NAVAL AVIATION NEWS

End of the Jap Fleet
VF(N) Camera Tallies
Marine Navigators

Sept. 15, 1945
RESTRICTED

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Atomic Bomb

1 **After the** atomic bomb struck, dust and smoke in a 20,000 ft. high mushroom, hovered for hours over city of Hiroshima.

2 **Later the** same day reconnaissance showed city still ablaze. Damage was roughly comparable to big B-29 attack.

3 **Hiroshima**. 60 percent of its area burned or blasted, photographed from 25,000 ft. one day after the atomic bomb fell.

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END OF THE JAP FLEET

Most of Japan's battleships were named for provinces (*Nagato, Ise*), aircraft carriers for birds and dragons (*Hosho*), heavy cruisers for mountains (*Atago, Nachi*) and light cruisers for rivers (*Kuma, Tama*). But even the fact that the vaunted battleship *Yamato* bore the sacred name for Japan did nothing to prevent its destruction at the hands of the U.S. Navy in 1945, along with the bulk of the remaining major units of the Japanese fleet.

Three times this year the Navy's fast carriers smashed effectively at the Jap fleet: in March, April and July. In March, carrier planes attacked the Japs at Kure and Kobe, damaging numerous warships. Then in April, when the enemy task force built around the *Yamato* sallied forth to attack the U.S. fleet at Okinawa, Navy carrier planes struck again, sinking Japan's last modern battleship and a light cruiser of the *Agano* class.

After this disaster, the Japs took the rest of their navy into hiding. Under elaborate camouflage, carriers, cruisers and old battleships lay quiet, apparently hoping only not to be discovered. But in July Allied planes hit again, practically annihilating the Japanese navy as an effective fighting force.

PHOTOGRAPHIC INTELLIGENCE

JAPANESE CVE KAIYO (TOP) AND CV AMAGI FEEL U.S. NAVY'S WRATH AT KURE

TASK FORCE 58

PHOTOGRAPHS of Kure on March 18 showed that there were a large number of major Japanese warships in the Inland Sea. The next day U. S. carrier planes attacked the Jap fleet in its Kure stronghold. As American bombs descended, enemy ships maneuvered desperately, but few escaped damage.

Reconnaissance following the strike showed that hits had been scored on: one *Ise* class battleship; one carrier, *Amagi* or *Katsuragi;* one light carrier, *Ryuho;* a light cruiser *Oyodo;* and possibly a heavy cruiser and smaller ships.

Photographs of Kobe revealed that an aircraft carrier hull *Ikoma* and an escort carrier were damaged during attacks on enemy ships there.

Army and Navy photographic cov-

THERE WAS NO SAFE SPOT FOR JAP VESSELS IN KURE HARBOR DURING THIS ATTACK BY ALLIED PLANES FROM FAST CARRIER TASK FORCE

HIT JAPS AT KURE IN MARCH

erage of Japan and Japanese-controlled ports by this time was so complete that a close estimate of the enemy's strength could be made. It was known that Japan had three battleships: the *Yamato* (slightly damaged); the *Nagato* (observed re-gunning at Yokosuka); and one *Kongo* class ship. Two *Ise* class battleships, whose after turrets had been removed to make room for a flight deck, were afloat. One of these hermaphrodites was damaged.

Only three carriers appeared operational or nearly so: the *Amagi* and *Katsuragi*, one of which was damaged, and the *Kasagi*, nearing completion.

Japan had one damaged light carrier *Ryuho*, one training carrier, *Hosho*, three escort carriers and three more CVE's nearing completion. Six heavy cruisers were visible in photos, but two of these were damaged.

Only three light cruisers, *Oyodo*, *Yahagi* and *Sakawa*, could be located on pictures. The *Oyodo* was heavily damaged.

The maximum force of major vessels the enemy was believed capable of putting to sea after March 19, until the ships at Kure were repaired, amounted to: two battleships, one *Ise* class battleship-carrier; one or two carriers, one light carrier *Hosho;* and four heavy and two light cruisers.

Photographic intelligence at that time failed to account for a Jap battleship and two carriers, which were believed possible victims of U. S. subs.

BATTLESHIP HARUNA, CARRIER KATSURAGI, AND I-15 CLASS SUB ARE PLASTERED BY AERIAL BOMBS

MANY DAMAGING HITS WERE SCORED WHILE ENEMY MANEUVERED WILDLY

CHARGE OF THE YAMATO WAS JAPS' LAST ATTACK

THE NIGHT of April 6, U. S. submarines spotted a Jap task force steaming at full speed toward the Ryukyus. Word was flashed to the Fleet. Next morning carrier search planes spotted the enemy ships southwest of Kyushu, and 380 planes were launched for the strike.

This attack resulted in the sinking of Japan's last remaining modern battleship, the *Yamato*, which was hit by at least eight torpedoes and eight half-ton bombs. Carrier planes also sank a Jap light cruiser of the *Agano* class and three destroyers. Other ships in the Jap force were heavily damaged but probably limped back to port.

The *Yamato* and its sister ship, the *Musashi*, which went down in the Second Battle of the Philippines Sea, were completed about four years ago and had been described as the most powerful battleships in the world. Before its sinking, the *Yamato* was the flagship of the Japanese Navy.

DIRECT HIT BURSTS ON FANTAIL OF JAP CL IN EAST CHINA SEA

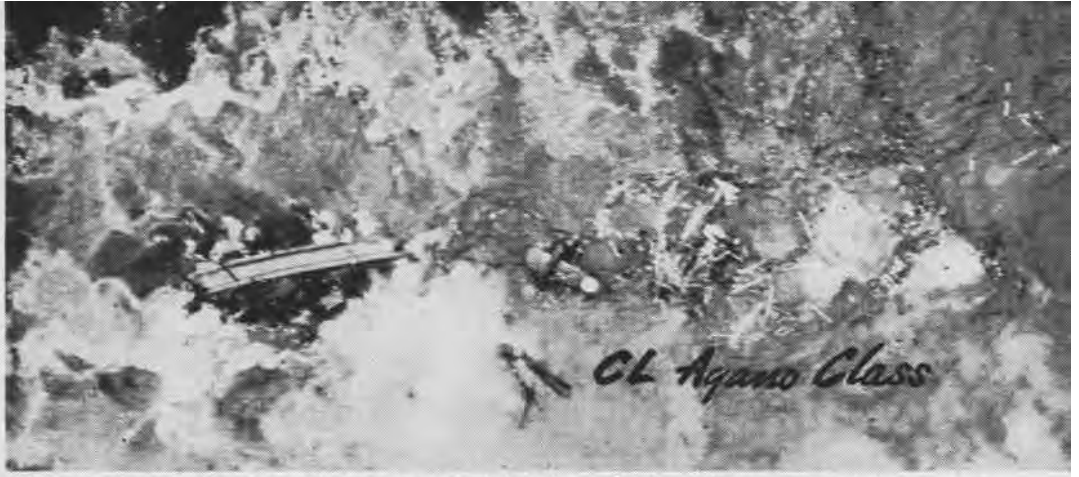
TERUTSUKI CLASS DESTROYER PROBABLY LIMPED BACK TO JAPAN

ALL JAPS COULD DO WAS TO HIDE FLEET

MAJORITY OF ENEMY'S WARSHIPS REMAINED IN VICINITY OF KURE

FEW HIDING VESSELS WERE TO ESCAPE FURTHER ALLIED ATTACKS

NEAR MISSES STRADDLE THE VESSEL



FLOAT PLANE APPEARS IN WRECKAGE OF AGANO CLASS CRUISER, SHOWN UNDER ATTACK AT LEFT

IN ADDITION TO THE YAMATO, JAPANESE LOST A LIGHT CRUISER AND THREE DESTROYERS IN THE APRIL 7 BATTLE OF THE EAST CHINA SEA

REMNANTS

Enemy Admirals Left Most Major Ships at Kure; Other Units Were Scattered in Various Harbors

SOME JAP CARRIERS WERE UNDER CAMOUFLAGE WRAPS AT SASEBO

With destruction of the *Yamato*, Japan had nothing for a naval offensive. Enemy admirals hid most remaining major units as well as they could, keeping the largest number of big ships at Kure. Elaborate attempts were made to camouflage them, in some instances by use of netting that stretched many feet from the beach to give the impression that the ship was part of the shore line. Photo interpreters observed repair work taking place on the *Haruna* and other ships that the Navy had damaged in March. Some hitherto unknown construction details of the new *Unryu* class carriers, *Amagi* and *Katsuragi*, also were noted. The CVL *Hosho*, at Kure, was the only Jap carrier that had survived three and one-half years of war, but this was attributable to the fact it had long been used for training.

Other fleet units were more widely dispersed. Some were at Kobe, where construction of escort carriers continued. The CVE *Kaiyo*, converted from the former passenger liner *Argentina Maru*, was photographed at Beppu Bay, Kyushu. Two CV's and a new CVL were under camouflage at Sasebo naval base. (The Japs tried to make them look like small islands.) A CVE was observed at Shido Bay, Shikoku, and the CV hull *Ikoma* was abandoned in Ikeda Bay. The *Nagato* was still at Yokosuka. Heavy cruisers *Takao* and *Myoko* were afloat at Singapore but inoperational. Japan's destroyers were more scattered and more difficult to count accurately.

The real truth of the situation was that the Jap navy was hiding to keep from being destroyed. All that the Japanese admirals could do was to try to conceal their few remaining units, and good U.S. reconnaissance frustrated these efforts effectively in most instances.

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CARRIER PLANES BRACKET THE BATTLESHIP HARUNA WITH BOMBS

DIRECT HITS BY 3RD FLEET PLANES SMASH HARUNA'S FANTAIL

JAP LIGHT CRUISER OYODO TAKES IT ON THE CHIN AT KURE

JULY ATTACKS RUINED REMNANT OF JAP NAVY

Total of 76 Major Enemy Warships Destroyed by Allied Forces since Beginning of Conflict

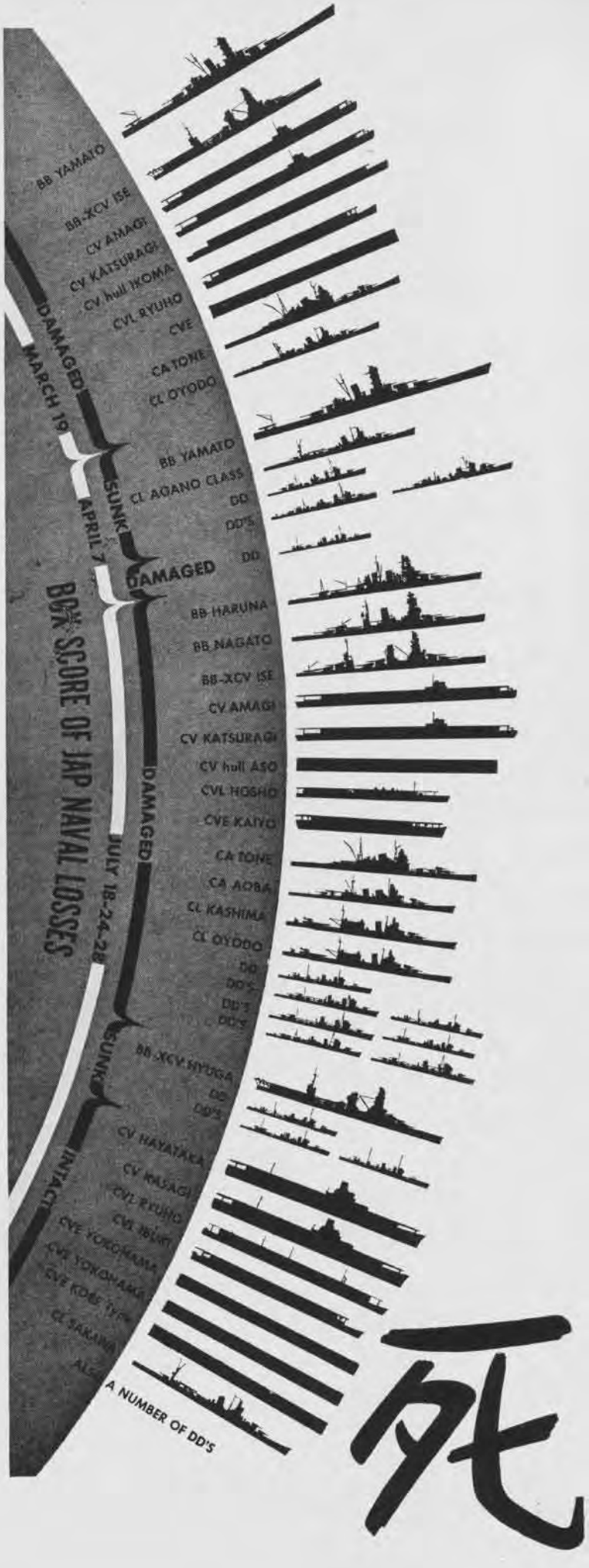
BOMBS FOR JAPAN

THE JAP FLEET was finished off in July, British and American carrier pilots and land-based Army fliers combining to do the job. The enemy's last two battleships, the *Nagato* and the *Haruna*, were put out of action. The *Haruna* was beached with 30 feet of her bow smashed and a hole in her stern, and the *Nagato* was believed resting on the bottom at Yokosuka. The battleship-carrier *Hyuga* was sunk, and its companion the *Ise* was battered and apparently resting on the bottom. Flight decks of the heavy carriers, *Amagi* and *Katsuragi*, were badly damaged. The heavy cruiser *Aoba* lay on her side, while the heavy cruiser *Tone* was beached. The light cruiser *Oyodo* was on her side, and a light cruiser was hit at Maizuru. Only intact units left were two heavy carriers under camouflage at Sasebo, two CVL's, three CVE's, and one light cruiser.

Seventy-six major Jap naval vessels were destroyed since Pearl Harbor. At the start of the war Japan had 11 battleships, seven heavy carriers, three light carriers, two escort carriers, 18 heavy cruisers, and 17 light cruisers. After Pearl Harbor she added one battleship, eight heavy carriers, four light carriers, eight escort carriers, and five light cruisers. Now all but eight of that total are sunk or useless.

NEAR MISS ROCKS CAMOUFLAGED BATTLESHIP-CARRIER HYUGA

OYODO LYING ON HER SIDE AFTER JULY 28 ALLIED ATTACK



GRAMPAW PETTIBONE

Mental Readjustment

Grampaw Pettibone says:

As far as naval aviation is concerned, the return to peacetime flight operations requires a complete mental readjustment. Many things that you had to do to carry out your wartime mission, no longer can be justified. *Safety of flight personnel again becomes paramount.*

Admittedly, military aviation is hazardous and despite every precaution, some fatal accidents will continue to occur. In general, however, they will be directly proportionate to the intelligent and constant effort which is employed to guard against them.

So—

Check the weather.

Check and double check the planes.

Insure that each pilot and crew member is fully qualified to carry out any mission assigned.

Last, but not least, rigidly *enforce* flight discipline and compliance with safety instructions and flight regulations.

In other words, *teach, preach and demand flight safety.*

Pigheaded and Bullheaded

The scene opens in the ready room of a torpedo plane squadron. A half-dozen pilots are lazing around; some sitting and reading, others just sitting and talking.

