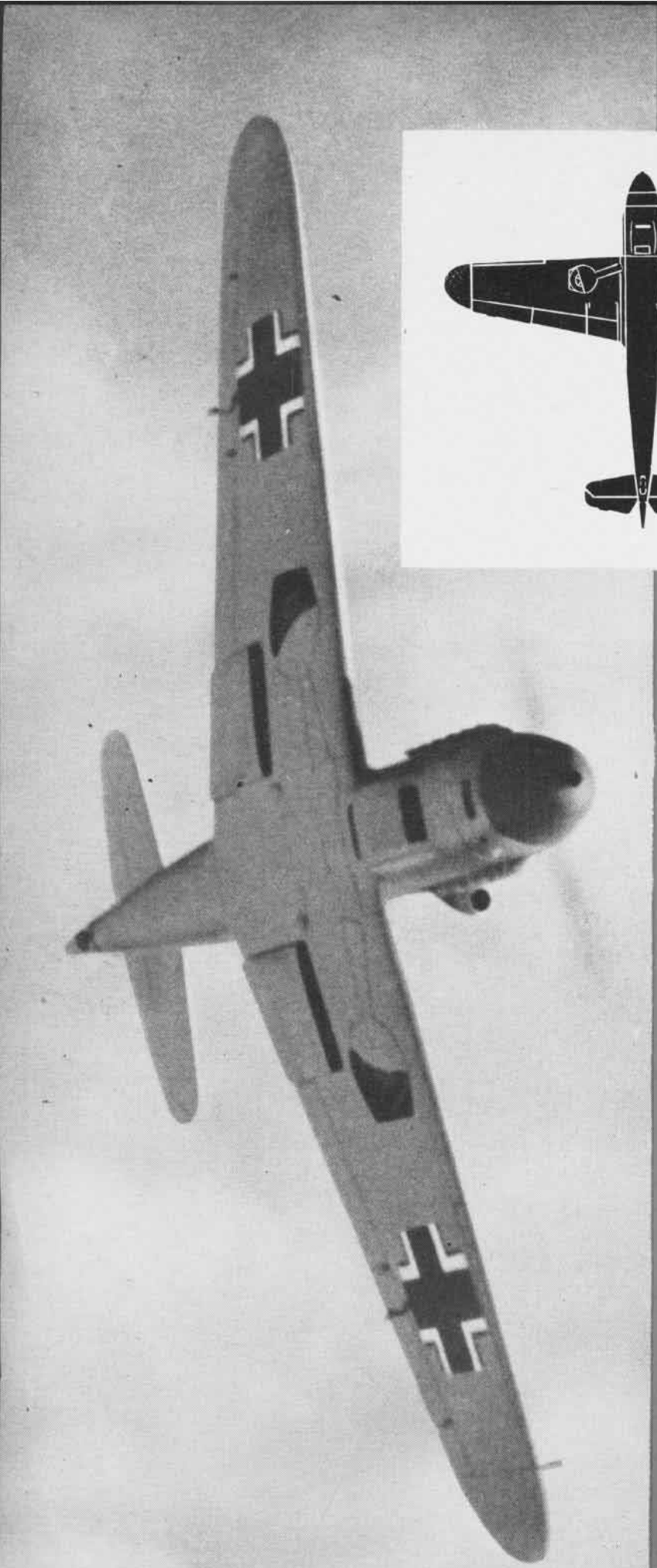
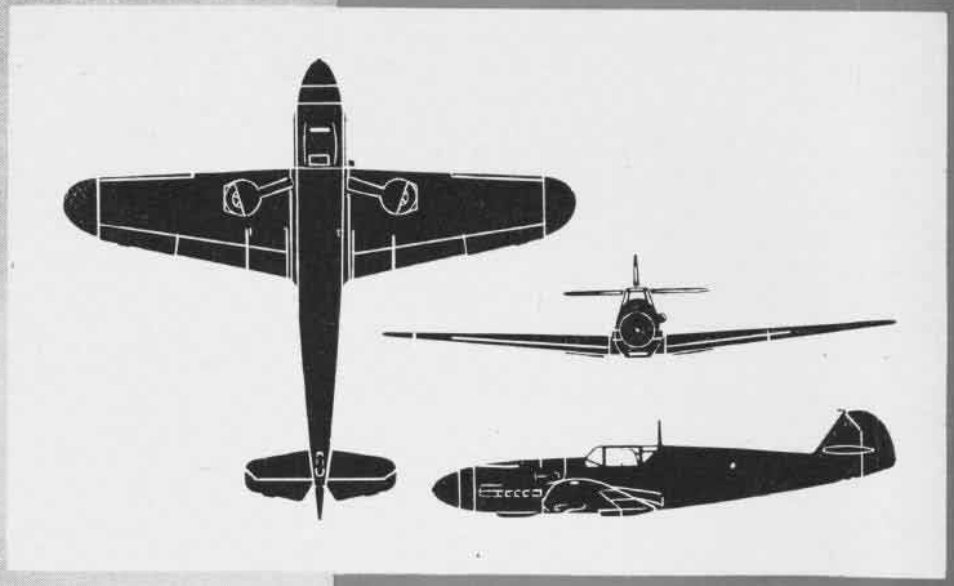




MESSERSCHMITT—ME 109F

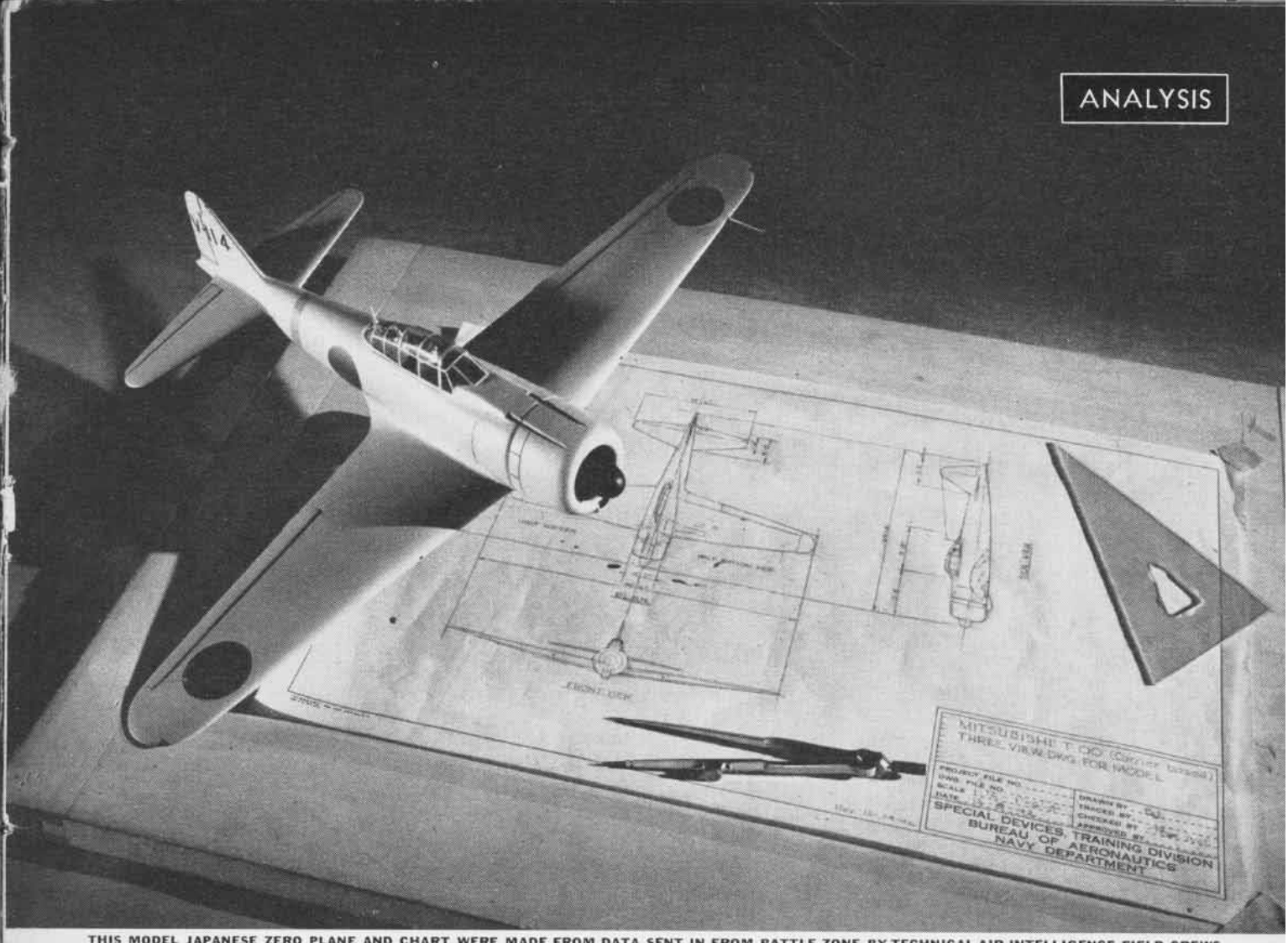
GERMAN FIGHTER

Span—32 ft. 9 in.
Length—29 ft. 10 in.
Service Ceiling—38,000 ft.
Max. Speed—370 m. p. h. at 22,000 ft.

DISTINGUISHING FEATURES: Low wing monoplane with single inline engine and thick nose. Air scoops under each wing and under nose. Wings tapered with rounded tips and dihedral from roots. Tailplane set high. Long fuselage with low cockpit.

INTEREST: These Messerschmitts swarmed over England during the Battle of Britain and they have been in the thick of action on every front where the Luftwaffe has operated. This fighter has maneuverability, climbing ability, and its ceiling is higher than some of the Allied fighters sent against it. This aircraft also is used at times as a bomber in support of ground troops and in the Southwest Pacific where it is used by the Japs, being known as "Mike." A high altitude version with a liquid-cooled engine, the Me 109G is seeing action on all European and Pacific fronts.

Each Wave must enlist as an apprentice seaman, then complete a course of indoctrinal training in boot camp or officer's candidate school (see story)



THIS MODEL JAPANESE ZERO PLANE AND CHART WERE MADE FROM DATA SENT IN FROM BATTLE ZONE BY TECHNICAL AIR INTELLIGENCE FIELD CREWS

Technical Aviation Intelligence

Captured Equipment Reveals Enemy's Secrets to Buaer's Air Information Branch

THE military services and government agencies interested in scientific development or in assessing the war economy of the enemy are constantly in need of vital information such as: *1.* Performance of characteristics of enemy aviation material; *2.* Design and construction details of enemy aviation material; *3.* Enemy aircraft production rates; *4.* Enemy material shortages, and *5.* Comparative performance and characteristics data—U. S. and foreign aircraft.

In developing this information, it is necessary that captured enemy aviation material from many sources be examined and analyzed by specialists, and that the results of the analyses be studied by Buaer together with intelligence and photographs received from various other sources, giving details of enemy and allied aircraft and equipment.

The Navy has recognized the importance of technical aviation intelligence by setting up the Air Information Branch in Buaer to handle it. Flowing in from the various theatres of war are reports on enemy aviation material, intelligence, and photographs, as well as actual captured material. All this information and material are collected by the Office of Naval Intelligence, after which

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BUREAU OF AERONAUTICS
NAVY DEPARTMENT—NO. 194

they are distributed to Buaer's Air Information Branch.

Within the Air Information Branch is the Material and Performance Section whose function is to assist in the development of vital information. Aircraft and engine information is evaluated and passed along to the Engineering Branch to deliver accurate performance data. The same information is used in developing master drawings and master models of enemy aircraft, which then become basic data for recognition material, such as silhouettes, models, slides, photographs, cards, etc. Information on the design and construction of enemy aircraft also is forwarded to the Engineering Branch where the cognizant sections study it to see if the enemy has emerged with any new designs of materials which might be of value to the Navy.

Nameplates from captured aviation equipment provide an important source of valuable information, as the data picked up from them are used in determining production rates and locations of important plants. This information, as well as that derived from chemical analysis of metals from captured aviation equipment, is of particular importance to several government agencies.

Technical Air Information Officers

To make sure that accurate information on enemy aviation material is collected in the field, special training of personnel has been arranged. A group of officers with engineering

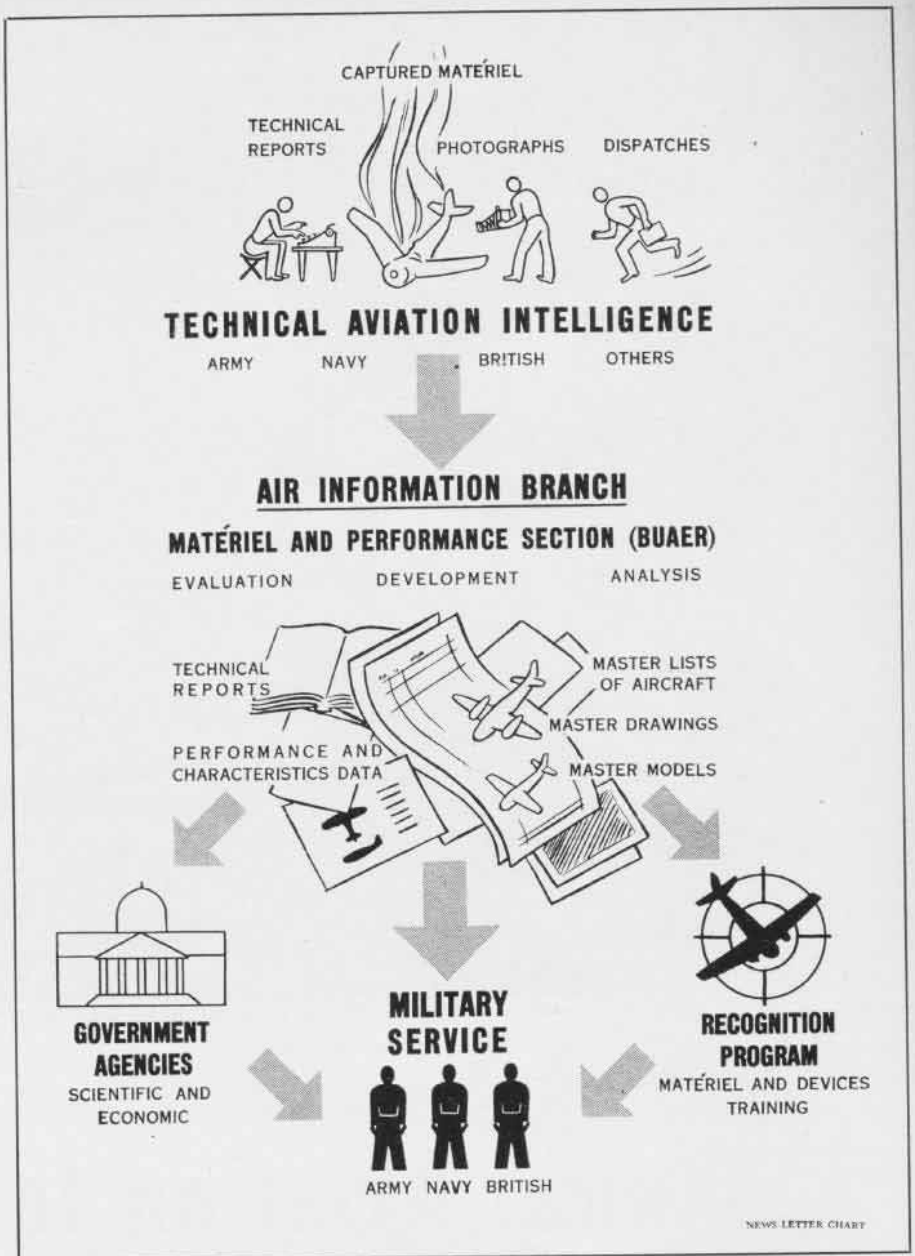


CHART INDICATES HOW MILITARY DATA FROM WAR FRONTS IS DIGESTED FOR USE BY ALLIED FORCES

METAL NAMEPLATE FROM CAPTURED JAP MITSUBISHI GIVES INFORMATION

Kasei Engine Type 11—Mitsubishi No. 111600 M				
Adjustment	Intake	(Hot)	Begins 20° Ahead	Ends 77° After
	Exhaust	Angle	Begins 76° Ahead	Ends 21° After
	Interval	(Cold)	Front Row 0.4 mm	Rear Row 0.1 mm
Ignition angle	20° Ahead			
Order of Firing	(R) 1 3 5 7 2 4 6			
	(F) 2 4 6 1 3 5 7			
Fuel	100 Octane Gas (Aviation No. 92)		Lub. Oil	Aviation Lub. Oil
Date of Manufacture	(Date Scratched Out)		Seal	Mitsu Insp. ⚓
Date of Overhaul			Seal	
			Seal	
			Seal	
			Seal	

THE TRANSLATION OF JAP ENGINE NAMEPLATE USED BY AIR INTELLIGENCE

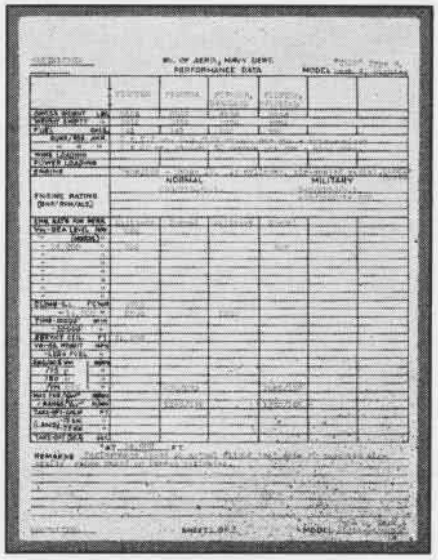
WELL-FITTED KIT ISSUED TO TECHNICAL AVIATION INTELLIGENCE OFFICER TO HELP HIM TO PRY INTO AND ANALYZE CAPTURED ENEMY MATERIALS

background have taken special courses at Wright Field, and a group of aviation machinist mates have been trained at NAF and at Wright Field in the examination of captured aviation equipment.

