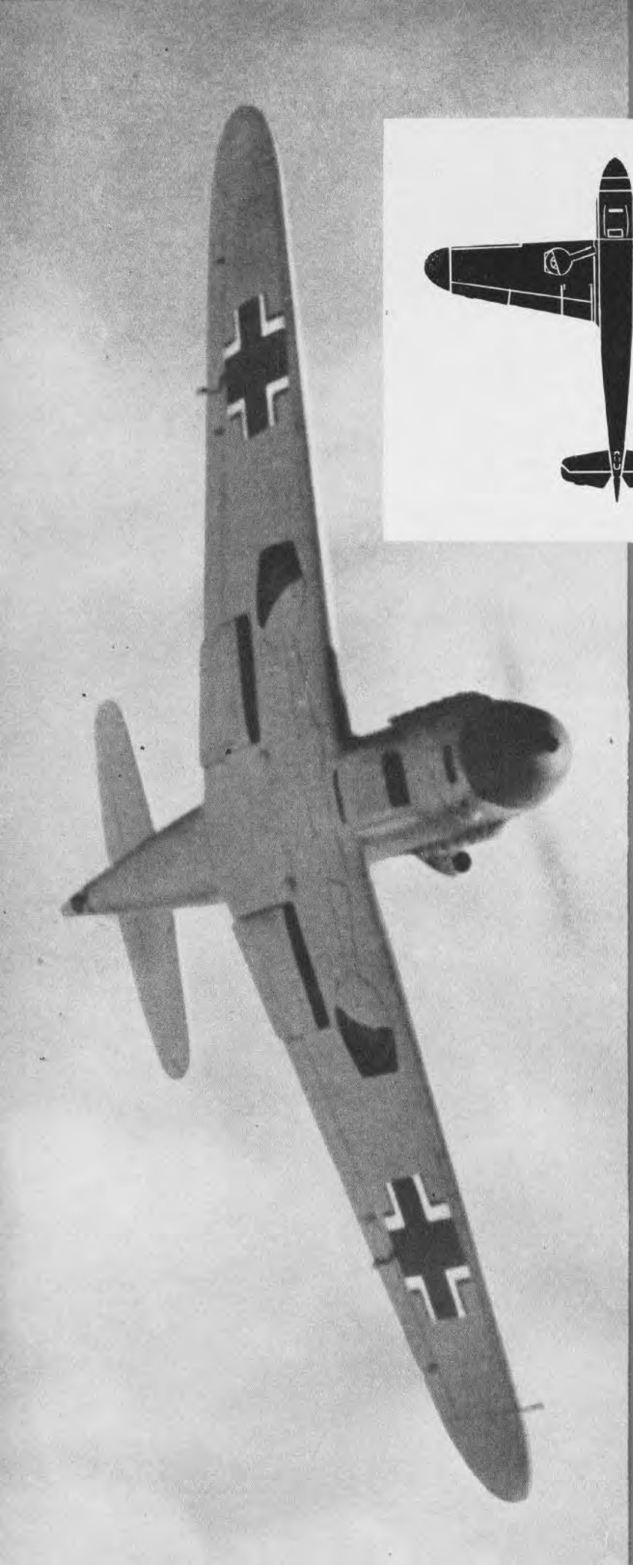
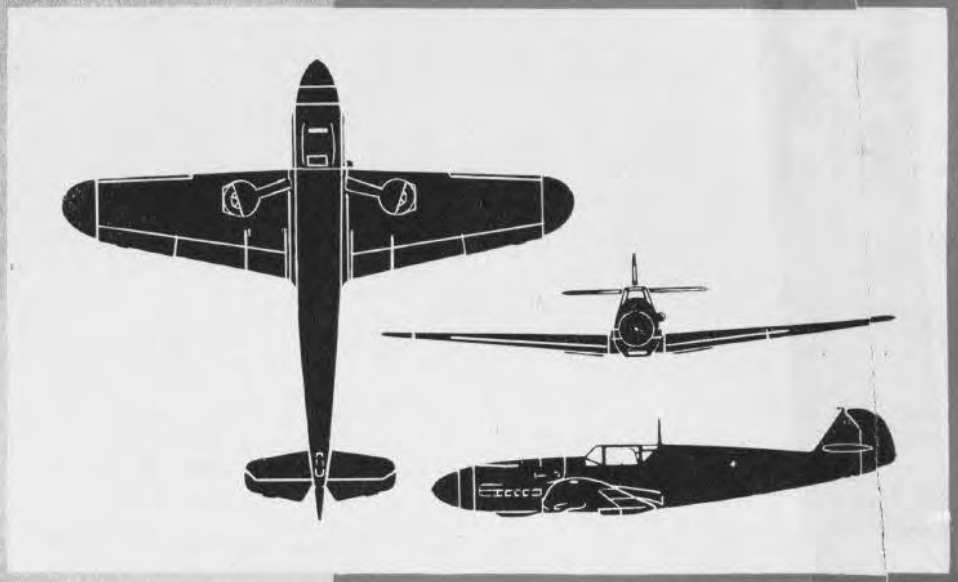
The stalling speed of an airplane is mainly dependent on wing loading (see Flight Statistics)





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.

DISTINCTION

NAVY RECOGNIZES VITAL PART PLAYED BY AIR CREW MEMBERS BY AUTHORIZING SPECIAL GOLD-AND-SILVER INSIGNIA TO BE WORN ON LEFT BREAST

Air Crew Insignia

New Emblem, at Last a Reality, Honors All Members of Navy's Flying Combat Crews

AVAILABLE at last, after months of painstaking working out of details that involved juggling some 300 proposed designs, all different, is the AIR CREW INSIGNIA which makes it possible for all eligible members of air combat teams to wear wings.

The AIR CREW INSIGNIA is being received in naval aviation circles with warm response. It is, in fact, a real boost to morale for personnel in combat crews who do the same job and experience the same risk as pilots; but who, because Navy Wings were not available to them, have not received recognition to the extent it was due. Army Air Forces have for some time given tangible recognition to members of air crews besides pilots, but until now in the Navy, this custom—except in the case of naval aviation observers—has not prevailed.

The INSIGNIA, as described in an earlier issue of NEWS LETTER (4/15/43), is intended primarily for enlisted ratings in the flight crews of naval aircraft, but any commissioned or warrant officer (except pilots and naval aviation observers) may receive and wear the emblem if he measures up to the requirements indicated below. Those not eligible include commissioned and warrant officers who are naval aviators or naval aviation observers and enlisted ratings designated as naval aviation pilots.

Ship's service stores are the only authorized outlets for these INSIGNIA, and they are sold only upon presentation of proper authorization. This authorization is to be retained by the Ship's service officer and forwarded for accounting to the Bureau of Naval Personnel at the end of every month.

Contents

BUREAU OF AERONAUTICS
NAVY DEPARTMENT—NO. 195

Ship's service stores may obtain these INSIGNIA from Hilborn-Hamburger, Inc., 15 East 26th Street, New York City.

Requirements for Insignia

Requirements for award of the AIR CREW INSIGNIA, which later may be modified in the Bureau of Personnel *Manual*, are as follows:

a. Having served, subsequent to December 7, 1941 for a total of three (3) months as a regularly assigned member of the AIR CREW of a combatant craft.

(*1*) "Combatant aircraft" shall be considered as all *operating* aircraft of the Fleet on Frontier Forces, and excepts utility aircraft which are neither designed nor fitted out for offensive (or defensive) operations.

(*2*) The term "regularly assigned member of the AIR CREW" shall be interpreted literally, and shall be substantiated by the battle station bill of the unit, under such instructions that may be approved and promulgated by the Bureau of Naval Personnel.

b. Having suffered injuries or other physical impairment, while engaged in combatant operations since December 7, 1941, as a regularly assigned member of a combatant aircraft, which precludes the possibility of fulfillment of the time requirements, stated in subparagraph (*a*) above, and is recommended by the Commanding Officer of the Unit in which injury or physical impairment was received.


FREE GUNNERS AMONG OTHERS ARE RECOGNIZED

c. Individual combat stars will be authorized by Unit Commanders, in conformance with instructions issued by Commander-in-Chief, United States Fleet, to those members of AIR CREWS who:

(*1*) Engage enemy aircraft, singly or in formation.

(*2*) Engage armed enemy combatant vessels with bombs, torpedoes, or machine guns.

(*3*) Engage in bombing offensive operations against enemy fortified positions.

(*4*) A maximum of three (3) combat stars shall be awarded for display on the AIR CREW INSIGNIA; combat action reports in excess of three will be credited only in the record of the individual concerned.

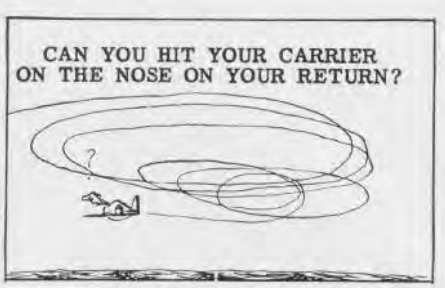
d. Personnel qualified by the provisions of subparagraphs (*a*) and (*b*) above may wear the AIR CREW INSIGNIA permanently.

AERIAL PHOTOGRAPHY IN COLOR UNMASKS CAMOUFLAGE

Exceptional Results Achieved With New Film

VD SQUADRON TWO.—From frigid, rarified heights 5 miles above the earth, a Navy cameraman in heavy flight gear adjusts his oxygen mask, looks down at his "target," clicks a shutter.

Within minutes, where formerly it required days or even weeks, naval authorities have spread before them clear, brilliant photographs of a summer landscape—in clear color.



Every tree, every building, every military installation, stands out in its natural color relation. Objects which would be mere blurs in black and white photographs are quickly, easily identified.

Where color means beauty to the civilian, to the naval strategist and tactician, it means positive identification of enemy equipment, gun emplacements, bivouac areas, material concentrations, and service facilities. It makes successful camouflage against the camera virtually impossible.

Despite these advantages, color work until recently was considered impracticable for military use. Pictures taken at altitudes above 2,000 feet tended to lose "color balance" and merge into a single color. Slow exposures were necessary. Processing equipment was so elaborate that exposed film had to be sent back to the manufacturers for processing and duplicates.