Our hero, a handsome bruiser with all the self-assurance of a "hot" 580-hour pilot, busts in waving the 15 June issue of NAVAL AVIATION NEWS. "Listen to this," he exclaims.

He reads the "Hurry-Up Boys" article which tells what happens when flashy pilots raise their wheels too soon after take-off. Knowing he has their undivided attention, he reads with feeling and gestures—a true artist at work!

A pause as he finishes; then he says, "Boys, I'll never make that mistake!"

He tosses the magazine to the nearest pilot and turns to leave. "Save it, Jim. I've got a gunnery hop."

The scene shifts to the flying field. Time: five minutes later. Our hero gives a jaunty wave to the line chief as he taxies out to the take-off runway in a TBM.

As soon as he hits the runway, he swings her around and pours on the soup. A short distance down the runway, he pulls her in the air and *raises his wheels.* Before you have time to more than gasp in amazement, the plane drops back on its belly. It crunches along for 250 feet, coming to rest *far from the end of the surfaced runway.*

The crash truck clangs up as our hero dazedly climbs out of his crippled plane. Oblivious to the crash crew, he mumbles to himself as he glances toward his squadron area. He wilts when he sees the "gang" bearing down upon him.

Only a technicolor camera will show how red his face is.

Grampaw Pettibone says:

This bullheaded smart-aleck reminds me of my three-year-old grandson, Caleb McMuhl. I gave him a shiny red

wagon last Christmas which he immediately took for a walk. Going down our small hill, the wagon over-ran him and knocked him down. He looked around, more surprised than hurt, but didn't let out a peep. He got up, trustingly started out once more and was promptly knocked down again, four times before I reached him.

I took hold of the wagon tongue and tried to explain about gravity and demonstrate how everything would be rosy if he just got behind the fool thing and pushed. But not little Caleb! The minute I touched his precious Christmas present, he started bellering so loud that I had to let go of the wagon to keep the neighbors from thinking I was trying to take it away from him.

What did the pig-headed little rascal do then but shoot out his under lip, lower his head and deliberately start down the hill again—in front of the wagon. He was knocked stern-over-appetite twice more before he reached the bottom (he gets that stubborn streak from the McMuhl side of the family).

The thing that worries me is what will happen to the little tyke when he grows up and becomes a Naval Aviator? With his disposition, he's bound to develop into a dead ringer for our TBM hero. Being too cocksure and bullheaded to heed any advice, he will probably bump himself off on his first solo hop.

Even "Angels" Need Altitude

During night combat tactics, the pilot of a night fighter made a low altitude radar interception on the target plane flying at an altitude of 500 ft. Reporting the interception to his fighter director who was in the rear seat of the target plane, he requested a visual signal. Apparently at that very moment he sighted a blinking buoy and mistook it for the blinking port running light on the target plane. Thinking it was the signal he had requested, he prepared to close in from below and inadvertently flew into the water.

▸*Comment*—**Flight Safety Bulletin No. 10-45 warns: "Beware of attempting to orient yourself by other lights unless their identity is *definitely* established. They may be either on the ground or in the air.**

"Check your altimeter for accuracy and make frequent reference to it during your runs so you can make recovery in time."

RETRIEVING AN OVERTURNED KINGFISHER

A RESCUE CREW *from cruiser* U.S.S. Vicksburg *goes into action to retrieve an* OS2U *that cracked up on landing. Taxiing in to the* Vicksburg *for a recovery, this scout observation plane struck a wave that tore off a wing pontoon. A Navy cameraman caught the action as the recovery crew swung into action to salvage the overturned* Kingfisher. *One crewman is lowered in a bos'n's chair out over the floating plane as other men in a small boat come in with salvage gear and lines. A* Tennessee *class battleship surveys the salvage operations from a distance. Training coupled with an ability to act effectively and quickly in an emergency are essential in operations of this kind if equipment is to be salvaged and lives of personnel saved, as indicated here.*

They Still Don't Mix

A student pilot took unauthorized liberty one evening, went ashore and "tanked up." He returned to his quarters at approximately 0415 and reported to the squadron at 0700. Several of his fellow pilots noticed that he was in poor physical condition and commented about it among themselves, but did nothing else about it.

The pilot admitted he "felt tough" but did not report to the squadron flight surgeon. After briefing, he manned his plane, a TBF, for a scheduled division oxygen flight. A few minutes later, at 2700 feet, his plane was seen to enter a gentle right spiral and crash with no apparent change in attitude. The division leader called a warning over the radio but received no answer.

It was believed by the investigating board that this pilot either had fallen asleep or had lost consciousness just before the airplane commenced its fatal spiral.

Grampaw Pettibone says:

Two other men died in the crash because this pilot lacked the proper sense of responsibility. His senses were dulled, however, and therefore his "fellow pilots" also are partly to blame—because they took no steps to keep him from making this flight.

I know this is a tough spot for "fellow pilots." You don't want to get the poor boob in trouble and yet, at the same time, you don't want to let him kill himself and his crew. The only way to be sure of the latter is to keep him on the ground. You "fellow pilots" hold a joint responsibility to insure that this is done.

No Recent Experience

A pilot from a VPB squadron got an F6F from a CASU for a familiarization flight. He lost control of the airplane during take-off. The plane swerved off the runway, ran into a ditch and turned over, resulting in strike damage.

The pilot had 1100 hours flying time, but all his recent experience had been in multi-engine bombers.

Believing that this accident was entirely due to lack of recent familiarity with fighter type aircraft, the ISIC issued an order directing that no twin-engine pilot in his command would be cleared for flight in single-engine combat aircraft until released by a competent board of pilots experienced in such type aircraft.

Grampaw Pettibone Says:

This is far from being the first accident caused in this manner. It isn't only a question of cockpit familiarity. Of equal or even greater importance is the radical difference in control forces and flight characteristics between VPB and VF airplanes.

Multi-engine squadrons always make sure that any pilot who flies one of their

planes is well qualified. It is just as important that pilots be required to prove they are fully qualified to fly single-engine aircraft before being cleared. You owe this to both the pilot and the plane.

The Pay Off

Returning from a practice strike, a CVE fighter pilot found he could not lock his shoulder straps. He was so completely sold on the value of the shoulder harness that he requested and received permission to return to the beach and have the straps repaired.

The wisdom of this strict adherence to safety instructions paid a handsome dividend. On his first landing after returning to the carrier, this pilot's FM-2 took a bad bounce, floated into the barrier and snapped over on its back. The plane was severely damaged, but aside from being somewhat shaken up, the pilot received no injuries.

"G-Suit" Sense

While on a "G-Suit" familiarization hop, an F6F pilot pulled up into a very tight climbing turn at 7000 feet. The airplane suddenly stalled out of this maneuver. Before flying speed was fully regained the pilot apparently pulled back on the stick causing another stall from which he did not recover.

It was believed that this pilot inadvertently pulled his plane into an excessively steep turn as the result of not feeling the customary warnings experienced in high "G" maneuvers.

▶ *Comment*—The anti-blackout suit increases your resistance to the effects of high acceleration with the result that your normal reactions are less likely to warn you of the severity of your maneuvers. This increases the danger of overstressing your airplane or causing a high "G" stall, as apparently occurred in this case.

It is for this reason that Flight Safety Bulletin 3-45 recommends that during familiarization flights with the "G-Suit" you practice maneuvers such as are used in combat and determine with the aid of a visual accelerometer the number of "G's" attained. By such practice you will develop a new "G-Suit" sense which may later save your life in actual or simulated combat.

GRAMPAW'S SAFETY QUIZ

ALL AVIATORS *should know the answers to these questions. In the air, the penalty for not knowing may prove fatal. If you miss an answer on the ground, penalize yourself by looking up the reference.*

1. **Except for landings and take-offs, what is the minimum altitude for flight according to IFR?**
2. **Does "cruising altitude" mean height above sea level or above local terrain?**
3. **Should elevator tabs be used as a means of primary control in pull-outs from high speed dives?**
4. **For a water landing in a single-engine aircraft when immediate rescue is not at hand, should your parachute harness be *a.* buckled, *b.* unbuckled but still on, or *c.* unbuckled and off?**
5. **Should cowl flaps be open or closed after stopping engine?**

(Answers on Page 32)

JM Restrictions

A fatal accident occurred recently while a pilot was being checked out in a JM-1.

Reconstructing the accident, the investigating board was of the opinion that the plane went into a spin while stall characteristics were being demonstrated; that one of the pilots held the plane in a stall too long, possibly with power on, thus causing the spin from which recovery was not made.

▶ *Comment*—T. O. 61-45, issued subsequent to this accident, prohibits power-on stalls in the JM, and contains important advice on power-off stalls. VJ-VR pilots take note!

Brain Leakage

Due to a hydraulic leak, an F4U pilot was forced to use the CO_2 system to lower his wheels for a landing. The emergency system worked, as advertised, and undoubtedly saved the plane from overhaul.

At this point, however, a leakage of brains developed among the personnel involved which completely nullified the value of the emergency landing equipment. The pilot reported loss of hydraulic pressure to the maintenance crew but *neglected* to report having used the CO_2 bottle. The crew refilled the hydraulic system and then relaxed. They *failed* to check it for leaks, and they also failed to note that the CO_2 bottle had been used, or at least did nothing about it.

The result was exactly what might be expected. The next pilot to fly the plane also experienced hydraulic failure and not having the emergency system working, had to make a belly landing.

B-3 FLIES FROM TRACK ABOARD USS NORTH CAROLINA, ONE OF SEVERAL CRUISERS EQUIPPED WITH THE LAUNCHING DEVICE BY 1916

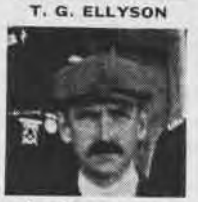
FIRST CATAPULT LAUNCHING

Prior to World War I, aviation's efforts for recognition in the Fleet, were greatly hampered by prejudices against spending money on "useless" experimentation to determine whether or not aircraft could be taken to sea and used over water.

During 1910 and 1911, Eugene Ely had made his historic take-off and landing on narrow wooden platforms erected on the U.S.S. *Birmingham* and the U.S.S. *Pennsylvania*. To prove aviation's practical use at sea, however, it was essential to develop a compressed air catapult that would permit launching of hydroplanes from any man-of-war.

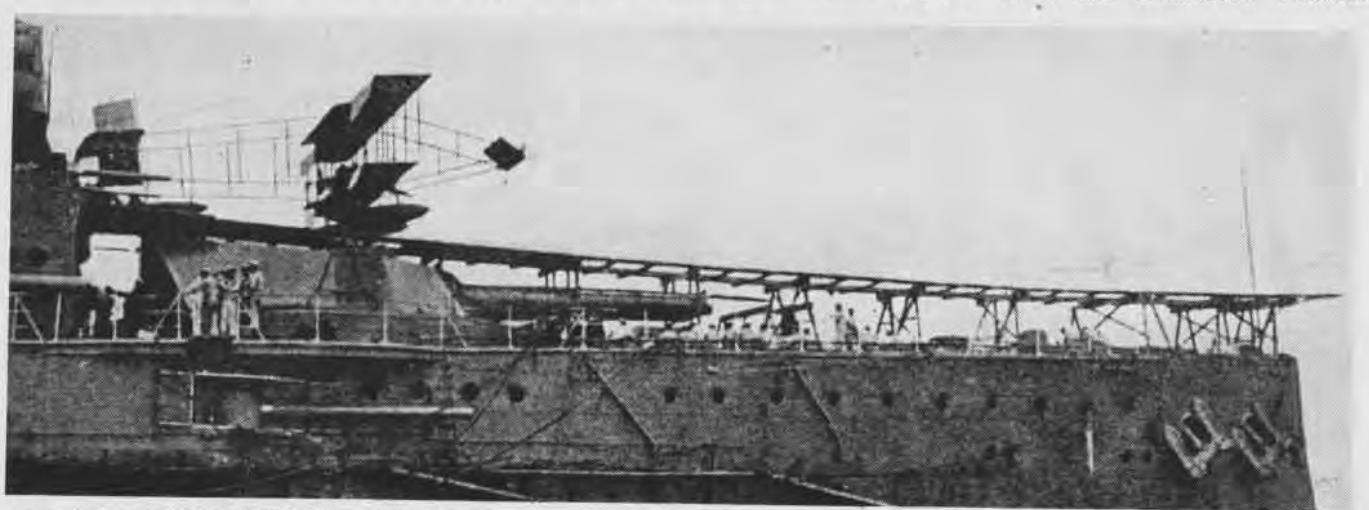
Though no funds were available, Capt. W. I. Chambers, USN, and his small following of air-minded enthusiasts, salvaged a scrapped cylindrical air tank and some hoisting gear from the U.S.S. *Oregon*, and set to work on construction of a catapult at the Washington Navy Yard. Lieut. T. G. Ellyson, Naval Aviator No. 1, was eager to undertake the first tests, even though many doctors freely predicted that the human body could not withstand the tremendous shock of a catapult launching. In October, 1912, after months of work and preliminary trials, a flimsy Curtiss plane, with Ellyson at the controls, was catapulted into the air at a speed of 35 mph.

T. G. ELLYSON

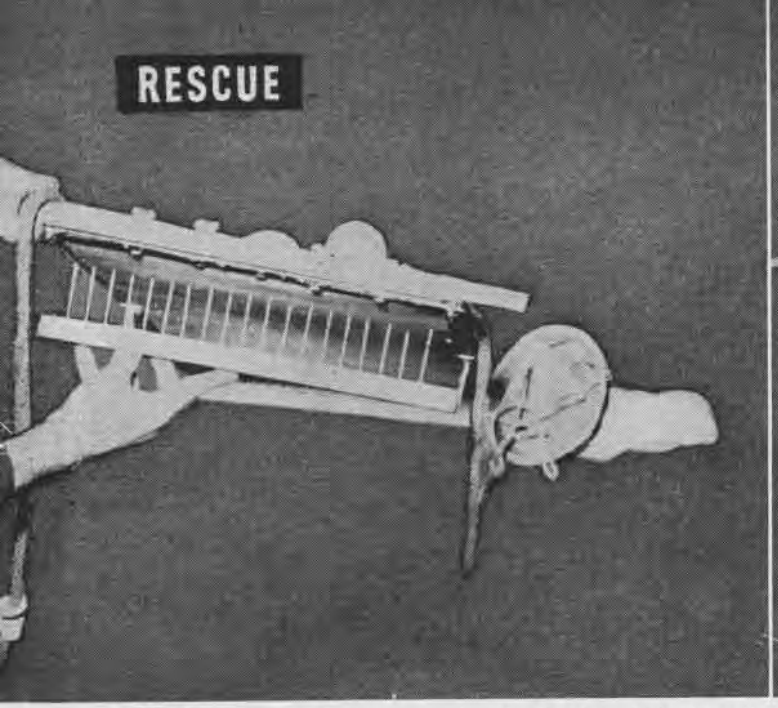


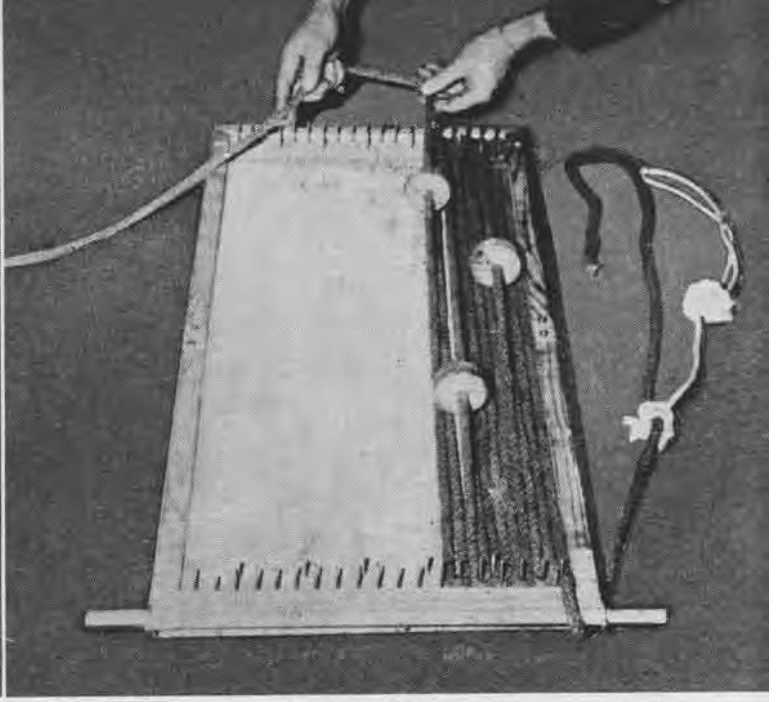
GLENN CURTISS

"This device is the most important achievement since wheels were put on land machines," commented Glenn Curtiss, who viewed the test. Before "Spuds" Ellyson died, 17 years later, he saw the launching device for which he had risked his life attain world wide use, both in naval and commercial aviation.