These Technical Air Information Officers and the specially trained AMM's have been sent to various combat areas. It will be their responsibility to see to it that detailed and accurate information is relayed as rapidly as possible to everyone concerned. Each team of officer and machinist mate receives a special crash kit, a special contour measurement instrument, a pocket transit and a camera. A series of report forms have been developed to facilitate rapid transmission of important data. Technical Air Information officers also will assist in having captured aviation equipment recovered and sent back to this country.

After the equipment arrives in the United States, it is forwarded to the Naval Aircraft Factory at Philadelphia for examination and analysis. There a Captured Enemy Equipment Unit has been set up to catalog equipment, to assist various testing activities in handling it, and to make up reports. These reports are forwarded to Buaer for dissemination to interested military services and government agencies.

The value of captured aviation equipment has already been amply demonstrated in the Navy. Sometime ago, a Japanese Zero fighter was recovered in Alaska, rebuilt and flown,



DATA CHART GIVES FIGURES ON JAPANESE ZEROS

GROUP OF ARMY AND NAVY OFFICERS ATTENDING SPECIALIZED TRAINING SCHOOL PREPARING FOR JOBS WITH TECHNICAL AVIATION INTELLIGENCE

with the result that tactical and technical information of extreme value was obtained; equipment has been captured and examined, and several design features have been recommended for incorporation in Naval equipment.

Problems in Combat Areas

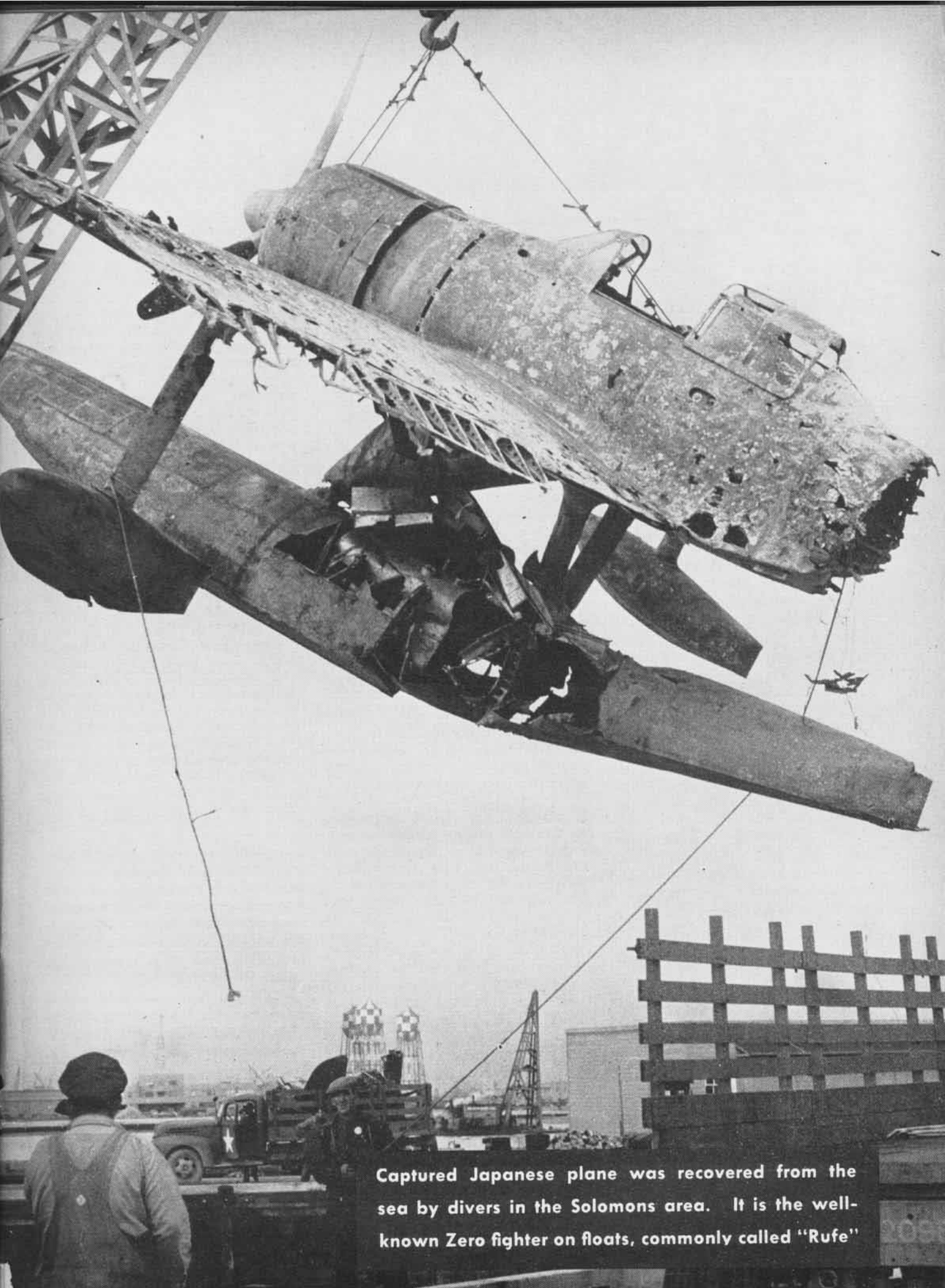
Obtaining information and recovering captured aviation equipment in combat areas present many problems. Usually the aircraft is located in an isolated place, or in areas still under enemy fire. Examining enemy aircraft must be accomplished without delay, even at great risk. Considerable valuable data on a new Jap fighter recently were obtained even though the examining officer had to work under fire. But as a result of this venture, the operating forces were furnished vital new information.

Other equipment has been recovered from no man's land by loading it on captured Jap landing barges under cover of darkness and returning it to friendly territory. The Zero fighter found on its back in an Alaskan swamp presented a particularly difficult problem and was salvaged only after special mud sledges were built with which to haul out the engine and airplane. Diving outfits have been used in recovery of enemy aircraft and underwater photography has been employed.

How You Can Help In Combat Areas

Resist that impulse to get a souvenir! The enemy aircraft you may see crash, and especially that piece of equipment which appeals to you as a memento, may provide information of greatest importance in the technical job of beating the Jap. All personnel can be of service in reporting the location of enemy equipment as well as in safeguarding it until the Technical Air Information Officer arrives.

FROM SUCH CAPTURED ENEMY PLANES AS THIS JAP SHIP, NAVY INTELLIGENCE OFFICERS DRAFT DETAILED ANALYSES ON JUST HOW GOOD THEY ARE



Captured Japanese plane was recovered from the sea by divers in the Solomons area. It is the well-known Zero fighter on floats, commonly called "Rufe"

FLIGHT STATISTICS

Another Way To Do It

An R4D–3 was parked on the warm-up apron with the engine idling while a change of instructors and students was taking place. As one of the students vacated the left-hand pilot's seat, he inadvertently disengaged the landing gear retaining lever, thereby causing the warning horn to sound. Another student, in trying to stop the warning signal by shaking the landing gear valve handle, pulled the handle into the "up" position causing the gear to retract.

Progressive Stalls and Spins

Case 1. While executing an acrobatic maneuver the pilot of an F4F–4 allowed his airplane to stall and enter a normal spin. Rotation was stopped by the proper technique, but the pilot evidently tried to pull out too rapidly and the airplane immediately stalled and whipped into a violent spin in the opposite direction. The pilot became confused and bailed out; he later stated that the second spin was abnormal in that it was so much faster than the first spin.

Case 2. Another F4F–4 was observed to stall while in a steep, climbing turn and then fall into a spin. The nose was immediately dropped as if the pilot were applying normal recovery technique, but then the nose of the aircraft was pulled up sharply and the airplane again stalled and whipped into another spin from which there was insufficient altitude to recover.

Case 3. An SNJ–3 was observed stunting at an altitude of approximately 2,000 feet. During one of the maneuvers the airplane fell into a spin from which the pilot apparently attempted an abrupt recovery. The aircraft stalled during the pull-out and fell into a much faster spin from which the pilot failed to complete recovery.

Case 4. While on his first familiarization flight in an SBD, a pilot stalled his airplane in a steep turn at an altitude of 1,400 feet. He recovered from the subsequent spin but attempted to pull out too quickly, thus causing his aircraft to enter a progressive spin from which it crashed.

All-Time Record

NATC, Corpus Christi.—The number of students graduated and the total hours flown at the Naval Air Training Center, Corpus Christi, for the month of March 1943 is an all-time record for that Center, and for all aviation training establishments in the world, in so far as is known.

BUREAU COMMENT **These examples, taken from recent trouble reports, indicate a lack of familiarity with the progressive stall characteristic possessed by all aircraft, which is the tendency of an airplane to stall at increasingly higher airspeeds as higher acceleration ("g") is attained.**

All aircraft are designed to stall at a certain airspeed for certain flight conditions; namely, for a specified gross weight, at sea level, and at temperature of 15° C. The stalling speed of an airplane, as listed in the performance chart, is figured on this basis; the airplane will have different stalling speeds for other conditions. Naturally, if you carry less weight, you can fly at a slower speed without stalling; and don't forget, if you overload an airplane, it will stall at a higher speed.

The stalling speed of an airplane is mainly dependent on wing loading. The higher the wing loading, the higher the stalling speed; the formula being that the stalling speed of any particular airplane varies as the square root of the wing loading. Also, the wing loading of any airplane increases in direct proportion to any increase in acceleration ("g"); therefore, giving us the simple formula that stalling speed increases as the square root of "g." Thus we find that if, during recovery from a dive or spin, we use a 4 "g" pullout, our stalling speed will go up during this period as the square root of 4, or twice the normal stalling speed, while a 9 "g" pullout will give us three times normal stalling speed. In other words, an airplane with a 70-knot normal stalling speed will stall at 140 knots during a 4 "g" pullout and at 210 knots if 9 "g" is reached. Do you begin to see why it is so easy to go from one spin into another, at progressively higher stalling speeds?

There is another important factor which affects stalling speed and that is the angle of bank. Stalling speeds are figured for level flight. Everyone knows that an airplane will stall and spin at a higher speed when banked than when in level flight. This is equally true when recovering from a spin or a dive and it is for this reason that it is important that wings be absolutely level in such recoveries.

An understanding of the following physiological reactions during a spin and subsequent recovery is also important, in that these reactions may have a tendency to influence the pilot to employ wrong recovery technique and thus prolong the spin:

(a) When recovering from a spin on *instruments*, the "balance mechanism" of the inner ear will react in such a manner as to cause a tend-

ency to reenter the spin in the *same* direction to that of the original spin.

(b) When recovering from a spin by *visual contact*, the physical stimulus is such as to cause a tendency to reenter a spin in the *opposite* direction to that of the original spin.

(c) Upon removing the stress of centrifugal force, such as is obtained in a tight spin, there may be a disagreeable feeling of falling, even when flying contact. This may cause a tendency to pull back on the stick, even in level flight. A pilot must overcome this reaction by will power and a visual check of the instruments.

(d) During a spin, a slight movement of the head to read a low-placed instrument may produce the sensation of going past the vertical, thus influencing the pilot to pull back on the stick, resulting in a dangerous prolongation of the spin. Consequently, it is advisable to hold the head very still during a fast spin.

It will be noted that in Case 1 the pilot became confused and stated he bailed out because his second spin was abnormal, in that it was so much faster than the first spin. The second spin was not abnormal; it was merely faster than the first spin because it was entered at a much higher speed.

Recovery technique for a spin entered from a progressive stall is the same as for a normal spin, except that, due to the faster spin, it will usually be necessary to apply corrective controls *for a longer time* to get the desired results. Also, because of the higher speed, the pull-out must be less abrupt; sharp pull-outs increase the "g's" and, therefore, the stalling speed. Failure to allow for this is considered the major cause of progressive stalls and spins.

See T. O. #3–42 on this subject.

Pilot-Caused Engine Failures

Case 1. After warming up the engine, an SBD–3 pilot taxied for approximately 6,000 feet to the take-off position, using about 750 r. p. m. He then tested the "mags" and began his take-off. Just after the plane was airborne, the engine began to lose power, necessitating a forced landing in very rough terrain beyond the end of the field.

The Trouble Board said: These engines will foul up if the r. p. m. is allowed to drop below 1,000 for any length of time. As a rule, testing magnetos at 1,750 r. p. m. will not reveal this condition. Usually the drop in power will not occur until approximately 35″ H. G. is reached on the take-off run, and in most cases the pilot can notice it soon enough to stop his run and clear the engine for a second take-off attempt. All pilots on this station have been instructed as to the danger of fouling spark plugs and have been ordered to keep r. p. m. above 1,000 when idling. After taxiing long distances they have been told to run the engine up to 1,800 r. p. m. for a short period, then turn up to full power as a final check. On the take-off run they have been instructed to be particularly alert for drop in power.

Case 2. An F4F–4 pilot practiced a few stalls at 6,000 feet altitude and then executed several slow rolls, the last one of which was prolonged. A few minutes later, when taking off after a practice landing, the engine failed completely. During the subsequent forced landing the aircraft received major damage.

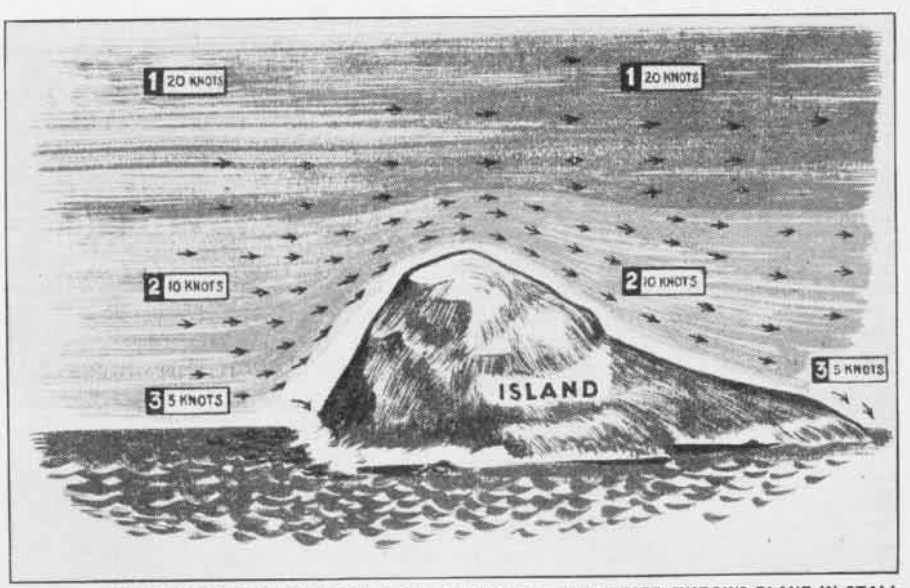
In the opinion of the reviewing authority, the cause of this engine failure was error of judgment and poor technique on the part of the pilot in prolonging a slow roll to such an extent that oil pressure dropped excessively, thus allowing the engine bearing to be wiped clean, which resulted in ultimate failure of the engine.

BUREAU COMMENT **In connection with the above cases pilots should review articles 14–203, 14–217, and 13–124 in the Bureau of Aeronautics Manual.**

Turbulence Near Hillsides

NATTC, Corpus Christi.—A recent item in News Letter on turbulence in the vicinity of hillsides has brought to light a similar experience with this natural phenomenon. A pilot of this command reports having had a loss of flying speed and subsequent stall while making a landing on the windward side of the island.

The plane, an OS2U–2, dropped in on an even keel from a height between ten and twenty feet. The principle illustrated is that as the plane passes into a level at which the wind velocity is reduced, if there is no acceleration of the plane, air speed is correspondingly reduced. The result is a definite scare when the plane stalls unexpectedly. (See *Beware of the Leeward Side!* in News Letter 4/15/43.)



WIND TURBULENCE AROUND HILLSIDE CAUSES MANY NAVY PILOTS GRIEF; THROWS PLANE IN STALL

Metamorphosis of a Navigator

Some pilots learn by study, others by observation, but some learn only the hard way.

