandy, brush-covered waste, 10 miles southeast of the city of Corpus Christi on the Texas Gulf Coast. Ground for the first building was broken in June 1940, and the station was commissioned March 12, 1941. The first group of aviation cadets arrived a week later.

BEFORE construction, Flour Bluff, site of the main station, was covered with heavy thickets, mesquite brush typical of the Southwest, ebony and scrub oak. High sand dunes were leveled to make foundations for the buildings. The shore line was extended far out into the bay to make a fill area now occupied by the officers' quarters, both married and single, and the senior officers' homes facing Corpus Christi Bay.

Despite the fact that the training center is just going into its fourth year, Corpus Christi presents a wholesome, well-established appearance of solidarity and efficiency. Its wide, clean, paved streets, huge hangars, well-kept buildings and barracks attest that here the Navy has a job to do—and is doing it. Corpus Christi's flat reaches, its bays and lagoons, and good flying weather make it an excellent location for this Navy job of training cadets to be naval officers as well as naval aviators.

NATC CORPUS CHRISTI ADJOINS AND SOME SECTIONS OF IT ARE LOCATED ON THE GIGANTIC KING RANCH, LARGEST CATTLE DOMAIN IN THE WORLD

OS2U's flying in formation are a familiar sight at the main station. Cadets selected for observation scout training fly *Kingfishers* and N3N's on floats in the advanced stage of their intermediate instruction. Others are assigned to patrol bomber and CV-type planes

Cadets undergo a rigorous four-month instructional period at Corpus Christi before winning their Navy wings. This intermediate pilot training is divided into three phases: basic, instrument and advanced, and consists of flight, military and classroom instruction

These future naval aviators learn survival at high altitudes in low-pressure chamber. Cadets must practice abandoning ship, breaking out life jackets and life rafts, getting out of parachutes at sea, and ditching. Classroom lectures supplement the demonstrations

The aviation cadet training program has the difficult twofold purpose of producing naval aviators who can command as well as fly. For this reason instructors at NATC Corpus Christi make every effort to develop leadership qualities during pilot training period

CADETS GET TOUGH INTERMEDIATE TRAINING, WIN WINGS AT CORPUS

AVIATION CADETS are assigned to Corpus Christi (and Pensacola) for the intermediate stage of their pilot training. Here they learn to fly SNJ's, SNV's, SNB's, OS2U's, PBY's and N3N's on floats. They get the specialized training that eventually will qualify them for duty with carrier or land-based squadrons.

Fresh from primary, the cadet arrives at the intermediate center and plunges immediately into a rigorous induction week schedule that includes physical and mental examinations and ground training courses. One week from the time of his arrival, he is ready for the basic stage of his intermediate course. Normally, this stage lasts three weeks and is conducted at certain of the auxiliary air stations.

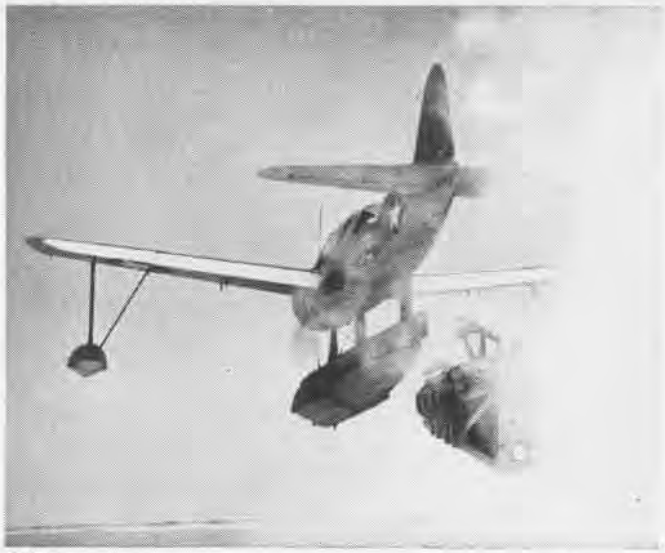
In basic the cadet learns to fly the SNV, an intermediate trainer that serves as a transition from the "Yellow Peril" to the more advanced SNJ. He distributes his time among squadron activities, ground training school, military and physical training, code room and the battalion barracks where he sleeps and studies.

From three to four weeks of instrument training follow the basic stage. During this important instructional period the cadet spends hours in Link trainers and under the hoods of SNV's and SNJ's. Normally, cadets get their basic training at Cabaniss and Cuddihy Fields and their instrument training at Chase Field and the main station.

On completion of basic and instrument training, the cadet branches out into a specialized type of flying and is assigned to one of several kinds of advanced work. He may go to a patrol bomber squadron to fly PBY's from the seaplane area on the main station; to an observation scout squadron to fly OS2U's and N3N's on floats from Laguna Madre on the main station, or to carrier-type training at Kingsville or Waldron Fields. In CV squadrons, cadets fly SNJ's and devote considerable time to aerobatics, gunnery, navigation, instrument flying, glide bombing, primary combat and formation tactics. Aerobatics include loops, slow rolls, Immelmans, precision spins and wingovers.

In addition to cadets, NATC trains a limited number of student officers—men with civilian flying experience who are commissioned by the Navy and trained to fly the Navy way.