Color Film Rapid

Today the story is different. Tests recently completed by the Atlantic Fleet's aerial photographic squadron, using a new type of color reversal film, indicate that color work can now be done as rapidly and efficiently as black and white—and with far better results.

Where the color "ceiling" was formerly something over 2,000 feet, perfect pictures were taken in the squadron's test flights at altitudes up to 25,000 feet, with very positive indications that even much higher altitudes would not affect the quality of the work. Instead of special equipment, standard Navy aerial cameras were used, and all development was done on the spot in the squadron laboratory, using standard facilities. Instead

of slow exposures, pictures were taken at the same speeds as black and white. Use of a "positive transparency" results in rapid production of any required number of duplicate transparencies without appreciable loss of detail and very little loss in color gradation.

Exceptional results are obtained even under adverse weather conditions and poor lighting, and the process worked equally well in both remote-control and manually operated cameras.

BUREAU COMMENT At the present time this film is distributed only to units performing photo reconnaissance work because of its limited availability. Duplicating film will be available for use of these units in the near future.

Speech on Telephone Is NOT Secret!

Personnel are cautioned against discussing matters of a secret nature over the telephone. Not only is there the risk that conversation will be overheard at each end, but there is always the danger of others "listening in," or of wires being tapped. You have often, when picking up the receiver, been an unintentional third party on a telephone wire. Remember: there may be intentional *third parties anxious to get in on your conversation. If it's secret, don't risk it—don't say it on the telephone!*

Photographer's Mates as Gunners

The following extract is taken from the official Quarterly Photographic Report of a Carrier:

In the past the photographers of this unit have not been permitted to fly during action because the pilots do not care to have a nonqualified gunner in the rear seat. It is, therefore, suggested that rated Photographer's Mates ordered to duty aboard carriers should be sent to a regular gunnery school for a course of instruction.

In view of the great tactical, training, and intelligence value of combat aerial photographs, it is recommended that all activities take steps to correct the deficiency referred to in this report. Training in aerial free gunnery of all photographer's mates qualified for service in air crews is strongly recommended to remedy the situation.

Take Nothing for Granted

NAS, BERMUDA.—A recent incident with a J2F illustrated to this Station that nothing can be taken for granted. It also was proof that things which are done as often as four or five times a day can be forgotten. The J2F had just returned from the shop, where it had been given an overhaul. The photographic hatch had not been dogged down tightly, and, though that hatch is sometimes opened five times a day, particularly when the plane is being used for towing, and is always secured tightly, this plane captain and the pilot failed to check it.

A CAP taxied off the ramp and into the water with no one in the photographic compartment. Water began to seep into the compartment through the hatch, but the first indication the pilot had of it was when he noticed that the J2F was sitting lower in the water than it should have been. Although the plane might not have sunk, thanks to the four watertight compartments in the pontoon, the pilot had the embarrassment of being towed back to the ramp by the crash boat. From now on you can be sure that the photographic hatch will be dogged down properly, says the Station, remembering past performances.

SHOULD AERIAL PHOTOGRAPHERS BE TRAINED IN FREE GUNNERY?

VD SQUADRON TWO.—The Navy's aerial photographers, as a result of their training in "shooting" pictures from aircraft, make exceptionally good aerial gunners.

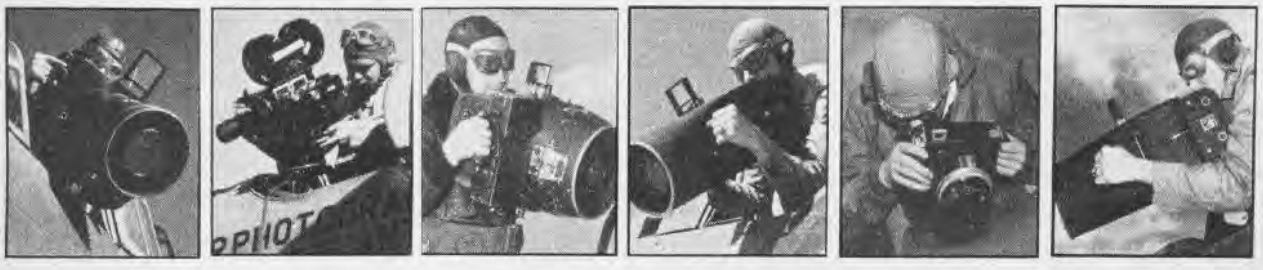
This is the conclusion reached by the Atlantic Fleet's aerial photographic squadron as a result of records made by its cameramen in aviation free gunnery training.

The photographers gain an initial advantage, it is believed, through experience obtained in operating precision equipment, requiring careful sighting and considerable manual skill, under a wide variety of flight conditions. Men accustomed to working in a slipstream, holding and operating a heavy camera meanwhile, find the machine gun little different from a new type camera.

The one major difference, to which they quickly become adjusted, is the necessity of "leading" on the target to compensate for the slow speed of machine gun bullet as compared with speed of light.

However, the follow through, one of the major requisites of good aerial gunnery, comes naturally to cameramen trained to hold steady on moving targets and move the camera with them. Unless this is done, pictures taken at normal shutter speeds tend to blur and quickly show the photographer his error.

BUREAU COMMENT Very true *except* that the proper lead takes training and much practice for *anyone*. It is the most important factor in a free gunner's training and cannot be slighted even for men who have become so adept in airmanship and manipulation as expert cameramen.



GRAMPAW PETTIBONE

Fat, Dumb—And Lucky

The pilot (785 hours) of an SNC–1 made an approach for a landing with wheels retracted. All efforts to warn the pilot, both by radio and visual signals, were unsuccessful, and the wheels-up landing was completed. Examination of the wrecked airplane revealed that both the landing gear and the radio worked normally; also the check-off list was found to be in the "Take-Off" position.

Danger of Electrocution

Civil Aeronautics Board Safety Bulletin No. 149 is quoted herewith for information and guidance:

"Volunteer rescuers narrowly escaped electrocution while removing airmen from a burning aircraft which had crashed a power line at a southern airport recently. The broken wires were reenergized while the rescuers were at work and only the fact that they were out of contact at the moment saved their lives.

"Investigation developed that it is standard practice for power line operators to reenergize lines upon which overloads, shorts or grounds have tripped the automatic circuit breakers. Broken wires are made lethal at stated intervals by robot control or at will by manual control—and this procedure may continue until the location of the trouble is found.

"Immediately any power line wires have been broken, or an aircraft is in contact with such wires, the power line company should be notified of the nature and place of the accident. They will at once cut the current and render the wires harmless. All airmen and all who might assist as crash crews should consider any broken power line wire as 'alive' and dangerous until a representative of the power line company gives assurance that it is 'dead'.

"Every airport should keep up a chart of all adjacent power lines and the telephone numbers to be called in case of accident involving broken wires.

"Occupants of an aircraft which is in contact with power wires should get clear as soon as possible. Crash crews should be equipped with dry wood ladders. Such ladders must be well varnished to prevent absorption of moisture in order to prevent any person from coming in contact with such plane and the ground at the same time. Heavy rubber overshoes and gloves should be available for the use of power line crash crews.

"But the best way to avoid electrocuting self or others is to know in advance where such power lines are, and avoid them."

Stunting At Low Altitude

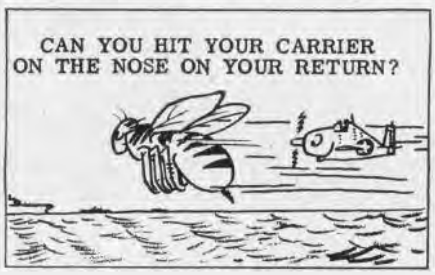
The pilot of an SNJ–4 attempted a snap roll at 800 feet. The maneuver was poorly executed and ended in a split "S". Because of insufficient altitude, the airplane crashed before recovery was accomplished, killing both pilot and passenger.

Grampaw Pettibone says

Only the enemy appreciates this kind of an accident.

To Clarify

Under the title "Crash During Altitude Takeoff" in the May 1st issue of NEWS LETTER, the statement was made that the decreased air density at altitude and in hot weather necessitated a faster take-off and landing speed. While this statement is true, it is open to misinterpretation. Although the actual ground speed is higher under these conditions, the airspeed meter will register *the same* as for a normal landing or take-off, because this instrument is actuated by the same density of air as that which is giving the plane lift. Therefore, airspeed meter readings for take-off and landing will be the same as for normal conditions, but remember, you will require a longer run to build up to take-off speed and also a longer runway on coming in to land.



The Courage of Ignorance

While practicing air work, a student pilot of an N2S–3 drifted out of his assigned area and got lost. He managed to effect a safe landing in a small pasture and proceeded to a telephone. Apparently ashamed to call his station field and report his predicament, he called "Information" and asked her advice concerning the location and destination of certain railroad tracks. After getting this information, he went back to his airplane and attempted to take off. The field was bordered by trees, wires, and buildings at the up-wind end and was too small for an experienced pilot to attempt take-off, but the student was courageous in his ignorance. His take-off was far from successful and the airplane received major damage, as it crashed into the trees and wires.

As the Trouble Board pointed out, this accident would not have happened had the student followed instructions contained in the Training Department Regulations which provide: "In case of a forced landing in any field by a student, he is not to fly the ship out. He will call the Officer of the Day at the main base to receive instructions."

Piggy-Back Ride

NAS, CORPUS CHRISTI.—Dilbert has pulled some good ones in his day, but even he at his best couldn't beat this one—a piggy-back landing. It happened when a flight of SNJ–4's was coming in and landing traffic was heavy.

One SNJ–4 landed directly on top of another which was taxiing in; the upper plane's prop cut through the

fuselage and windshield of the lower plane; one of the wheels lodged in its cockpit. Thus engaged, the two planes continued for about 75 yards before the upper plane fell forward in

an inverted position and the lower plane came to a stop nose-down. No injuries were reported, but the cadet in the plane underneath still has his head only because he had "a funny feeling" and ducked just as the prop was cutting through his cockpit.