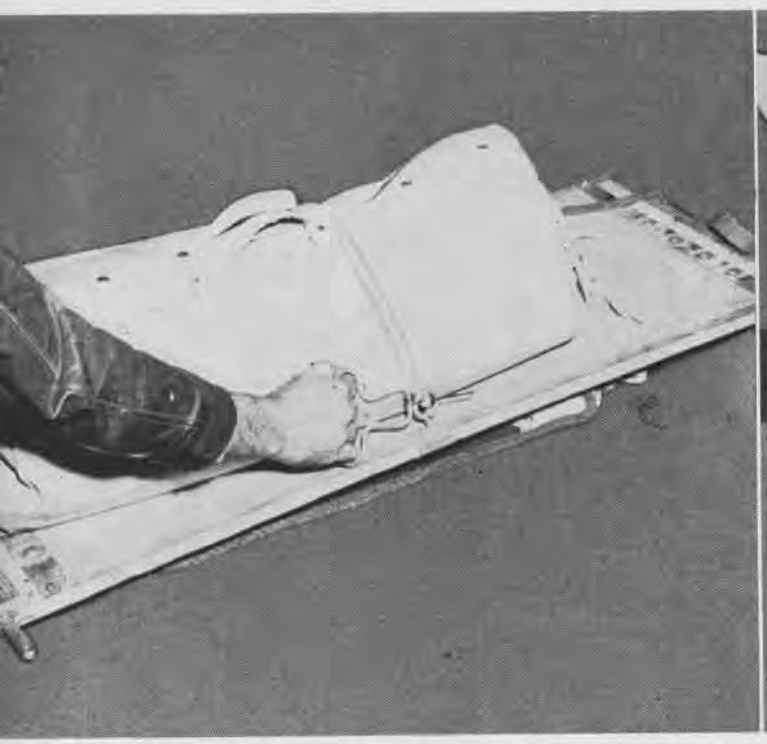
FOLLOWING ELLYSON'S SUCCESSFUL CATAPULT LAUNCHING IN 1912, TRACKS WERE ERECTED ABOARD SHIPS FOR OTHER TRIALS AT SEA

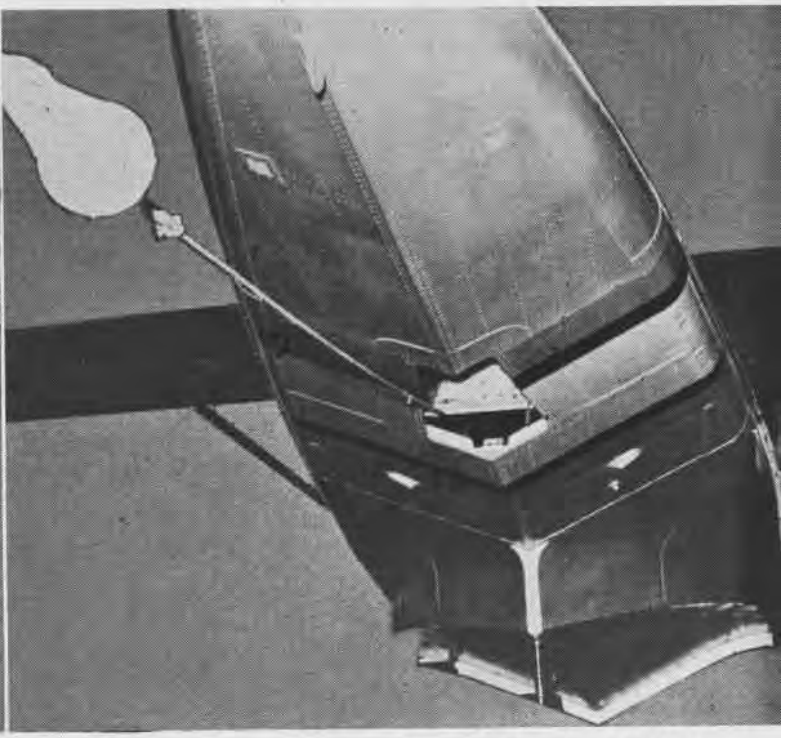




1 **Simple** loading and operation makes the float line faking board the ideal answer to raft release from PBY and PBM aircraft. First step is the insertion of faking guides in board ends

2 **Careful** attention to shipshape faking assures a smooth flow of line when released.. The piece of white line attached to the float line is for lashing the raft on the board's other side





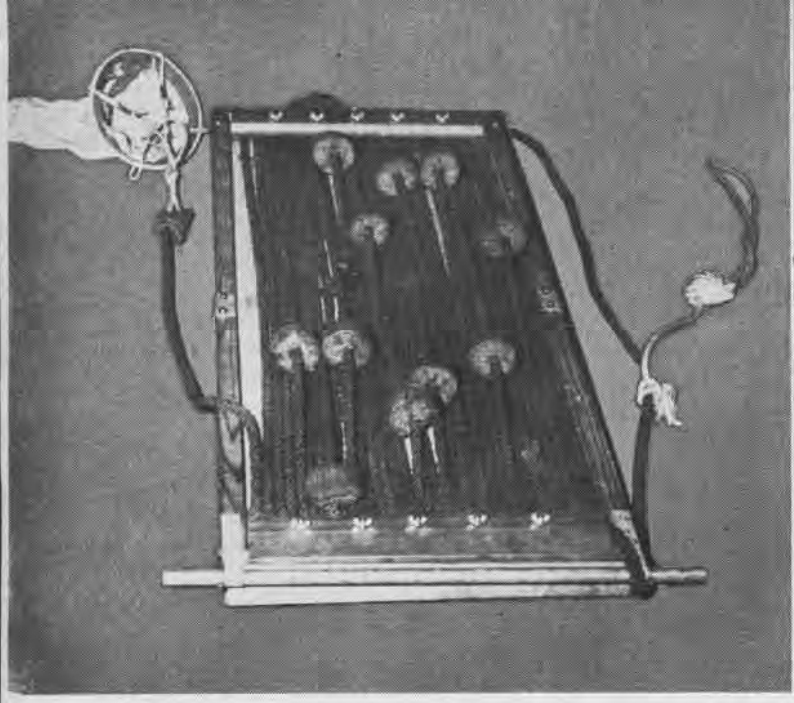
5 **Bungee** drawn across the raft is secured to a simple metal eye by a rip-cord ring. When the board is placed upright in the plane's tunnel hatch, the equipment will be ready for instant use

6 **Pilot** gives the word to pay out line, and the man in the hatch begins by easing tension on the first thumb screws. The wind sock leaves the hatch and the first fakes are pulled into the sky

Faking Board Makes Raft Release Easy

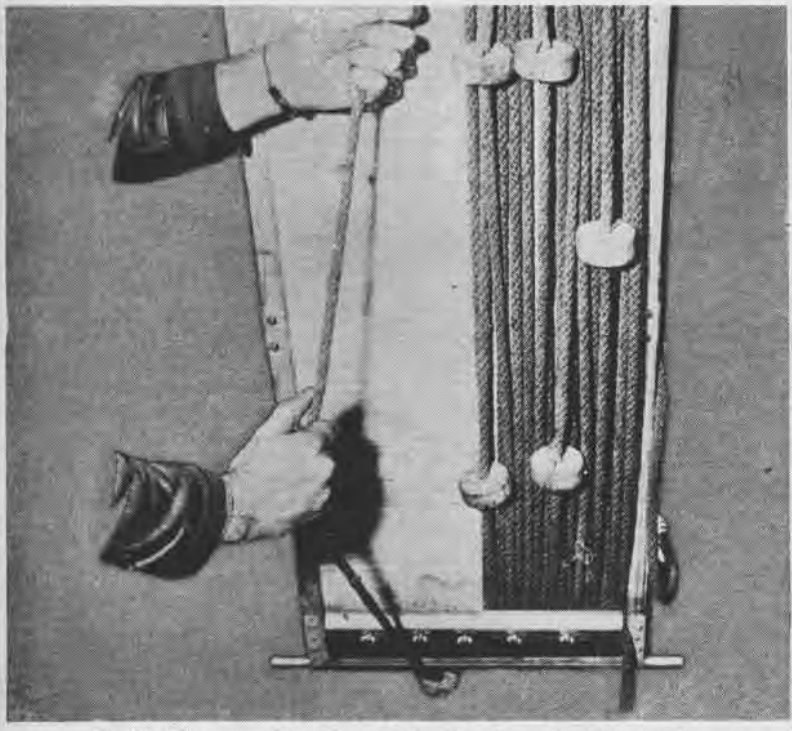
RETRIEVING float lines needn't foul any longer when rafts are released from PBY and PBM aircraft. A new float line faking board developed at CGAS ELIZABETH CITY assures a controlled flow of line from the plane when a raft is about to be released, prevents personnel from tangling in trail line, simplifies raft dropping to a single yank on a rip cord once line is paid out, and permits inexperienced hands to release rafts with dispatch. Training required for rigging drops now in use also is eliminated. All preparatory work is accomplished on the ground. Each plane carries a board loaded and ready.

The board, 17½" x 54½", accommodates 150 feet of floatable line, faked down with the aid of guides. The guide is removed and clamps, held in place by thumb screws, are secured over the bights at either end. On the board's reverse side, the raft, which may be of any size, is mounted by means of a double bight of line, secured to the board with a rip-cord ring. This double

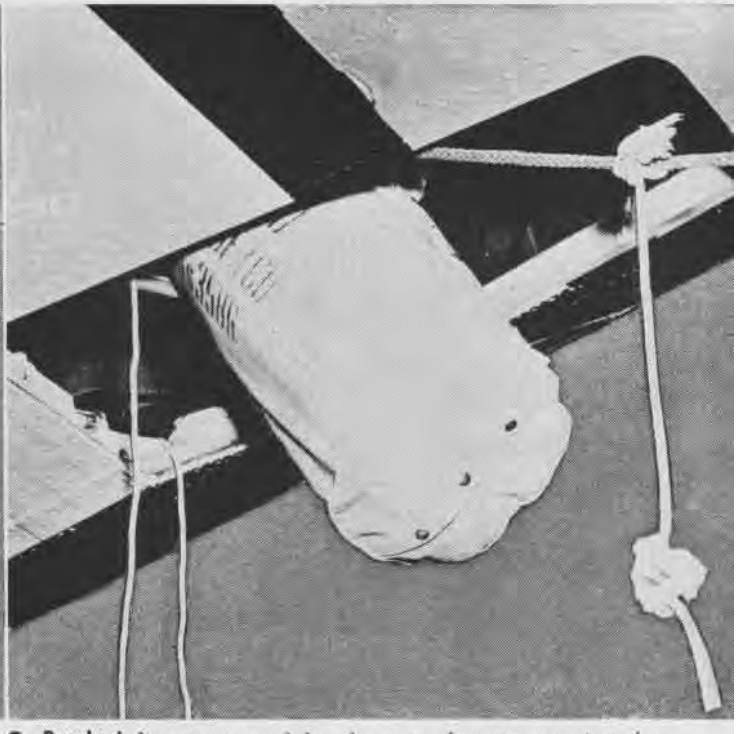


3 **Faked down,** guides removed, metal strips secured over the bights with thumb screws, the float line is ready. When the line is released, thumb screws will be turned to proper tension

4 **Rafts** of any size are accommodated by the board. The bight of white line, secured at one end to the float line, will be drawn across the raft to hold it firmly against the faking board



7 **Control** is maintained over the line by adjusting tension on the clamps and by simple caution in making sure that the line is payed out a fake at a time. The sock tugs steadily at the line



8 **Payed out** line is stopped by the same bungee securing the raft. Pilot gives the word to "drop" when he is in position, the rip-cord ring is pulled, and the equipment leaves the hatch

bight also is a stopper for the retrieving line as it is pulled from the ship by a wind sock. The raft will not drop until the rip-cord ring is pulled. When it goes, a static line attached to the pull ring on the raft's CO_2 bottle effects inflation as the raft drops and snaps it free.

Many tests at CGAS have revealed no bugs except that care must be taken to release the line one fake at a time.

The actual operation is simplicity itself. Upon being ordered to pay out line, the man in the tunnel hatch:

a. Places the board upright.

b. Partially releases clamp tension.

c. Releases the windsock and allows line to pay out a fake at a time.

d. Waits for the "drop" order, while windsock tension is taken up by the stopper holding the raft. At the word from the pilot, who has reached target, he pulls the rip-cord ring. The raft does the rest.

TWO-MINUTE TORNADO

AT ELIZABETH CITY, it took a freak 70 knot wind just two minutes to damage 11 out of 12 PBM's severely enough to strike. These *Mariners* were tied down on the seaplane ramp when the wind struck with tornado intensity. Earlier that evening a cold front of moderate intensity oriented NNE-SSW approached from the west at a speed of about 20 knots. Extensive thunderstorm activity, taking place along the front, marked interaction between warm moist air being drawn in from the southeast by circulation about a high pressure area 200 miles WSW of Bermuda and cool dry air brought in from the northwest by circulation about another high centered near Advance, Mo. Warnings were issued to prepare for wind velocities ranging up to 40 knots. Station personnel took normal security measures for moderate winds. A west wind of tornado intensity hit the ramp area at 2330, cutting a swath through the tied-down planes, damaging all but one. The extremely localized nature of excessive wind velocities could not have been anticipated; however a cold front passage, particularly when attended by thunderstorm activity, always is a source of danger to planes parked in the open. Technical Note 44-43 and A.C.L. 63-44 contain detailed data, information and instructions concerning various destructive winds.

PHOTOGRAPHY

NAMC Lab's Oscillograph Camera Mount

The Aeronautical Photographic Experimental Laboratory at NAMC PHILADELPHIA recently completed construction of an oscillograph camera mount at the request of BUAER's Photography Division.