A review of the circumstances under which the pilot of an OS2U–3 got himself completely lost on an anti-submarine patrol, may prevent other and less lucky pilots from getting lost the same way.

This pilot knew his surface wind, at the time of departure, was 15 knots from 045 degrees. He had the radioman take a drift sight at 2,000 feet. The radioman reported this wind to be 35 knots from 127 degrees.

Using this wind, the unsuspecting pilot went blithely on his way.

This was the basic error.

For the radioman didn't know how to use the drift sight. And the pilot should have known this. Anyway, knowing the surface wind, he should have been suspicious of the wind as reported at 2,000 feet.

We pick up our unsuspicious pilot again 4 hours later, when his flight should have been completed. But there was no land in sight. As one wag put it, he was completely "at sea."

Finally suspecting the drift sight, the pilot reworked his navigation, using the surface wind. This put him approximately 50 miles south of his base.

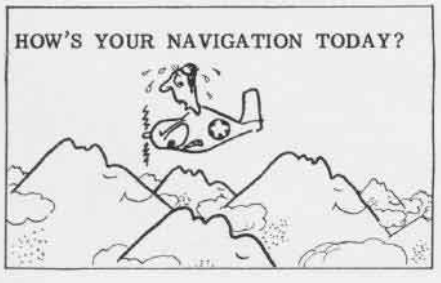
He then requested his radioman to take a direction finder bearing of the base. This was reported as 214 degrees.

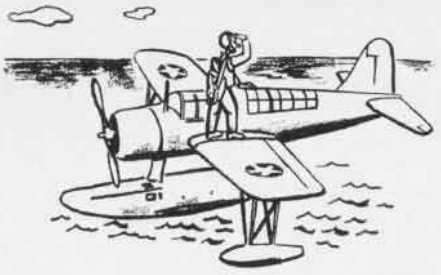
But the radioman, apparently, wasn't any handier with the direction finder than with the drift sight.

The pilot did suspect the accuracy of this bearing and asked for a repeat and then another bearing. "No change—214 degrees."

The pilot then "reluctantly" flew on his heading—thereby committing another grievous error.

A glance at his map, or familiarity with the terrain around the base, should have immediately shown the pilot that the bearing could not be correct, or they would then be over land.





Whether this bearing was entirely erroneous, or possibly a reciprocal bearing, was never cleared up.

What finally happened? Oh, about the time the gasoline supply was exhausted, a tramp steamer came along and the pilot landed alongside and got a tow.

Grampaw Pettibone says

There being more airplanes than ships, don't depend on a tramp steamer to cover up your faulty navigation. Also, there is no good substitute for common horse sense.

Collision During Night Take Off

Two SNJ–4 student pilots were parked on the end of the runway waiting for the take-off signal. One plane was about 100 feet to the rear of the other and apparently in line with the tower. When the green light was given the first plane, each student thought it was meant for him, and both began simultaneous take-offs. The first plane was overtaken before it left the ground and was completely demolished. In the opinion of the Trouble Board, this collision was due entirely to carelessness on the part of the student piloting the overtaking aircraft because he failed to determine that the runway was clear before commencing his take-off.

PV-1 Take-Off Crash

After gaining approximately fifteen feet altitude on take-off, the starboard engine failed. An immediate forced landing resulted in extensive damage to the aircraft. Upon investigation, it was determined that the pilot had attempted take-off while using fuel from the wing auxiliary tanks. The capacity of these tanks is 162 gallons and at the time of the crash, they contained only about 25 gallons. It is believed that the small amount of gasoline in the wing auxiliary tanks was insufficient to cover the standpipe, thus allowing air to be sucked into the carburetor, causing engine failure.

The Trouble Board recommended that no take-offs or landings be made on the wing auxiliary gas tanks.

BUREAU COMMENT Pilot's Handbook states that take-offs shall be made on REAR MAIN.

* * *

For Sheep Who Fly

This paean of praise and trust was discovered hiding under a bushel in Pre-Operational Training at Miami by a traveling bureaucrat of the Gunnery Training Section looking for some flight time and a sun tan. It was thought it might be appreciated by operating pilots to whom the signal officer means home, supper, a bunk, and some rest.

A PILOT'S VERSION

The landing signal officer is my shepherd;
I shall not crash!
He maketh me to land on green runways.
He waveth me off the rough waters.
He restoreth my confidence.

Yea, though I come stalling into the groove
At sixty knots,
I shall fear no evil
For thou art with me.
Thy hands and thy flags they comfort me in the
Presence of mine enemies.

He attacheth my hook into a wire;
My deck space runneth over.
Surely safety and caution shall follow me
All my days in the fleet,
And I shall dwell in a fool's paradise forever.

—C. M. R.

DID YOU KNOW?

Squantum Twenty Years Old

Aviation Site Since 1911

NRAB, SQUANTUM. — The Naval Reserve Aviation Base here has graduated from the teen-age and is now

BYRD WHEN HE STARTED SQUANTUM BASE IN 1923

observing its 20th anniversary. The base was founded in 1923 by Lt. Cmdr. Richard E. Byrd, USN, now Rear Admiral, and enjoys the distinction of being the oldest base in the United States.

Flying was not new to Squantum when the base (formerly *Naval Reserve Air Station*) was founded, because it has been the scene of aviation activities since 1911. Squantum was one of the naval air stations which Admiral Byrd founded in the period following the war.

Air Service to Orient Planned

8,826 Nautical Miles To Be Covered

Directors of Chicago and Southern Air Lines, Inc., have filed an application with the Civil Aeronautics Board to operate post-war trans-Alaskan air service from Chicago to Singapore and Batavia.

The application, said to be the first of its kind filed by a domestic airline, proposed a route covering 8,826 nautical miles, 1,543 miles shorter than present air service via San Francisco, with its longest overwater flight 480 miles. It is estimated that the new route will require about 44 flying hours.

Post-War Jobs for Aviators

Air Transportation Will Serve Smaller Communities

America's huge airplane "pilot pool" which will be available when the war is over may find civilian employment in expanded commercial aviation, the Civil Aeronautics Board reports.

The board in the near future will conduct an investigation of "local feeder pick-up" air service to determine the extent to which air transportation can be extended to smaller communities. This will take up the need for pick-up of passengers, mail, and express.

Waiting for action by the board are 23 air mail pick-up applications which will help create a backlog for the aviation industry after the war. This type of service is not new since it has been in operation for almost four years for 115 cities and towns in six states under the Experimental Air Mail Service Act of 1938.

Communities 17 Miles Apart

The communities on the pick-up routes outside of terminal cities range from 500 to 120,000 in population. They are on an average of 17 miles apart, with some only five miles from each other. Since the service has been in operation, 90 to 95 percent of the schedules have been completed.

Companies operating such pick-up service have been experimenting with the use of gliders for passengers and light cargo for the past year and a half. The only equipment a town needs for pick-up service is two ground station poles to support a line with the package attached. The plane picks up the package in flight. Thus, costly airport facilities are not necessary to provide air mail service to smaller towns.

PLANE PICKUP IN FLIGHT POINTS WAY TO FUTURE

The 15 companies with applications on file with the board propose air mail pick-up service for 1,453 cities in 29 states. The estimated mileage covered by this service would be 44,996, with routes sprinkled from the east to the west coasts.

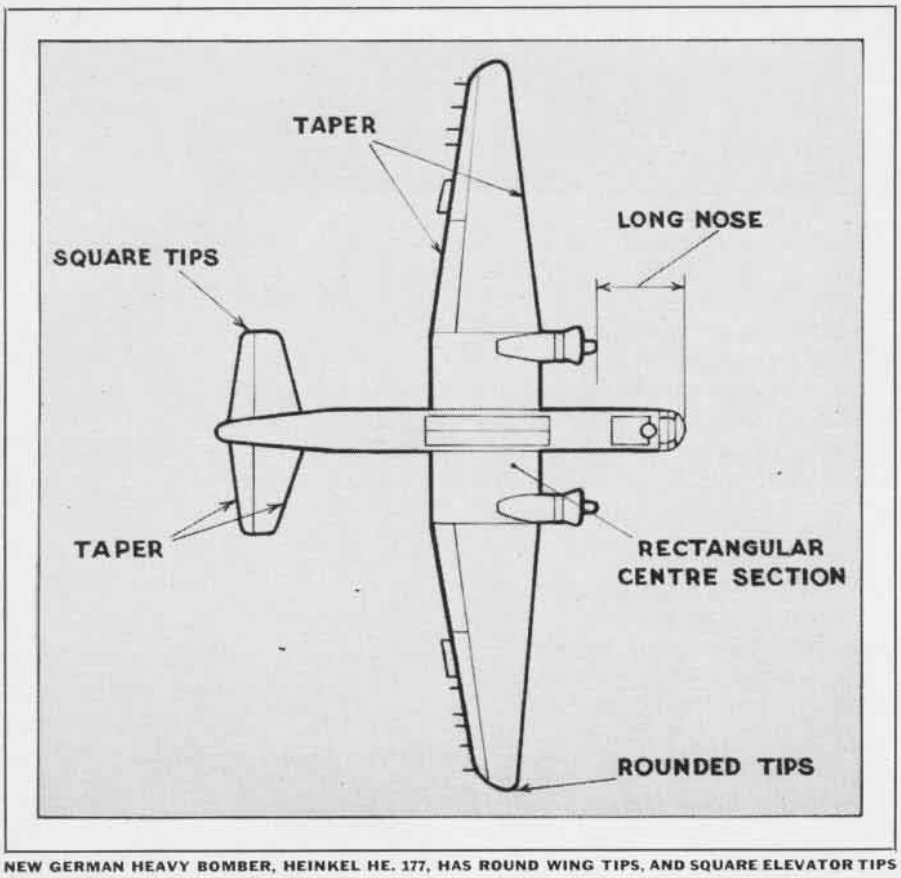
Confidential Sheets

Attention has been focused on the lack of personal information available in the case of deceased Navy personnel. Several instances have arisen in which it would appear quite definite that personal belongings as well as business papers have not reached the next of kin. It is essential that the confidential sheets of all flight personnel be revised from time to time and kept up to date. It is also essential that all personnel of a squadron keep sheets on file in the squadron records.

Carriers Deliver Army Planes

More than 2,500 airplanes have been ferried to the world's battlefronts both in the Atlantic and the Pacific by the Navy's carriers and auxiliary carriers. These planes took off from flight decks while the carriers were still hundreds of miles at sea and flew on to advanced bases. One carrier alone took nearly 100 Army Warhawk fighter planes to North Africa.

(*American Daily Aviation*)



NEW GERMAN HEAVY BOMBER, HEINKEL HE. 177, HAS ROUND WING TIPS, AND SQUARE ELEVATOR TIPS

New German Heavy Bomber

Occasional high-flying visits to England by the Heinkel He. 177, Germany's new heavy bomber, have yielded little information as to its performance, armament, or bomb-load. The plan view shown indicates some of the dimensions: span, 103 ft. 4 in.; length, 66 ft. 6 in.; height, approx. 15 of the dimensions: span, 103 ft. 4 in.;

The new bomber is identified by the long slabsided fuselage, rounded transparent nose, and large angular single fin and rudder. Wings comprise a flat, rectangular center-section of considerable thickness, at extremities of which are mounted two massive engine nacelles, at first believed to house two power units. It is now accepted that power is supplied by a pair of 2200-hp. Mercedes-Benz DR 606 "double engines," one in each nacelle—perhaps "X" type units. Circular radiators on nose of nacelles give outward appearance of large radial engines, after the manner of the Ju. 88.

Jackson, Miss., is Base For Dutch Flyers

The attention of all transient pilots is called to the fact that Jackson, Mississippi, is an Army Training Base for Dutch and other student flyers. The area is congested and some language difficulty is involved in shifting from Dutch to English in the control of traffic. The field is not closed to transient aircraft. However, transient aircraft should not make this a stop unless fuel or weather conditions require.

How to Drink Sea Water on Shore

Aviators and seamen who find themselves cast up or beached on South Pacific islands where drinking water is scarce may benefit from a system used by natives of the Solomons and New Ireland islands.

When the tide is low they scoop waterholes in the beach and collect the slightly brackish but still drinkable water that collects. It is less salty than ordinary sea water, and the quantity of salt is not so great as to be dangerous to drink.

The importance of salt to human health in warm weather is well known, since perspiration robs the human body of its natural salt supply. So drinking slightly salty water from a beach waterhole can be omitted from the "don't" list which puts sea water drinking as taboo.

Bicycle Lights on 'Chutes

They're now putting bicycle taillights on parachutes.

This unique example of a peacetime lamp at war is but one of more than 200 lamps that have been pressed into military service.

The tail-light formerly made for bicycles has proved to be adaptable for use on parachutes. A lamp and small dry cell fastened to each cargo parachute make it possible for paratroops to locate supplies dropped to them at night. The same lamp and battery combination fastened to a life preserver aids a struggling swimmer to see it in the dark.

British Are Fine Fighters, Americans Find

Tommies' Mettle Tested to Yanks' Satisfaction

Rubbing elbows with Tommies in battle in North Africa has had the effect of deepening the Americans' respect for the British as fighters, says

AMERICANS HAVE RESPECT FOR THE TOMMIES

Drew Middleton, war-seasoned New York Times' correspondent who has covered beats in Belgium, France, England, in the Channel at Dieppe, Iceland, and finally in Africa.

"Our boys know well that the British can fight," says Middleton. "Since arriving in Africa and watching the

British at work, much anti-British feeling has vanished under the pressure of actual war conditions." It has been learned that "British fighter aircraft, notably the Spitfires, command greater respect from German pilots than any other aircraft," says the writer.

Though Axis propaganda scoffed at the fighting ability of the British, the American boys have come to "realize what German military periodicals said as early as 1940, that British infantry, given commanders like Montgomery and Alexander, is the equal of any in the world."

Power Plant Instructions Go to Bureau

Misdirected Requests Embarrass Manufacturer

The attention of all flight personnel is invited to the fact that all requests for power plant operating instructions or data should be forwarded directly to the bureau and never directly to the engine manufacturer, to the inspector at his plant, or to the manufacturer's field representatives.

Receipt of such requests only embarrasses and inconveniences the engine manufacturer, since he knows the bureau does not desire his release of operating data direct to service activities. The ultimate receipt of the desired information by the requesting activity also is delayed, since all such requests are relayed to the bureau for action in any event.

Simple slide-rule-type power calculators have been made by major engine manufacturers to cover certain commercial engine models and have been distributed freely by them for use by air line and private pilots.

Not Suitable as Guide

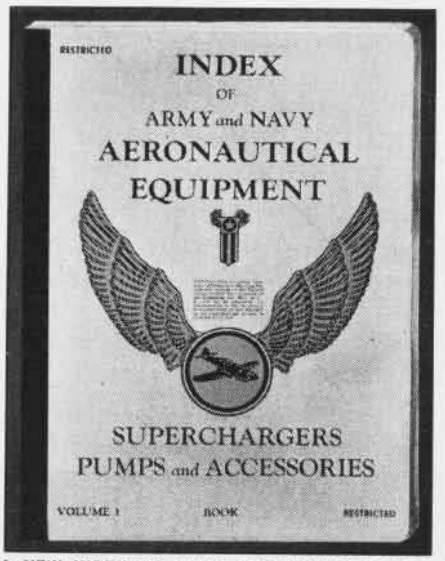
These calculators, which may be classified as engine operating instructions, have frequently been requested from the manufacturers by naval activities. This type of calculator is, unfortunately, not suitable for use as a guide to operating a highly rated military engine.

A comprehensive program has been set up to conduct flight tests of all new aircraft over their full range of operation to get as complete data as possible for the service. Acquirement of this information for modern service-type planes is accelerating as increasing facilities, equipment, and test personnel are being made for the purpose. The eventual goal is to have all such data for future models completed and ready for distribution before the first production airplane is delivered to the service.

Aeronautical Equipment Index Being Compiled

A new technical publication, *Index of Army and Navy Aeronautical Equipment,* is being compiled and published jointly by the Army and Navy, with the cooperation of British authorities.

Purposes of the publication are (*1*) To list and illustrate all items of equipment used either by the Army or the Navy. (*2*) To give the outstanding characteristics of each item, and briefly indicate its function and operation. (*3*) To index and identify all Army, Navy, and British numbers, designations and nomenclature used with each item shown. (*4*) To indicate interchangeability between the various manufacturers' models (assemblies only) for each classification of material covered.



A NEW INDEX OF ARMY AND NAVY MATERIAL

The *Index of Army and Navy Aeronautical Equipment* is intended for use by all naval aeronautics officers, enlisted men and civil-service employes who have any need for such information. It will consist of a series of volumes in loose-leaf binder form. The first volume, now being distributed, covers superchargers, pumps, and their accessories.

Additional volumes will be distributed in the near future on the following subjects: Landing gear, tires, tubes, wheels, and brakes; aeronautics armament and ordnance material, electrical equipment; instruments for flight, navigation, and engines; oxygen breathing equipment; carburetors, starters, and magnetos; life rafts, fire extinguishers, etc.