Details of the unusual crash are related in statements from the instructors and cadets involved. Ensign John Doe, who piloted the lower plane reported:

"The accident happened at the end of the seventh period, about 1730 on April 19, 1943. I had made a normal approach to the runway and had landed. When I was about two-thirds of the way up the runway, I suddenly looked over my left shoulder and saw the other airplane right above me. It happened so fast I didn't have time to do anything but duck.

"After all the noise had stopped I looked up and the other plane was riding along on top of mine. As my plane rolled to a stop, the weight of the other plane threw me on my nose and threw him clear of me."

His student, Aviation Cadet Affirm, wrote:

"We made our approach to the field; we landed and were moving along the runway. (I had a funny feeling—I didn't know why, but things just didn't seem to be going right.) I then looked up to my left. As I turned I heard a noise and crash. I fell to the floor, getting as low as possible. In a second I felt a hard jolt and glass started to fall around me. The next thing I knew, we were standing on our nose."

Ensign Joe Gish, pilot of the upper plane, made the following report:

"I entered the traffic pattern at 500 feet, right hand traffic. I made a letdown to the runway and when ready to land heard the tower ordering an aircraft to take a wave-off. I entered well behind one plane and well ahead of another plane that was making a wide approach. I made a normal letdown and received no signal from the man at the flag truck. I was preparing to land when I felt the plane touch something. I hit the throttle and attempted to pull the nose up but was too late. I remained on the other plane in a nose-down position well forward and rolled until the plane under me began to veer to the left. Then my plane fell over on its back leaving the other plane in a nose-down position well against my plane. My student, Cadet Baker showed excellent presence of mind in an emergency."

Cadet Baker's statement concurs with Ensign Gish's. He adds, "As I crawled out from beneath the plane, the remaining occupants called out that they were not injured. Then the crash truck, ambulance, and officials arrived and took charge."

Grampaw Pettibone says

Probably too much trouble for Pilot Joe Gish to look out and see for himself if he had a clear landing area.

Lucky This Time

A serious accident was narrowly avoided when the pilot of an SO3C–2 landplane experienced engine failure while on a familiarization flight. Luckily, he was over an outlying field and managed to make a successful forced landing. The engine failure occurred shortly after take-off when the pilot switched the fuel selector valve to the fuselage tank which he thought was full, but which was nearly empty. The tank had purposely been left nearly empty in preparation for its removal from the airplane, but the pilot had not been informed of this fact.

BUREAU COMMENT This is a good example to bring to the attention of squadron maintenance personnel.

They, too, have a responsibility in helping avoid aircraft accidents. In this case the pilot should have been notified of the condition of the fuselage tank.

Of course, nothing ever relieves the pilot of his responsibility for knowing the amount of gasoline in each tank and for properly shifting his gas selector valve.

Rough Water Landing Technique

In a rough sea, with waves 6 to 8 feet in height, an instructor (1,224.3 hours) attempted a "hot" power-on landing instead of a full-stall landing. Immediately after contacting the water, a wave bashed in the bow and the aircraft began to sink. Twelve of the fifteen persons aboard escaped and were picked up by surface craft. One of the survivors made the following statement: "When we got in the airplane at the base, the pilot made us all wear life jackets. If it hadn't been for that, more of us probably wouldn't be here."

Grampaw Pettibone says

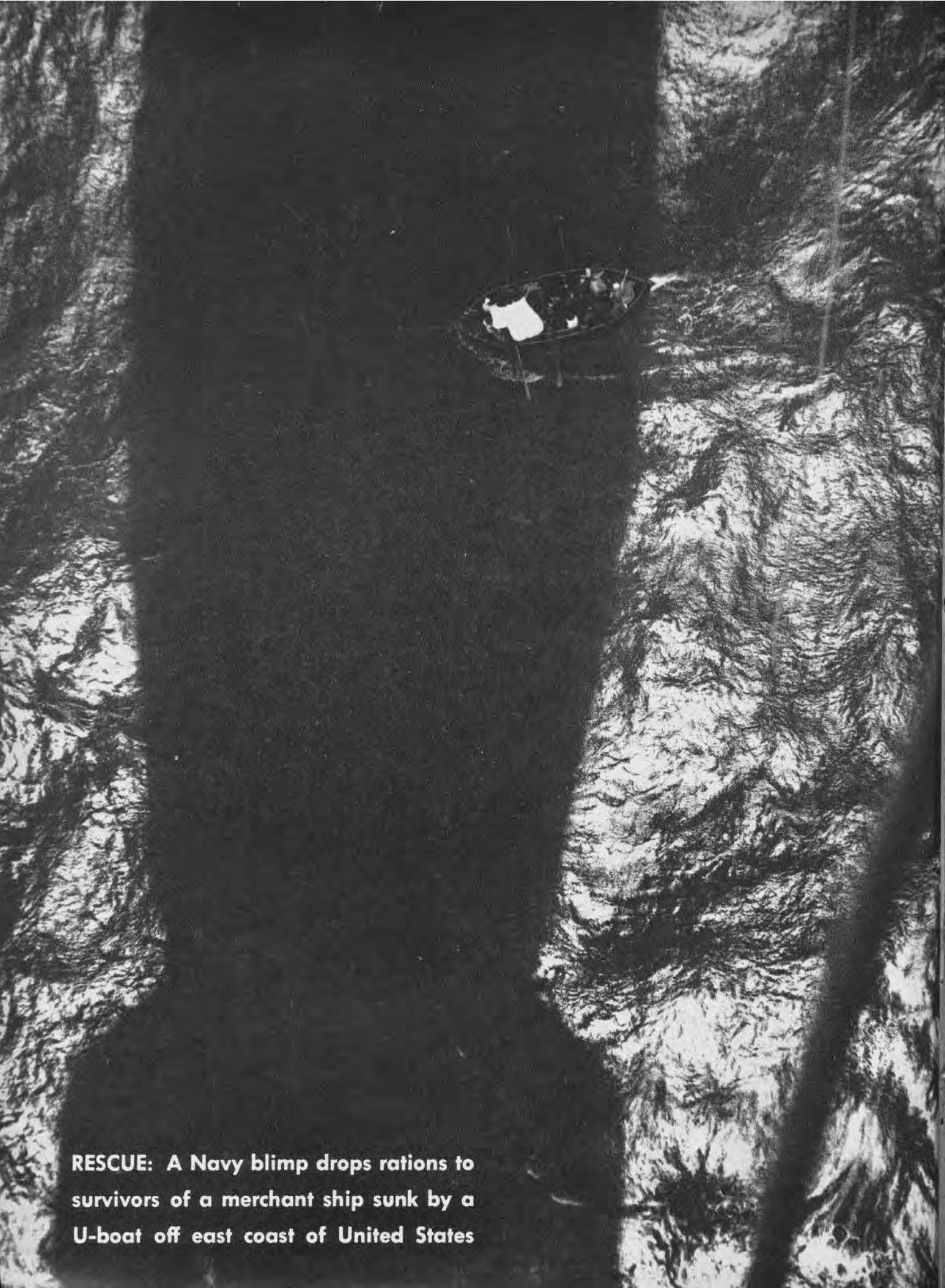
This shows that flight hours do not, necessarily, indicate flight experience. No experienced seaplane pilot would attempt a "hot" landing in rough water. In rough water you've got to stall them in to get the slowest possible landing speed and to keep the nose from plowing into the waves or swells. Anybody can "burn" it on, but it takes technique to make a perfect full-stall landing in a patrol plane. That's why I claim that, in order to keep your hand in, you should full-stall most of your landings, even those made on smooth water.

Note the statement regarding life jackets. There is never any excuse for not wearing these from ramp back to ramp again, on all seaplane flights.

Instructor Trouble

Contrary to the OTU Flight Syllabus, an instructor seated his student in the left seat and permitted him to attempt the initial take-off on the student's first flight in a PV–1. The student was unable to correct a swerve to port and before take-off speed could be gained, the airplane bounced into the air. The aircraft then entered an uncontrollable left turn, dragged a wing and crashed.

The Trouble Board said: "The Syllabus, in part, states that on the first



RESCUE: A Navy blimp drops rations to survivors of a merchant ship sunk by a U-boat off east coast of United States

flight of dual instruction in the PV–1, the instructor will *demonstrate* take-offs and landings. The PV–1 is not equipped with brake controls on the right side of the cockpit and the airplane does develop high torque forces on take-off. Normally these forces can easily be controlled. However, if the airplane becomes air-borne before flying speed is reached, it is almost impossible to control the torque. Therefore, the characteristics of this airplane should be thoroughly explained and demonstrated before any student is allowed to attempt a take-off from the left hand seat."

Pilot's handbook, Technical Orders 25–43, 86–42, 91–42, and May 1 NEWS LETTER (p. 5) are references for take-off technique in PV airplanes.

A Dunking Experience

The following is quoted from the pilot's statement concerning an F4F forced landing:

"I was at 8,000 feet at the time I lost power. My RPM indicator was gradually decreasing. I at once switched to manual control and when that did not stop the decrease I tried to increase my RPM. All this time I was sure that I had plenty of gas, but to make sure I worked with my wobble pump and changed from one tank to the other, at least four times. My wobble pump was not building up any fuel pressure. I had a hand wobble pump which was very easy to pump. I kept working with my manual control, my gas tanks, and wobble pump for about four minutes.

"All this time I was in a glide at 120 knots headed for the southwest corner of Lanai which was about 18 miles away. At 6,000 feet my engine went dead and at 3,500 feet I began to get ready for the landing that was to follow.

"I took off my chute and radio connections. Then I lowered my seat about 4 inches. My hood was locked open and my goggles up away from my eyes. By this time I was down to 2,000 feet. I tried to start my engine again but had no luck. There was nothing to do but wait. I had time enough to take off my watch and put it in one of my gloves which would be waterproof for a few minutes. When I saw I was not going to be able to glide to a spot where the water was about 30 feet deep, I turned into what I though was the wind. Later I learned I was out of the wind about 50°. I wanted to get as close to shore as I could. I never did open my flaps because I knew I could glide farther without them. When I last looked at my airspeed I was doing 70 knots about 20 feet above the water.