Ground crew takes advantage of detested fog to swab down the PBY's. Cadets in patrol bomber training fly "Cats" at main station



Cadets in observation scout training practice catapult take-offs in preparation for battleship, destroyer or seaplane tender duty

INSTRUCTORS FIT GROUND TRAINING TO SPECIFIC TYPES OF PLANE

IN GROUND TRAINING, which is integrated with the flight schedule, the cadet learns the theory of flying, plus engineering courses, advanced aerology, communications, gunnery, navigation, operations and recognition.

Training officers bend every effort to make ground instruction as practical as possible. After the cadet has been assigned to a squadron for the advanced stage of intermediate, ground training is adapted to the particular type of plane that he will fly. This is especially true for gunnery, aerology and navigation.

At the end of approximately four months of their intensive pilot training, cadets win their wings and are designated naval aviators, with commissions as ensigns in the Navy or second lieutenants in the Marine Corps. With the exception of a small percentage who are retained at NATC as instructors, the newly commissioned officers go to operational training to make final preparations for duty with the Fleet.

CLOSELY TIED IN with the aviation cadet's daily schedule of pilot training at Corpus Christi is the Aviation Cadet Regiment. All cadets belong to the regiment, which has the responsibility of berthing, messing, military training and discipline.

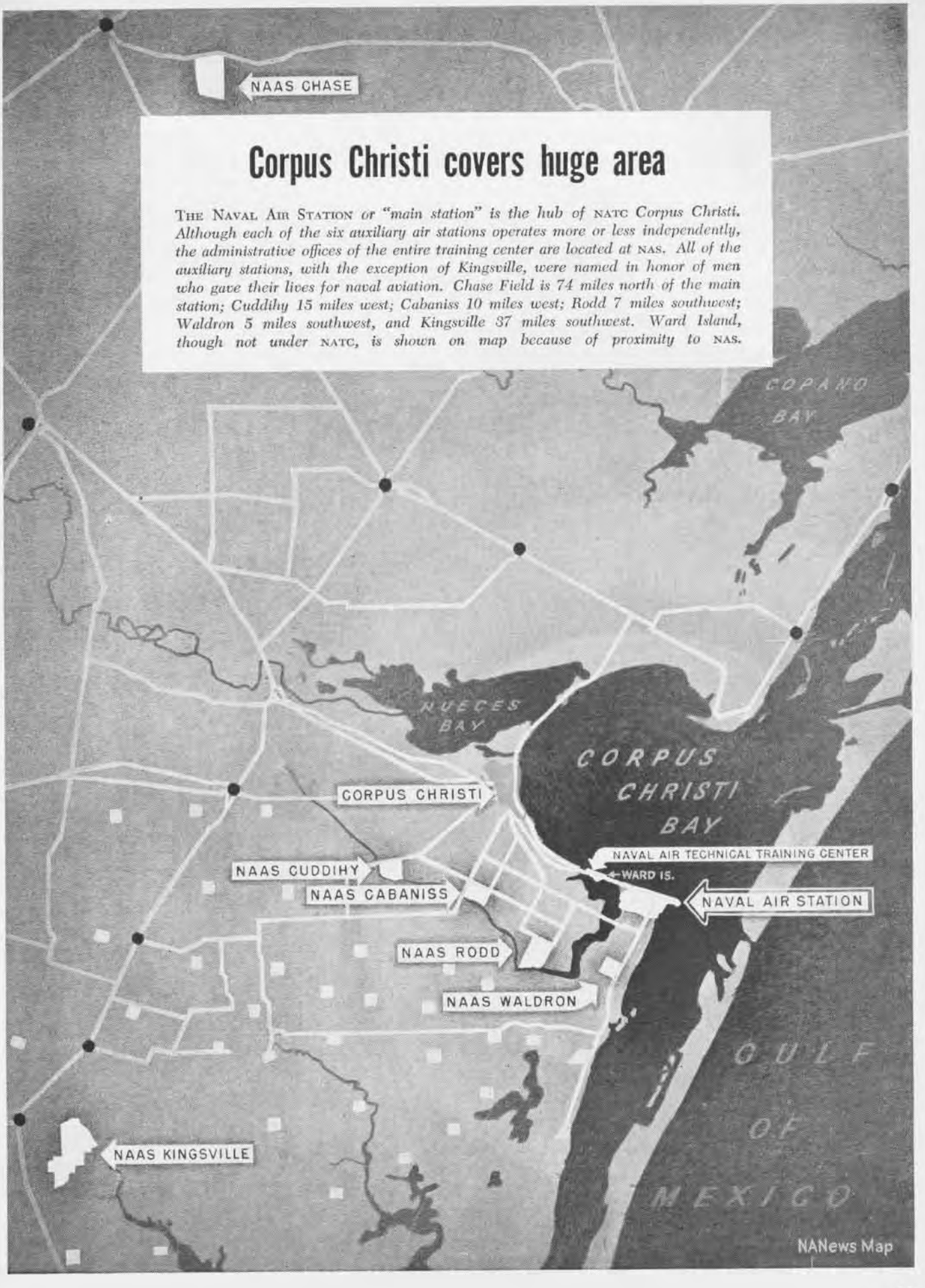
The organization is that of a naval regiment ashore, adapted to local needs. Twelve battalions, six on the main station and six at auxiliary stations, function under the supervision of a headquarters staff of commissioned officers, headed by the officer in charge.

Each battalion houses cadets assigned to a certain squadron or squadrons. As a cadet progresses in training, he passes successively through five battalions, his length of stay depending on his stage of training. From the battalions cadets proceed to squadrons, ground training school, drill, athletics and other activities of a full schedule which runs from 0540 to 2200. The cadet's daily routine closely resembles that of the midshipman at the Naval Academy.