Copies of the books should be distributed so that all personnel shall have access to them. These books are to be revised frequently and kept up to date. Suggestions for revision or correction will be received through the Chief of the Bureau of Aeronautics.

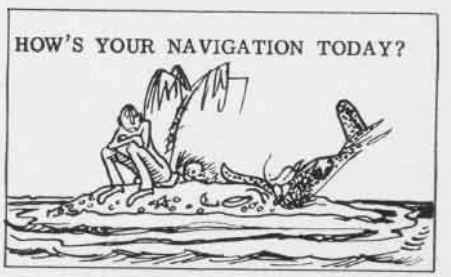
Armament

Reports have been received that the passage of personnel through the blisters on PBY–5 type airplanes results in the entrance of sand, water, etc., into the continuous ammunition feed system and the ammunition box. As a result, a canvas cover for these chutes and the box has been developed for use when the airplane is beached or at anchor. Drawings of this cover are being forwarded to the stations listed below. It is suggested that those activities desiring these covers request that it be fabricated by the nearest station:

NAF, Philadelphia	NAS, Pensacola
NAS, San Diego	NAS, Coco Solo
NAS, Norfolk	NAS, Alameda
NAS, Quonset Point	NAS, Seattle
NAS, Jacksonville	NAS, Pearl Harbor
	NAS, Corpus Christi

Cadets Set Bond Record

FLIGHT PREPARATORY SCHOOL, TROY.—Six hundred cadets of the Navy Flight Preparatory School at the Rensselaer Polytechnic Institute, Troy, N. Y., recently set a war bond example for the entire nation. The cadets subscribed a total of $252,000, or an average of $420 apiece. The war bond allotment is taken out of the cadets' $75 monthly pay.



WAVES

Women in Naval Reserve—Heritage of World War I Streamlined to Meet Exigencies of Modern War

LESS than a year ago the first women in American history were appointed naval officers. Since that time the Waves—"Women Accepted for Volunteer Emergency Service"—have developed into a fullfledged naval organization of 20,000 enlisted women and officers.

The original estimate of 25,000 Waves needed for the entire Navy may possibly be insufficient to fill billets in the naval aeronautical organization alone! The goal at the end of this year is some 48,000 Waves to release as many men for sea duty. By the end of 1944, it is estimated there will be on active duty, or in training, more than 100,000 Waves.

Female aviation metalsmiths, machinist's mates, parachute riggers, and aerographer's mates of the new V–10 classification will soon be seen in A & R shops throughout the United States. Link Trainer operators, the first Waves to receive aviation ratings from one of the eight aeronautical specialist schools, already are working in full swing. The first 3A2 trainer operators and control tower operators also are at new posts.

There are only two limitations which differentiate a Wave's job from that of a male officer or bluejacket: 1. she is restricted to a billet within the continental limits of the U. S., and 2. she cannot exercise military authority over men.

Waves in Buaer

The latest data on Waves in the aeronautical organization show a total of 3,480 on duty status, of which 342 are officers, 1,404 enlisted personnel on active duty, and 1,734 in training. Eventually the naval aviation set-up will include upwards of 20,000 Waves.

Their jobs are varied. The Navy now has its first female "bosun's mates," petty officers with the specialist "S" rating who are in line for promotion to jobs as master at arms. Wave seamen are acting as chauffeurs, clerks, messengers, compartment cleaners, and are in jobs—or training for jobs—such as pharmacist's mates, yeomen, radiomen, specialists, and storekeepers.

"WHAT'S A WAVE?"

That question might well be asked by many an officer or sailor who has been at sea or an advanced base since the war began and never seen a Wave. For him, as well as for those who want to know more about the status and function of the Navy's female contingent, NEWS LETTER *presents this featurette on Waves.*

Women in naval service is a manifestation of modern war, but, as this article points out, it is no new concept. During World War I 11,275 women served the Navy as Yoemen (F). Yeomen (F) could go abroad but at the present time Waves are not permitted, by law, to travel outside the continental limits of the United States.

This article discusses all the Navy's Waves, but places emphasis on those who play some part in aeronautical activities.

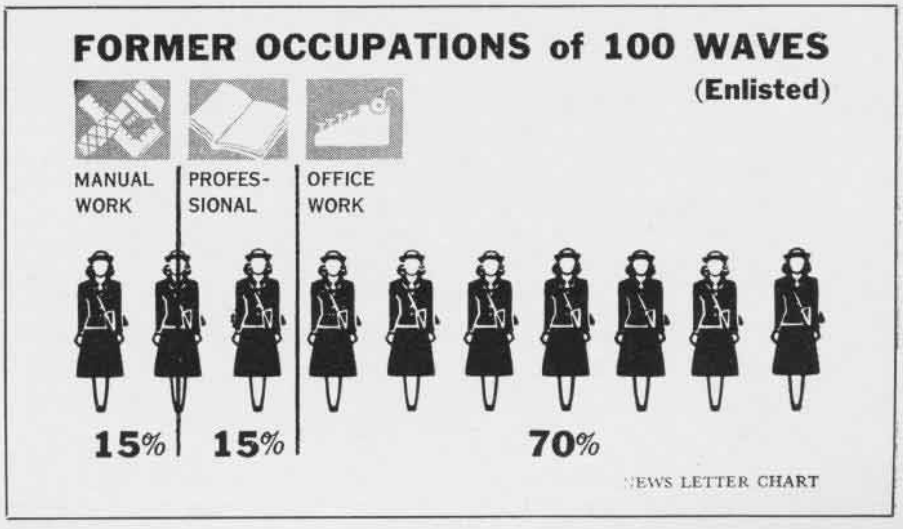
At NTS schools in Norman and Memphis, enlisted Waves are now completing a five-month course for ratings as aviation metalsmiths and aviation machinist's mates. These courses are identical to those given men, except that Waves do not learn jobs required for ship duty.

The AM striker learns to use an oxyacetylene welding outfit, to forge and braze, weld and bend pipes. She wears the clothes and uses the tools of her trade; she becomes familiar with the various classes of metals used in aircraft. She learns the nomenclature of airplanes and lighter-than-air-ships. In a pinch she must be able to make temporary as well as permanent repairs on radiators, pipe connections, instruments and joints. She has to learn the theory of flight.

The Wave in training as an aviation machinist's mate operates machine tools, manufactures small airplane replacements, and overhauls engines of various types of aircraft. She aligns and assembles aircraft and parts—wings, fuselage, etc. She, too, must know aviation nomenclature and the theory of flight, as well as principles of engine performance. The first AM's and AMM's will be on active duty in July.

Link Trainer Operators

Already filling a job that has returned many a naval aviator to his car-



rier are some hundred-odd Link Trainer operators. At first, women with flight time were considered best qualified for this assignment, but it has been shown that actual flying experience makes little difference in the ability of an instructor. At the rapidly growing LITIS school at NAS, Atlanta, Waves are instructed in trainer maintenance, assembly, and radio aids to navigation.

The WAVE must be able to interpret the actions of the artificial horizon; she must know that the turn and bank indicator can turn 60 degrees; she must be aware of how far the Link can climb and dive. She is acquainted with flight regulations and knows the effects of weather on flying. (The course has been increased from eight to ten weeks to give added training in maintenance of the $10,000 Link Trainers.)

At the Lakehurst Naval Air Station there are two NTS schools for Waves, one for aerographer's mates, the other for parachute riggers. The three-month rigger course does not require Waves to make a "premeditated free fall parachute descent", but they must fulfill all the other stringent requirements, such as packing a chute under emergency conditions without the aid of regular packing tools or loft conveniences. Of the first class of parachute riggers, a majority were willing to make a parachute jump, but this

LT. CMDR. M. MC AFEE

was ruled out as a long and vigorous toughtening-up period would be required.

The parachute riggers are learning the intricacies of the sewing machine—in many cases for the first time! Their job includes making minor repairs on inflatable flotation equipment and to flight clothing.

In the field of aerology, a Wave must learn the principles of meteorology, weather codes and synoptic chart drawing. She can take readings of meteorological instruments and make routine observations.

At Jacksonville and other NAS Stations, Wave seamen striking for control tower operators ratings are showing their ability to do a man's job. At Atlanta, they are completing an eight-week control tower course during which they learn voice procedure, operation of radio equipment, radio navigation, interpretation of weather reports and CAA tower procedure. Jacksonville reports that Waves are doing an excellent job in the intricacies of routing traffic on approach and take-off. They are also acting as 3A–2 trainer operators, after about two weeks of schooling and a month of training in maintenance of the Jam Handy dual-projection training machine.

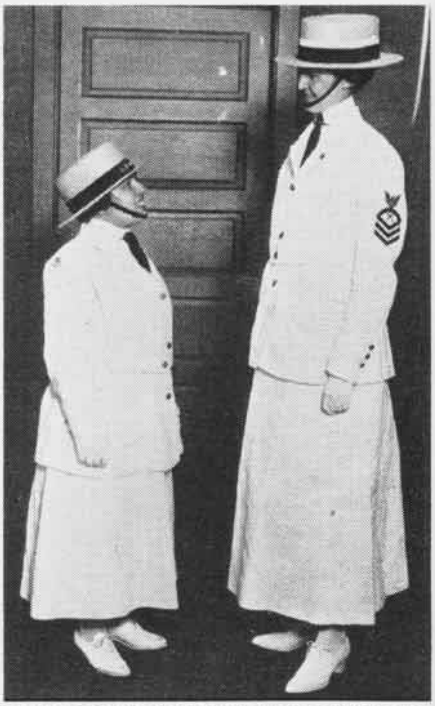
Waves in World War I

The Women's Reserve organization is not a new idea in the Navy. Back in the First World War, women were permitted to enlist as yeomen with the designation (F) after their rating. At the time of the armistice, 11,275 yeomen (F) were in service, both at home and abroad, acting as clerks, translators, draftsmen, camouflage designers and recruiting agents. About 300 marinettes, as female enlisted personnel of the Marine Corps, also were on duty.

The Navy Nurse Corps has been in operation since 1908, but no provision has ever been made for rank or rating which would compare with the Navy's male personnel. Without holding actual rank, Navy nurses for some time have been accorded privileges similar to those of officers. The first bona fide woman naval officer was Lt. Commander Mildred Helen McAfee, USNR, who was appointed Director of the Women's Reserve on July 30, 1942.

Every woman who now enters the Navy does so as an apprentice seaman. The educational requirements are completion of 2 years of high school or business school, but many of the enlisted Waves are college graduates. All enlisted women are required to take a four-week indoctrination course at boot camp. Officer candidates spend two months at Midshipmen's School.

1919: CAPT. N. E. IRWIN, FIRST DIRECTOR OF NAVAL AVIATION, WITH DOTING GROUP OF YOEMEN (F)



SUMMER FOUND YOEMEN (F) IN RADIANT WHITES

VITAL STATISTICS

The Skills of Many Professions and Trades Are Blended in the Navy's Roster of Enlisted Waves

ENLISTED Waves enter the Navy from all walks of life. In an analysis of 100 cases made by NEWS LETTER more than 30 occupations are represented. Office workers predominate, comprising about 70 percent of the women who serve their country as enlisted Waves. Two smaller groups account for the remaining 30 percent. They are (*1*) professional women, including school teachers, students, technicians, who account for 15 percent; and (*2*) manual workers, such as radio assembly workers, mechanics, waitresses, etc., who also add up to 15 percent.

Ages of enlisted Waves at the time they enter the Navy range from 20 to 34. About one-quarter of the girls are 24 years old and about one-fifth are 21. Two-thirds of the entire group fall between 20 and 24 inclusive.

In height, enlisted Waves stand between 5 ft. and 6 ft. Seventy percent are between 5 ft. 3 in. and 5 ft. 7 in. inclusive. The most frequent height tallied is 5 ft. 5 in., which includes a fifth of the Waves.

Ninety-one percent of Waves are single, nine percent are married.

Great variance is indicated in avoirdupois, there being no preponderance of cases within any one bracket. Sixty percent of enlisted Waves weigh between 105 and 129 lbs.

Seventy percent of the Waves have brown hair of varying shades. The next most evident color is blonde, which includes 19 percent of Waves.

The Typical WAVE

The typical enlisted Wave is 22 years old, 5 ft. 5 in. tall, weighs 124 lbs. and has brown hair. She is single, and before entering the Service was a high school graduate employed as an office worker or clerk. This information is based upon News Letter's study of 100 cases.

OCCUPATIONS

(Prior to Entrance Into Service)

100 Enlisted WAVES

Stenographer	16
Clerk	16
Telephone Operator	9
Teacher	7
Secretary	6
Office Worker	5
Typist	5
Bookkeeper	3
Waitress	3
Student	3
Radio Assembly Line Worker	2
Garment Worker	2
Textile Worker	2
Recreational Worker	1
Creamery Worker	1
Pharmacist	1
Factory Worker	1
Elevator Operator	1
Laboratory Technician	1
Medical Technician	1
Comptometer Operator	1
Aircraft Inspector	1
Advertising Company Employee	1
Cartoonist	1
I. B. M. Operator	1
Link Trainer Instructor	1
Teletype Operator	1
Beautician	1
Child Attendant	1
Mechanic	1
Supervisor, Telephone Operators	1
No Occupation	3

HEIGHT

100 Enlisted WAVES

5 ft.	6
5 ft. 1 in.	9
5 ft. 2 in.	8
5 ft. 3 in.	15
5 ft. 4 in.	16
5 ft. 5 in.	19
5 ft. 6 in.	12
5 ft. 7 in.	9
5 ft. 8 in.	4
5 ft. 9 in.	1
6 ft.	1

AGE

100 Enlisted WAVES

Age	Number	Age	Number
20	25	28	4
21	22	29	2
22	6	30	2
23	10	31	4
24	4	32	1
25	5	33	1
26	5	34	3
27	6		

WEIGHT

100 Enlisted WAVES

95–99 lbs.	4
100–104 lbs.	7
105–109 lbs.	10
110–114 lbs.	14
115–119 lbs.	10
120–124 lbs.	15
125–129 lbs.	12
130–134 lbs.	6
135–139 lbs.	7
140–144 lbs.	5
145–149 lbs.	5
150–154 lbs.	2
155–159 lbs.	
160–164 lbs.	1
165–169 lbs.	1
170–174 lbs.	1

COLOR OF HAIR

100 Enlisted WAVES

Brown (various shades)	75
Blonde	19
Red	5
Black	1

Un

OFFICER'S WINTER DRESS UNIFORM

ENLISTED WAVE'S DRESS UNIFORM

OFFICER'S RAINCOAT & HAVELO

ENLISTED WAVE'S RAIN OUTF

THE uniforms of enlisted and officer Waves are the same, except for the high-crowned officers' hats, their gold buttons, white dress shirts, and reserve blue stripes designating their rank. Enlisted Waves are provided with an allowance of $200 for uniforms; officers receive $250. Like the rest of the Navy, Waves complain they have just two sizes of uniforms to choose from: too large and too small.

iforms of the **WAVES**

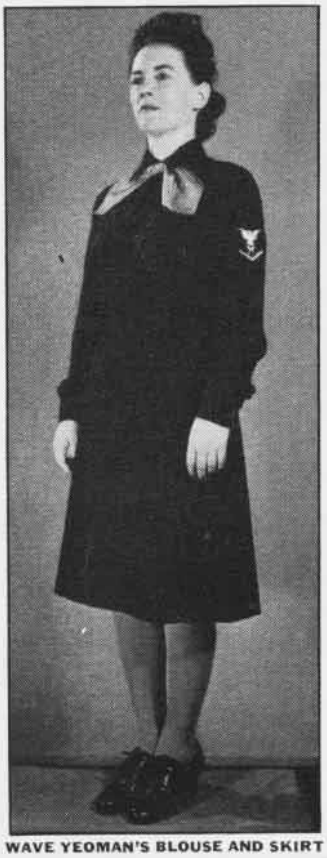
OVERCOAT WITH REGULATION PURSE

BLOUSE & SKIRT FOR OFFICE WORK

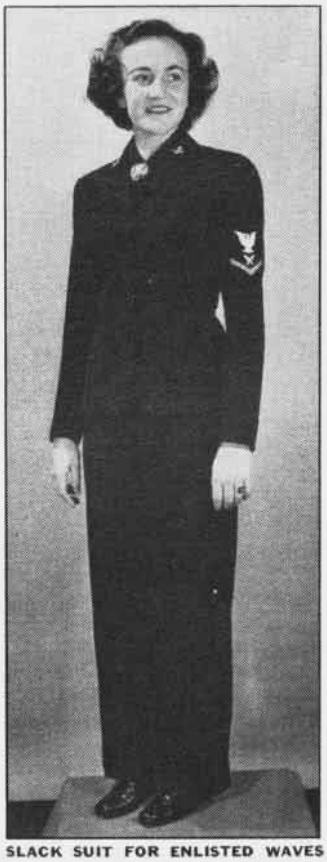
SLACKS WORN FOR AVIATION DUTY

OFFICER'S SUMMER DRESS UNIFORM

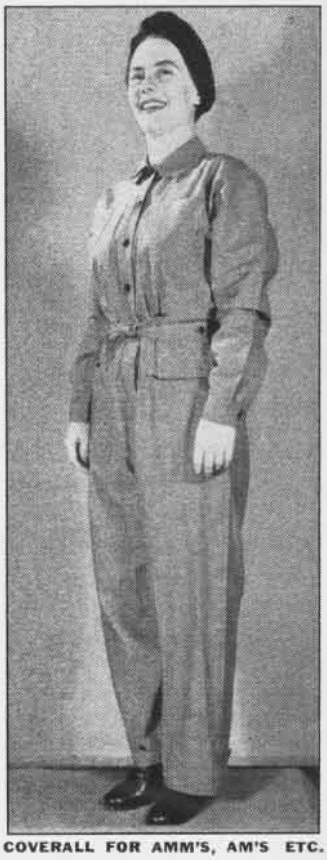
CPO'S HAT & NAVY BLUE OVERCOAT



WAVE YEOMAN'S BLOUSE AND SKIRT



SLACK SUIT FOR ENLISTED WAVES



COVERALL FOR AMM'S, AM'S ETC.