"I waited until my tail was in the water before I put my left arm up in front of the gunsight. I heard a noise which sounded like the tail coming off; then I started forward. I saw a few stars and found myself upside down under water. I tried to get out before I opened my safety belt, then I opened my belt and came up at the end of my left wing. I filled my life jacket, removed my new shoes, moved my watch up to the top of my helmet, then swam back to the ship to pick up a full pack of cigarettes I saw floating nearby. There was about four feet of the plane's tail sticking up out of the water when I came up. I didn't try to get my life raft out of the plane. I believe I could have gotten it out but I was only about a mile or so offshore so I stayed clear of the plane. I left my black socks on and pushed my new shoes along in front of me. After about 30 minutes of this I deserted my new shoes.

"When I got close to shore I tried to climb up on a coral reef to rest. About this time I was knocked off the coral and it seemed like an hour before I came up. On the ducking I lost my helmet and watch but this was the least of my worries. I was having one hell of a time trying to keep my head above water and to stay away from the other coral that was all around me.

"It took me about ten minutes to get through the coral and to shore. All this time there were at least two planes overhead keeping an eye on me. Ten minutes after I landed there were all kinds of help overhead and on the water.

"I was picked up by a sampan and taken to the Army Headquarters where a plane picked me up and returned me to my home base."

60 Percent Tower Error

An aircraft trouble report was recently received which gave the following account of an OS2N–1 landing accident: The pilot approached and made a full stall landing on the designated runway, which was approximately 50° out of the wind. Wind was 37 knots, with gusts up to 47 knots.

Immediately upon landing, a strong gust of wind caught under the right wing which caused the airplane to go into a left groundloop and turn over. After the accident, the runway was changed to one directly into the wind.

The Trouble Board assigned as the cause of this accident 40 percent pilot error and 60 percent weather.

Grampaw Pettibone says

Strikes me, the 60 percent assigned to weather should rather have been assigned to the responsible tower personnel for not keeping the landing course as nearly as possible into the wind. Flight safety is one of the tower's main jobs. Pilots depend on the tower to properly route traffic around the field and if this is not done, as was not done in this case, it would be better for all concerned if there were no tower.

Of course, this flight demonstrates again that the ultimate safety of every flight rests directly with the pilot concerned. It is his neck that is sticking out. Operating in accordance with a green light, or other signal, may protect you legally, but not physically. Don't let it be said of you, "He was right, dead right."

DID YOU KNOW?

British Flat-Hatters Dismissed From Service

"Buzzing" Pilot Collides With Auto

Four British officers and airmen pilots have been court-martialed and dismissed from the service for flying their planes unnecessarily low over the countryside, the *Royal Air Force Journal* reports.

In one case a pilot officer was convicted of improperly diving his plane below 2,000 feet over an airfield and crashing it to the ground. Another pilot officer flew his plane only 100 feet above houses while the third went so low in "buzzing" a residential area the plane hit a house. The fourth pilot officer was convicted of flying so low he collided with a motorcar on a highway.

Carloaders For CV's, ACV's, AV's

Arrangements have been completed with the Bureau of Ships to supply two power carloaders to CV's and one to ACV's and AV's for use in handling stores. Allocation of this equipment

NAVY INSTALLS POWER LOADERS ON CARRIERS

is made by War Production Board and until BuShips can secure the necessary allocations Buaer is assisting in the supply of these loaders. The small motor-driven cars are proving useful in shifting heavy stores around in ships.

Plotting Board Cards

Durable matte finished plastic data cards for aircraft navigational plotting boards are available for immediate distribution. Inserted between the chart board and the grid of the plotting board, these data cards afford a convenient location for noting communication data, recognition signals, navigation data, and other pertinent information which must be readily available to the pilot or navigator.

Data cards in two sizes are being procured. One card, F. S. S. C. No. 88–C–230, is for use with the Mark 3–A plotting board. The other, F. S. S. C. No. 88–C–233, is for use with the Mark 5 chart-plotting board and the Mark 5–A plotting board. The cards are being placed in stock at the Aviation Supply Annex, Norfolk; Aviation Supply Annex, Oakland, and the Naval Aircraft Factory, Philadelphia.

Registering an Allotment Important

Assures Provision Is Made for Dependents

A young naval officer walked into a disbursing office on the west coast and handed his transfer pay account through the barred window with the request that he be paid at once.

"I have my wife with me, and I am almost out of money. I'm being ordered to report immediately to the Commander at N——, so I need it at once," he said.

The officer behind the window had to advise him that it would be impossible to put his papers through official channels fast enough to permit immediate payment. He also told him that because he was leaving on such short notice an allotment could not be registered for his wife's support that would become effective in less than a month or 6 weeks. Meantime she might be without funds.

The above example is typical of thousands of cases the Navy is constantly meeting because officers sent overseas have failed to make provisions for their dependents by allotment.

Officers are encouraged to register allotments for their dependents prior to their detachment from training commands. Married men ordered to the west coast have been discouraged from taking their wives because often they are sent overseas at once.

Student Officers' Troubles

Student officers often run into financial troubles when they are transferred from station to station without sufficient time for ample pay to accumulate on the books. The solution to this is found in registering an allotment to a checking account for as much pay as possible up to the full amount of the base pay, less insurance allotments.

Experience has indicated that, when an officer joins the fleet, subsistence, flight pay and in certain cases, rental, is sufficient cash for all personal needs. Cash, if lost by fire or sinking of the ship, is lost forever. A previously registered allotment to a bank or to dependents would prevent this loss in practically every case.

If an officer is captured or missing and he has registered an allotment to his dependents or to his joint bank account, such payments continue until his status is cleared. All such allotments not specifically designated for "dependency" immediately are stopped upon commencement of such capture or missing status.

Chest Straps Valuable In Preventing Injuries

Combat Craft Now Equipped With Belts, Buaer Says

The value of chest straps to ward off head injuries in crash landings is becoming increasingly apparent as reports from training schools and fighting fronts come in. One air group has

equipped all planes with these straps, passed around the armor and supporting struts behind the pilot's seat.

The straps are usually kept loose so the pilot can lean forward and use the gun sights, but tightened in the event of a crash landing. It is believed that in at least two crash landings in the water they saved the pilots and radiomen from serious injury or death.

BUREAU COMMENT All combat airplanes and trainers now being delivered, with the exception of patrol bombers, are equipped with the lap and shoulder safety belt before leaving the contractor's plant. For the method of installing the belt in airplanes already delivered see the following airplane changes which have been issued:

SBD–3 No. 114.	NP–1 No. 16.
SBD–3P No. 96.	OS2U–1 No. 56.
SBD–4 No. 16.	OS2U–2 No. 68.
NAS–1 No. 24.	OS2U–3 No. 52.
BT–1 No. 77.	OS2N–1 No. 20.
SBC–3 No. 133.	F4F–3 No. 115.
SBC–4 No. 114.	F4F–3A No. 95.
N3N–1 No. 76.	F4F–4 No. 64.
N3N–3 No. 36.	F4F–7 No. 23.
TBF–1 No. 83.	SO3C–1 No. 11.
SNC–1 No. 66.	

Additional change instructions are in preparation.

Bond Allotments Booming

Rate of Investment Attracts

Admiral King recently emphasized the importance of War-bond allotments when he told Navy personnel to "Let your dollars fight with you."

Navy bond allotments are based not only on a patriotic motive, but also on a sound common sense urge of personal financial welfare. The simple mathematics of investing three dollars to get four should be ample inducement for signing a bond allotment form. The bonds will provide their buyers an economic cushion after the war.

A year ago only 7,500 had signed bond allotment forms. Six months ago 33,000 had signed, and today about 100,000 are listed. With the Navy building up to a strength of 190,000 officers and 1,850,000 men by the end of 1943, it is estimated that 1,250,000 will have signed War-bond allotment forms by that time.

WINSTON CHURCHILL TALKS WITH MEN OF 11TH HUSSARS, FIRST BRITISH TROOPS TO ENTER TRIPOLI

Churchill Promises British Aid Against Japan

The Axis nations have shown their "first real mortal weakness" in their air war with the Allies and will be outnumbered and outfought by the increasing aerial strength of the United Nations, Prime Minister Winston Churchill said in a speech to the Congress of the United States.

The Prime Minister promised England's fullest cooperation and aid in the defeat of Japan to recover lost lands in the Southwest Pacific. "In the Malay Peninsula and at Singapore we ourselves suffered the largest military disaster in British history.

"Let no one suggest that we British have not at least as great an interest as the United States in the unflinching and relentless waging of war against Japan."

Mr. Churchill declared the air forces of the United Nations "already vastly outnumber the air strength of Japan, Germany and Italy * * * in this air war it is that these guilty nations have already begun to show their first real mortal weakness. The more continuous and severe the air fighting becomes, the better for us, because we can already replace casualties and machines far more rapidly than the enemy and we can replace them on a scale which increases month by month."

The Prime Minister declared "our killings of the U-boats, as the Secretary of the Navy will readily confirm, have this year greatly exceeded all previous experience. While I rate the U-boat danger still the greatest we have to face, I have a good and sober confidence that it will not only be met and contained but overcome."

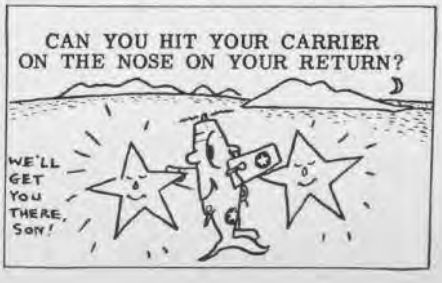
Use of air power alone may not bring about the collapse of Germany or Italy but "the experiment is well worth trying so long as other measures are not excluded," Churchill said.

The air war is forcing Germany to withdraw a large part of her aircraft from the fighting fronts to combat raiders over the homeland, thus aiding Russia which today is bearing the brunt of the land war, the Prime Minister said.

"It is all agreed between us that we should at the earliest moment similarly bring our joint air power to bear upon the military targets in the homelands of Japan. The cold-blooded execution of United States airmen by the Japanese Government is a proof not only of the barbarism but of the dread in which they regard this possibility."