Mass movement of cadets about the station is on foot and in military formation, with the exception of certain trips regularly made by bus to save time. Commissioned officers supervise these formations, but the actual command is exercised entirely by cadets. Regulations prescribe strict procedure for nearly every detail of the aviation cadet's life.

These naval aviators have just won their commissions and are indulging in final bull session before going to operational training

Classroom instruction parallels flight training to give cadets well-rounded background. Ground school covers variety of subjects



Corpus Christi covers huge area

THE NAVAL AIR STATION *or "main station" is the hub of* NATC *Corpus Christi. Although each of the six auxiliary air stations operates more or less independently, the administrative offices of the entire training center are located at* NAS. *All of the auxiliary stations, with the exception of Kingsville, were named in honor of men who gave their lives for naval aviation. Chase Field is 74 miles north of the main station; Cuddihy 15 miles west; Cabaniss 10 miles west; Rodd 7 miles southwest; Waldron 5 miles southwest, and Kingsville 37 miles southwest. Ward Island, though not under* NATC, *is shown on map because of proximity to* NAS.

CADETS DEVOTE AT LEAST ONE HOUR A DAY TO PHYSICAL TRAINING. COMPETITIVE SPORTS SUPPLEMENT THIS TO KEEP STUDENTS FIGHTING FIT

STRICT ATHLETIC PROGRAM KEEPS AVIATION CADETS IN TOP FORM

THE AVIATION CADET arriving at Corpus Christi is physically fit. Pre-flight training has made him so and primary training has continued the job. The principal function of the intermediate physical training program is to keep the cadet's body tough and durable for the duty that lies ahead.

Corpus Christi accomplishes this task with a well-balanced schedule of competitive sports. Day before graduation the cadet gets his final check from the physical training officers. He undergoes a brief but thorough series of tests which include chins, push-ups, jump-reach, short obstacle course, and a physical fitness or "step" drill. The latter consists of stepping up on a gymnasium bench and stepping down again for five minutes, after which the cadet's pulse is taken. If the cadet maintains a certain average on all the tests, the physical training officers give him an upcheck, and as far as they are concerned, he can get his wings the following day.

Of all sports the cadet participates in at Corpus Christi, swimming ranks first in importance and is an absolute must.

TEST DEMONSTRATES WATER SURVIVAL PROBLEM

NATC STRESSES SWIMMING AND WATER SPORTS

STEP DRILL GAUGES DURABILITY OF CADETS

LATIN-AMERICANS GET 10 MONTHS' TRAINING

SPANISH IS USED FOR MOST OF INSTRUCTION

ASSOCIATION FOSTERS GOOD NEIGHBOR POLICY

CORPUS CHRISTI TRAINS FLIERS FOR LATIN-AMERICAN COUNTRIES

AN INTERESTING south-of-the-border aspect of the training at Corpus Christi is the special instructional program set up for Latin-American fliers. This entails the training of military aviators for Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru and Uruguay.

Each of these countries has been invited to send a certain number of cadets or officers to Corpus Christi for training. With few exceptions, the Latin-American nations keep their quotas filled, with new groups arriving as the graduates return home.

The course of instruction requires about 10 months. On arrival, each group goes through two weeks of indoctrination and preliminary ground school courses. The third week they start flying in the primary squadron that is organized principally for their training. They follow the regular syllabus for cadets through basic and instrument training, but in the squadrons the work varies owing to the fact that the Latin-Americans get all of the advanced work.

AN EFFORT HAS BEEN MADE to eliminate duplication of work, such as formation flying and navigation, and to allow more time in those phases in which each advanced squadron specializes. In the carrier squadron gunnery, bombing and formation flying are stressed; in the scouting and observation squadron over-water navigation, with scouting and search, receives emphasis once the student is familiar with seaplane handling; in the patrol bomber squadron the handling of twin-engine seaplanes is stressed, with the remainder of the time devoted to celestial navigation; in the bomber squadron twin-engine instrument flying receives the greatest attention, while the other time is divided between navigation and anti-submarine bombing and strafing.

The ground training program runs concurrently with flight training for the first 16 weeks and consists of English, radio, gunnery, recognition, aerodynamics, aerology, motors and navigation. Although a considerable number of the Latin-American students speak good English, virtually all of the instruction is in Spanish. This helps to make men feel at home.

LATIN-AMERICAN FLIERS FOLLOW REGULAR SYLLABUS THROUGH BASIC AND INSTRUMENT TRAINING, THEN TAKE ALL ADVANCED WORK IN SQUADRONS

Lettering of instrument dials with radium is one of many intricate jobs A&R performs

In the A&R shop, as in other departments, Corpus Christi WAVES fill important jobs