Some Regulations and Customs Governing WAVES

THE Women's Reserve found itself born into a Navy of great tradition, customs and 845 pages of regulations. But the enlistment of female personnel created some problems that the Navy had not prepared for, and new regulations had to be made and old ones interpreted or clarified. Here are some of the more important regulations that apply to Waves:

1. Waves do not relieve Civil Service employees or fill Civil Service jobs. Each Wave is assigned to a billet to release a man for duty afloat

2. Waves are restricted to service within the continental limits of the United States*

3. Salutes are always rendered to senior naval personnel regardless of sex, and to superiors in all branches of the service and allied nations

4. If a Wave officer is addressed by name, it is preceded by Miss or Mrs. She may also be addressed by her rank, not as Sir. An enlisted Wave is addressed either by her last name or by her rating

5. MESS: Enlisted Waves with enlisted men, Wave officers with male officers

6. Except when in training, a Wave may marry within any branch of the service. Women already married to Navy personnel may not enter the same service

7. Regulations governing time period of assignment to menial tasks govern for women as well as for men. Waves may strike for ratings

8. Women offenders shall not ordinarily be sentenced to the brig of naval station. Restriction to the confines of the station should be substituted or, if the offense is of an aggravated nature, the woman should be discharged from the Service

9. A Wave may be disciplined at a Captain's mast only after consultation with the Women's Reserve representative, who should be present or represented at the Captain's mast by a member of the Women's Reserve

10. Waves will stand night watches, but provision should be made for their transportation through undesirable sections to and from the office

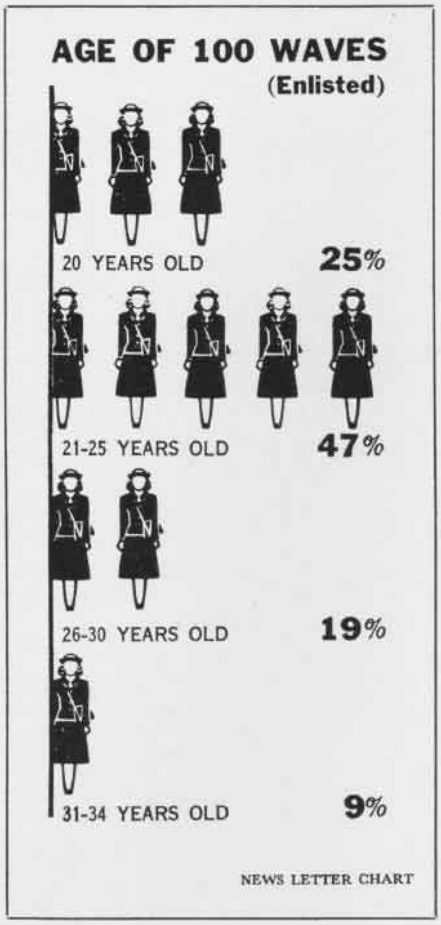
11. Officers and enlisted personnel of opposite sexes are permitted to attend social functions together (subject to On Station regulations)

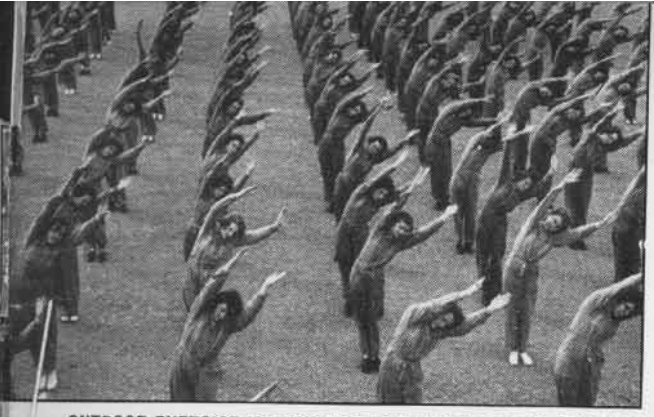
*Legislation now pending in Congress will, if passed, permit Waves to hold assignments on foreign shores.

Waves in Aeronautics

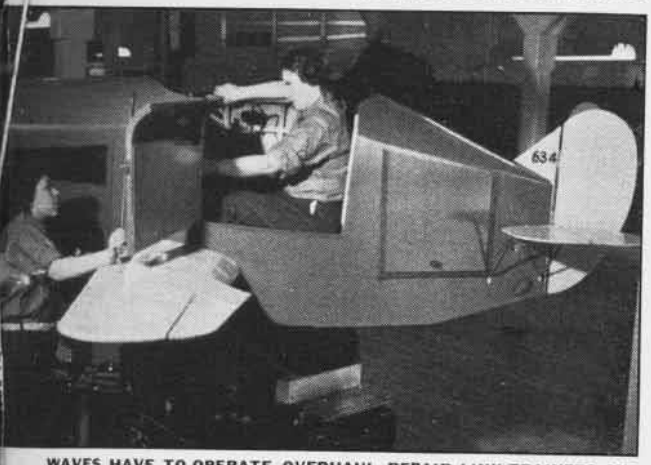
During the calendar year 1943, approximately 3,800 enlisted Waves will be trained for aviation ratings. These will include 500 Link Trainer operators, 250 aerographers mates, 2,300 aviation machinists mates, 225 parachute riggers, 300 aviation metalsmiths, 100 control tower operators, and 100 operators of synthetic training devices.

Also available for aeronautical activities will be general enlisted Wave ratings. Of the estimated 41,000 enlisted women who will be in the Navy on January 1, 1944, about 31,000 will be on active duty, the rest in training.





OUTDOOR EXERCISE IS PART OF THE DAILY TRAINING PROGRAM WAVES GO THROUGH AT WOMEN'S INDOCTRINATION SCHOOLS



WAVES HAVE TO OPERATE, OVERHAUL, REPAIR LINK TRAINERS AND PERFORM PRACTICALLY ALL TASKS THAT ARE DEMANDED OF MEN

WAVES LEARN TO USE EQUIPMENT AND TOOLS LIKE THOSE ABOVE MYSTERIES OF COMMUNICATION YIELD TO THE FEMININE TOUCH

WAVES STRIKING FOR AMM AND AM RATINGS RECEIVE PRACTICAL INSTRUCTION FEMALE RATINGS RAPIDLY IMPROVE MECHANICAL BENT IN AERONAUTICAL TASKS

TRAINING

"Retention Ship" to Keep Standards High

NAS, NORMAN.—A Retention Ship, composed of cadets having finished ground school and those awaiting transfer to the next stage of training, has been established at this Station. Its purpose is to enable students to maintain the standards attained after eleven weeks of ground school by a curriculum of one navigation problem and 30 minutes of code daily and four periods of athletics weekly. Since it is felt that the students are closely approaching the status of commissioned officers, the responsibility of accomplishing this schedule rests upon themselves. Cadets assigned to the Retention Ship are quartered in separate barracks.

Climbing Down Rope New Obstacle in Course

NAS, MELBOURNE, FLA.—This Station has added a new construction to its obstacle course, as a result of the suggestion of an officer who was on a carrier when it was hit.

Aboard the sinking vessel, men who did not know how to climb down a rope were confined to the dispensary for as long as 60 to 90 days with severely burned hands. The result is a loss of manpower and possible permanent injury.

The new construction on the obstacle course is a bulkhead about 20 to 25 feet high. Ropes are secured to the top, so that they hang over the face of the bulkhead. The back is constructed to utilize framework as steps leading up to the top of the obstacle.

The best procedure after climbing to the top is, according to the Station: lie on the platform (on the belly) and swing the legs over the face of the bulkhead. Grab the rope which hangs over the face of the bulkhead firmly with one hand. Bring the other hand below, then start climbing down, hand over hand. Stress must be placed on *climbing* down, *not sliding down.*

This method is fastest and easiest. One must be careful not to get the hand caught between the rope and the top edge of the bulkhead. If caught, it will be pinched between rope and deck by the weight of other men going down.

Communication Courses Given

Officers Learn Blinker, Radio, and Semaphore

NAS, JACKSONVILLE.—Naval officers coming out of this school will be well trained in receiving and sending of messages by blinker, radio, or semaphore at good rates of speed.

An eight-week course of tactical communications has been started for A–V(S) officers under training. This includes training in voice procedure and code used with carrier and task force operations.

Camera Maintenance Instruction Limited

It has come to the attention of the bureau that civilian employees of assembly and repair shops of various continental Naval Air Stations have reported at the Fairchild Aviation Corporation in New York for a course of instruction in maintenance and repair of aerial cameras conducted for service personnel.

The capacity of the Fairchild Aerial Camera Maintenance School is limited and the bureau has been advised that personnel reporting for courses of instruction in excess of the authorized quota for the Navy and the Marine Corps cannot be accommodated.

Accordingly, no Naval or Marine Corps personnel or civilians attached to Naval activities should report for this instruction except by appropriate orders issued by the authority of the Navy Department. Requests for attendance at this school from civilian personnel attached to Naval activities should be addressed to the Bureau.

Student officers must receive and send 15 words a minute by semaphore and radio and 10 words by blinker. The concluding phase of the course includes training with the squadrons, working with flight and communications officers in setting up tactical situatons for student aviators.

SNJ Called "Sweet" Trainer

NAS, DALLAS. — Checking, flight testing, and delivering SNJ–4's to Naval Air Stations throughout the United States is one of the major operations handled by this Station.

The SNJ, according to most flyers at this Station, is the sweetest training device with wings. Doubting Thomases should consult the British, who call this aircraft the Harvard Trainer and consider it tops, or the Canadians who use it exclusively for basic and advanced training. Other countries, namely, Mexico and nations farther south, also use them and press reports recently stated that two enemy subs were knocked off by SNJ's equipped with machine guns.

On this Station, test pilots consider them a remarkable trainer and defy the Japs to build a better one.

Training Efficient Gunners

Scientific Methods Get Results

NTS, GREAT LAKES.—Turning out efficient gunners in a week's time at the Station's anti-aircraft center on the lake front is a job that requires precision and the utilization of every minute by both students and instructors.

The center works on the theory that the best way to learn is by doing. From the time the trainees arrive until they are graduated and ready for armed guard school, they are sent through a routine that would be expected of them as gunners aboard a ship.

Every Monday at 0800 a new class of 300 students, including Coast Guardsmen and Armed Guardsmen, report at the center for training. The men immediately are counted off in

groups of nine and assigned to an instructor who is with them through the week as they move from one gun type to another.

The groups of nine are divided by the instructor into gun crews of three men each, who remain together for the training period. Then they are assigned to classrooms where they are shown how to assemble the guns they will be firing before their first day's instruction is completed.

Terminology Explained

The instructor first breaks down the gun, explaining each part of the process as he goes along. If new terms are unfamiliar to the trainees, they acquaint themselves with ordnance terminology from the charts hung on the classroom bulkheads.

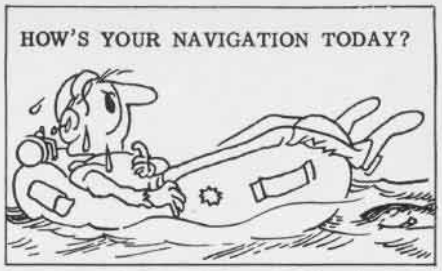
By 1300 the first day, the trainees are familiar with the various parts of the guns and are ready for firing practice. All types of guns are used in the drills, including 30 and 50 calibre machine guns and 20 and 40 mm. rapid-firing cannons.

Normally the targets are 36-inch, colored, hydrogen-filled ballons, but there also is a five-man aviation unit assigned to the station for airplane-towed sleeve targets. The airplane is preferable since it is more natural.

Three separate communication methods may be used to control the firing of the guns. One is the loudspeaker system. Another is an electrically operated bell system and the third is by means of a megaphone. All guns are sufficiently close so that spoken commands given over a megaphone can be heard by all crews.

Work Crews Formed

The firing period lasts 60 to 90 minutes. At its conclusion the trainees are separated into work crews to take in the guns and clean them, refill magazines and count and sort shells. Empty shells are returned to an ammunition factory for refilling.

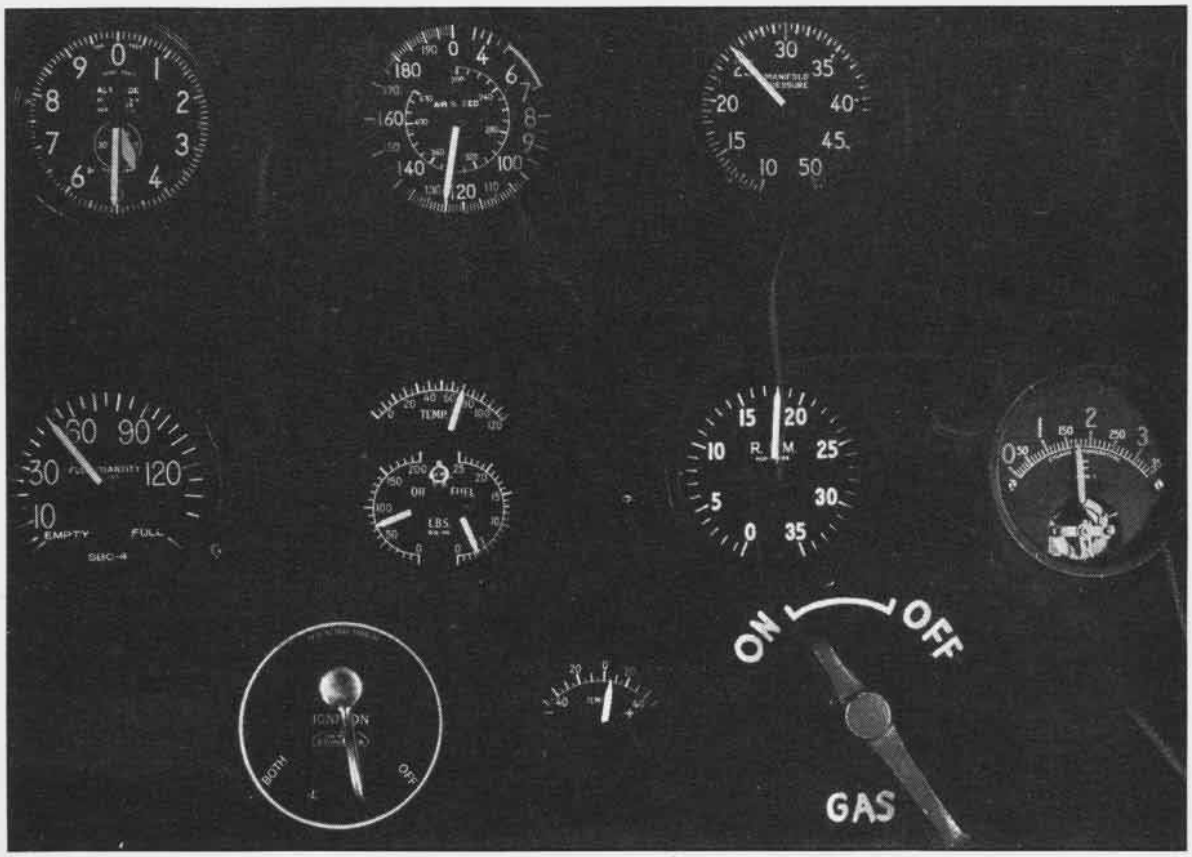


When this work is completed, there is additional classroom instruction in ship and aircraft recognition, first-aid and machine and electrical equipment. The first-aid course is given by a corpsman, with special attention to treatment of the types of injuries gun crews are likely to suffer.

Safety is stressed throughout the week's training period. The trainee is repeatedly warned that "every gun is loaded" and he must treat it as such at all times. No one is permitted to walk in front of a gun, nor are the men permitted to lift heavy equipment. The policy has paid dividends; to date, not one accident has occurred.

What's wrong with this picture?