Don't Tow by Tail

Bending and wrinkling of the tail-wheel strut piston on PV–1 and PV–3 airplanes is very likely to be the result of towing the airplane by the tail wheel. Attention of all activities is called to the fact that these airplanes must be towed from main landing-gear positions only. The tail-wheel steering bar must not be used for towing and the airplane must not be towed by the tail. Tow bars to be attached to the main landing gear are included in the ground handling equipment.



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TRAINING

Marines Improve as Anti-Sub Gunners

MCAS, ST. THOMAS, V. I.—Students at this school's Free Gunnery classes are being taught the how and why of guns by means of an impressive array of equipment and training devices.

Almost all of the latest devices perfected by the Bureau have been installed here. They include the 3 A–2 trainer, a mechanical device for teaching lead and follow-through*; the Moeller turret, to give the student the feel of actual combat machinery in action; the Jones trainer for range-estimation, and flashmeters for identification training.

Proof that gunnery training is standing them in good stead is found in the anti-submarine practice firing given new pilots. The greatest difficulty in these practices is to maintain a target, for a near miss is no hit in this league. Pilots insist on destroying the tow, much to the disgust of the surface crew. Photographic records bear out the excellent gunnery shown by the fliers.

*See p. 13, NL 5/15/43

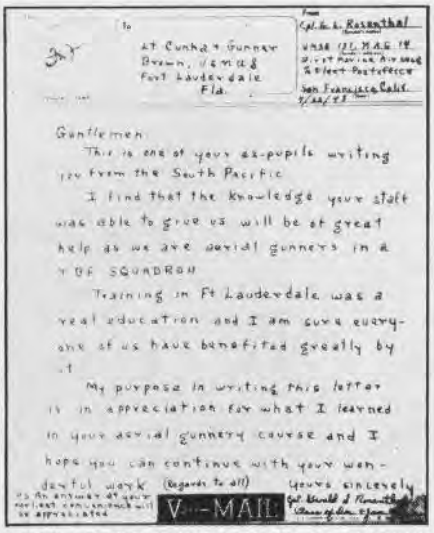
Navy Chow Is Healthful

80,000 Eggs Down the Hatch in Month

NAS, DALLAS.—Feeding more than 2,000 enlisted men and cadets is no small task for the commissary department of NAS, Dallas. Menus are based on Naval traditions and customs, using the published recipes of the Navy Cook Book.

The instant a man starts eating Navy chow, he goes on a diet—though not in the popular sense. Each day, menus are planned to give the necessary energy producing vitamins, A, B, C, D, E, and plenty of fresh vegetables, fruit salads, citrus juices, cereals, prunes, figs, eggs, and meat are provided. He can eat all he wants but he must take no more than he eats.

The following figures will give an idea of the chow stowed down the hatch last month: 6,700 dozens of eggs, 2,500 pounds of butter, 4,500 gallons of milk, 25,000 pounds of beef, 15,000 pounds of ham, pork, and bacon, 35,000 pounds of potatoes, and 5,000 pounds of poultry. These, augmented by a hundred other staples, equal an unlimited food ration bank account for NAS, Dallas.



V-MAIL LETTER UPHOLDS VALUE OF TRAINING

Commando Course At Weeksville

NAS, WEEKSVILLE.—Marines and bluejackets attached to this station now have a "commando" course to provide physical recreation and toughen them up physically. The course is approximately 500 feet long and consists of practically every type of obstacle usually found on such courses.

A mud flat that must be negotiated by going hand-over-hand on a suspended rope has proved the downfall for many who have tried the course.

Model Planes Improved

In order to give students a better knowledge of the firing areas and vulnerable spots of enemy aircraft the Naval Air Station, Corpus Christi, has "added something new" to its enemy model planes.

The firing zone of enemy armament was determined by projecting the complete angle range of each gun. A translucent plastic sheet, corresponding to the shape of the fine pattern produced by the projection, was placed perpendicular to the longitudinal axis of the gun. On each sheet was printed the type and caliber of the gun as well as the angles to which the gun may be pointed or trained. When all of the guns are so treated the vulnerable spots and poorly protected areas of the aircraft are clearly visible.

In addition, vital spots such as pilots, gunners, and vital mechanism, are indicated by the use of light paint.

Mile Swim Shows Off Endurance

Cadets' Record Far Above 1942 Mark

NAS, PENSACOLA.—In a 1-mile swimming test given recently to a new class of cadets at this Training Center, 113 out of 116 were able to complete the task successfully. Two men managed to swim a half-mile while the one remaining man "petered out" after passing the quarter-mile mark. In covering the distance the group swam continuously for 40 minutes.

This excellent showing is a far cry from results in a test given last July when only 12 percent of a class were able to stay afloat for five minutes. Similar tests will be continued twice weekly for incoming classes.

Yellow Paint Identifies Tow Planes

NAS, PENSACOLA.—Student pilots on gunnery runs from a squadron at the Naval Auxiliary Air Station, Bronson Field, are able to pick out the tow plane at a quick glance now that a distinctive paint job has been performed.

The nose cowling, the wings from the inboard edge of the ailerons to the wing tips, and the tail sections of all tow planes are painted a bright yellow.

This color, seen against the camouflage blue of the rest of the plane, enables even the newest fledgling to identify his target in a split second.

Obstacle Course Cracked

MCAS, CHERRY POINT, N. C.—Conditioning officers at this Marine Air Station thought their obstacle course was pretty tough, but that was

PRIVATE SETS NEW MARK ON COMMANDO RUN

before a private first class from the Guard Detachment came along to take a crack at it. He sailed through the near 700-yard course in 3 minutes 50 seconds, twisting and squirming through the wires and culverts and taking the numerous jumps in stride. Prior to this record run 5 minutes was considered good time in which to cover the course. Now, however, it has been toughened by the installation of many new obstacles and the alteration of those already there.

Easy Road To Knowledge

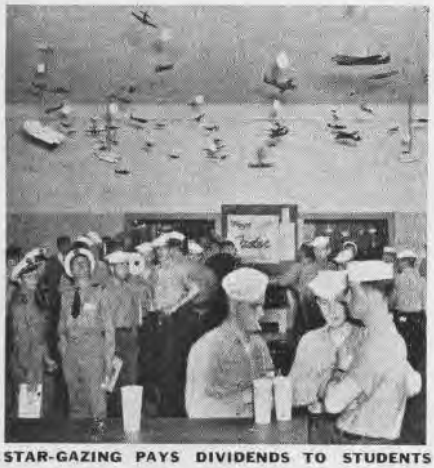
Recognition Learned by Visual Association

NATTC, JACKSONVILLE.—An idea to make aircraft recognition a pleasant study instead of just another duty was put into use by the Naval Air Technical Training Center here when it hung miniature plane models from the ceiling of its heavily patronized ship's service.

Since several thousand enlisted men visit the place daily, the planes attract plenty of interested eyes. Constant visual association with the models makes the men recognition-conscious.

The models are suspended from wire arranged to place them in various attitudes so that head-on, angle, plan views and silhouettes may be observed. There are two models of each aircraft. One has an attached paper disk on which the letter designation, manufacturer, and missions are printed.

The exact duplicate of this model without a paper disk is placed somewhere else in the display so that the observer can, by comparison, determine the identification of the models.



STAR-GAZING PAYS DIVIDENDS TO STUDENTS

Fighting French at Dallas

NAS, DALLAS.—Seventeen representatives of the Fighting French—three officers and 14 enlisted personnel—have reported aboard for flight training, thus marking another step in this Station's expanding program. Arrival of officers and men from the combat zones has had a tendency to promote a more serious attitude toward the grimness of this war and an inclination on the part of all hands to work harder to "get it over with."

USE THIS FORM TO ORDER TRAINING BOOKLETS

cut here

To save time, NEWS LETTER provides this convenient form on which copies of the Bureau's attractive training booklets can be ordered. Individuals should place orders with their supply officer or commander who in turn will submit them, in the aggregate, to the Bureau.

FROM: _____
(UNIT COMMANDER)

TO: The Chief of the Bureau of Aeronautics

SUBJECT: Training booklets and manuals

1. It is requested that the following training booklets and manuals be sent to this command, at the address indicated below, in the quantities stated.

Indicate Quantity	*Title of Booklet*
.....	**Ice Formation on Aircraft**
.....	**Thunderstorms**
.....	**Fog**
.....	**Flight Quarters (Restricted for CV's and ACV's)**
.....	**Parachute Sense**
.....	**Oxygen Sense**
.....	**Prisoner Sense (Restricted)**
.....	**Dunking Sense**
.....	**Don't Kill Your Friends**
FOR AVIATION CADETS	
.....	**Using Your Navy Wings**
.....	**Notes For Ensigns**
.....	**Manual for Officer Students**

SIGNED: _____

_____

DELIVERY ADDRESS _____

_____

ARMY AIR FORCES

This Semi-Autonomous Aviation Body Functions Today as One of Army's Three Great Combat Arms

THE strength of the Army's air arm is distributed among separate and distinct categories. The Army calls these: Air Power, Air Defense, Air Support, and Air Service. Each is a mission of the greatest importance to the successful prosecution of the war.