Skilled fingers of naval and civilian personnel work nimbly to rib-stitch a wing

ASSEMBLY & REPAIR DEPARTMENT TURNS OUT HUGE VOLUME OF WORK

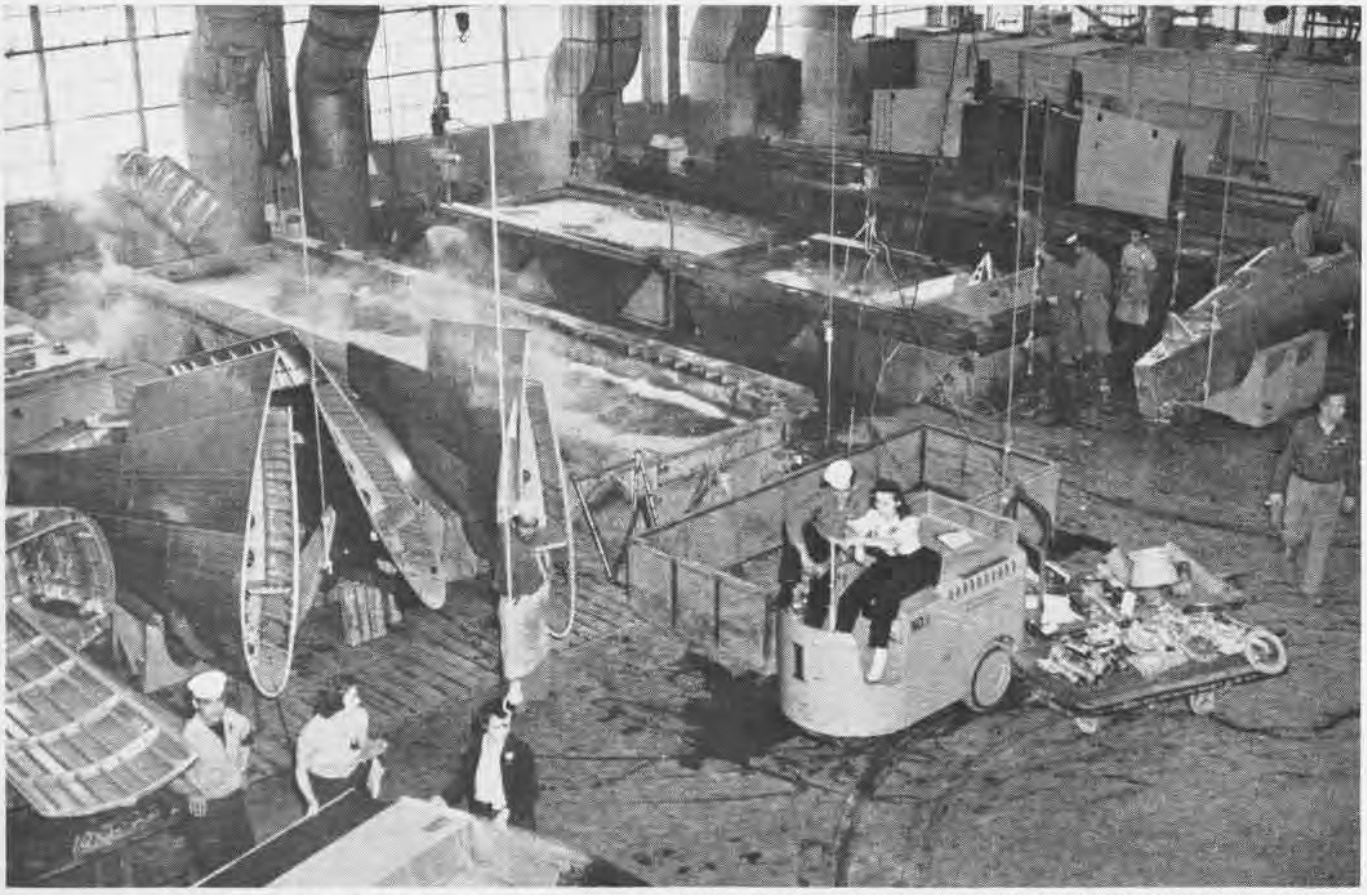
CORPUS CHRISTI's Assembly and Repair Department is one of the largest and most important in the entire naval establishment. Its functions are set forth clearly and succinctly in the A&R Manual:

"The Assembly and Repair Department is charged with the overhaul, repair, test and manufacturing operations on aircraft, engines, accessories and spares when requested and duly authorized by competent authority."

The A&R Department is administered by the Assembly and Repair Officer and is organized into three sections and nine divisions. The Administrative, Engineering and Personnel Sections function directly under the Executive Assistant, and the Planning, Overhaul Control, Structures, Accessories, Machine and Metals, Engine Overhaul, Assembly and Test, Plant, and Interim Overhaul Divisions function under the Production Superintendent.

BESIDES BEING charged with the overhaul, repair, test and manufacturing operations at NATC, Corpus Christi's A&R Department is responsible for overhaul on all the Navy's SNJ's, SNB's, JRB's and SNV's, except those based at Pensacola.

The Department operates as a modern, efficient manufacturing plant. Its physical properties, including A&R shops at the auxiliary stations, cover approximately 24 acres. The hangars are so immense that the traffic lanes are given street names, and stop and slow signs caution drivers of shop vehicles, as well as pedestrians, at practically every intersection—one of the many safety measures employed in A&R.



IN THIS BUSY SHOP OF THE A&R DEPARTMENT, PARTS AND SECTIONS OF AIRCRAFT ARE DIPPED INTO GIANT VATS OF BOILING SOLVENT FOR CLEANING

THE COMMANDANT OF THE NAVAL AIR TRAINING CENTER PRESENTS NAVY WINGS AND ENSIGN'S COMMISSION TO GRADUATE OF INTERMEDIATE TRAINING

SOLEMN-FACED GRADUATES OF INTERMEDIATE TRAINING RAISE THEIR RIGHT HANDS TO TAKE OATH AS NAVY ENSIGNS OR MARINE SECOND LIEUTENANTS

DID YOU KNOW?

Jap Rifle Holds Up Coats

Marine Puts Souvenir to Work

MCAS EL CENTRO—What to do with a Japanese rifle captured at Guadalcanal was solved recently by a Marine captain at this station. He uses it for a halltree!