Dilbert was willing, and the plane was willing—but the engine wouldn't cooperate, making things unpleasant all around. Why? Take a good look at the panel board before you turn to page 32 for the answer to this pilot's problem.



FLEET AIRCRAFT

73 Hours in the Water

This is one of those sagas of naval aviation which are hard to believe. If it were not for its appearance in an official report it might be doubted. But there is no doubt in the mind of Ensign J. H. Carroum of VB–10 about his spending 73 hours in the water after his plane crashed into the sea last November during one of the battles in the Solomon Islands region.

HIS experience contains some worthwhile information for any pilot, which only could be gained by a person who has spent more than 3 days in the water in a life jacket.

On November 14 Carroum's group went out to meet a large Jap convoy. Carroum made a successful attack on one of the Japanese transports, but his plane's engine was hit by antiaircraft fire. The plane crashed into the sea about 25 miles northwest of the Russell Islands group.

Although knocked unconscious for a few moments, both he and his rear gunner were able to get out of the plane. They carried a rubber boat, which under ordinary circumstances would have been very convenient. However, the plane's tail caught the rubber life boat and dragged it to the bottom of the sea. Carroum's gun belt became entangled with gear on the plane and he, too, was carried under the water. After being dragged down at least 10 feet, he managed to detach his gun belt. Then began the task of swimming with a life jacket on and trying to navigate to the nearest land.

Collapses From Exhaustion

Carroum lost consciousness several times and became separated from his gunner during the 3 days in the water. Late in the afternoon of November 17 he reached the northwest shore of Money Island, one of the smaller islands of the Russell group. He collapsed on the beach from exhaustion. Early the next morning he was found by natives and protected by them for several days. He finally was taken by the natives to a nearby island to join another American flyer. Both were later picked up by a PBY and taken to an American base.

The following account of Carroum's rescue was written by a native to whose village the aviator was taken:

"23 x 1 42"

"J. H. Carroum was shot down 14. X. 42. In this day there was a big fight, the American were sinking some of the Japanese large ships. So after sinking 7 ships he was shot down at 6 p. m. just before dark. He had a friend with him so they started their swimming, so when it got dark they saw the stars above the island, and felt how the waves and winds go, as they were swimming the ocean in this dark night, his friend were got tired and got lost. J. H. Carroum now have to swam by himself, leading by the stars, as the cloud covered the stars he was guided by the waves and wind. So after swimming 73 was landed. So then the native picked up him 18. XI. 42. He was shot down 25 miles off from the land. When the native found him he was out of mind, his face was swellen up, and few wounds in his body. He was kept my village."

What to Do in Case . . .

What to do if you should ever face similar circumstances? Here are the suggestions Ensign Carroum offers:

1. While swimming with a life jacket, the breast stroke with a scissor kick is the easiest and most effective. During rest periods the swimmer ought to keep paddling in order to hold his own against any current.

2. It is important for the swimmer to take cognizance of the wind, current and the progress he is making. The sun and stars must be used as auxiliary fixes in addition to any land falls. Of course, it must be known if land is within reasonable distance.

3. The swimmer should keep on as much of his clothing as is possible because it is believed that sharks are more apt to attack a naked body. Also, the clothing will keep the swimmer warm at night. Without clothing he is apt to be very uncomfortable in the water after sundown.

These suggestions are confirmed by the experience of others, says ComAirPac. Whenever possible, it is recommended that shoes be kept on as protection for feet when rescued or when land is reached.

Pilot's Equipment

Carroum carried with him a jungle kit issued to each Bombing Squadron 10 pilot. This was attached to his trousers belt. He recommended that pilots also carry on their trouser belt a knife and canteen. He, however, did not have his canteen attached to him and lost it. In addition, he suggested that a small pencil flashlight, snapped to the neck of the rubber life preserver, would be very helpful. The jungle kit carried by each pilot of this squadron is described as follows:

24 Adabrine or quinine tablets; 1 tin of salt; 12 sulfanilamide tablets in a tin holder; 1 tourniquet; 1 compass, fishing tackle in a tin holder; 5 syrettes of morphine in a flat box; iodine packed in a box (for water purification); 20 grams of sulfanilamide powder in packages of 5 grains each; 2 elongated capsules of chlorine (for keeping sharks away); 1 Marine Corps field ration, Type D chocolate bar; 1 tin holder of 15 malt tablets; and 1 small bottle of matches.

ComAirPac states that the items above are listed purely for the purpose of showing what was issued to the pilots of VB–10. The contents of this kit differ in some respects from the contents of a first-aid kit recommended October 16, 1942, for the consideration of the Chief of the Bureau of Medicine and Surgery.

Lulu Belle an Amphibious Gal

USMCAS, ST. THOMAS, VIRGIN ISLANDS.—In keeping with the Marine Corps tradition of maintaining complete amphibious status, VMS–3 has converted an OS2N–1 from wheels to floats. "Lulu Belle," as this capricious sea nymph is known, has been so commissioned for the purpose of introducing the airport-bound pilots of the squadron to the mysteries of swells and shoals.

Whale Bangers Active In Caribbean

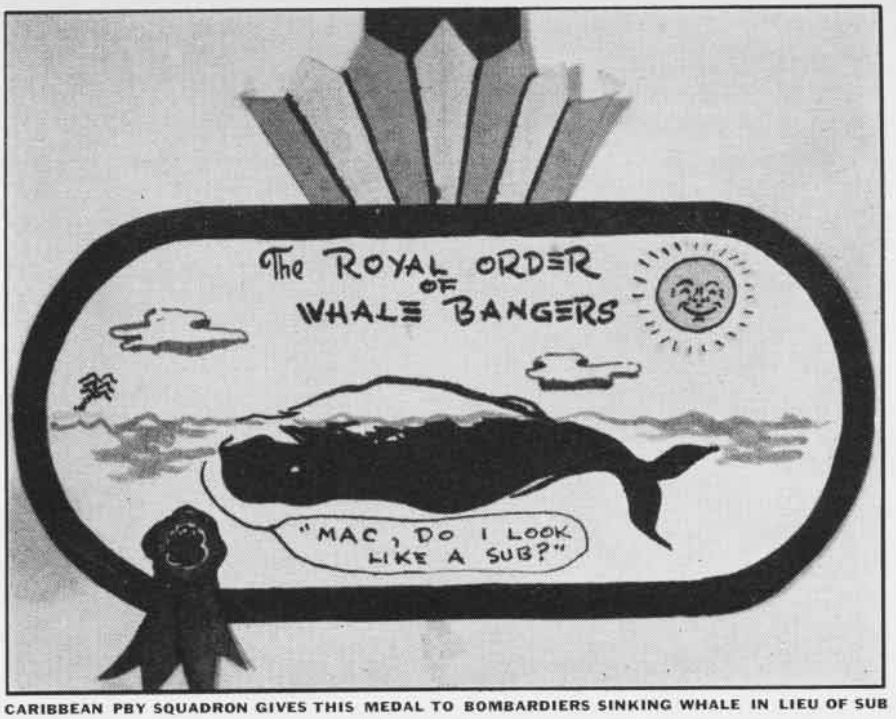
"Royal Order" Initiates Members

VP Squadron 53, Atlantic.—Honoring PBY bombers who patrol this Caribbean area with itchy fingers but faulty recognition, the "Royal Order of Whale Bangers" has been organized in this squadron.

Charter members are those who mistake whales for Axis submarines and bag a batch of blubber instead of U-boats. The story comes out when the returning flier tries to account for his missing bombs.

The lack of conning towers and periscopes often fails to deter the PBY crews from dropping a few "eggs" on a surfacing whale, especially if they sneak up on the mammal in a cloud bank and spring a surprise attack. With only a few seconds thus available before releasing his bomb, the bomber often finds accurate recognition difficult.

Special ceremonies are held here to present the eight-inch, gaily painted cardboard medal initiating the bomber into the society. Text of the citation, which was read at a recent ceremony, is reproduced at the right.



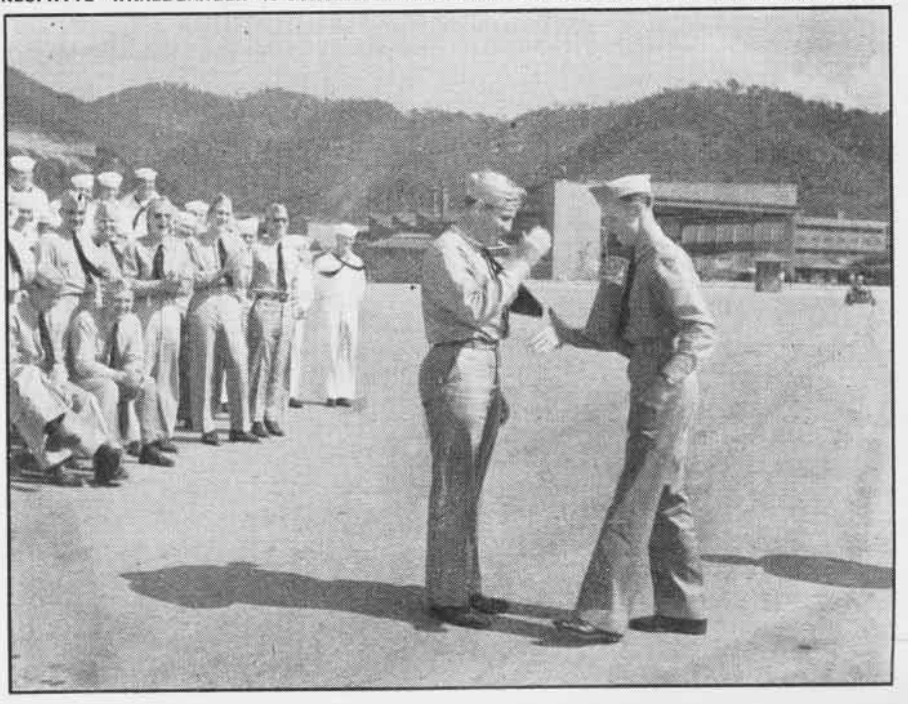
CARIBBEAN PBY SQUADRON GIVES THIS MEDAL TO BOMBARDIERS SINKING WHALE IN LIEU OF SUB

Here ye, hear ye! *Let it be known to all those assembled in this august and sacred place, that during the faithful year of our Lord 1943, on or about the fourth day of March, at 1728, a member of this esteemed group did wilfully, knowingly, contemptuously, maliciously, with malice aforethought, and with intent to destroy one Balaena Mysticetus (commonly known as whale), the Balaena Mysticetus then being in the normal pursuit of its happiness, minding its own business disturbing no one.*

An excerpt from the report of the attack from the most high and honored Commander Eastern Sea Frontier reads: 'From the description of the target under the existing excellent weather and comparatively calm conditions of the sea, it is believed that object attacked was a whale.

'For this most dastardly and unheroic deed the accused and culprit is initiated into, presented with, and sentenced to wear the holy and honored medal of the Royal Order of Whale Bangers, forever and a day, so be it.'

NEOPHYTE "WHALE BANGER" IS CONGRATULATED ON HIS INITIATION TO EXCLUSIVE ROYAL ORDER



Rescued Hale and Hearty

MCAS, St. Thomas, V. I.—Recently VMS–3 played their part in the rescue of several merchant sailors. A lifeboat was located by squadron pilots, who dropped supplies to the survivors. Planes covered the location of the boat continuously for more than 12 hours, awaiting the arrival of surface assistance. Just at dark, when the rescue boat appeared on the horizon, the pilot dropped three flares on a bearing from the lifeboat to the rescue craft, thus assuring an immediate and accurate rendezvous.

After 21 days at sea, traveling approximately 1,400 miles, the energy and spirit of the survivors were amazing; they seemed interested in sightseeing on the island. The answer to this was simply that they had a well-stocked lifeboat; sufficient food, water, and covering. At their request, special services were held for them at the station chapel on the Sunday following their arrival.

RUBBER REARMING BOAT, FITTED WITH OUTBOARD MOTOR, USED TO LOAD BOMB ON SEAPLANE RACK. LARGEST OF TYPE ARE AMMUNITION LIGHTERS

TENDING SEAPLANES

BUAER STILL IMPROVES ITS FACILITIES TO ARM, FUEL SEA-BORNE CRAFT

THE October 1, 1942, issue of NEWS LETTER referred to developments in seaplane tending facilities up until that time. On these pages are presented further items that indicate progress being made with refueling, rearming, and personnel boats to service seaplanes. These include rubber rafts powered by outboard motors, to carry bombs and fuel to planes afloat. The fast personnel boats also may be used to rescue fliers offshore.

NEW REARMING CRAFT CARRIES TORPEDO RACKS

New Rearming Boats

Rearming of seaplanes in the water is being aided by use of three new boats designed and being produced by the Navy for its air units in all corners of the globe.

Largest of the three rearming boats are the 100-ton, non-self-propelled open ammunition lighters, called YCK's. A number of these have been manufactured in this country and shipped abroad for assembling in battle areas.

These lighters are equipped with self-contained, gasoline-driven 3-ton cranes centrally located. Their use is intended in connection with rearming scows and their ammunition is stack loaded on platforms which are on deck.

The second rearming boat is the 33-foot scow, a large quantity of which already are in use. They are designed to carry two torpedoes or up to 6,000 pounds of bombs of any size. They are equipped with large gunwale pads, small collapsible canopies to cover the forward part of the boat and are of light construction with low freeboard. They have a maximum speed of 12 knots.

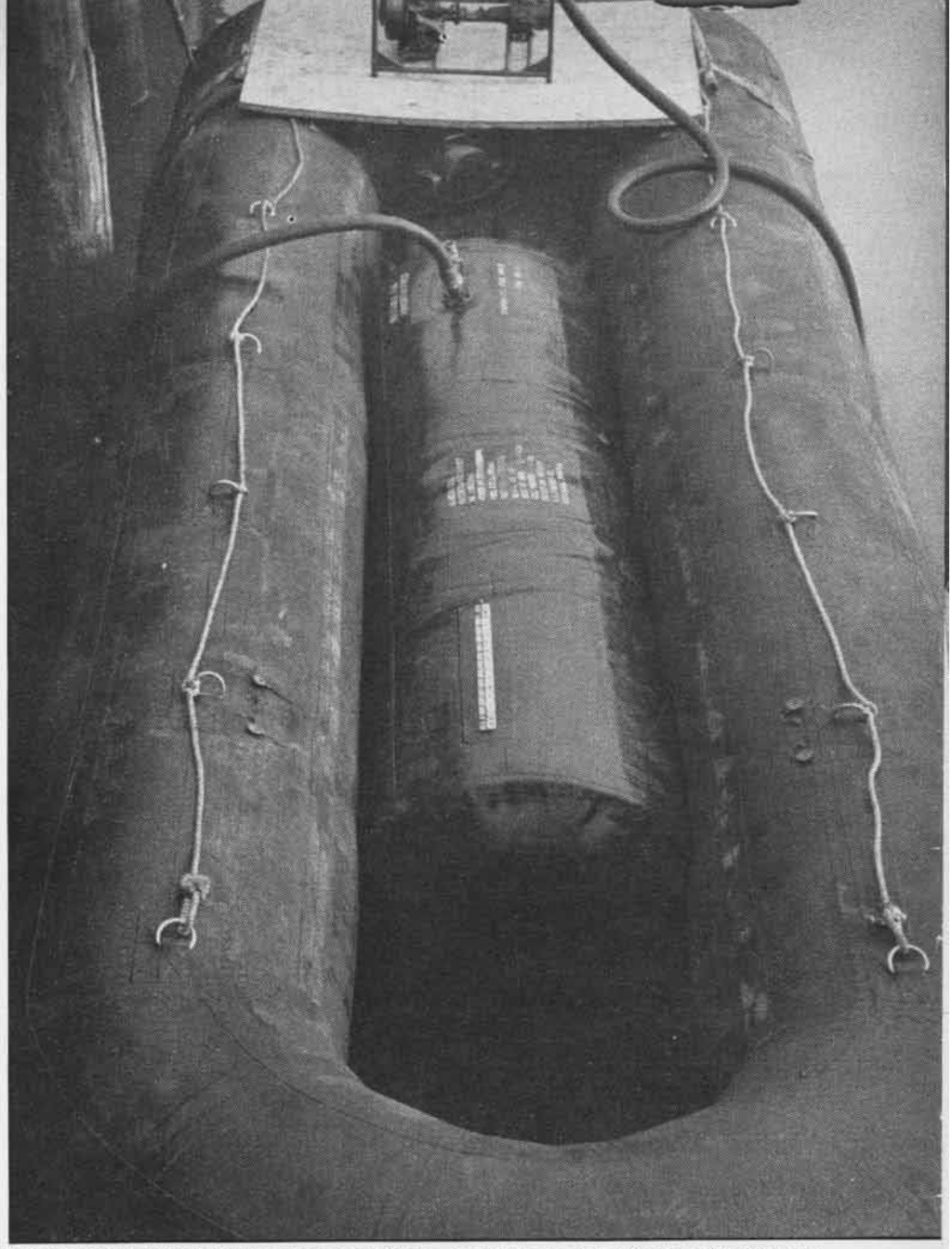
The third type is a 25-foot pontoon raft, sometimes called a pneumatic barge, powered by outboard motors. Large quantities of these have been assigned to advance bases, Lions, Cubs, Acorns, and seaplane tenders for emergency uses. They will carry two torpedoes or up to 4,000 pounds of bombs.