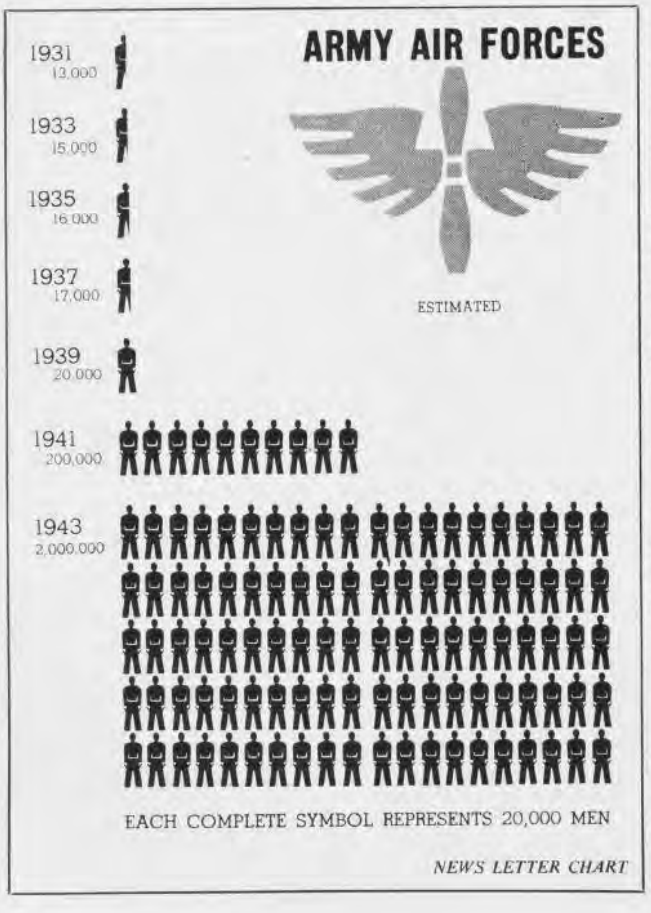
Air Power may be described briefly as the operation of an independent force of long-range bombers, striking as far as several hundred miles behind the enemy's lines, directly at the enemy's war-making facilities, his industries, airdromes, communications, and supply lines.

Air Defense entails the protection by Army Air Forces of our own economic factories, railroads, stores, homes—as well as of military establishments, at home and abroad. It is here that interceptors perform the important missions of staving off attacks of enemy bombers and fighters while gaining air superiority over battle areas.

Air Support means direct intervention by Army Air Forces on the battlefield, working in close coordination with ground forces. This aerial support includes machine-gunning, bombing and strafing the enemy's communications, troop concentrations, ammunition dumps and airdromes. It further includes carrying parachute troops and landing infantry at advanced points; delivery of food, supplies, and ammunition for those troops. Air Support also is evidenced when it is necessary to lay down an aerial barrage in front of an attack—thus delaying the enemy and permitting our soldiers to retire in order. Air Support also includes the work of combat photographers, who have become so important in taking photographs which make planning possible as well as interpreting the results of a raid.

Air Service

Air Service supplies equipment, spare parts, and personnel required to keep the complex machinery of Air Power, Air Defense, and Air Support in first-class working and fighting order.



It can be seen from this brief description of the four missions of Army Air Forces that it is highly important for Air Power, Air Support, and Air Service to carry out their jobs completely and successfully so that Air Defense — at least over our own shores—will not be necessary.

Although today's strategy is based on combat performance and number of airplanes in the theaters of war, a conservative estimate of what can be expected in the future is both justified and essential.

In World War I, 50 miles out and 50 miles back was a long trip for the most advanced airplane of the day. Yet it carried only a few hundred pounds of bombs. Today, what have been called the "last of the small bombers" are carrying from 20 to 40 times the bomb load of 1917's "big" planes, and doing it at three to four times the speed for 10 to 15 times the distance. Beyond the service bombers in actual combat operation, and comparing the planes which are now being readied for production with their forerunners of 25 years ago, the progress is nothing short of phenomenal. It is not too imaginative to say that military aircraft of 1950 will resemble the planes Army Air Forces had in December, 1941, to just about the same extent that an early B–17 resembles the old DH–4.

What performance is to be expected from the tools of air power in 1945 and 1950 is a broad guess, but this much seems certain and must be the basis for any realistic planning of future air strategy on the part of Army Air Forces:

(Continued on p. 13)

AIR POWER

The Army air force has grown by leaps and bounds, and now is reaching up to a total strength of 2,500,000 officers and men. This number of personnel for the air force alone tops that of the entire Navy and gives a clear picture of the advance aviation has made since the first plane flew at Kitty Hawk forty years ago.

Considering the fact that the first nonstop flight across the Atlantic was made twenty-four years ago, it is not surprising that many hundreds of these crossings now are made each week. What another twenty-four years will bring is well beyond the comprehension of any man today. It is reasonable to assume, however, that it won't be far from man's wildest dreams multiplied by "X." NEWS LETTER *introduces Army Air Forces to its readers.*

The Might of Army Air Forces is being
Pitted with Increasing Fury against the Axis

Geographical Position

The geographical position of the United States no longer will give this country protection from enemy air power operating from any part of the world now under Axis control. Five or ten years ago that statement would have been a prediction; today it is simply Army Air Forces conservative projection into the future of about half the present rate of air power progress, done to give a realistic picture of what can be expected two to five years hence. To see that picture it is only necessary to look at the world as men who fly see it today. The following timetable illustrates the point:

From—	*To—*	*Airplane Miles*	*Hours*
New York...	Berlin.....	3,960	20
Chicago	Singapore ..	9,365	47
New York...	Capetown ..	7,801	39
San Francisco	Wellington .	6,759	34
Washington .	Moscow....	4,333	24
London.....	Rome.....	887	4½
New York...	London	3,460	17
London.....	Berlin.....	574	3

This new global concept of time and space must dictate all future strategy, both for war and for the preservation of peace, just as it has dictated the over-all strategy which guides the use of the Army Air Forces today.

Basic Organization

The Army set-up, like the Navy's, needs a properly balanced air force. This includes a sufficient quantity of high quality airplanes—bombers, fighters, reconnaissance, and transport. It includes navigators, bombardiers, pilots, and gunners, plus ground crews. (An air force with the best fighter planes and few bombers would be like a boxer with a mighty right arm and a crippled left, Army Air Forces point out.)

Air bases are placed at strategic points, with landing fields, storage and maintenance facilities, housing and technical installations, and all that goes to enable a modern air force to carry on. To maintain Army Air Forces operations over the world, an air supply system is kept in operation and today giant cargo planes are carrying the goods to the battlefields when ships are too slow or unavailable.

A glimpse of the organization of Army Air Forces reveals that the over-all picture may be described in three key words: *Policy, Commands,* and *Forces.* Policy is under direction of Gen. Henry H. Arnold, commanding general of the United States Army Air Forces; and an air staff and special staff. Recognition of the decisive importance of air power in all phases of modern warfare is shown in the compact air-ground Army General Staff, about half of whom are from the Air Staff.

Operating directly under the Commanding General of Army Air Forces, nine great commands compose the last stages of the Air Forces' preparation for combat organizations. They are Flying Training Command, Technical Training Command, Air Transport Command, Matériel Command, Troop Carrier Command, Proving Ground Command, Air Service Command, Antisubmarine Command, and Flight Control Command.

Maj. Gen. Harold L. George's Air Transport Command started in June 1941, with a few officers and clerks, as the Air Corps Ferrying Command to fly lend-lease equipment from the factories. Today it is a round-the-world air service for men, material, and mail which already surpasses the combined operations of all the air lines in the world.

THE LATE LT. GEN. FRANK M. ANDREWS

Air Supply Vital Factor

Four airways have been established and thousands of planes, personnel, and millions of pounds of supplies for this six-continent air force and other fighting units have been flown to the various fronts with an amazing record of safety. Air supply, a long-established principle of American air doctrine, is rapidly becoming a vital factor in world strategy for winning the war.

Training of air crews and ground crews comes under the Flying Training Command and Technical Training Command. These have expanded

4 LESSONS OF AIR POWER

Fundamental truths that affect national existence have been hammered home by the lightning strokes of air power in this war, spokesmen of Army Air Forces say.

AIR POWER NOT A PANACEA

It is a force which of itself does not defeat an army and capture the enemy's equipment. Air power must be coordinated with land forces in order to achieve victory.

LAND POWER NEEDED

Air power must not be developed at the expense of land power. By the same token, air support of land power must not be neglected. Both are interdependent.

STATESMANSHIP NOW GLOBAL

No security is safe—military or economic—that ignores the changed relationships brought about by air power. Hereafter, statesmanship must be on global terms.

OUR LAST CHANCE

America will never again have the opportunity to build air power *after it is needed.* Circumstances have made it possible this time, but we must never risk this again.

—Brig. Gen. Hume Peabody, U. S. A.

Reorganization

A reorganization of Army Air Forces was recently announced by the War Department, designed *1.* to decentralize control to the field and *2.* to gear the organization to current war necessities. As a result of this change, Army Air Forces Headquarters is relieved of details of execution and left free to determine over-all policy, while greater responsibility is delegated to field commanders. Headquarters staff personnel in Washington has been reduced and the nineteen major components of the Air Staff will be lowered to six.

greatly, and thousands of crews are being turned out each month. The Matériel Command procures aircraft and equipment, and conducts research and development at Wright Field.

The Air Service Command operates air depots, repairs and maintains aircraft and equipment, and insures a constant flow of parts and supplies to all units, domestic and overseas.

The Troop Carrier Command is responsible for transporting air-borne troops and equipment, parachute troops and equipment, and for towing troop and cargo-carrying gliders.

Operational Training

To provide air forces, the final stage is Operational Training, just as it is in Naval Aviation. As personnel and aircraft are received from the training schools and factories they are trained as units, with the emphasis on development of smoothly working combat teams. They then are sent directly to the fighting fronts and attached to task forces. Here they fight under the direct command of an air officer chosen by reason of his training and experience in connection with the particular mission then required.

Sometimes this air officer is in command of the entire Army installation, ground and air forces, as in the case of the late Lieutenant General Andrews in the European theater, who had Maj. Gen. Ira Eaker as his air chief, or of Lieutenant General Emmons in Hawaii, or Lieutenant General Harmon in the Solomons. On the other hand, sometimes the air officer is under the command of a ground force officer such as Lieutenant General Spaatz, air chief for Lieutenant General Eisenhower in North Africa, and Lieutenant General Kenney for General MacArthur in Australia.

Under the principle of unified command, sometimes the commanding general of a given area comes under the Navy (Hawaii under Admiral Nimitz, South Pacific under Admiral Halsey, and the Aleutians under Vice-Admiral Freeman), and sometimes it is the other way around, as in the Canal Zone, where Lt. Gen. George H. Brett is in command.