A Kodak Ektra 35 mm camera is fitted to the mount and is used to record traces on the oscillograph scope. The mount consists of a light shield, mounting plate for camera, viewing shield with light trap and hangar ring for attaching mount to oscillograph. Operator of equipment is able to

KODAK EKTRA 35MM IS FITTED TO MOUNT

view the scope and, by turning the light trap knob, make an exposure of the trace without interference of outside light.

Color Film Is Ready for Distribution

Ansco reversal color film for field processing has been added to the Standard Photographic Stock List and now is ready for distribution. It is supplied in cut form in two sizes, 8" x 10" (STANDARD STOCK NO. 18-F-32870-55, daylight; 18-F-32880-55, tungsten) and 4" x 5" (STANDARD STOCK NO. 18-F-32870-35, daylight; 18-F-32880-35, tungsten), and in Six-20 rolls for Kodak Vigilant or Medalist, eight exposures 2¼" x 3¼" (STANDARD STOCK NO. 18-F-37470, daylight; 18-F-37473, tungsten).

Processing chemicals are stocked in kit form and are available in two sizes, 1-gallon (STANDARD STOCK NO. 51-C-1063) and 3½-gallon (STANDARD STOCK NO. 51-C-1063-50). Haze filters, gelatin foil, five-inch square, UV-15, UV-16 and UV-17 for use with Ansco color film also are available.

Instructions for exposing and processing Ansco color film will be found in ATO 10-5-23 dated 23 October 1944, which has been distributed to all photographic activities. Also included are information on handling of chemicals and a discussion of the filters to be used. Additional copies of the instruction handbook may be requested from BUAER's Publications Branch.

The Cover CASU mechanics work on a *Privateer* on captued airfield on Okinawa, taken over by Fleet Air Wing One used as base for its destructive raids on shipping lanes to Japan

DID YOU KNOW?

Peace Found The Navy Prepared

Demobilization Plan Went Into Action

Months ahead of the Japanese surrender, the Navy began preparations for its demobilization program and when peace came, the Navy Civil Readjustment Program was already in action. The program was keyed to give volume discharges through a system of personnel separation centers. End of the war found two separation centers already in operation, six others authorized and personnel trained ready to handle the work.

The civil readjustment program was established April 6, 1944 and soon thereafter groundwork for demobilization was being laid. On June 11, 1945 a school was established at Great Lakes to train officers and men for separation centers. Three weeks of intensive training is given, with emphasis on personnel procedures, interviewing techniques and a review of laws and regulations relating to veterans.

The first two separation centers were established at Lido Beach, Long Island, and at Navy Pier, Chicago. Subsequently, the Navy authorized transferring the center from Navy Pier to Great Lakes. Other centers were approved at Bainbridge, Boston, San Pedro and Shoemaker, Calif., Sampson, N. Y., Toledo, Camp Wallace, Texas, NAS CHARLESTON, NAS JACKSONVILLE, NATTC MEMPHIS, NAS MINNEAPOLIS, NRB NEW ORLEANS, Shelton, Norfolk, NATTC NORMAN, NAS ST. LOUIS, N-Y BREMERTON. Plans were to extend the list as need developed.

Long before reaching a separation center, Navy personnel will have ample opportunity to learn their rights and benefits as veterans from civil readjustment officers, educational services officers and other officer personnel serving under Civil Readjustment Program.

At separation centers, each person is being given a personal, private interview. Each will be familiarized with his rights and benefits as a veteran and the Navy will give all possible assistance toward his readjustment to civil life. Advice on special problems will be available from an educational services officer, benefits and insurance officer, legal assistance officer and chaplain. In addition, representatives of the U. S. Employment Service, the U. S. Civil Service Commission, the Selective Service System, the Veterans' Administration and the Red Cross will be present at each center.

The Navy does not intend to tell each dischargee what to do but strives, rather, to provide him with all the necessary information and tools to arrive at his own decision.

Congratulations

30 August 1945

Chief, Bureau of Aeronautics
Dear Admiral Sallada:

In General Arnold's absence, please accept from me and from all the Army Air Forces our congratulations to Naval Aviation on its 32nd anniversary today. All of us have greatly admired the achievements of your organization in building the largest Naval Air Force in the world, and the courage and skill of Naval air men in combat in all the war theatres. Please express for us to your staff, your organization commanders and your combat crews, the well wishes of the Army Air Forces and congratulations on their past great achievements.

Sincerely,
/s/ Ira C. Eaker
Lieutenant General, U. S. Army
Deputy Commander, Army Air Forces

CAA Answers Personal Requests

Official Ones Go To The Hydrographic

All personal requests for information on civil licenses for aviation pilots, aviation mechanics, control tower operators and similar aeronautical permits should be addressed to CIVIL AERONAUTICS ADMINISTRATION, *Attn*: A-251, DEPARTMENT OF COMMERCE, WASHINGTON 25, D.C. Personal requests should not be sent to HYDROGRAPHIC OFFICE.

The HYDROGRAPHIC OFFICE to which an increasing number of such requests are being directed will not honor personal requests. This office honors only official requests for CIVIL AERONAUTICS ADMINISTRATION publications listed in H. O. 1-V(R). In the past HYDROGRAPHIC OFFICE has referred personal requests to CAA but this procedure has caused unnecessary delay in getting information to persons who have sent in this type of inquiry.

Requests to the CAA should indicate that information is desired for personal reasons.

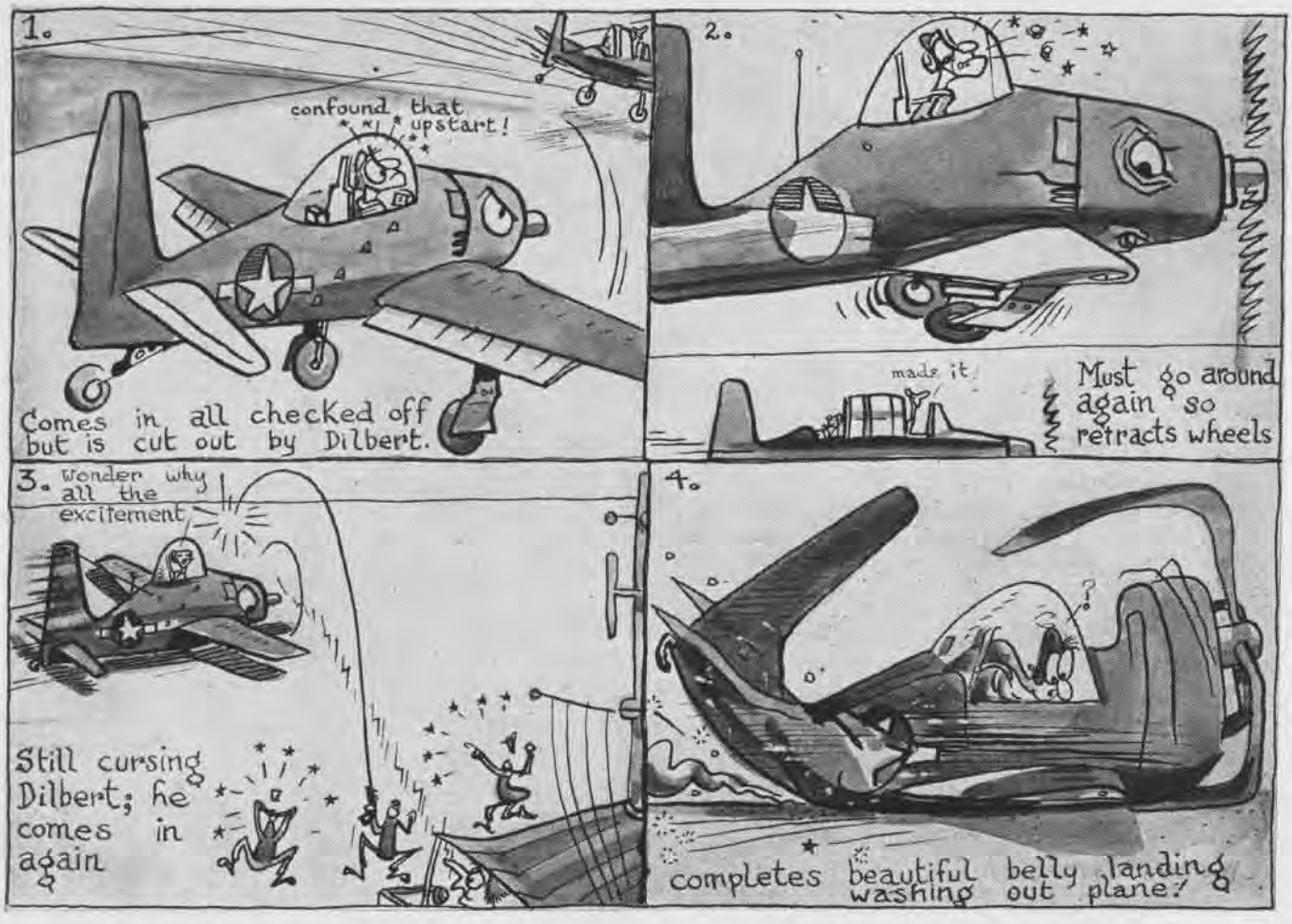
A 20 mm Wing Cannon For F8F-1

New Installation Makes it an F8F-1C

An Aviation Planning Directive (68-A-45), from the Chief of Naval Operations, announces establishment of a new aircraft model designation—F8F-1C.

The designation has been assigned to F8F-1 aircraft now fitted with 20 mm cannon wing installation. The directive also gives notice that all activities modifying the F8F-1 aircraft in this manner should notify CNO (attention OP-03-4R), of the Bureau numbers of all such craft.

MORE RECENT PHASES *of war in the Pacific saw the Navy calling into combat the deadly new* PV-2 Harpoon. *Speed, long range and fighting prowess were combined in this land-based, medium bomber, designed for the combination of attack and reconnaissance which figure in the technique of search. With its* 10 .50 *cal. machine guns the* PV-2 *proved deadly for strafing. Its better than* 300 *mph. speed is combined with high maneuverability.*



SUBJECT: Lt. Comdr. UPTON DOWNS

MORAL: Go over check-off each time you approach for a landing.

EVERY PILOT knows that to make a successful field or carrier landing his wheels must be down and locked. To insure that you do not become a member of the Dilbert Club for making a wheels-up landing, go over your check-off list each time you make an approach. This practice, plus observing the landing gear position indicator, are habits you must cultivate. There are too many wheels-up accidents to enumerate, but here are a few typical cases. Don't let it happen to you—CHECK YOUR WHEELS.

▸ During night familiarization landings the pilot of an F6F found himself too close to the plane ahead and took an automatic waveoff. On going around again he retracted his wheels. His next approach was made wheels up. Flares were set off. The tower gave radio warning and flashed a red light. The pilot thought these warnings were meant for the plane astern and continued his approach, landing wheels up.

▸ Another pilot was a wingman on a scheduled formation cross-country navigation flight. On reaching their destination the flight was broken up preparatory for landing. The pilot, while on down-wind leg, was given a green light by the tower. On base leg the tower observed the tail-wheel down with the main gear in a trail position, obviously unknown to the pilot. An emergency red and green light followed by a solid red light was flashed by the tower immediately. The pilot continued his approach and *landed wheels up*. The findings of the Board were: *a.* pilot failed to thoroughly check the landing gear position indicators; *b.* pilot failed to observe warning signals from control tower; *c.* radio receiver inoperative. The pilot stated that he was not accustomed to checking traffic control tower signals because his home field employed a signalman and radio truck at the downwind end of the runway. The Board recommended that the importance of use of check-off lists and procedures at strange fields be stressed to all pilots for the good of the service.

▸ A pilot took off on a routine familiarization flight. After one hour of flight he approached the field and received a green light from the control tower clearing him into the traffic pattern. As he turned into the down-wind leg of his approach the tower noticed his wheels were retracted; gave him a red light and fired red flares. The pilot landed *wheels up*. Examination of the plane later revealed that the landing gear lever was not in full down position, and that the radio had never been tuned to the frequency of the control tower.

▸ A pilot with approximately 400 hours of flight time was proceeding to an outlying field to engage in field carrier landing practice. The field was set up for east landings with the landing signal officer and his party on the west end of the runway. The pilot made a straight-in approach from the east and failed to determine landing traffic direction. He neglected to tune his radio to frequency used in the field carrier landing practice and did not receive radio warning. He landed *wheels up*.

KINGFISHER DOWNS ZEKE IN DOGFIGHT

In a remarkable *aerial encounter over Iwo Jima, a Navy* Kingfisher *shot down a* Zeke 52. *While all available data indicates that the* Zeke 52 *can outclimb and fly away from an* OS2U, *the report indicates the Jap made the fatal mistake of slowing up and attempting to dogfight. The Jap plane had four wing guns against the* Kingfisher's *single* 30-*caliber nose gun and one flexible* 30-*caliber in the radioman's compartment. The* OS2U *pilot's story follows:*

"I WAS SPOTTING ship's gunfire on Northern Iwo Jima at 1500 ft. when I sighted a lone *Zeke* 52 break through the clouds about 500 yds. ahead. The *Zeke* sighted me about the same time, turned toward me on a reverse course and commenced a high side pass from my right. I increased throttle and rpm to maximum and made a quick, climbing turn to the right into him, forcing him to make a diving, head-on run. The *Zeke* fired one short burst which missed me completely, passed about 50 ft. on my left and made tight turn to right."

The dogfight. "I made a tight, diving left turn and then a right turn, which put me on his tail about 500 ft. astern, and commenced firing long bursts from 30-caliber nose gun into his cockpit, engine and right wing roots. He weaved to the left, emitting a thin stream of grey smoke from either the engine cowl or right wing root, and his right landing gear lowered. Next he tried a very tight turn to the right, but I was able to turn inside him again while closing at 155 mph indicated, and continued firing long bursts into his right wing roots. The *Zeke* did a diving half roll to the right, burst into flames and crashed on a bluff."

Sidelights. "During the encounter, the Jap pilot took no evasive action other than tight turns in attempts to get on my tail which were foiled by the short turning radius of the *Kingfisher*. This also prevented my radioman from firing but my single 30-caliber nose gun proved to be effective enough as it was belted: two ball, one tracer and two incendiary. As the last of the action took place over the island, we were subjected to intense but inaccurate automatic weapons AA fire during the retirement. The entire action took place at altitudes of from 1000 to 1500 feet."

BEST ANSWERS

How Fast?