Synthetic Rubber Cells

Synthetic rubber cells of 550-gal. and 2,000-gal. capacity, respectively, are being put into use with the Navy's two new rearming boats to transport gasoline to seaplanes on the water offshore.

The two new boats are the 33-foot scow and the 25-foot pneumatic raft powered by outboard motor. Two of the smaller cells can be used in the scow and one in the raft when they are not being used for carrying bombs or torpedoes to the planes. The gasoline is pumped into the planes by 35-gal.-per-min. pumps.

A hundred of the larger 2,000-gal. cells have been ordered by the Navy. This cell is collapsible and equipped with a demountable lightweight wood frame raft with a false sloping bow to permit towing in the water by motor launches or other small boats.



TWO RUBBER PLANE-REFUELING CELLS, THE 550-GAL. (ABOVE) AND THE 2,000-GAL. TYPE (BELOW)

NAVY'S NEW PERSONNEL BOAT USED TO TRANSPORT CREWS TO AND FROM SEAPLANES; CRAFT HAS 25-KNOT SPEED TO GET TO INSHORE CRASHES

Personnel Boats Developed

200 To Be Built Following Buships Design

Two specially designed, speedy boats to transport crews to and from seaplanes have been approved by the Navy, and several hundred are being manufactured for its use.

The boats fill the need for a reasonably fast, light, low freeboard boat to carry personnel. Approximately 200 are being built following a Bureau of Ships design and several hundred more after a design perfected by a private shipbuilder.

Both are 24 feet long, have eight-foot beams, two-foot draft and a 36-inch freeboard, with speeds of 25 knots. The passenger cockpit, which is covered with a modern collapsible canopy, has accommodations for two plane crews fully equipped.

Each boat is equipped with large sectional removable Latex rubber gunwale pads to prevent damage to a plane when the boat pulls alongside to discharge its load. In addition to performing utility work, the craft also is expected to perform valuable service as an inshore crash boat.

ANOTHER VIEW OF NEW PERSONNEL CRAFT WHICH NAVY IS PROVIDING ITS SEAPLANE CREWS, SHOWING ITS LOW FREEBOARD AND CLEAN LINES

TECHNICALLY SPEAKING

Time Lost With Target Release Assembly

Station Asks for Mark VI Equipment

NAS, Corpus Christi—Patrol Squadron VN18D8–A, Naval Air Station, Corpus Christi, is losing time, Release Assemblies, and towing cables as a result of trouble experienced with the Mark VII Aerial Tarket Release Assembly.

The Mark VII Target Releases, as compared with the Mark VI Target Releases, are constructed of much lighter material and have no swivel. As a result, in many cases the end of the Target Release Assembly is breaking off or is rendered unserviceable at the end of the flight, and frequently the towing cable has twisted and kinked until it cannot be used. The result is undue loss of material as well as headaches to the Ordnance Gang. The use of Mark VI Aerial Target Release Assemblies, it is believed, would remedy this trouble.

If any Supply Depot or Squadron has Mark VI Target Releases in dead storage, they could be put to good use at Corpus Christi.

BUREAU COMMENT **The Mark VII target release is obsolete and should be replaced by the Mark VII, Mod. 1. It is believed that the defects mentioned have been eliminated in the Mark VII, Mod. 1 release; however, no ball bearing swivel is incorporated in the release because tests indicate that such a swivel does not function under towing tensions.**

Fuzes Left Installed

Delay in Catapulting Minimized

U. S. S. "Richmond"—In order to catapult with minimum delay when needed, it is the procedure on board this ship to leave fuzes installed at all times. Several means of protecting fuzes from spray and weather, such as tin cans, canvas bags, and adhesive tape, were tried to little avail until the leading ordnanceman tried gunnery balloons. This method proved satisfactory. In five days of wind, sleet, and spray, the fuzes remained dry and vanes turned freely.

Interim PBY Overhauls Soon

A & R Dept. Branches Out

NAS, Bermuda.—This Station's Assembly and Repair Department is branching out and will soon begin to do interim overhauls on PBY's. The shop has been tearing down and building up OS2U's for nearly two months, and for the same length of time has been doing minor repair jobs on the big boats. Not until now has it felt prepared to tackle overhauls on the bigger planes.

Voice Communication Installed In Training Turret

NAS, Pensacola.—In an effort to overcome or lessen the difficulties of communicating with turret operators during gunnery practice, this Station has equipped all installations with a system of voice communication. As a result, it is now considerably easier for the range officer to exercise control over gunnery operations.

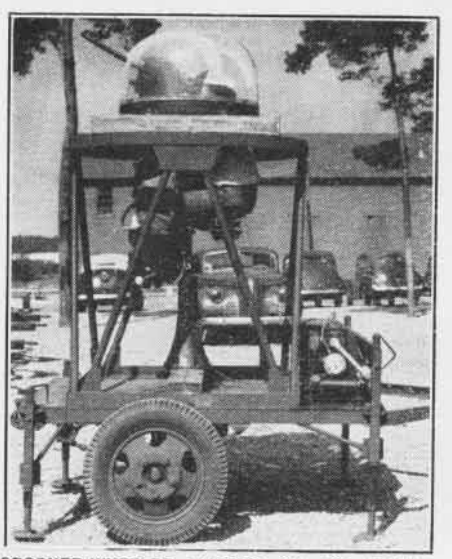
BUREAU COMMENT The Crocker-Wheeler turret was so-called because the original contract was assigned to the Crocker-Wheeler Co. However, this company no longer manufactures the turret. It should, therefore, be known as the Electric Training Turret (Mk 1).

It was designed to give turret manipulation training for range firing, principally on moving targets. It uses .30 caliber machine guns and is made largely of nonstrategic materials, many unnecessary refinements in combat turrets having been eliminated as an economy measure.

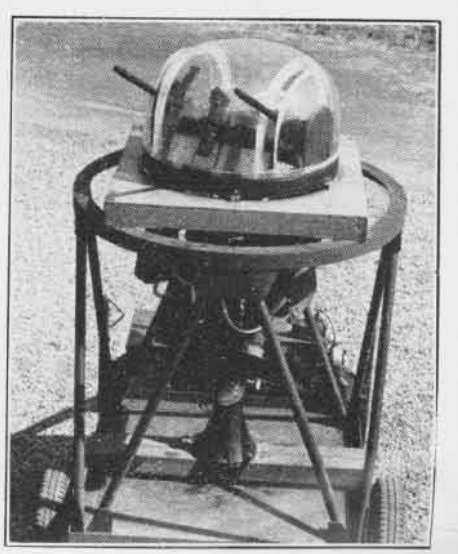
Being mobile, the turret is readily adaptable for use. Protection of mechanical parts and storage, when necessary, are also facilitated. The trailer includes its own power unit to drive the turret.

The Navy also uses the wooden training turret, Mk. 2. Originally manufactured exclusively by the Moller, Organ Co., it is now also being built by The Kane Mfg. Co. It is used for turret manipulation training and is largely wooden, except for controls which accurately duplicate the standard turret-control system in use by the Navy.

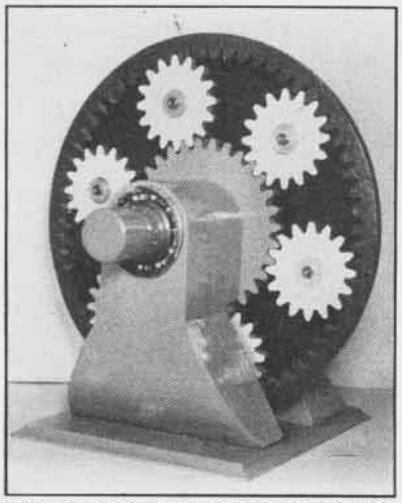
The wooden training turret Mk 2 is of heavier and more rugged construction than the Mk 1. The plastic dome should make it more realistic.



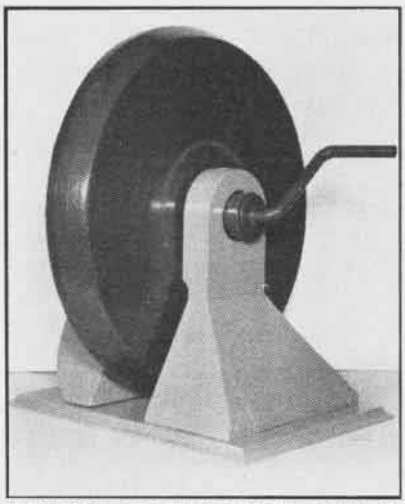
CROCKER-WHEELER TURRET ON ITS MOUNT



GUNNERY TURRET HAS PHONE FROM RANGE



VIEW OF TRAINING GEAR, BUILT FROM WOOD



REDUCTION GEAR EMPLOYED AS VISUAL AID

Propeller Reduction Gear

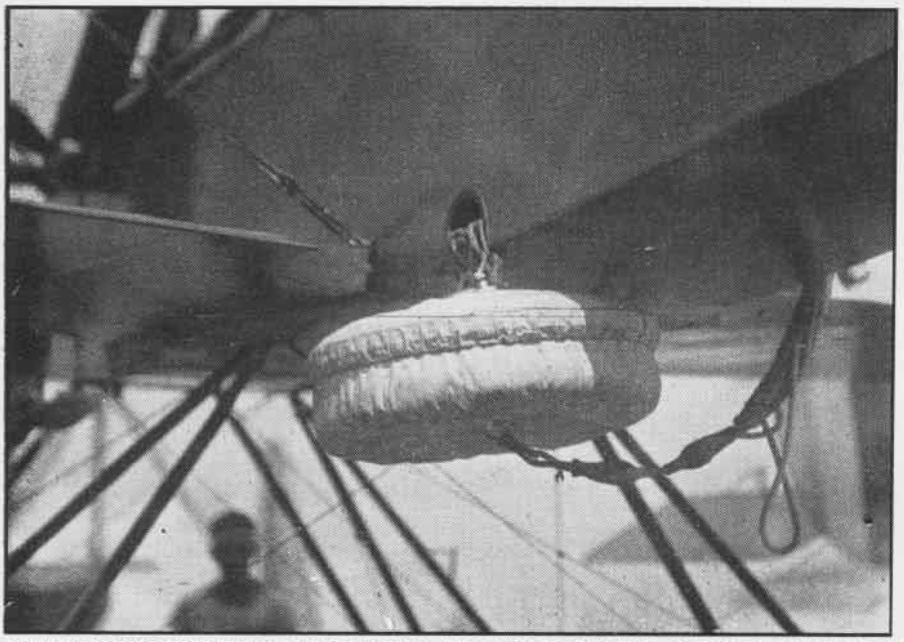
NAS, MINNEAPOLIS.—Two ground school instructors of this station have designed a propeller reduction gear for use as a visual aid in the Power Plants course. The model shown in the pictures is constructed of wood and is painted to represent the movement of related parts. It demonstrates clearly the principle of reducing engine crankshaft revolutions to a required propeller speed by the use of gears.

New Parachute Tested

NAS, LAKEHURST.—A new parachute with attachable seat enabling pilots to don their 'chutes more quickly was tested for the first time recently at Lakehurst. After the test, the 'chute was pronounced satisfactory and said to be "of considerable assistance to the pilots in the Fleet."

Two men made high wind landing jumps, proving that the two-piece 'chute is practicable for water landings. Fliers varying in weight and build can use the 'chute as was demonstrated by one officer weighing about 165 lbs. and another who is considerably larger.

With the new 'chute each pilot has his own harness, which he can wear at all times, but the seat of the parachute can be attached and detached at will. When the pilot climbs out of his plane and another gets in, there is no shifting of parachutes from one person to another (an operation that often has taken considerable time), for the new pilot merely attaches his harness to the parachute seat which has been left in the plane.



NAVAL SEAPLANE USED DURING FIRST WORLD WAR WITH PARACHUTE ATTACHED TO FUSELAGE

The Parachute is Old

The parachute goes back several hundred years, its first use in an air disaster was the successful escape from a burning balloon by Jodaki Kuparento, a Pole, in 1808.

The first parachute jump from an airplane was demonstrated by a stunt man, Grant Morton, early in 1912, at Venice, Calif. He carried the folded parachute in his arms and threw it into the air after jumping from Phil Pharmalee's Wright. The first pack-type descent was made by Bert Berry, March 1, 1912, at Jefferson Barracks, Mo., from a Benoist plane flown by Tony Jannus. This parachute was not actually of pack-type, as it was stowed in a metal cone and held by break cords. The cone was tied to the front wheel skid and a life line ran from the suspension lines inside the cone to a belt and trapeze bar, which supported Berry jumping from the rear axle.

Other Jumps

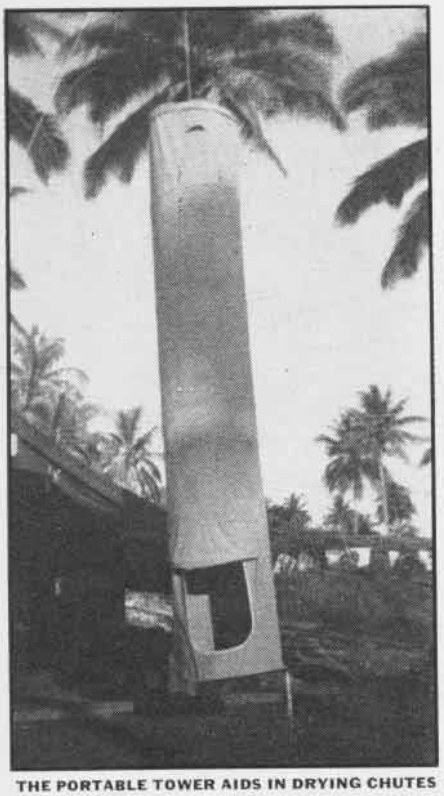
In 1912, Rodman Law made many voluntary exhibition jumps with the Stevens pack. Charles Broadwick and Glenn Martin developed a similar type which were repeatedly demonstrated by a girl, "Tiny" Broadwick, in 1913.

In 1914, Mrs. Floyd Smith made her first jump from a Martin plane with the Martin-Broadwick pack, at 650 feet. At about the same time, "Tiny" Broadwick demonstrated the same pack to the Army's flying school at San Diego. General Scriven reported "considerable merit, warranting its development for use in our service."

The parachute was first used to escape from an airplane in 1916 when an Austrian pilot jumped from a burning craft. Later, another Austrian made a forced jump from a disabled plane. Then Austrian and German pilots, in greater numbers, began carrying parachutes and using them for emergency escape. During World War I, both sides used parachutes in observation balloons. The Allies did not extend their use to airplanes until after the Armistice.

Portable Parachute Drying Tower

SCOUTING SQUADRON 55, PACIFIC.—Ralph James Holt, PR2c, attached to this Squadron, designed a portable parachute drying tower of an exceptionally high caliber. The item is regarded as being of particular utility where permanent facilities for drying parachutes are not available. It has been used with marked success, the Squadron reports, on tropical island duty where neither suitable buildings nor adequate materials exist to protect parachutes while airing or drying.