The metal shop made a stand to hold the rifle and added a removable set of hooks to the muzzle. This simple procedure turned the gizmo into a handy article. Although its usefulness as a halltree excels that of a shooting iron, the rifle can still be used for hunting purposes. With a slight turn of a thumb screw, the stand and coat hooks are removed.

SOUVENIR JAP RIFLE NOW HOLDS MARINE DUDS

How to Become a Goldfish

Club for Airmen Saved by Rafts

One of the most highly prized possessions of RAF fliers and an increasing number of American airmen who have been forced down at sea and saved by their inflationable dinghies or Mae Wests is a small gold-colored waterproof card certifying that the bearer "has qualified as a member of the *Goldfish Club* by escaping death by the use of his emergency dinghy" on such and such a date.

Members of the club wear a small black cloth emblem on which is woven a golden fish bearing a large upswept white wing. Headquarters of the club are now in England, but airmen with the necessary qualifications may obtain membership through *Flying* magazine by submitting an affidavit stating the facts and countersigned by the airman's commanding officer.

Popularity of the club has swept through Allied air forces and there are now members from Britain, Poland, Belgium, Australia, South Africa, Canada, United States, France, Norway, Czechoslovakia, Holland, New Zealand.

Shotgun Firing to Expand

More Shells Allowed Squadrons

Adequate production of small arms ammunition has permitted the Navy to extend shotgun training to personnel attached to newly formed aircraft squadrons during shakedown training period and also set up an annual allowance upon completion of this period.

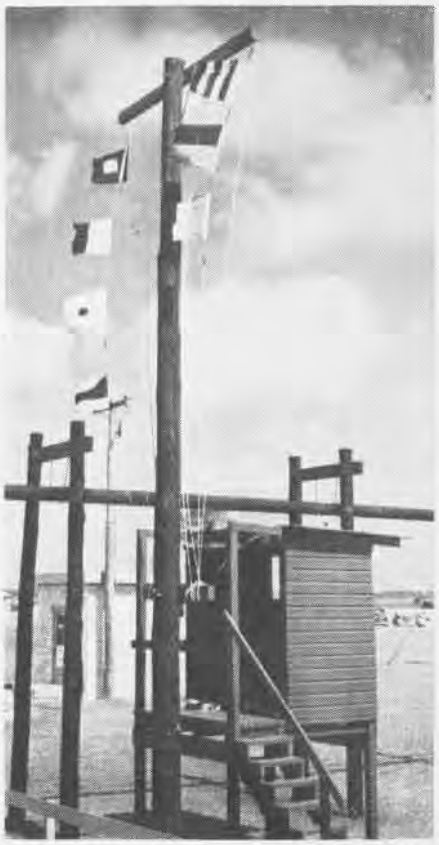
It is possible now for fixed and free gunners to expend 300 rounds of 12-gauge shotgun ammunition for training purposes during the shakedown period and an additional annual allowance of 300 rounds. Such authorization is contained in BuOrd Circular Letter A-53a-43. Twenty percent tracer shells are provided and are reported to be valuable training aids.

It is desired, when practicable, for all shotgun training to be supervised by competent instructors at established aviation free gunnery units and schools. However, as it is realized this will not be possible in all cases, equipment such as traps, shotguns, ammunition and clay targets will be issued on a limited basis to requesting activities. Traps and shotguns should be requested from CNO (Op-33), while ammunition and clay targets may be drawn as directed by the BuOrd letter.

All activities authorized to receive shotgun training should request equipment for quarterly requirements.

Use Signal Flags, Blinkers

Aid to Communications Training



FLAG HOIST AND SIGNAL TOWER FOR BLINKER

NAS FT. LAUDERDALE—A signal tower with yardarm has been designed to assist in communications training of pilots and aircrewmen undergoing operational training at this station. Tower was placed to be visible from radio code room.

Front of tower facing ground school building is open from waist to head high to permit mounting of an aldis lamp used in sending blinker to code room. Flag hoists are used regularly in training periods and at other times some message is flying to attract attention and stimulate general interest in flags about the station among its trainees.

Navigators' School Moves

Hollywood Turns Out Thousands

Another training school which was launched shortly after Pearl Harbor to speed output of aviation personnel—the Naval Air Navigation School at Hollywood—has been closed down and remaining operations transferred to NAS Shawnee.

In July, 1942, the Navy decided a program of air navigation was necessary to produce the thousands of non-pilot and pilot navigators needed by the Fleet. Since then 3,000 have been graduated from Hollywood. New training policies now give navigation training to pilots while they are going through their regular training, so that no specialized course was found necessary.

The A-V(S) and W-V(S) officers to be trained as instructors now are the only class of students entering Naval Air Navigation School. They get basic at Shawnee and get advanced training at operational training units in long range navigation and/or carrier navigation. Upon graduation they will be assigned duty in functional training commands as instructors; Naval Air Transport Service as navigators and Fleet units as instructors.

When the navigation school first was launched in 1942 it was held at Miami under Pan American. Instructors for the Hollywood school, which began in February, 1943, were trained at Miami. Durings its more than a year of activity, Hollywood turned out 3,111 navigators, including Navy officers, cadets, WAVES and Marines.

Officers Keep Up Studies

Argentia Offers Wide Program

NAS ARGENTIA—In addition to their regular duties, officers attached here participate in a broad program of personnel improvement, both physical and mental. Each officer engages in the physical fitness program and attends weekly scheduled lectures and demonstrations. Voluntary instruction is given in military knowledge and skills.