History

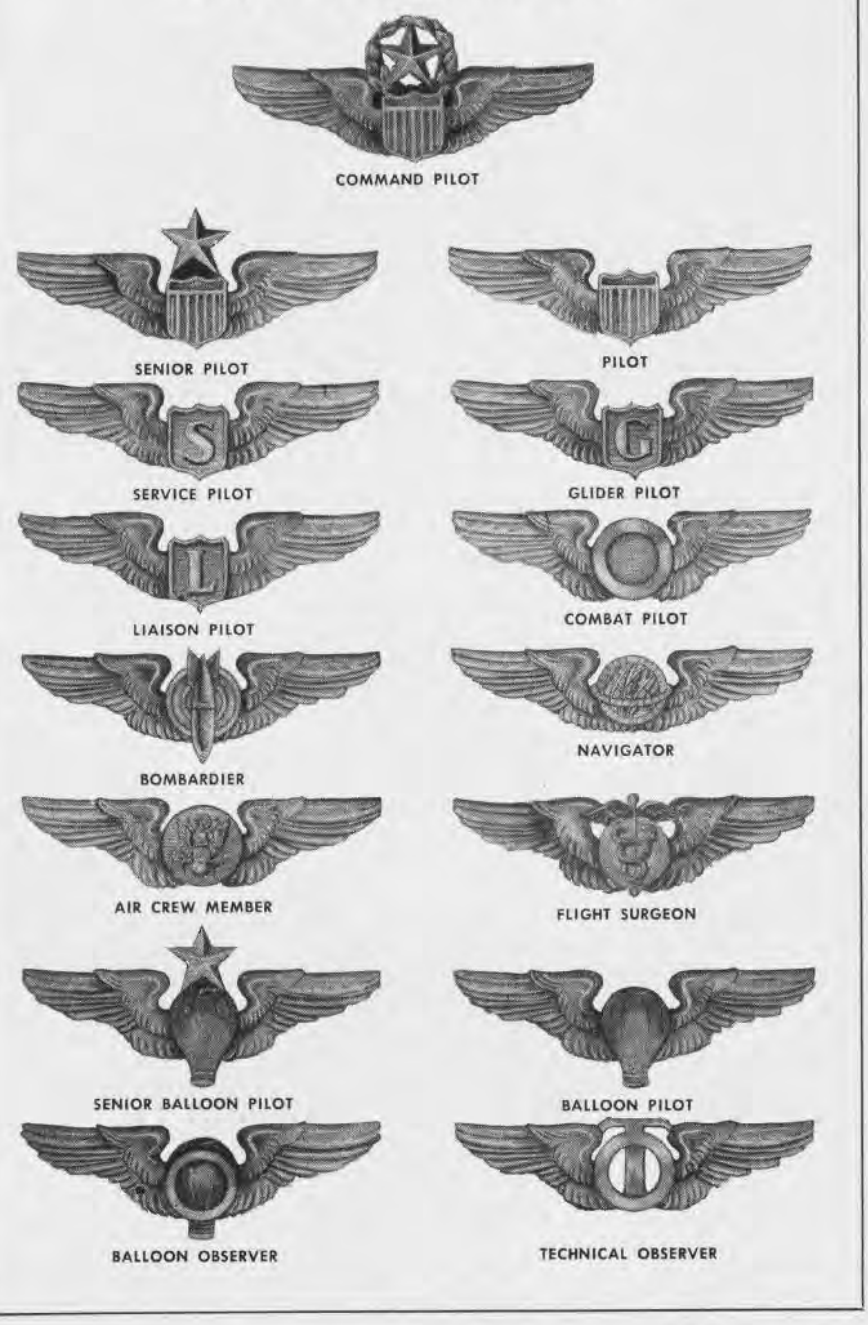
In July, 1907 an aeronautical section was established in the U. S. Army Signal Corps. A $25,000 airplane, built for the Army by the Wright brothers, crashed during its test flight. The first successful Army plane was tested on August 2, 1909.

The baby air force at the time of World War I became an Aviation Section of the Signal Corps. Total Army aviation consisted of 65 officers, 1,087 enlisted men, and 55 airplanes (none of which mounted a machine gun).

At the end of the war, the air arm was placed under a new combat branch, the Air Service. In 1921, extensive bombing experiments were made on the obsolete battleship *Alabama*. In 1929, Lieut. James H. Doolittle made a take-off and a landing by instruments alone, in a hooded cockpit. In 1935, Army men made the first flight in which the pilot took off, navigated to his destination, and landed completely by instruments.

The GHQ Air Force was officially organized on March 1, 1935, to develop the combat crew as a fighting team which could fly, bomb, and shoot. In June, 1941, this organization became the Air Force Combat Command, which in turn was superseded by Army Air Forces the following March.

Army Air Forces Aviation Badges



LEADERS OF ARMY AIR FORCES

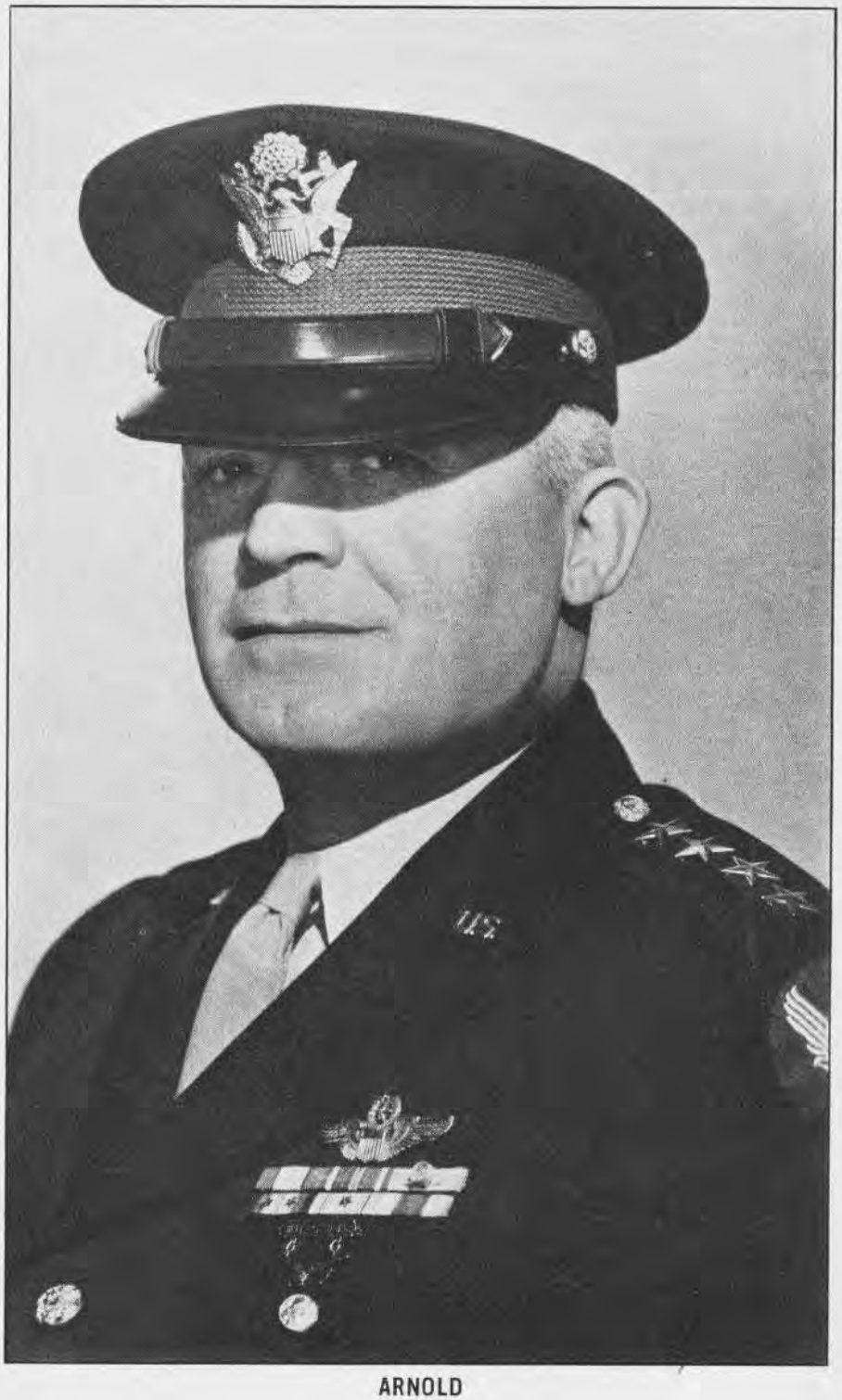
AMERICAN techniques of air warfare, untested before December 7, 1941, have proved their worth on battle fronts today. Although many of its doctrines were considered revolutionary or impractical only a year or two ago, the contribution of the Army's air arm to the United Nations has come in for substantial recognition. The mammoth long-range bomber, heavily armed and well protected, was nurtured by the Army into what many consider will develop into the most destructive weapon of World War II.

Under careful supervision of a group of air-minded Army officers, the Army Air Forces have been developed into a powerful integrated unit that fights offensively or defensively with equal success. The men who are responsible for it grew up with American military aviation. Like the early pioneers of naval aviation, many of them were part of the Army's air branch when it boasted only a handful of planes.

Army Air Forces' foundation was laid long ago, but its real beginning is of recent origin. It dates back to 1935 when the GHQ Air Force was established with a staff of youthful aviation old-timers. Under their supervision, every aspect of military aviation was studied: pilot training, air arms and armament, aircraft designs, strategy, and tactics.

America has devised its own revolutionary air-war theories. The recent accomplishments have answered those who questioned these conceps.

Official recognition of the importance of Army aviation came a few months ago in the promotion of Lt. Gen. Henry (Hap) Arnold to a four-star general, making him the first airman to hold the highest rank the U. S. Army offers to its fighting heroes.



ARNOLD

GENERAL HENRY H. ARNOLD—The present commanding general of the U. S. Army Air Forces started his military career at West Point, graduating in 1907 as a second lieutenant in the infantry. Four years later he was assigned to the Air Corps, then an aeronautical section of the Signal Corps with one plane and a handful of pilots.