THE PORTABLE TOWER AIDS IN DRYING CHUTES

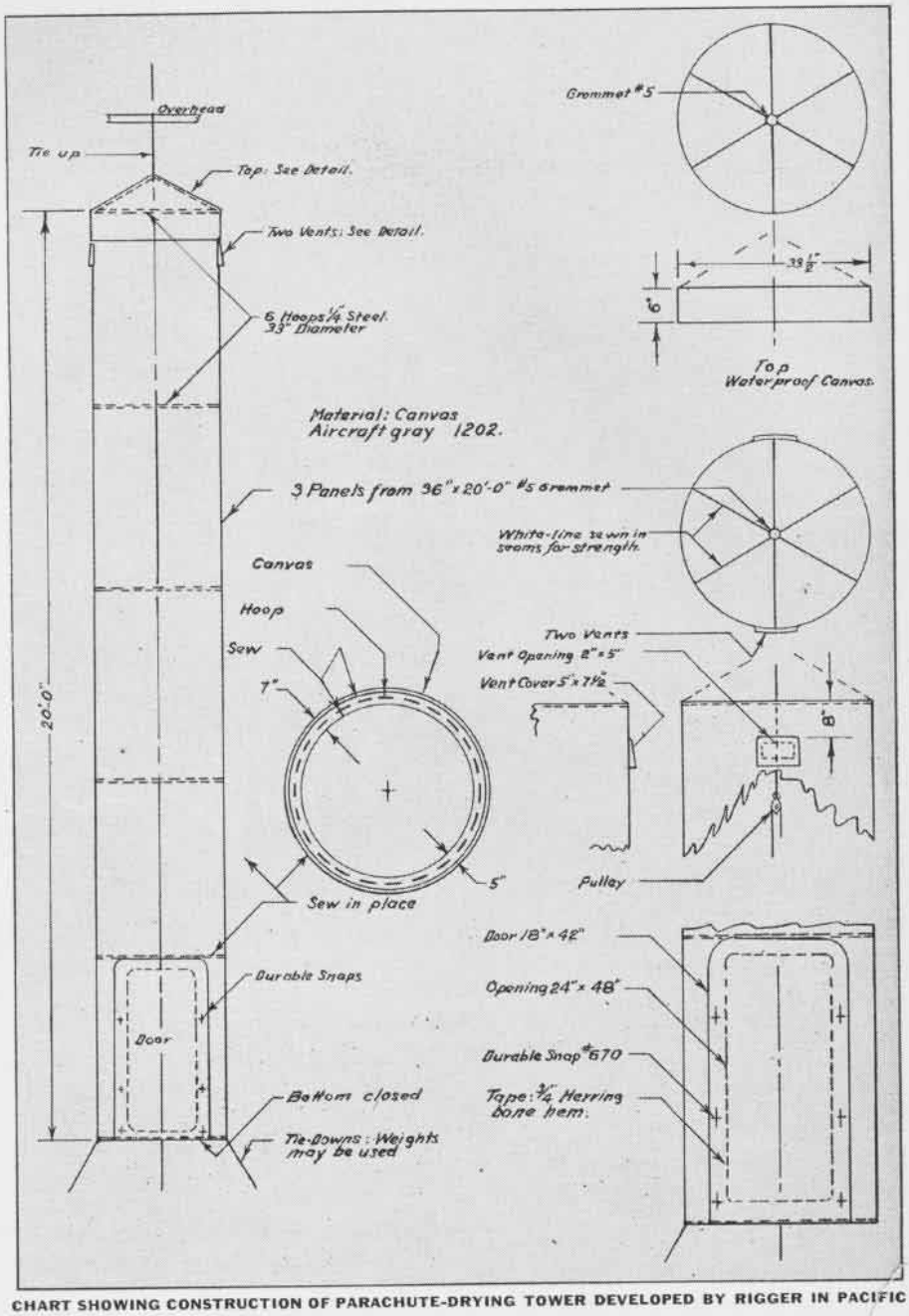


CHART SHOWING CONSTRUCTION OF PARACHUTE-DRYING TOWER DEVELOPED BY RIGGER IN PACIFIC

Ask Weather Summary

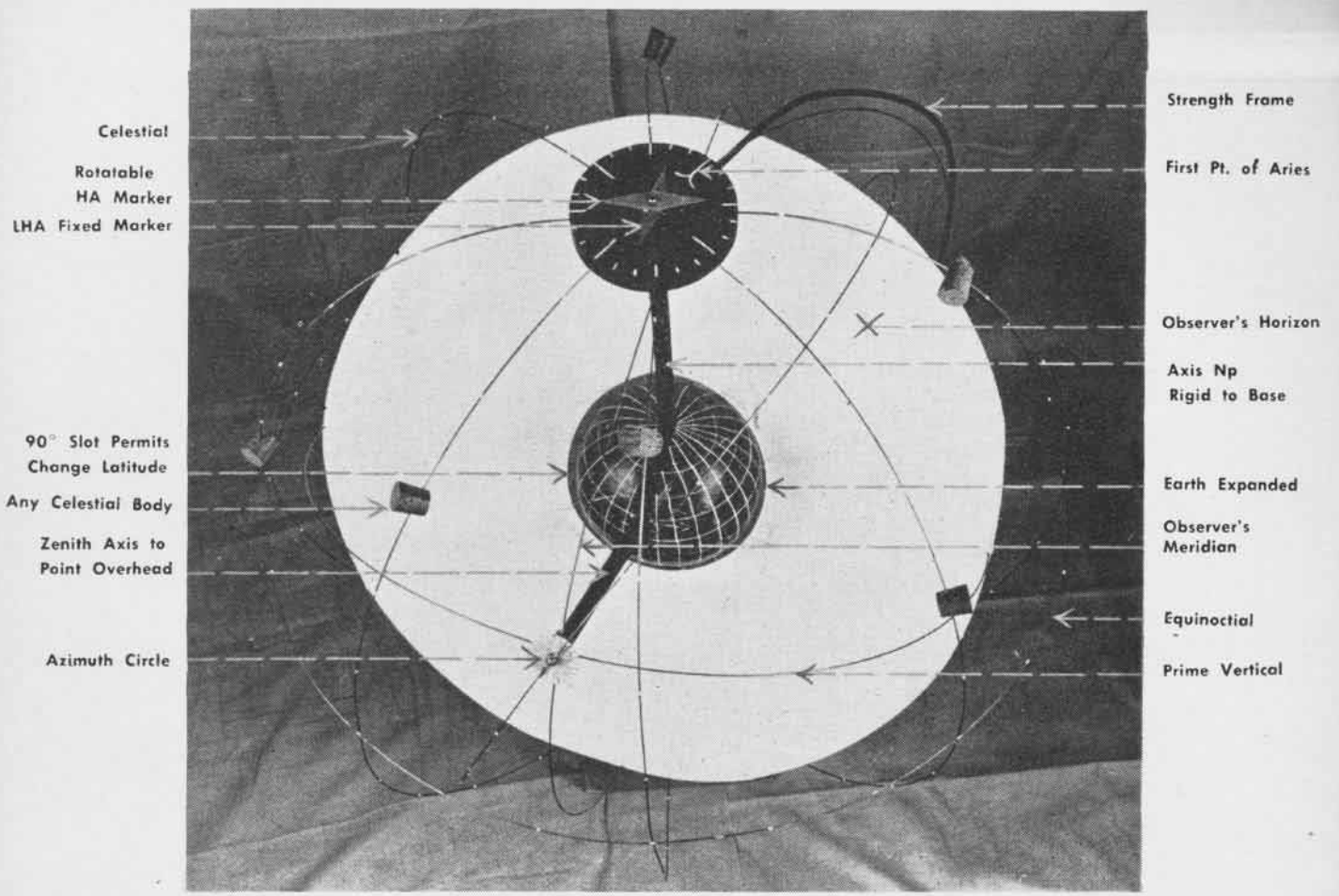
PATROL SQUADRON 42, PACIFIC.—A method of obtaining up-to-date aerological information covering combat areas has been suggested by Patrol Squadron 42. This method would require all aerological officers who have been on duty eight months at any locality to write up a summary of the weather in their area. Seasoned aviators could add to it from practical experience. The information would be used as a basis for correcting the Naval Air Pilot and other reports utilizing data of older publications.

One of the chief values of this information, the Squadron says, is found in the instruction of Operational Training student pilots. To date weather problems at the Pensacola, Jacksonville, and Corpus Christi bases appear to be the least of the student's worries; according to the squadron's report, new pilots seem to know little about weather forecasting when they arrive from "old line" flight schools.

BUREAU COMMENT The suggestion is a good one but hard to accomplish for two reasons:

1. The aerologists in the combat areas are already working full time on operational forecasts and have little time to digest past records so that they would be of interest or as valuable as the present N. A. Pilot weather data.

2. Records of eight months' duration are not necessarily representative of general weather in that area. A similar eight months might be considerably different. An attempt is now being made to prepare an "operational analysis" of records received from the Fleet and to publish this information in a practical, interesting form.



WORKING MODEL OF UNIVERSE, MADE OF WOOD, WIRE AND CORK, HELPS AVIATION CADETS LEARN NAVIGATION

Navigation Model For Students

SCOUTING SQUADRON 36, FAIRWING 9, ATLANTIC—A "working model" of the universe to help student navigators visualize how the sun and celestial bodies move in relation to the earth has been constructed for this Scouting Squadron from pieces of wire, wood, and cork.

The model was built by Paul C. Ostrum, CM2/c upon the design of a naval officer from materials which can be found in any ship, station, or base carpenter's shop. It is designed to give students of celestial navigation something besides definitions to make what they are studying tangible.

The celestial sphere is represented by meridian wires spaced 45 degrees apart and held in place at top and bottom by wooden spindles which turn around the north-south poles. One meridian is indicated on the top spindle as the first point of Aries.

Joining the meridians at the midpoints is a wire circle representing the equinoctial. In the center of the model is the earth, machined from wood and cut with a slot of 90 degrees in opposite quadrants. It is fastened to the south pole and the wires of the model move around it.

Corks to represent the celestial bodies may be placed anywhere on the wires according to sidereal hour angle and declination. The observer is located somewhere on the earth along the slot according to the latitude. The wooden rod which runs through the earth is moved to the latitude of the observer, thus moving the observer's horizon, his upper and lower meridians and the prime vertical meridians, along with the wooden rod.

At the zenith there is a metal plate marked off in 15-degree arcs and a moveable great circle which can be placed on any celestial body to indicate its azimuth or bearing.

BUREAU COMMENT This device shows a great deal of ingenuity in overcoming difficulties experienced in explaining three-dimensional relationships by ordinary methods. The bureau has taken steps to put a device closely resembling that submitted and designed for the same instructional use into production. This device is being allocated by the bureau to activities at which celestial navigation is taught. Requests from activities not covered by these allocations should be forwarded to the bureau.

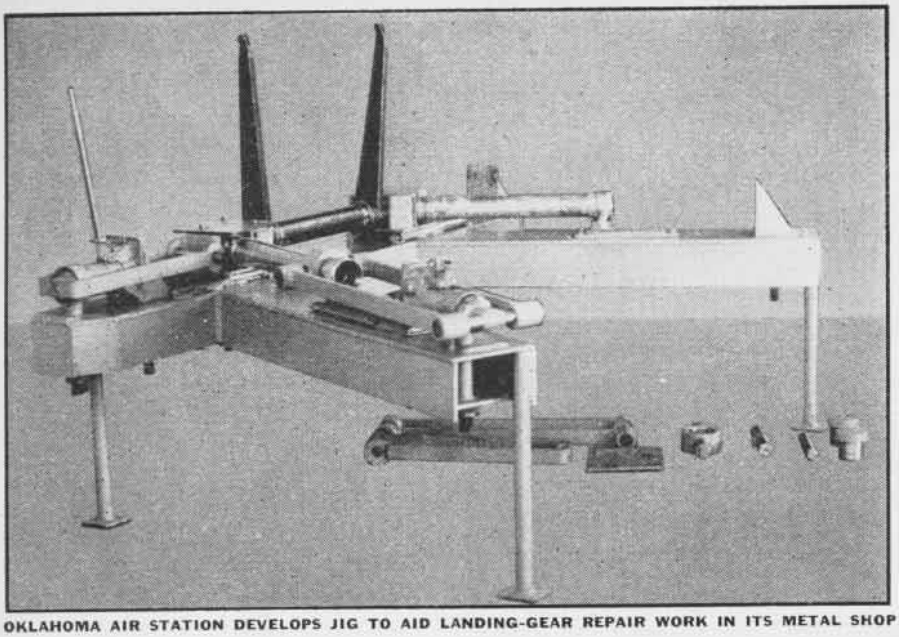
Load Indicator Designed

Pointer Tells Angle of Bank

NAS, BUNKER HILL, IND.—A device which indicates the increased load factor of airplanes in turns due to centrifugal force has been designed and put into use at this station.

A moveable scale pivoted at its zero point indicates the direction of the lift for all angles of bank. When this scale intersects the horizontal scale, the corresponding ratio of lift to weight is shown. The number on the horizontal scale at the same point is the ratio of centrifugal force to weight.

At the base of the moveable scale is an airplane model that tips to the back position as the scale is moved.



OKLAHOMA AIR STATION DEVELOPS JIG TO AID LANDING-GEAR REPAIR WORK IN ITS METAL SHOP

Jig for Landing-Gear Repair

NAS, NORMAN.—Landing-gear repair work has been greatly facilitated at this Station by the use of a jig designed and constructed in the A. & R. metal shop. Made of one-half-inch steel plate, this jig will apply up to 15 tons pressure in the assembly and disassembly of landing gear. Although designed for N2S gear, the jig may be adapted to other types with a few minor modifications.

BUREAU COMMENT **The landing-gear jig designed by the A. & R. shops of NAS, Norman, seems to be one of the better type jigs in that report of a more complete nature can be made and that the jig assembly is portable. It is suggested that any of the primary training stations not having any such type jig investigate the possibility of local manufacture of a similar jig or the creation of a new and better design.**

Note on Inspection of Life Rafts

FLEET AIRSHIP WING 30—Attention of all squadrons is called to BuAer Technical Note No. 6–43, superseding T. N. #54–42, describing and giving instructions for inspection and maintenance of life rafts. All squadrons should have their parachute and life raft officer inspect all life rafts to insure that they are type D rafts, equipped in accordance with this technical note. Requisitions should immediately be placed against the normal supply point for missing items. NAS, Lakehurst, will design a mount or rack for the waterproof emergency equipment container and publish it as a local change. This will be located aft near the life raft stowage so that the container can be attached to the raft by a line as recommended in paragraph 11C of T. N. #6–43.

RELEASE TRUCK OF FLEXIBLE MACHINE GUN

FITTINGS FOR ATTACHING TO THE RELEASE

ATTACHMENT FITTINGS FOR GUN MOUNT

Release For Truck of Gun Mount

The Gunnery Department of Bombing Squadron Twelve has developed a release for the truck of the Twin .30 Cal. Flexible Gun Mount on Model SBD airplanes. This device enables the gunner to swing the gun mount in azimuth without removing either hand from the control handles of the guns.

The installation of the device is simple and may be effected by service personnel with materials at hand. The device consists of a Bowdenite cable, a finger-operated lever attached to the left outboard bearer rod of the gun mount adapter, and an attachment fitting for the truck release mechanism. One end of the Bowdenite tubing is clamped securely to the adapter with an Adel clamp and the other end is anchored in a fitting which illustrations Figures 2 and 3.

The motion of the finger-operated lever is transmitted to the truck release handle by means of a two-foot length of Hackensack cable (7 x 7 x $\frac{1}{16}$") which is contained within the Bowdenite cable. The assembled parts for each end of the Bowdenite cable are shown in illustrations Figures 2 and 3.

Additional information on details of the design developed by the Gunnery Department of Bombing Squadron Twelve may be obtained by interested activities from the Bureau of Aeronautics.

NEW WATERPROOF CHART OF OCEAN WINDS, CURRENTS BEING PLACED ON RAFTS TO AID MEN ADRIFT

Waterproof Chart Developed Following Research

The plight of ship and airplane survivors adrift at sea will be eased by a new waterproof-weatherproof chart which is being placed by the Navy in watertight cartridges aboard life rafts and boats.

The chart, which is about three feet square, was adopted after numerous tests by the Navy and by private manufacturers. It is made of a cloth resembling bond paper and is covered with two waterproof coatings to preserve the inks used.

Each map shows prevailing winds of the major oceans for 30-day periods and will be replaced in the life rafts or boats from time to time with maps giving current data.

Being printed on cloth, each map can be rolled or crumpled into a small ball and flattened out smoothly without damage. The chart also can serve other practical uses, such as to catch rainwater or protect a person's body from the sun. It also can be used as a tiny sail or sea anchor.

What's wrong with this picture?

Answer to Panel Board Teaser on page 21: Switch on Right Magneto Only

Setting Zero Shot

The office of the Inspector of Naval Aircraft at El Segundo, California, has devised a method for setting the Zero shot and overtravel of synchronized guns in Model SBD airplanes which, it is stated, will facilitate and expedite this work. It is suggested that activities desiring the details of this procedure apply direct to this INA.

Assembly Mechanism to Defuze Bombs

NAS, BANANA RIVER.—The gunnery officer at this Station has devised an assembly mechanism for the purpose of defuzing unexploded bombs and enemy bombs which are thought to contain a booby trap.

The assembly consists of two circular steel bands, one within the other, through which four screws clamp onto the fuze. Two cables, of any desired length, are wrapped around the outer steel band. The operators can dig fox holes at any desired distance from the bomb and by simultaneously pulling their respective cables, unscrew the fuze from the bomb.

Specifications for the assembly are being forwarded to the bureau, the Station reports.

Mark 30 Torpedo Director

Model TBF–1 airplanes of current issue are equipped with the Mark 30 torpedo director, which also serves as an illuminated sight, and an auxiliary ring and post sight mounted to the left of the centerline of the airplane.

TORPEDO DIRECTOR ATTACHED TO PLANE

Earlier issues of the airplane were equipped with the Mark 28 torpedo director and a Mark 5 telescope sight. This sight has proven unsatisfactory and as a stop gap VT9 has submitted a method of installing a Mark 11 ring with a Mark 7 mount and a Mark 1–1 post. This sight combination appears to present a satisfactory installation for use as a substitute for the Mark 5 telescope sight.

The photograph above shows the general arrangement of the installation, and further particulars may be obtained by writing to VT9.

The stalling speed of an airplane is mainly dependent on wing loading (see Flight Statistics)

BUAER NEWS LETTER

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RESTRICTED