PICK THE BEST *choice to complete the statements below, then check your answers on page 32.*

1. If a certain airplane can attain four-fifths the speed of sound at all altitudes (and its top speed under ordinary conditions at sea level is therefore about 600 mph), its top speed at 35,000 ft. would be approximately—

- ☐ *a*—500 mph
- ☐ *b*—600 mph
- ☐ *c*—700 mph
- ☐ *d*—800 mph

2. To keep pace with the sun while flying around the equator, an airplane would have to travel at about—

- ☐ *a*—250 mph
- ☐ *b*—500 mph
- ☐ *c*—750 mph
- ☐ *d*—1000 mph

3. The rate of travel of the earth in its orbit around the sun is approximately—

- ☐ *a*—1100 mph
- ☐ *b*—4400 mph
- ☐ *c*—66,000 mph
- ☐ *d*—900,000 mph

4. The maximum speed that could ever be achieved by use of rocket propulsion is—

- ☐ *a*—about 700 mph
- ☐ *b*—about 3000 mph
- ☐ *c*—about 25,000 mph
- ☐ *d*—above 25,000 mph

5. The great speed that could ever be attained by any moving object is—

- ☐ *a*—unlimited
- ☐ *b*—approximately the speed of light
- ☐ *c*—approximately one-half the speed of light
- ☐ *d*—ten to twenty times the speed of sound

6. Radioactive particles are normally thrown out from uranium atoms at velocities in the order of—

- ☐ *a*—33 to 660 mph
- ☐ *b*—330 to 6600 mph
- ☐ *c*—33,000 to 660,000 mph
- ☐ *d*—33,000,000 to 660,000,000 mph

7. Strokes of lightning between clouds and the ground ordinarily travel at a speed of about—

- ☐ *a*—1000 mph
- ☐ *b*—10,000 mph
- ☐ *c*—100,000 mph
- ☐ *d*—100,000,000 mph

MARINE CORPS NAVIGATORS BRING THEM

Marine Aircraft Group 35 Turns Out Trained Navigators Groomed for Action in Emergencies

With the rapid development of Loran and other aids to navigation, it was thought at one time that navigators might become obsolete. But the reverse has proved to be true. Today a navigator is more highly trained than ever before. Added to his basic knowledge of dead reckoning and celestial work is an impressive list of aids to navigation.

To keep pace with these developments has been the task of the Navigation School of Marine Aircraft Group 35 at the Marine Corps Air Station, El Centro, California. From here come most of the Marine navigators trained in the latest methods, using newest equipment.

During the early years of this war, navigation instruction was the individual responsibility of each Marine squadron. Pilots doubled as instructors with a minimum of equipment.

One of these schools was absorbed into Marine Aircraft Group 15 in 1943 and reorganized with improved equipment, the newest in texts and publications, and instructors who could devote full time to their jobs. The Navigation School of Marine Aircraft Group 35 is the descendant of that school. Leathernecks who complete navigation training are capable of bringing a plane through to its destination under even the most difficult circumstances.

Students are taken from the ranks of enlisted Marine personnel. Qualifications require a minimum score of 125 in their GCT as well as a score of 110 in the MAT.

BACK

Marine Shoots Sun from an SNB

Navigators Locate by Pelorus

DEAD RECKONING

DEAD RECKONING is the basis of all navigation, and the longest period of a student's training is spent on this subject. He learns what aircraft instruments are used in navigation, all the different types of charts, their advantages and limitations. He learns how to handle the tools of his trade by demonstration and actual practice.

Important in the theory of dead reckoning is the effect of wind upon the plane in flight, variation of true north from compass north, and the deviation of a compass due to other influences. A student is taught what each can do if he ignores or forgets them.

At first, he learns to graphically solve his vector problems and later he is shown how to solve them in one-tenth

DRIFT SIGHT TRAINER IS A USEFUL AID

the time with an E6B Computor of plotting board so that regardless of conditions, he will always be able to work out a problem effecting his track. He is taught relative motion, interception of moving ships, planes or turning of a plane to a different ship or field, radius of action and various sector searches.

Work is intense and the student must do his studying outside the classroom. He is tested daily in classroom work, and the results of these tests count as half his final grade. A final examination determines the other half. This covers everything he has been taught; dead reckoning, celestial, radio and Loran. In this way, those students who fail to meet requirements are eliminated, maintaining high corps standards.

LEATHERNECKS PUT THEORY TO PRACTICE

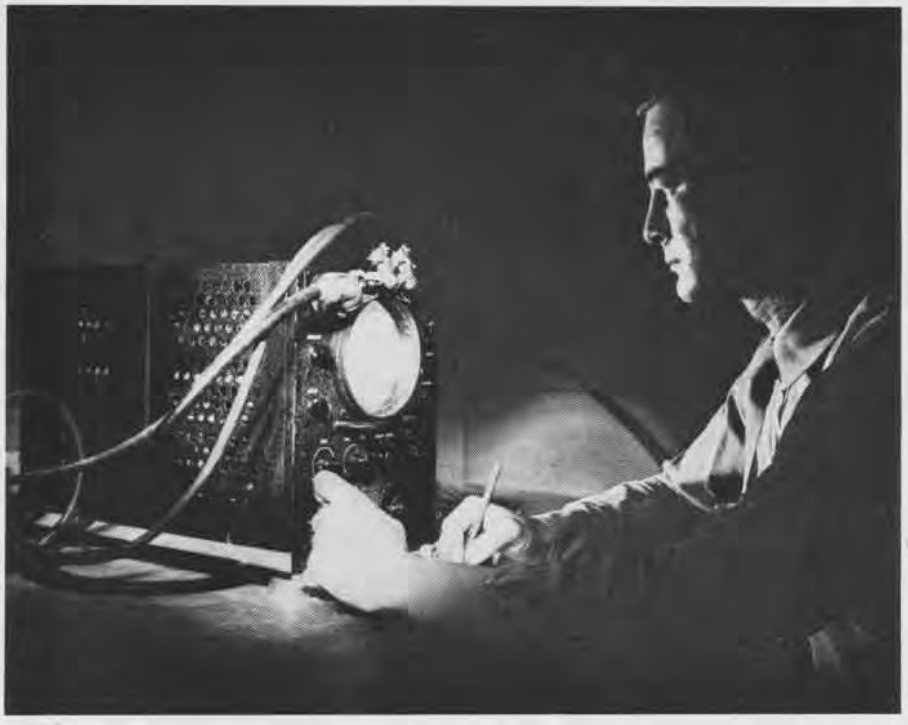
Link celestial trainer grooms future Marine navigators for problems they will someday encounter in the air. Every student spends two weeks at NAS North Island putting navigation school theory into practice. This gives Leathernecks confidence in their capabilities

CELESTIAL NAVIGATION

SIMPLE astronomy is the basis for all celestial navigation, and Leathernecks first learn star identification and the workings of the astronomical triangle. This is followed by the various methods of solving the astronomical triangle for a line of position, use of a single LOP and pre-computation for a landfall and specific tracks.

Radio aids include the radio compass and radio range system. Future navigators are taught the proper way to interpret signals from markers and beacons, how to find a line of position with his radio compass and how to use it with another line of position either from some other station or one from his celestial work.

In the study of long range navigation (Loran) a student is taught basic fundamentals and receives instruction in the use of charts, tables and equipment. Frequent alignments and calibration of the equipment is stressed as well.



LONG RANGE NAVIGATION AND USE OF LORAN IS STRESSED BY MARINES AT EL CENTRO

PROBLEMS IN THE AIR

THE TRANSITION between ground work and actual problems in the air is accomplished by practice in the Link Celestial Trainer. At this time, theory is put into practice, and the prospective navigator gains confidence in his work and ability.

Problems similar to those met under flying conditions are worked out in detail. Marines interpret fixes to determine wind, make a single line of position approach, and use the astro-compass to check aircraft instruments.

After several weeks of this type of training, Marines take to the air. Every student navigator makes eighteen day flights and two night flights.

The first of these flights is purely for familiarization and to further acquaint men with their instruments. Following that, Leathernecks practice everything they have been taught.

Student navigators are allowed full latitude in using the radio compass in conjunction with a sun line or some other celestial line of position to determine position. Again he may make an approach on a radio range station, identify it, and thus determine actual position. Particular emphasis is placed on long range navigation over water. This will be the primary task in combat.

Survival training is not overlooked. All student navigators attend and participate in dunking and abandoning ship drills. Part of this training is a combat swimming course which includes rubber life raft drills and seamanship.

Before each training flight, student navigators are briefed by their pilot. All problems are rehearsed to prepare the Marine navigators for any type of emergency in the air

MODEL EXPLAINS THE CLOUD FORMATIONS

STUDENT NAVIGATORS TAKE 18 DAY AND 2 NIGHT FLIGHTS TO COMPLETE COURSE

THIS WAS A TOUGH JOB FOR MAINTENANCE MEN ABOARD A JEEP CARRIER BUT WITHIN A WEEK THEY HAD THE PLANE READY TO FLY

AIRPLANE GRAFTING

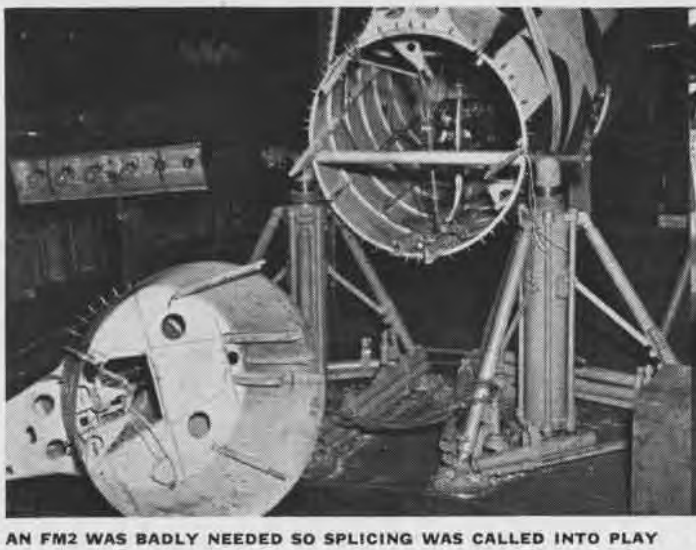
Maintenance Men Aboard a Jeep Carrier Devise Shortcuts That Serve To Keep Planes in Action

MAINTENANCE and repair problems on one of the Navy's jeep carriers do not always follow simple routine patterns. Frequently, conditions in combat theaters cause unusual situations to pop up, challenging the ingenuity of all hands charged with the problem of keeping 'em flying.

A barrier crash (*above*) left the plane badly in need of major repair. In one week technicians aboard the jeep rebuilt the tail and installed new canopy, windshield, wings, stub wings, propeller and engine. This major "surgery" was a typical job for the first rate technicians the Navy has sent to sea to support its tremendous air arm.

Straight plane-grafting was resorted to when technicians turned their hands to repairing the FM-2 tail (*below*). After a bad deck crash, metalsmiths took off the tail and spliced another one neatly into position.

In a majority of cases, parts seldom mate properly after they have been used, due to the stress on skin and structural members. But in this instance, the parts matched perfectly down to the last rivet hole, attesting to the excellent production methods.



AN FM2 WAS BADLY NEEDED SO SPLICING WAS CALLED INTO PLAY

A SMOOTH GRAFT ATTESTS TO THE SKILL OF THE NAVY'S AM'S

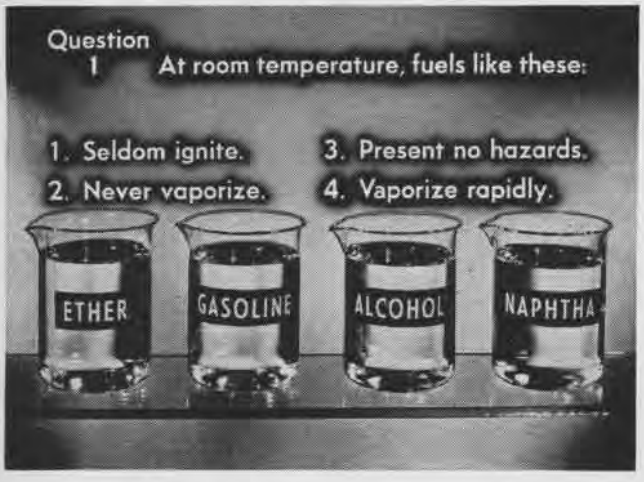
PIX QUIZ What do you know about FIGHTING FIRES?

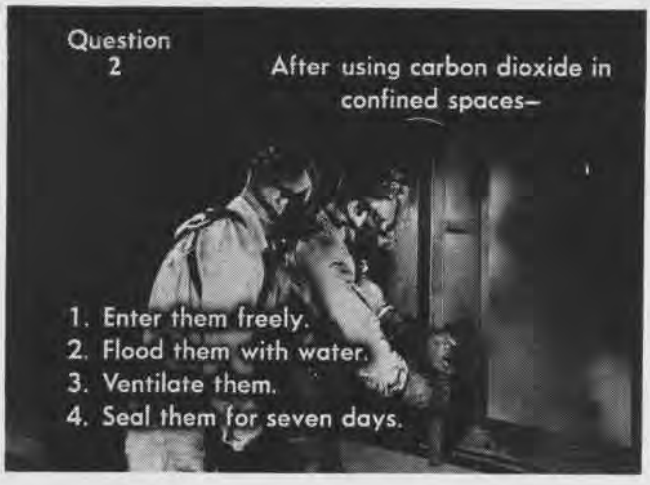
Write your answers here

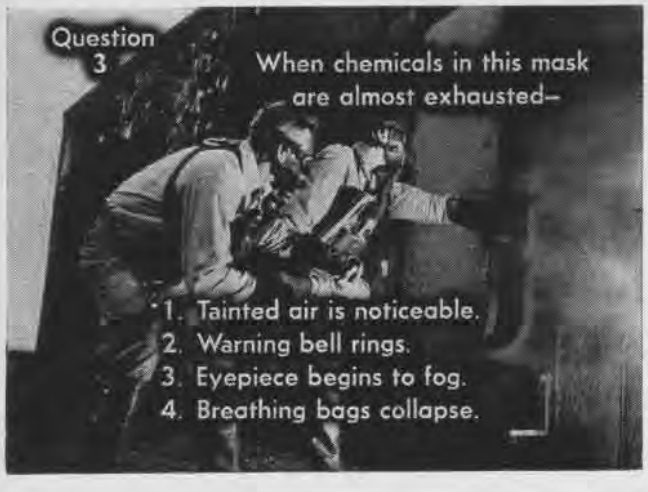
1. ..... 3. ..... 5. .....
2. ..... 4. ..... 6. .....

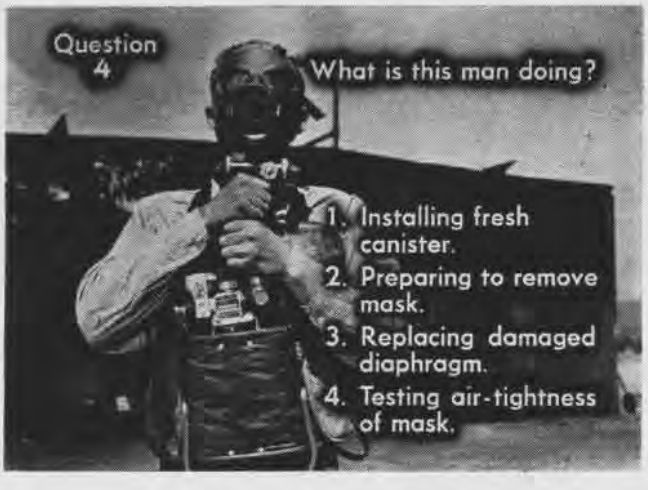
NO RESPECTER of rate or rank, fire can strike without a moment's warning at any hour of the day or night. That's why constant vigilance against fire hazards is a must at naval aviation establishments throughout the world. See the answers on page 32.