Under the latter program come such activities as firing small arms, machine guns, and sub-machine guns. Others continue practicing identification of ships and aircraft. Forty-three percent of all officers are enrolled in correspondence courses offered by the Naval Reserve Educational Centers.

A mandatory information curriculum is being offered which includes a variety of practical topics of naval service, such as anti-personnel mines, booby traps, safeguarding military information, prisoner sense, logs, aerial torpedoes, bombs, rockets, regional diseases and prevention, and personnel handling.

The brainwork is supplemented by compulsory physical fitness activities, including ice skating, hiking, athletics.

Navy Trains Bomber Crews

Hutchinson Is Selected as Site

With the increased use of four-engined bombers in the Pacific campaign, the Navy has inaugurated training of naval aviators and aircrewmen in PB4Y's at NAS Hutchinson.

NAVY TO TRAIN LIBERATOR CREWS IN KANSAS

The Kansas station formerly was used for primary training but has been turned over for operational training of the *Liberator* crews. It is one of 25 activities under the Naval Air Operational Training Command, a sizable construction program being launched to prepare the field and facilities for bombers.

Aviation radiomen, ordnancemen and machinist's mates who comprise the combat crews will go to Hutchinson after finishing up at technical training centers and after graduation from naval air gunnery schools. Pilots and aircrewmen go through their final phase of training together before going directly to combat areas.

Training of patrol plane service units for *Liberators* also is being conducted at Hutchinson under supervision of the technical training command.

Navy Evacuates Commandos

P-Boats Rescue 250 Australians

Navy pilots staged one of their outstanding rescue acts recently in evacuating 250 Australian Commandos from the wild jungles 60 miles from Wewak, New Guinea, to save them from an impending Japanese large-scale attack.

Flying *Catalinas* that were barely able to set down on the narrow Sepik River, the pilots shuttled back and forth for several days to the north coast point where the Aussies were hiding out after Japs had bombed out their camp. They had gone into the jungles to do some reconnaissance work. The Japs prepared an infantry drive to eliminate the Commandos but all they found when they arrived were some ingenious booby trap installations left by the Aussies.

LUCKY THIRTEEN *comes home—with two scalps in her belt. The landing was ungraceful, and the carrier deck sustained some nice gashes, but it nevertheless was a happy homecoming for the ship and its pilot after a strike at Kwajalein. The* Hellcat *sustained a 3-inch anti-aircraft shell hit which knocked out its radio and damaged its arresting gear. Despite the damage, the ensign pilot brought his plane back and shot down two Japs on the way. A quick photographer beat the deck crew to the wrecked F6F plane.*

Navy Mariner Rescues Men

48 Survivors Picked Up at Sea

Taking off on heavy swells 30 to 50 feet high, a Navy *Mariner* rescued 48 survivors of the S.S. *Cape San Juan*, sunk in the Pacific while in troop transport service. The plane flew 300 miles out to sea, taxied about to pick up the oil-coated men and then returned to its base, where it had previously unloaded cargo to go on the rescue mission.

The plane was operated by a Pan-American Airways crew. Because the sea was running so high, it was impossible to maneuver the plane near the drifting men, so life rafts with lines attached were tossed overboard and the men hauled alongside.

The biggest problem was getting the big ship off the water, with the heavy surf running. At 55 knots, the 23-ton craft bounced off the first swell to a height of 30 feet. On the second bounce one wing dipped dangerously low, but by exercising full aileron control the pilot brought it up before the plane touched the water again. After a series of five or six bounces, the *Mariner* finally was airborne.

Tin Cans Join War Effort

Help Swimmers to Stay Afloat

NAS Grosse Ile—Water wings for beginning swimmers, using salvaged No. 10 tin cans soldered together, are used with success in the training pool to teach strokes. A strap is attached, so that the float can be fastened around the body in any desired position. In the back stroke it is placed over the middle of the stomach so that the student can concentrate on arm and leg movements, and does not have to worry about keeping afloat. The idea was not original here but may be new to some stations.

Clarify Wearing of Badge

Unit Citation Star Usage Limited

Clarification of the right to wear Presidential Unit Citation ribbon with stars has been made by the Navy to limit its use only to personnel who actually participated in the battle in which the unit won the honors.

Persons attached to the unit who were not present or personnel who subsequently join the unit can wear the citation ribbon, but without the star, and only while attached to the unit.

A circular letter issued by BuPers set forth procedures for revoking the right of a naval aviator or naval aviation pilot to wear the Navy wings. Such revocation could be made if the man was unfit for flight duties by reason of refusal to fly, malingering or discontent or because of breaches of flight regulations and requirements of air discipline.

DUNNING COMPLETES FIRST LANDING AS FRIENDS STOP HIS PLANE

PLANE CRABS IN SIDEWAYS, THEN FELLOW PILOTS HAUL IT DOWN

FORWARD END OF CARRIER SLOPED UP TO BRAKE-DOWN AIRCRAFT

ON SECOND LANDING TRY, DUNNING WENT OVERSIDE, WAS KILLED

BRITISH LAND ON SHIP DECK

Many men were killed and aircraft wrecked before landing techniques on a ship's deck were perfected. Accompanying photos show the first landing made on a British ship at sea, achieved by Squadron Commander Dunning of the Royal Navy in 1917 aboard the H.M.S. *Furious*, a converted cruiser. Early carriers had no arresting gear and in this particular operation fellow pilots attempted to pull Dunning's plane to the deck before it went overside. On his second landing attempt, pictured above, he was killed in such an accident. Parallel wires acted as guides for the plane's undercarriage.