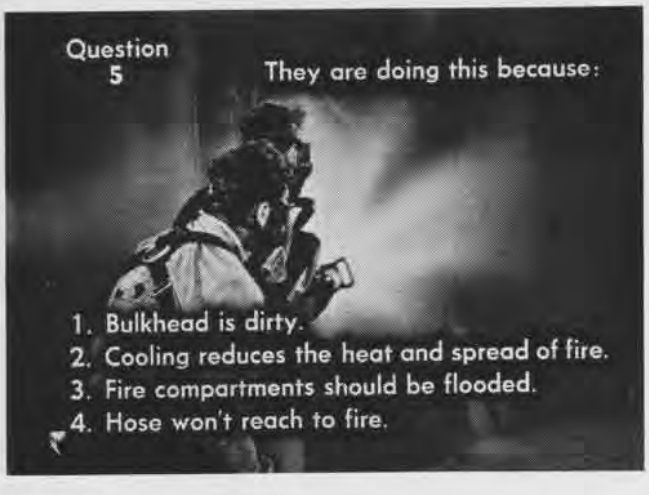
[QUESTIONS FROM SPECIAL DEVICES VISUAL QUIZZER FILM NO. 60, FIGHT THAT FIRE]











CAMERA TALLIES VF (N)'s 'SPLASHES'

Reflectors on Target Planes Enable Night Fighter Pilots to Photograph Hits on 'Foe'

PHOTOGRAPHY now is aiding night fighter pilots in their training for combat duty at various activities engaged in this program. By use of an ingenious camera device, pilots coming in from training flights bring back a photographic record of their interception of target aircraft that can be assessed accurately.

Camera gunnery has been a recognized training aid in Naval Aviation for many years. Its adaptation to the night fighter has been made without disrupting the night vision of the pilot, or assisting him visually in the interception.

This unusual application of photography has been accomplished by using triple-mirror retro-reflectors mounted on the target aircraft, a hooded light source on the night intercepter and standard gun camera equipment and film.

Four wing-tip lamps form the light source on the night intercepter. They are mounted around the lens of the gun camera in such a way that no direct light reaches the lens. The hood, which projects beyond the leading edge of the wing, shields the light from the direct view of the pilot.

The four lamps are connected to the electrical circuit which operates the camera. As the pilot simulates firing, both the camera and lights are actuated simultaneously.

The triple-mirror retro-reflectors are mounted on the target aircraft, one on the trailing edge of each wing tip and one on the tail. These triple-mirrors reflect the light from the night intercepter back to the gun camera lens in a narrow beam, exposing three small dots on the film. Assessment is made from the position of these three dots.

When the light is returned by the reflectors to the lens of the gun camera, it is not visible to the pilot except on rare occasions when unusual atmospheric conditions prevail. Nor is his night vision impaired by the light source on his own aircraft.

The retro-reflector is one of the most precise instruments yet developed. It is a prism cut from the corner of a cube, with the three encased surfaces silvered to form mirrors. It is designed to return most of the light incident on it from a distant source in a cone of very small diameter, the axis of which passes through the source.

If a flashlight is held alongside the right eye and directed toward the reflector, which has been placed 300 yards away, the reflected beam of light will be visible to the right eye—but not the left eye.

Using Gunnery Film Assessor, Device 3B-18, the range, deflection, accuracy, rate of closure, and general appraisal of the pilot technique can be determined from the three dots recorded on the film as the interception was made. To use the 3B-18 device for night assessment, the film is projected through a plexiglas disk which casts a shadow on the screen, the circumference of which represents the distance between the wing-tip reflectors.

The gun camera film must be developed to a negative image so that the shadow disk will be visible on the screen. To establish frame lines, necessary for assessment, a white card is placed in front of the light source and the camera operated for a few frames before the take-off.

High speed film, Super XX or its equivalent, is used in the gun camera. The lens should be set wide open and the camera operated at 16 frames a second. Tests have shown that a perceptible image will be recorded at 1500 feet, well beyond the firing range of a plane's guns.

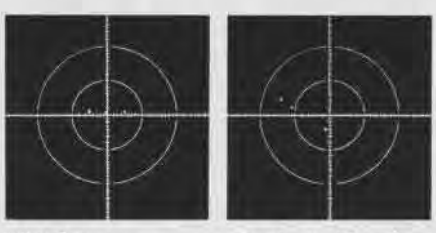
The technique and equipment used in this phase of night fighter training was developed jointly by SPECIAL PROJECT SECTION, R&E, and DEVELOPMENT BRANCH, PHOTOGRAPHY DIVISION of BuAer, in cooperation with PHOTOGRAPHIC SECTION, ComFair Quonset With the exception of the triple-mirror retro-reflectors, all of the equipment is being manufactured by the A&R Department, NAS Quonset, and distributed by BuAer PHOTOGRAPHY DIVISION.

A handbook of instructions on operational procedure has been prepared and distributed to night fighter training commands. Additional copies may be obtained by ordering NavAer 10-1-528 from BuAer's PUBLICATIONS BRANCH.

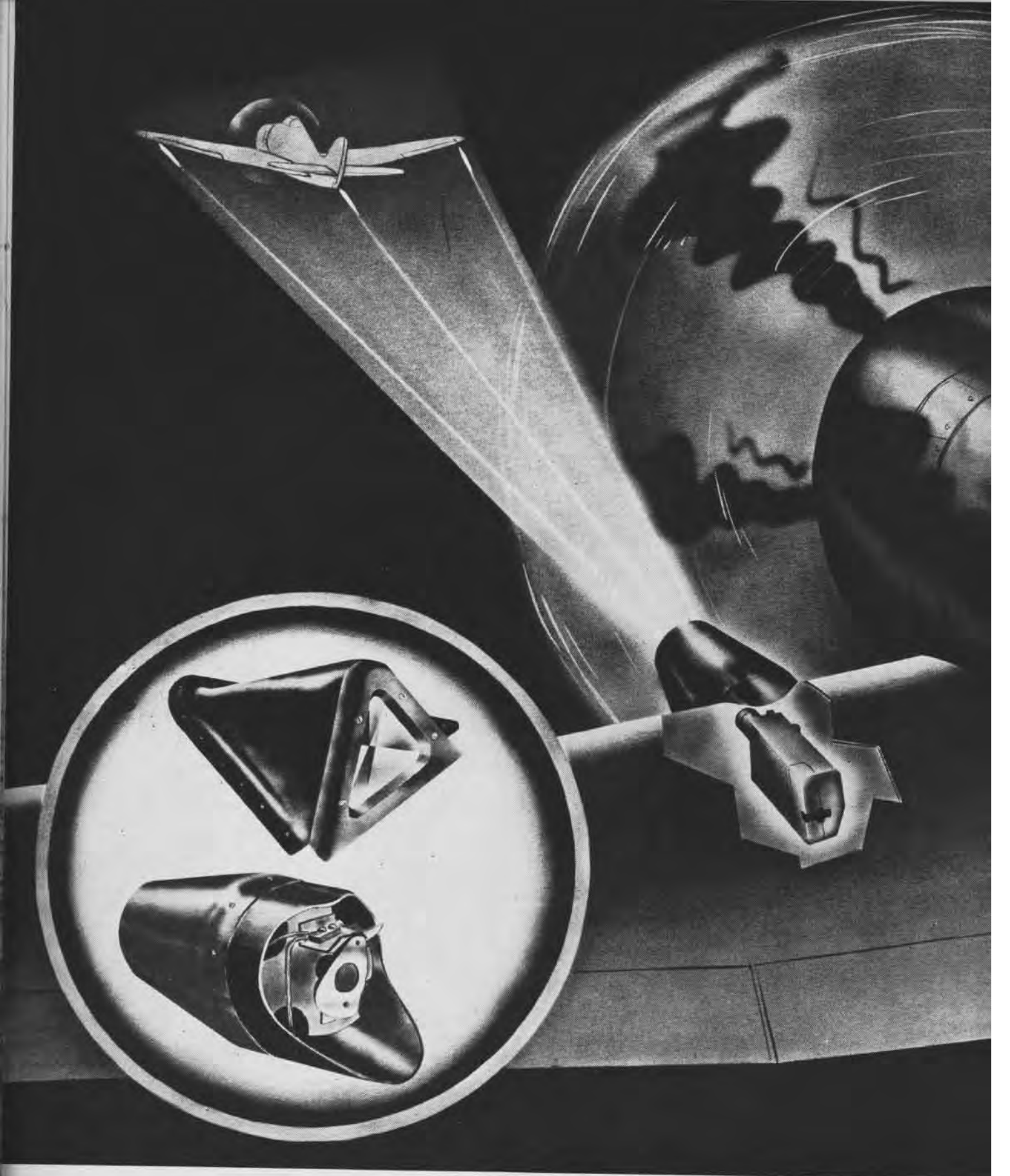
HOOD AND SOURCE OF LIGHT ON GUN PORT

FOUR LAMPS FURNISH LIGHT FOR DEVICE

REFLECTOR GOES ON TAIL OF THE PLANE



What the gun camera film looks like when run through assessment. On left is ideal interception at 750-foot range, shot from slightly above. Position of the dots in right figure indicates run made from starboard.



"They do it with mirrors". Night fighter pilots, using BuAer's new camera development, can make attacks on target aircraft, take pictures of their simulated gunnery and assess their aiming and attack tactics afterward. An ingenious prism arrangement on the wing tips and tail of the target plane throws back the light projected by the VF (N)'s gun camera installation. This light then records as three dots on the camera film. The light does not affect the pilot's night flying vision, nor enable him to tell immediately if he is aiming right. Insert in picture above shows prism retroreflector (top) and light source, seen from rear (lower).

TRAINING DEVICES DEVELOPED AND BUILT BY THE SAN DIEGO UNIT ARE USED WIDELY THROUGHOUT ELEVENTH NAVAL DISTRICT

SAN DIEGO'S TRAINING DEVICES UNIT

BUILDING 833 on activity-packed North Island, NAS SAN DIEGO, houses the Training Devices Unit, which develops, builds and services training aids for the air station, Naval Air Bases and, on occasion, non-aviation shore establishments in 11th Naval District.

Seven officers and between 60 and 70 enlisted personnel are assigned to the unit to provide training devices for use in Fleet refresher training in the San Diego area. Established with one officer, one yeoman and one specialist, the unit has grown to its present size in a little more than two years, and its volume of activity has increased 200 percent in the past year.

Besides developing and building devices locally, the unit orders, services and delivers training aids that have originated in the SPECIAL DEVICES DIVISION of the ONI. in Washington, D. C.

Duties of the seven officers are divided thus: officer-in-charge, assistant o-in-c, material officer, in charge of procurement and distribution of devices; utilization officer who sees that devices are used correctly; special projects officer; maintenance and development officer, in charge of all shops in the unit, and the first lieutenant who supervises personnel, transportation and training of enlisted personnel at unit.

Fighter pilots taking refresher courses in gunnery at San Diego find fixed Gunnery Approach Angle Demonstrator valuable aid

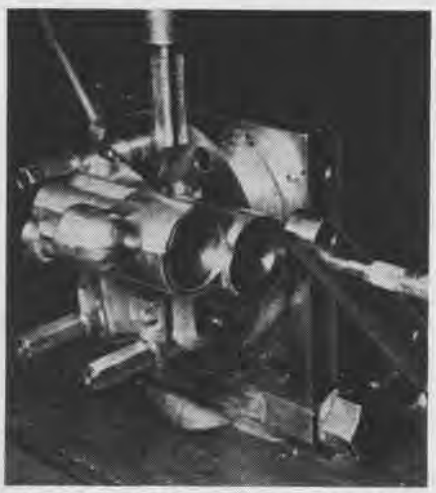
Combat aircrew training units employ yellow-painted, wooden model *Zeros* as truck-towed targets. Training Devices Unit built

TECHNICALLY SPEAKING

Lapping Machine Saves $3000

NAS CORPUS CHRISTI—A refrigeration mechanic here has developed a machine for lapping refrigeration compressor valves, valve plates and seal end bearings under the NAVY EMPLOYEES' SUGGESTION PROGRAM.

Formerly, these parts were lapped by hand, requiring the better part of a day in most instances where the plates



VALVES FORMERLY DISCARDED ARE SAVED

were not too deeply scored. Valve seats badly scored or worn were discarded, as the cost of hand lapping would exceed the cost of a new plate.

Retrieving a 1/16 hp motor and gear box from the salvage yard, the inventor mounted them on a suitable stand made of scrap pipe and added other parts to complete the machine.

The machine has an eccentric attached to the gear box drive shaft that rotates the valve plates over waterproof emery paper, lapping them with little attention from the operator who may be engaged in other work nearby. Even badly scored or worn plates can be lapped in one-half a man-hour. Use of machine has reduced lapping time from approximately eight to one-half man-hours per plate. In addition, deeply scored valves that could not be economically lapped by hand now are successfully restored to service. Annual savings total $3000.

[DESIGNED BY CLARENCE E. WILLIAMS]

Base Designs Three First Aid Kits

NATB PENSACOLA—To provide more efficient use of medical first aid for injured survivors of plane crashes, this activity has developed three types of kits for the handling, transportation and ready accessibility of medical supplies to be used in air/sea rescue.

Constructed of processed fabric material carried in stock by standard Navy parachute shops, these kits enable rescue planes to carry sufficient medical equipment for emergency first aid, available for immediate use.

Prior to development of these pouches, the only equipment available for medical treatment on the PBY and PBY-5A planes used for air/sea rescue was the standard hospital corps pouches and first aid pouches. This equipment was insufficient in quantity and pouches were so arranged that it was necessary to dump them on the deck in order to quickly pick out desired articles. The new pouches developed at this station carry a much larger assortment of materials and are so designed that on opening all gear is exposed for immediate use.

The pouches are of three types. A large air/sea rescue kit weighing 35 pounds contains medical and surgical equipment necessary for practically any emergency encountered. A second kit weighs nine pounds and contains equipment normally found in the standard corpsman's pouch. The third

ALL EQUIPMENT IMMEDIATELY AVAILABLE

is a blanket kit containing four folded standard Navy medical blankets.

Painting of Insigne Made Easier

NAS QUONSET POINT—A painter employed at this station developed a device to facilitate painting insignia on aircraft. Ordinarily the job requires a rule, straight edge, angle, quadrant and a scriber, but his idea combined all five in one instrument.

Made of scrap aluminum, it consists of a protractor plate and modified T square. The plate is marked off by fine radial lines with two suction cups on the rear for holding it to plane. The T square has a series of slotted holes along straight edge.

When laying out insigne, the two parts of the tool are held together by a screw and wing nut set in center hole of protractor. The T square revolves

INSTRUMENT COMBINES FIVE OTHER TOOLS

about the screw. After laying out circles and star points device is removed from the plane and straight edge alone used to complete the layout. The device was submitted under the Navy Employe Suggestion program.

[DESIGNED BY C. M. KING, LEADINGMAN PAINTER]

Having Trouble With Red Lamp?

Reports have been received that the red coating material on the bulb of lamp AN3136-R-323 (3 volts, .19 amps., ASO STOCK NO. R17-L-6516), used in the instrument-panel red-lighting system on TBM airplanes, covers the contact shoulder and prevents electrical contact between the lamp and socket.

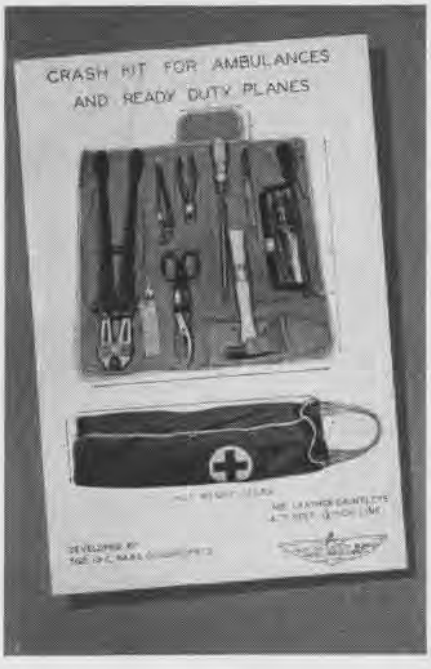
Investigation has shown that contact is not prevented by the red coating material but by the position of the contact spring in the socket. If the spring is too deeply recessed, the difficulty can be remedied without removing the cover panel by unscrewing the lamp from the socket and using a small screw driver to pull the contacting spring of the socket closer to front of panel.

When the lamp is screwed back into the socket, pressure of the lamp shoulder against the contact spring can be felt if the spring has been pulled a sufficient distance toward front of panel.

NAAS Cuddihy Designs Crash Kit

NATB CORPUS CHRISTI—The Aviation Safety Board here is actively associated with crash and rescue work and facilities. Often the medical crash investigator is the first medical officer on the scene of a crash and must immediately take emergency steps to save life or treat an injured plane occupant.

Owing to the perpetual urgency of the situation, he always leaves on a moment's notice with no time for collection of a large amount of gear. On arrival at a crash, it often is found that sections of a plane must be cut away to release a pilot from the cockpit. At other times an aircraft has turned over on its back and must be lifted off the



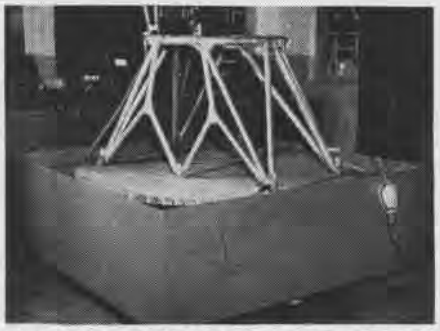
ground or partially turned over to release the occupant.

The crash kit developed at NAAS CUDDIHY (*see cut*) can be picked up by the crash investigator on his way to the ready duty plane and taken along for use in emergency. It includes heavy wire clippers, two types of pliers, a set of metal shears, screw driver, ax, hacksaw and blade, knife, pair of leather gauntlets and 75′ of 1½″ line. The tools each fit in a tool pocket, and the complete kit weighs only 15 lbs.

Check Stand for Engine Mount

VR-4—Two enlisted men with this NATS squadron designed a handy turntable since a five-foot diameter engine mount can not easily be placed on the table of a three-feet-wide Magna-flux machine for magnetic inspections.

The table is six feet square and three feet high. Metal sides slope inward to provide a reservoir for the magnetic oxide solution. Based upon



TURNTABLE FACILITATES STAND TESTING

an iron stand in the center is a grilled wooden turntable, on the under side of which is an iron rim so it can rotate on the four wheels fastened on each side of the table frame.

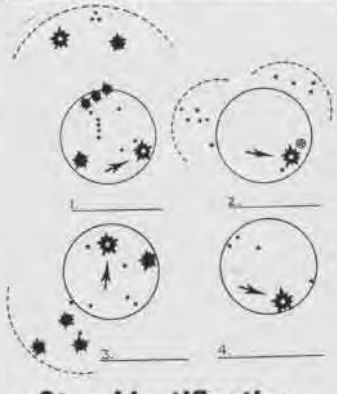
To use the magnetizing current from the Magna-flux machine, the men brought cables to the table from the machine. With clamps attached, each section of the mount then can be magnetized. The men solved the problem of handling crystallite, oil and magnetic oxide solution in the reservoir and bringing it to pour over the mount. They used a single-phase Pacific pump to circulate oxide particles, feeding the solution through an aluminum tubing.

In testing the mount for weaknesses or cracks, the solution is poured from the hose over the section which has been magnetized. Oxide particles adhere to cracks in the metal and the fluid runs down into the reservoir through the openings in the table top.

[DESIGNED BY HERBERT LITTLE, S1C AND JOHN HAFFEY, S1C]

▶ ***BuAer Comment*—The turntable is worthwhile. It may not be entirely original or exclusive with VR-4 but it will be of value to most activities desiring to install the stand. It is easily manufactured and quite cheap. While it has a disadvantage of requiring additional space, it will aid handling and safety.**

SHOW ME THE WAY TO GO HOME



Star Identification

Each circle represents the field of the MARK V or Bausch and Lomb Sextant, 12° of the sky. The stars are drawn to scale, both as to position and to brightness, the scale of magnitude being the same as on the *Almanac* star chart. The stars shown in the field of the sextant are enough to identify the star indicated on the chart.

(Answers on Page 32)

Nylon Flak Suits and Curtains

Although hostilities have ceased, the Navy is continuing its developmental work in body armor for flight crews.

Nylon flak suits and nylon flak curtains, designed to protect fliers and crew members from low energy mis-

NYLON SUIT PROTECTS FLIGHT PERSONNEL

siles such as shell fragments, recently were procured and have been issued to operating units. Thirty-two layers of nylon duck are sewn together to make the suit and 15 layers to make the curtain. The suit weighs 19 lbs., covers 30 percent more area and weighs 20 percent less than the flak suit made of Hadfield's steel, developed by the Army Air Forces and formerly used by many Navy squadrons. The curtain weighs 10 lbs., covers the same area and weighs 50 percent less than the steel curtain.

Aso Stock No. for suit is R37-S-5737-95; curtain, R27-C-3900.

Device Holds Elevator Battens

MCAS MOJAVE—Due to rudder and elevator battens falling off and breaking a new device was constructed for TBM and F6F aircraft. It is a wedge affair padded with felt to prevent injury to the surfaces. Several elastic bands hold the fixture snugly and firmly in place.

[DESIGNED BY SGT. C. F. HAUSER]

Parachutes Require Proper Fit

CASU (F)-31—The aviation equipment department of this unit has adopted a program to insure the proper outfitting, maintenance and use of aviators' equipment which has been endorsed by ComAirPac.

The life-saving and injury-preventing aspects of the program are clear.

One phase of this program provides for testing of parachute harnesses to insure proper fit and comfort. All pilots and aircrewmen are urged to have their harnesses checked on a device so that each man may be suspended in his harness.

By doing this, the following faulty harness fits may be detected easily and readily:

1. Improper location of the chest strap so that the hardware may strike the jumper's chin in the parachute opening shocks, with possible injury.

2. Improper adjustment of the back strap so that the jumper cannot move back into the harness sling for a comfortable descent.

3. Incorrect adjustment of the leg straps which may result in serious injury on the opening shock.

4. Improper location of the shoulder strap adapters which proves uncomfortable to the wearer of the chute.

Succeeds List dated 19 July 1945

LATEST BULLETINS ENGINE, AUXILIARY POWER PLANT, ACCESSORY, PROPELLER Dated 19 August 1945

ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
PRATT & WHITNEY				
R-985	177	8-6-45	*Oversize Studs—Identification of*	Information on use
R-1340	195	8-6-45	*Oversize Studs—Identification of*	Information on use
R-1830	335	8-6-45	*Oversize Studs—Identification of*	Information on use
	Rev. No. 2 416	7-6-45	*Screen Assembly, Oil—Reinforcing of*	Information for rework
	Supp. 1 425	7-23-45	*Fuel Feed Valve Assembly and Related Parts*	Summarizes existing instructions and includes additional information regarding overhaul, installation and maintenance of fuel feed valve assembly and related parts
R-2000	45	7-6-45	*Oversize Studs—Identification of*	Information on use
	Rev. No. 2 107	7-27-45	*Screen Assembly, Oil—Reinforcing of*	Information for rework
	Supp. 1 425	7-23-45	*Fuel Feed Valve Assembly and Related Parts*	Summarizes existing instructions and includes additional information regarding overhaul, installation and maintenance of fuel feed valve assembly and related parts
R-2800	92	7-6-45	*Oversize Studs—Identification of*	Information on use
	Rev. No. 2 133	7-27-45	*Oil Flow to the Main Impeller Thrust Plates*	Informs activities of rework of main impeller shaft front and auxiliary impeller shaft rear oil seal ring liners
	Supp. 1 230	7-27-45	*Front and Rear Counterbalance Intermediate Drive Gears—Interchangeability of*	Informs activities that front and rear counterbalance intermediate drive gear assemblies are interchangeable from front to rear, prolonging service life of gears
	232	7-17-45	*American Bosch Type DF18R(L)U-2 Magneto—Modification of Upper Bearing End Plate*	Information covering modification of Upper Bearing End Plate, American Bosch Part No. PL 52315, used on subject magneto
	235	8-2-45	*Supercharger Intake Insert Liner, Fuel Feed Annulus—Cleaning of*	Removes foreign matter gathered in fuel feed annulus
	237	8-4-45	*Diffuser, Blower Throat Bleed Holes—Enlargement of*	Reduces possibility of bleed holes becoming clogged with carbon or other foreign material
	238	8-4-45	*Fixture, Bushing Reaming, Front and Rear Main Case and Support Plate—Rework of*	Avoids possibility of interference of this fixture with boss on front support plate of applicable engines
WRIGHT				
R-1820	289	7-4-45	*Pre-Oiling of Engines Being Started for the First Time After Installation or Overhaul*	Specifies oil pressure used when pre-oiling R-1820 and R-2600 series engines
	Supp. 1			
R-2600	175	7-24-45	*Vent Hole, Thrust Bearing Cavity—Provision for*	Prevents oil from being locked behind thrust nut and reduce oil leakage at this location
GENERAL ENGINE BULLETINS				
	36	8-2-45	*Spark Plugs, List of Acceptable Models for Naval Service Engines*	Revises list of acceptable spark plugs for certain naval service engines
	Supp. 1 58	8-2-45	*Conduits, Ignition Shielding—Inspection of at overhaul*	Issues new inspection instructions and cancels General Engine Bulletin No. 13
	72	6-8-45	*Water Injection Equipment—Corrosion Inhibitor For*	Corrects class numbers and stock numbers in "Source of Supply of Parts and Tools"
	72	7-28-45	*Water Injection Equipment—Corrosion Inhibitor For*	Corrects class numbers and stock numbers in "Source of Supply of Parts and Tools"
	Supp. 1 76	7-31-45	*Impellers—Methods for Balancing and Reworking*	Supplements existing instructions for balancing impellers for P&W aircraft engines
	77	8-2-45	*Supercharger Clutches—Failure of Due to Improper Operation*	Reduces clutch failures by accentuating necessity for compliance with correct operating procedures
POWER PLANT ACCESSORIES BULLETINS				
	17-45	7-27-45	*Fuel Pumps, d-24*	Reports of fuel pump failures received in BuAer could have been avoided if subject bulletin had been incorporated
		Supp. 1	*(Pesco Products Co.—Fuel Pumps—Type A N 4101—Installation of additional diaphragm on the Relief Valve)*	
	28-45	7-25-45	*Air System Accessories—e-8*	Changes oil consumption should be between 50 cc/hour and 150 cc/hour instead of between 500 cc and 150 cc
	Rev. 2 36-45	7-28-45	*Air System, e-9*	Corrects errors under "APPLICATION" of original bulletin
			(Eclipse Pioneer Division Bendix Aviation Corp. Suction Relief Valves Models 613-4-A, -5-A, -6-A and 691-2-A Valve Piston, Rework of.)	
	47-45	7-25-45	*Starters, b-26*	Replaces original exhaust valve closing spring, Part No. G-2052, with new exhaust valve closing spring, Part No. G-2087
			(Breeze Type 3 Cartridge Starter—Exhaust Valve Closing Spring—Replacement of.)	
	49-45	7-31-45	*M-H Turbo Supercharger Regulator, Used on PB4Y-1, RY-1, and RY-2 Aircraft, Power Circuit Failure Resulting From Moisture in A N Nacelle Receptacles—Elimination of*	Information on eliminating M-H turbo supercharger regulator power circuit failure resulting from moisture in AN nacelle plugs and receptacles
	51-45	7-25-45	*Turbo Supercharger i-9, Wright Model WT9-2—Turbine Wheel Hub Bolts—Replacement of*	Existing hub bolts attaching turbine wheel to shaft are subject to salt water corrosion and subsequent failure resulting in loss of turbine wheel

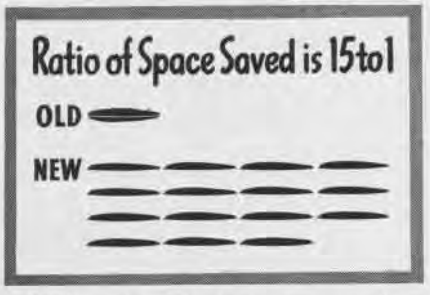
ARMY AND NAVY EACH OPERATE A SHIFT AT THIS GUAM TANK ASSEMBLY PLANT

PACIFIC TANK ASSEMBLY

OVERSEAS plants for assembling fuel tanks already have saved shipping space equivalent to five *Liberty* ships. By October this saving in cargo space resulting from tank assembly plants on Guam, Okinawa and in Hawaii would have approximated 2½ *Liberty* ship cargos a month. The saving in shipping space across the United States would have approximated 330 freight cars each month. Enough knock-down parts to make 15 droppable tanks can be shipped in the space required for one assembled tank.

Utilizing facilities of a commercial concern, the Navy's first overseas assembly plant for droppable fuel tanks began operation in May 1944. Under a contract arrangement, BUAER furnished all necessary plant equipment, knock-down parts and supervision while the commercial concern supplied the labor.

To date approximately 16,500 F6F tanks and 11,000 interchangeable tanks have been assembled by the Hawaiian unit. It has one of the best production rates per operator and lowest costs per tank of any commercial drop tank plant on Navy work. Prior to taking the contract the firm was in tuna fish packing.



Savings in shipping space resulting from the Hawaiian assembly unit led to establishment of a similar plant on Guam. A complete unit shipped out in January 1945 began operation in May. This plant, operated by naval personnel, has a monthly capacity of 3500 tanks for one shift.

A second shift, manned by Army Air Forces personnel, was added to the operation in June. Fifty percent of the increased output goes to the AAF.

The Army Air Forces conducted flight and drop tests at ELGIN FIELD using Navy 150-gallon interchangeable tanks on P-38, P-47 and P-51 type planes. These tests, together, with a realization of savings that could be made in shipping space, resulted in an AAF request to the Navy to step up production at Guam and to establish an assembly unit on Okinawa to be operated by Army personnel. On V-J Day this plant was en route to Okinawa.

Combined Army and Navy drop tank requirements for Central Pacific were approximately 25,000 tanks each month.

Procurement of knock-down tanks had to be scheduled with adequate lead time to allow for shipment, and had to be integrated with procurement of assembled tanks in plants in this country.

BEFORE 150 gallon droppable fuel tank requires 15 times as much shipping assembled as a knock-down tank

AFTER Knock-down tanks save precious cargo space. Overseas unit does the assembly job for Naval Aviation

AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Bomb Skid Mk 1-1 Gets Larger Adapter

The special needs of ordnancemen aboard carriers again have resulted in a new development in bomb handling equipment. ComFairWestCoast has designed a bomb skid adapter for the bomb Skid MARK 1 MOD 1 that has twice the bomb capacity of the MARK 1 adapter currently employed, in addition to a number of new features.