LETTERS

Sirs:

Until recently we thought that Gilbert Goat, pride and joy of the Aviation Cadet Regiment, was a confirmed misogynist, but not so. Inspecting Gilbert's quarters the other day a cadet discovered a picture of Nana, our mascot's pin-up goat. Judging from the likeness, she must be an extremely lovely creature.

The battalion that wins top honors in the monthly regimental review gets title to Gilbert for the following month, but the battalion finishing last on parade "wins" his care and custody.

AVIATION CADET
NATC Corpus Christi

Sirs:

Thought you might be interested in a recent All-Navy wedding ceremony performed in the station chapel. Lt. (jg) Jeanne Corkhill, W-V(S)(H), became the bride of Lt. Floyd E. Moan, USN. Mrs. Moan is stationed at NAS Quonset Point, and Lt. Moan is in the A&R Department, NATC Corpus Christi. He wears the Navy Cross and Purple Heart.

LIEUTENANT (jg), W-V(S) USNR
NATC Corpus Christi

BLISSFULLY IGNORING *the proud Navy* Hellcat *nearby, these two naked intruders stand on the coral landing strip at a South Pacific base, riveting their attention on more important matters.*

BEST ANSWERS

to questions on page 26

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

Sirs:

I would like to know how I can get the NAVAL AVIATION NEWS book that is published twice monthly. Please tell me how I can get that book and what does it cost.

EMIL HILBERT
Construction Battalion Maintenance Unit 575

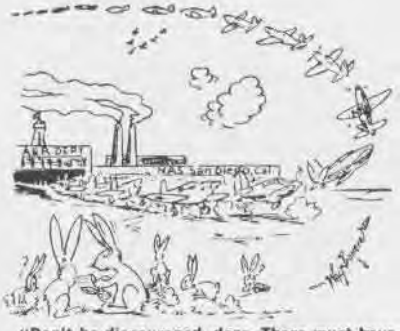
¶ Seabee units do not receive the NANEWS, not being aviation, but Seabees located near squadrons or air bases may be able to see the magazine there as all such units receive numerous copies.

Sirs:

Would it be possible for my address to be put on the NAVAL AVIATION NEWS mailing list? I am an NROTC student at University of Southern California and majoring in commercial aviation.

CHARLES A. MACKENZIE
Los Angeles

¶ Copies of NANEWS are not mailed to individuals. Copies are sent, however, to all colleges and universities with naval aviation activities, including the V-12 unit at U. S. C.



"Don't be discouraged, dear. There must have been more than two of them to begin with!"

ANSWERS TO RANKS AND RATES QUIZ

on page 19

1.4 2.4 3.1 4.4 5.4 6.1

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

ANSWERS TO CELESTIAL NAVIGATION PROBLEM

on page 12

1. GCT 0330 fix Lat. 28° 42′ N
   Long. 78° 21′ W
2. Wind between fixes From 253½°
   Force 38½ k
3. New true heading 314°
4. ETA 0423

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

PUBLICATIONS

The following Aviation Circular Letters, Technical Notes and Technical Orders have been issued since April 1, 1944, and all Flight Safety Bulletins since their establishment. Copies are available on request to Publications Section, Bureau of Aeronautics.

AVIATION CIRCULAR LETTERS

ACL 19-44A	*Federal Airways Flying Qualifications and Instrument Flight Clearances.*
ACL 31-44	*Aeronautical Technical Publications and Forms—Distribution of.*
ACL 32-44	*Contractor-Furnished Airframe Spares for Combat Type Aircraft.*
ACL 33-44	*Manufacturer's Status of Material Form, Discontinued Use of.*
ACL 34-44	*Certain Types of Utility Aircraft—Overhaul Turn in Schedule for.*

TECHNICAL NOTES

TN 30-44	(Restricted) *Technique for Operating Nose Wheel Equipped (Tricycle Type) Airplanes from Landing Fields.*
TN 31-44	*Modification of Armature Shaft on Eclipse Type 309, 310, 314, NEA-2, NEA-2B, NEA-2D and NEA-2E Generators.*
TN 32-44	(Restricted) *ATR Aircraft Transmitting Equipment Noise Reduction of.*
TN 33-44	*Airborne Radio—Use of Solderless Fittings and Terminals on Antenna Wire—Approval of.*
TN 34-44	*Replacement of Shoulder Harness.*
TN 35-44	*Prevention of Leaks in Aircraft Tubing.*

TECHNICAL ORDERS

TO 43-44	*Hydraulic Accumulators—Testing of.*
TO 44-44	*Life Vests—Provision for Safety Loops for CO_2 Actuating Lever.*
TO 45-44	(Restricted) *Index of Technical Orders, by Models, Specifying Maneuver Restrictions of Naval Airplanes.*
TO 46-44	(Restricted) *Model TDR-1, TDR-2, and XTDR-1 Airplanes—Restrictions on Maneuvering.*
TO 47-44	(Restricted) *Calibration of AVD, AN/ARN-1 and AN/APN-1 Series Altimeters.*
TO 48-44	*ATC Transmitting Equipment By-Pass Capacitors, Addition of.*
TO 49-44	*Isolating Capacitor for Use With ARB Receivers When Used With AN/ARC-5 or ARA Equipments and Connected to a Common Fixed Antenna—Installation of.*
TO 50-44	*Wheels, Brakes and Struts—Modification and Testing—Hayes 20" x 2 3/4" Expander Tubes.*
TO 51-44	*Type A Condensers Used With NEA-3 and NEA-5 Generators and 800-1 Motor Alternators—Reconnection of.*
TO 52-44	(Restricted) *AN/ARC-5 Aircraft Radio Communication Equipment—Modification of.*
TO 53-44	*Substitution of Life Jacket Dye Marker Packets for Specification AN-S-10 Dye Sea Marker in Cans.*
TO 54-44	*Use of Oxygen for High-Altitude Flying.*
TO 55-44	*Oxygen—Prohibited Uses of.*