Following a few minor revisions, this item has been adopted by BUORD and designated the Bomb Skid Adapter MARK 4 MOD 0 (STOCK NO. 3-A-55). The new adapter is capable of handling the following wide variety of loads: six 100-lb. bombs, three 250-lb. bombs, three 300-lb. bombs, sixteen F6F ammunition cans, eight F4U ammunition cans, three JATO units, three 60-lb. Napalm drums and numerous other sizeable ordnance items requiring short hauls.

There are two parts to this adapter. The basic adapter, as shown loaded with six 100-lb. bombs, forms the main part. It is constructed of welded steel flats and angles and is attached to the skid by toggle

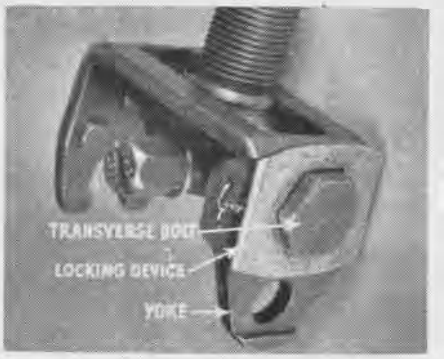
MK 1 SKID CARRIES 6 100-LB. GP BOMBS

pins. The adapter extension, also constructed of steel flats, is attached to the upright steel side straps of the basic adaper and forms side rails to secure the other loads onto the basic adapter.

Details of this adapter are being promulgated in Change 6 to O.P. 1073 *Bomb and Torpedo Skids, Trucks and Trailers.*

Gun Loses Boresight, Damages Plane

Post, Rear Mounting, MARK 4 MOD 0, provides for rapid mounting and dismounting of the aft end of a fixed caliber .30 or caliber .50 machine gun and permits horizontal and vertical adjustments for boresighting. A transverse bolt, locked



in position by a wedge-type device permits horizontal boresight adjustment.

Reports reaching BUORD reveal that this present locking device on the transverse bolt does not afford a positive lock, thus allowing the gun to lose boresight while firing, damaging blast tubes and leading edges of wings in some aircraft.

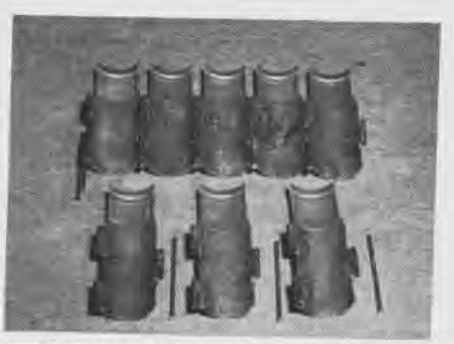
CASU-7 has designed a positive locking device *(see cut)* that fits over the head of the transverse bolt and is safety-wired to the yoke. No movement of the transverse bolt is possible when this locking device is attached.

Device easily is removed and replaced to facilitate boresighting and can be fabricated from material on hand.

Changes To the 20mm Belting Machine

Activities having trouble with the Mk 5 Link Loading Machine in belting 20mm ammunition with M3 Links may find useful these two modifications performed by the Ordnance Department of MARINE AIRCRAFT GROUP 41.

ROUNDS ARE OILED BY A ROTATABLE FELT



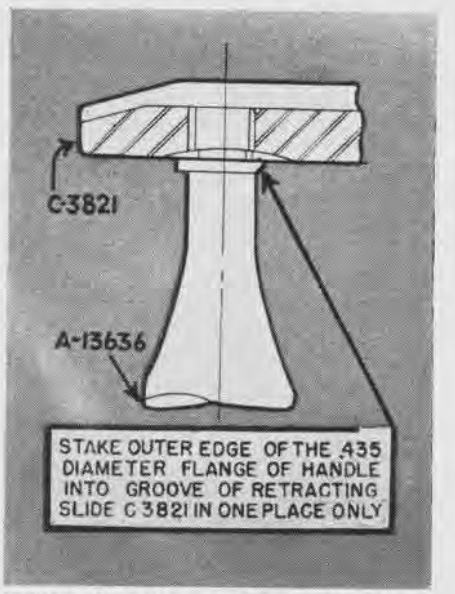
REMOVE CUPS AND WELD 3 TUBES TO BELT

One of the main difficulties this group encountered in using the Mk 5 was crystallization and consequent cracking of those portions of the steel belt subjected to constant bending and straightening when the machine was in operation. To remedy this, MAG-41 cut off the individual cups of the belt and silver-soldered two 3/4" lengths of 3/16" steel tubing of .022" wall thickness to the left side of each cup. A similar length of tubing was silver-soldered to the right side. Care was taken to preserve the same distance between cups as in the original installation. By inserting suitable pins through this tubing in order to lock the cups together, a continuous hinged belt was formed. This has proved superior to the original installation.

The other modification adopted was the mounting of a rotatable felt oiler and bracket on the cartridge guide tie bar. This bracket is positioned to provide a thin coat of oil to that area of each cartridge subsequently covered by the link. According to the aircraft group, the oiler has proved a substantial help in belting and later link stripping.

BAM Cal .30 Retracting Slide Handle

The difficulty of the retracting slide handle working loose on BAM CAL .30 M2 guns can be eliminated by staking the handle securely to the retracting slide. Vibration in firing causes the handle to work loose, and very often it will pull out of the slide



METHOD OF STAKING HANDLE TO SLIDE

or break when the operator starts to charge the gun manually.

Staking of the handle consists of cutting a shallow groove 1/32" to 1/16" deep and 1/16" wide in the face of the slide diametrically across the tapped hole, and extending 3/32" on each side of the outer edge of the hole. Then the outer edge of the handle flange is staked into one end of the groove *(see cut)*.

An OMI is being prepared by BUORD for early distribution to the Fleet and operating activities. In the meantime, activities encountering this difficulty may overcome it in the manner suggested in this story.

SCREEN NEWS

Down But Not Out. If there was any doubt at all in the mind of a foreign observer about the high regard democracy, U.S. style, holds for the right of the individual to life, not to mention liberty and the pursuit of happiness, that doubt would be dispelled by the sight of an air/sea rescue organization in action. A totalitarian fanatic, schooled to the idea of supremacy of the State, would be utterly baffled by the prodigious effort expended to save the

SURVIVORS IN LIFE RAFT AWAIT RESCUE

life of one man, as demonstrated in the motion picture:

MG-4327 *Air Sea Rescue*
Restricted, 22 min.

SYNOPSIS: Having learned in training that getting rescued is a somewhat more active and complicated occupation than standing around waiting for a street car, the pilot who takes the leading role in the picture makes a routine check of his rescue equipment—mirror, whistle, marker, life raft, float lights, etc. Forced down at sea, he follows the standard procedure that sets in motion the system that is to safely pick him up and bring him back to fly again.

Straight photography demonstrates the complete rescue operation, including the pilot emergency procedure, accompanying plane procedure, teamwork of the Air/Sea Rescue Organization, survivor action and the converging of various forces in actual rescue operation.

Break out a new epitaph for Robinson Crusoe: "Born thirty years too soon."

Food for the Thoughtless. In the tropics, where Nature is lavish to a fault, the temptation is great to supplement safe but unsucculent K-rations with native vegetation and cookery. Results of this hopeful adventuring into gastronomic unknowns have been so disastrous as to provoke a movie short on the subject:

MN-2808d *Commandments for Health—Native Food*
Unclassified, 7 minutes.

MacGillicuddy, cartoon actor who has carried the ball (the wrong way) on many another lamentable occasion, again points the way, in reverse. Tiring of K-rations, he is attracted to what appears to be a luscious bunch of bananas. He learns too late that he is eating plantains, which, in the raw, pack the punch of a miniature atomic bomb in the human stomach. After other similar misadventures, including having his tongue burned by beach apples and his digestive tract ruined by an unsanitary turkey dinner at Dirty Joe's, ole Mac returns to eating K-rations alone, even if not liking them.

On Brakes

MA-4859b *Servicing Wheels and Multiple Disc Brakes—Part 2*
Restricted, 8 min.

In this picture various types of brakes pass in review, and one—the removable flange type—is selected for assembly. STEPS: assemble casting, drive rings, bearing cups, lock ring, wire, hub cap faring; line up wheel, tighten nuts. Cleaning of parts with specified gasoline compounds is recommended.

Other Films Shipped:

MN-4378c *Aerial Torpedo Attack — Group Tactics*—Confidential, 22 min.

MN-3695a *Hall-Scott V-12 Defender Engine — Routine Operation*—Restricted, 20 min.

MN-3695b *Hall-Scott V-12 Defender Engine — Periodic Checks and Maintenance* — Restricted, 20 min.

MN-4318 *Self-sealing Fuel Cells Series*—Unclassified
- a *Manufacture and Usage*—10 min.
- b *Packing, Stowage and Handling*—5 min.
- c *Installation, Maintenance and Inspection*—11 min.
- d *Repairs*—18 min.
- e *Fitting Replacement* — 17

Where to Get Em: Central Aviation Film Libraries and Sub-Libraries are listed below:

NAVAL

ABATU, NAS St. Louis
CASUs 2, 4, 23, 24, 31, 32 (F)42
CasuComDet, Port Hueneme
ComAirPac
ComAirSubComFwd Area
Hedron TWO
NAB Seattle
NAC Navy #3149
NAMC Philadelphia
NAOTC Jacksonville
NAS Atlanta
NAS Clinton
NAS Grosse Ile
NAS Kodiak
NAS Moffett
NAS New York
NAS Patuxent
NAS Quonset
NAS San Diego
NAS Norfolk
NAS Navy #115
NAS Navy #117
NAS Navy #720
NATB Pensacola
NATB Corpus Christi
NATEC Lakehurst
Navy #3233
TAL Navy #116

MARINE

MCAD Miramar
MCAS Cherry Point
MCAS El Centro
MCAS El Toro
MCAS Mojave
MCAS Navy #61
MCAS Parris Island
MCAS Quantico
MCAS Santa Barbara
4th MAW

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Films available from Special Devices Division for showing in Visual Quizzer, Device 5-X. Standard slide film version may be obtained from Training Films, BuAer.

● NAVIGATION PROBLEM (p. 28)

1. Rigel
2. Altair
3. Sirius
4. Fomalhaut

● GRAMPAW'S QUIZ (p. 10)

1. 1000 ft. above the surface. Ref: 60.23, CAR.
2. Sea level. Ref: 60.9 (n), CAR.
3. No. Ref: Para. 4 of TN 72-44.
4. *a.* Buckled—in order to prevent loss of emergency gear. Ref: FSB 13-45.
5. Open to prevent heat damage to electrical insulation. Ref: Para. 5 of FSB 6-45 and also Operating Instructions in *Pilots' Handbooks.*

NEWS

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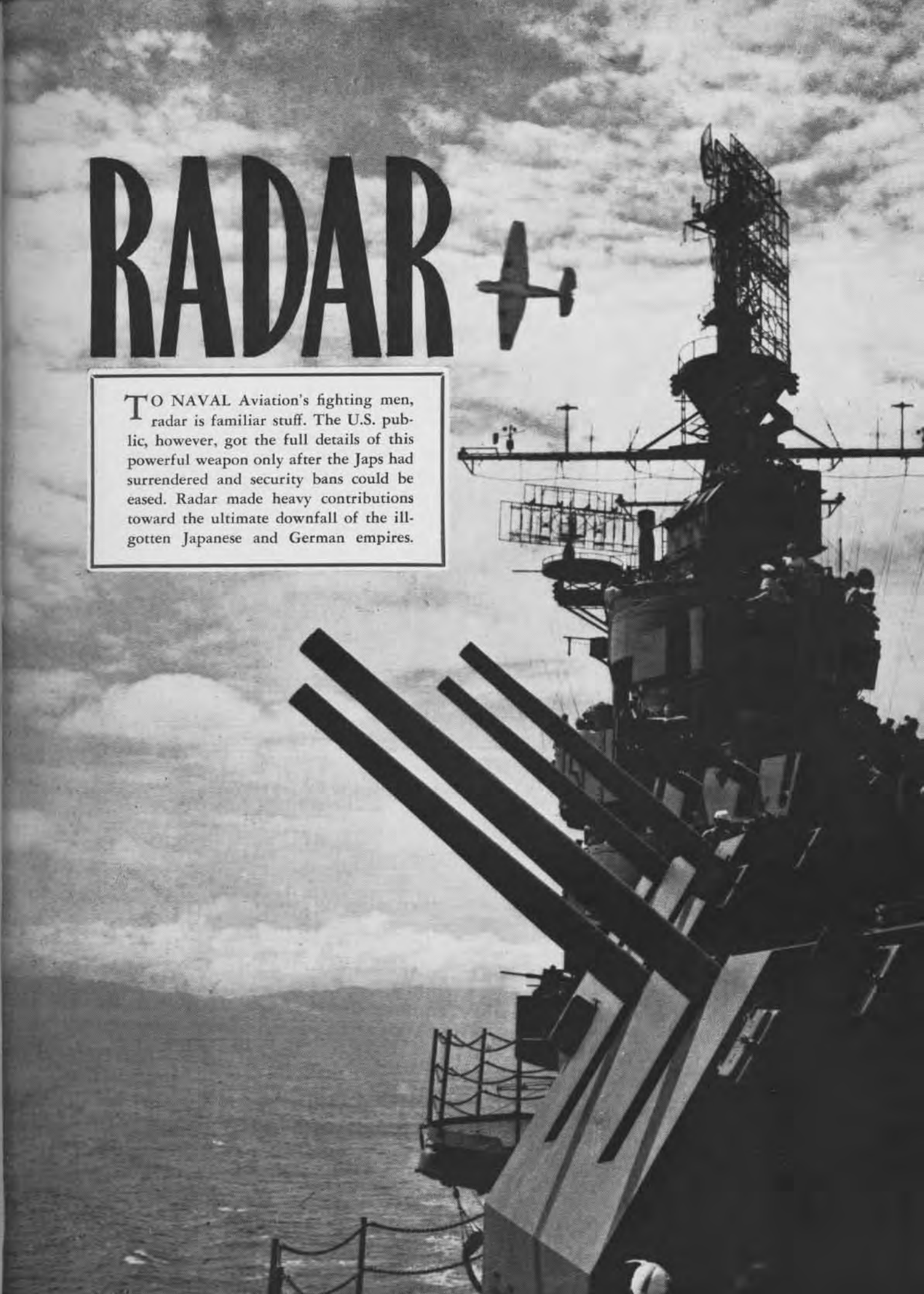

RADAR

TO NAVAL Aviation's fighting men, radar is familiar stuff. The U.S. public, however, got the full details of this powerful weapon only after the Japs had surrendered and security bans could be eased. Radar made heavy contributions toward the ultimate downfall of the ill-gotten Japanese and German empires.

WHILE JAPS HESITATED

Carrier Based Planes Ranged At Will Over Jap's Homeland Before V-J Day

CIVILIANS IN JAPAN must have realized the war was lost as Navy planes from the U.S. Third Fleet ranged almost at will from Hokkaido down to Kyushu hunting out targets. Bombs from carrier based planes rock a camouflaged *Tone* class cruiser in Kure harbor (top), and fire the village of Nemura on Hokkaido, northernmost and second largest of Jap home islands.