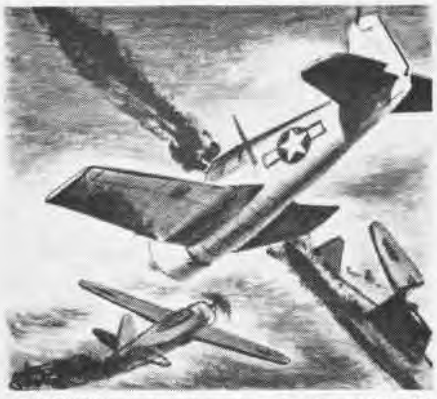
FLIGHT SAFETY BULLETINS

FSB 1-44	*Flight Safety Bulletins; establishment of.*
FSB 2-44	*Use of Aeronautical Charts.*
FSB 3-44	*Take-offs Under Instrument Conditions.*
FSB 4-44	*Abandon Plane Procedure.*
FSB 5-44	*Hard Landings.*
FSB 6-44	*Pilot's Advisory Service—Extension of by Army Air Forces to Include U. S. Naval Aircraft.*
FSB 7-44	*Shifting of Fuel Tanks.*
FSB 8-44	*Spiral Recoveries on Instrument.*
FSB 9-44	*Emergency Aircraft Equipment.*
FSB 10-44	*Induction System Icing.*
FSB 11-44	*PV Ditching Procedure.*

HE GOT 9 ZEKES ALL RIGHT, BUT

...will it be cited in the Navy's Official War Record?

1 NICE GOING! Any pilot or aircrewman deserves to swell with pride over a job well done, even if damage to the enemy is considerably less. Aerial combat achievements now are being written up to give recognition in Navy's official record of the war.



2 NAVY'S blow-by-blow description of World War II will include aerial feats and accomplishments of personnel and squadrons.

3 PILOTS, AIRCREWMEN and squadrons on board 15 March 1944 are reported by the CO's who were in command at that time.

4 REPORTS, which should cover information listed below, include their achievements from 7 December 1941 to 15 March 1944.

HERE'S THE DOPE WANTED

on PILOTS, AIRCREWMEN and SQUADRONS on board 15 March 1944

Period covered: 7 December 1941 to 15 March 1944

- Name
- File No.
- Present rank (USN, USNR)
- Rank at time of action
- Date of action
- Outfit
- Plane flown
- Planes destroyed in air
- Planes destroyed on ground
- Probables in air
- Probables on ground
- Hits on enemy ships
- Other damage
- Decorations
- Noteworthy facts

(Achievements after 15 March 1944 will be reported on new forms distributed soon.)

NOTE TO PILOTS AND AIRCREWMEN

Reports must come through CO's as of 15 March 1944

REPORTING OFFICERS: Most reports on achievements in air combat now are in, but a few stragglers are holding back the compilation. If your report has been delayed, please send it in NOW with information accurate and complete. The War Record is waiting for it.

5 FOR PROPER DELIVERY, reports should be addressed to Chief of Naval Operations, Op. 33-j, Navy Department, Washington 25, D. C.

THEY DID IT...GIVE THEM CREDIT!

"YET FLY 'ER HE DID . . ."

NO. 1 OF A SERIES

When GEORGE E. KAPOTAS *took off in a* Douglas Dauntless (SBD) *dive bomber for a Navy mission against Kwajalein atoll last December, he knew he had a job on his hands. His rating as radioman and rear seat gunner guaranteed that.*

He knew, for instance, he'd be kept busy at his radio and be on the alert for Jap fighters. But he never dreamed he'd have to pilot the plane. Yet fly 'er he did, for 45 minutes, to return himself and his wounded pilot ♠ ♠ ♠ ♠

THE pilot was flying through the heaviest anti-aircraft fire his squadron ever had encountered when his plane was hit. Fragments tore through the floor of the front cockpit, splintering the metal seat and wounding the pilot in the thigh. The seat was so ripped and torn that the pilot found it impossible to sit on the jagged metal and had to hold himself up off the seat.

This, of course, made it necessary to take his hands off the controls. Kapotas was equal to the emergency. If the pilot couldn't fly the plane home, he'd do it.

An aviation radioman, first class, Kapotas had been around airplanes long enough to know what to do. He swung his seat around (gunner faces tail), inserted the stick and took control before the plane could go into a spin. Three-quarters of an hour later, he was in the landing circle above the carrier.

Now he was up against a real problem. He had never attempted to bring a plane down on a flight deck. Luckily he was spared the experiment. The pilot, despite terrific loss of blood, summoned enough strength to take over the controls and make the landing. The moment the wheels touched the deck, the pilot cut the switch of the plane and passed out.

AIRCREWMEN HAVE WHAT IT TAKES!