He was one of the Wright brothers' first students and holds Pilot License No. 29 and Expert Aviator Certificate No. 4. In 1912 he set a new altitude record of 6,540 feet, winning the first Mackay Trophy to be awarded. He received the 1934 award of the same trophy as Commander of the Army flight into the frozen Alaska wastes.

Arnold was the first military observer to use radio to report his aerial observations. Since 1935 he has successfully been commanding officer of the Air Corps First Wing, Assistant Chief of the Air Corps, Chief of the Air Corps, Deputy Chief of Staff for Air, and now the Chief of the entire U. S. Army Air Forces.

He won the Distinguished Flying Cross in 1936 for an Alaskan formation flight 2 years prior, the Distinguished Service Medal in 1942 for participating in an aerial flight from Brisbane, Australia, to Bolling Field, District of Columbia, and the Air Medal in 1943 for his work in the development and wide expansion of the Army Air Forces.

BRERETON

MAJ. GEN. LEWIS H. BRERETON—Brereton resigned a naval ensign's commission in 1911 to become a coast artillery second lieutenant. He served in the Philippines, then commanded a squadron in France during World War I, rising to chief of staff of the Third Army's air service. He was awarded the Croix de Guerre. He was attached to numerous air fields in U. S. before becoming commanding general of 10th U. S. Air Force in India and later in the Middle East (9th Air Force).

CHENNAULT

MAJ. GEN. CLAIRE L. CHENNAULT—As chief of the "Flying Tigers" in China, General Chennault became a celebrated aviation leader. At present, he is commanding general of the U. S. Army 14th Air Force in China. His background includes acrobatic flying with the Army at the 1934 National Air Races, service at numerous air fields in U. S. and Hawaii, and as an instructor in tactical flying. Chennault is the author of a book on fighter aviation, The Role of Defensive Pursuit.

EAKER

MAJ. GEN. IRA C. EAKER—Eaker got his flying experience in post-World War days in U. S. and the Philippines. He was second in command of the Good Will Flight around South America in 1927. With Spaatz, he piloted the Army plane *"Question Mark"* to a new endurance record. He joined the Caterpillar Club during a test flight crash. Eaker took over command of bombers in the European theatre in July 1942, and later became commanding general of 8th Air Force in London.

ECHOLS

MAJ. GEN. OLIVER P. ECHOLS—Echols served in World War I as a field artillery officer, becoming a pilot in 1921. Graduating from Army tactical and engineering schools, he went to Army War College in 1938. This was followed by service in the Air Corps Matériel Division. In March 1943, he became assistant chief of the Air Staff, Washington, for Matériel, Maintenance, and Distribution. He is largely responsible for quality and quantity of army combat planes.

GEORGE

MAJ. GEN. HAROLD L. GEORGE—As commanding general of the Air Transport Command, George's job is to get supplies and planes by air to every part of the globe. He saw service in France in the last war as a bombing instructor. Following this he served at Aberdeen Proving Ground and at Hawaiian Air Fields. George won an event in the International Air Races in 1923 and participated in the 1938 Good Will Flight and also the 1939 Army flight to South America.

KENNEY

LT. GEN. GEORGE C. KENNEY—Kenney is commander of Allied Air Forces in the Southwest Pacific with headquarters in Australia. During the last war, he piloted a fighter plane in France, participating in 12 aerial combats and downing two German planes. General Kenney held numerous high air corps posts in this country, including a duty at Wright Field as head of Air Corps Experimental Depot and Engineering School, before assuming command in the Southwest Pacific.

SPAATZ

LT. GEN. CARL SPAATZ—As commanding general of the Northwest African Air Forces, General Spaatz is a key man in the allied offensive against the Axis. During World War I, Spaatz was a fighter pilot, shooting down three Fokkers in aerial combat to win the Distinguished Service Cross. Spaatz commanded the Army plane *"Question Mark"* in its historic flight of 150 hours. He was a special military observer in England before United States entered the present war.

STRATEMEYER

MAJ. GEN. GEORGE E. STRATEMEYER—Stratemeyer is Chief of Staff of the Army Air Forces. He started his military career as a second lieutenant, graduating from West Point. Following service in the southwest at various Army flying fields, Stratemeyer spent three years in Hawaiian Army air activities. For five years until 1929, Stratemeyer was an instructor at West Point, then served at Fort Leavenworth and Hamilton Field before entering the Army War College in 1938.

PLANES OF ARMY AIR FORCES

TO CARRY out the four missions of Air Power, Air Defense, Air Support, and Air Service, the Army Air Forces are well equipped with sturdy and capable aircraft. And as the war moves into grimmer stages, the Army Air Forces' strength in this phase is keeping abreast of the increase in number of its personnel.

The American problem (as seen by Army Air Forces) was long-range offshore operations under favorable weather conditions, which demanded sufficient altitude to fly above ships' antiaircraft fire, and on the other hand required extreme bombing precision, since a ship is a small target from 20,000 feet.

As part of this emphasis, the precision bombsight was intended for use for daylight operations, and the large bombers were to be handled by highly trained combat crews which included specialized bombardiers and aerial navigators. Long-range operations over land objectives were subject to the same general considerations.

The second problem was the development of attack aviation, cooperative work with ground forces consisting of suitable planes and techniques for fast, low-flying sweeps against specified targets, with heavy machine gun, cannon fire, and light bombs.

A third subject for study and experimentation was fighter operations, with special emphasis on interception of enemy planes and air defense. In addition, there was a demand that air power be self-sustaining by means of a fully developed air transport service covering the world.

(*Continued on page 20*)

Consolidated B–24 (Liberator)

This large four-engined bomber is rated the Army's fastest long-range craft. Like the B–17, the *Liberator* has four radial engines, weighs about 30 tons, has a top speed in excess of 300 miles, and is heavily armed. It has had a useful career in the Pacific theater and the Mediterranean, where its long range has been an important factor. It also joined with the *Fortress* to give German-held France and the Low Countries terrific poundings in daylight raids. It has a wing span of 110 feet and is 63 feet long. High wings and twin rudders are outstanding features of this ship. Some Army authorities consider it the Nation's best all-around heavy bomber, while others prefer the B–17. The two mighty planes pair together, however, to give the United States probably the best daylight bomber team in the world today, a team whose fire power makes them feared by all enemy fighters. Earlier models of the B–24, lacking power turrets, were used only for ferrying service by the British.

Martin B–26 (Marauder)

Probably the fastest, most powerful, medium bomber in the air. Powered by two Pratt & Whitney 18-cylinder radial motors rated at 2,000 horsepower, it has a speed of more than 340 miles per hour, enabling it to run away from some fighter planes that are supposed to shoot it down. The *Marauder* carries a heavy bomb load and was used as a torpedo plane at Midway and in the Aleutians. It has a wing span of 65 feet and is 58 feet long. The *Marauder* is the only one of the Army's three main medium bombers with a tail turret and also carries a full complement of heavy machine guns. Because of its high speed and armament the ship is used extensively for ground strafing and attacks on shipping. It has high wings set far back and a round, cigar-shaped fuselage. The *Marauder* is teamed up with two other medium bombers of the U. S. Army—the Douglas *Havoc* and the North American *Mitchell*—to make a fast, versatile trio respected on every battle front in the world.

THIRTY-EIGHT MEN COMPRISE THE FLYING CREW AND GROUND CREW WHICH ARE REQUIRED TO KEEP ONE FLYING FORTRESS OPERATING IN THE AIR.

Boeing B–17 (Flying Fortress)

Known the world over for its long range, bristling armament, and rugged construction, the *Fortress* has performed well. Twelve or more heavy-caliber machine guns fire from all angles, many from power-operated turrets. German fighters found few weak spots from which to attack a formation of *Fortresses.* Their latest tactics have been to sweep down from above and in front to avoid the concentrated fire power from abeam or astern.

The *Fortress* flies at better than 300 miles per hour, has a wing span of 103 feet and is 73 feet long. Cruising range at operational height with maximum fuel and reduced bomb load is 3,000 miles.

The picture above shows the crew of 38 men required to keep a B–17 *Fortress* in the air. The front row contains the pilot, copilot, bombardier, and navigator. In the second row are the radiomen, engineers, and gunner, all of whom comprise the flight crew. Behind them come the ground crew—mechanics, crew chief, bomb supply crew, and men to check instruments, radios, armament, parachutes, electrical equipment, superchargers, and propellers.

To the rear of the plane are the dispatcher, weather observer, and the two trucks with drivers who supply oil and gasoline for the mighty *Fortress.* When hundreds of heavy bombers raid Germany almost daily it may be seen that a large army of flight and ground-crew men is required to make such flights possible.

PLANES OF ARMY AIR FORCES—*Continued*

These basic ideas have reached a high measure of fruition: *1.* in the success in many widely separated areas of the Boeing B–17 *Flying Fortress* and Consolidated B–24 *Liberator* high altitude heavy bombers; *2.* the light or attack bomber, of which the speedy, hard-hitting Douglas A–20 *Havoc* is an outstanding example; *3.* the specialized types of fighter planes, and *4.* the amazingly expanded world-wide service of the Air Transport Command. Quality comes first in all aviation.

Designs of bomber and fighter planes always have been elastic in the United States' military program. This country is not making the mistake Germany made when it froze the designs of the Me–109 and Ju–87 *Stuka* to ensure overwhelming quantity production. The Battle of Britain exposed this colossal tactical blunder, and showed that changes had to be made continuously to keep pace with the enemy's research and improvements.

Curtiss P–40F (Warhawk)

The *Warhawk* contains refinements on earlier models which had helped to stem the advancing Japanese tides in Burma and the southwest Pacific and the Germans in Africa. It has a wide variety of uses on all world battle fronts, including medium-altitude fighter, low level attack plane, and light bomber. The *Warhawk* is powered by one 1,260-horsepower Rolls-Royce Merlin liquid-cooled engine, has a speed of 380 miles per hour and four times greater fire power than the first P–40 models. It has a wing span of 37 feet and is 31 feet long. The P–40 did excellent fighting for the "Flying Tigers" in China where it amassed a heavy toll of the best planes the Japs could throw against it on the Asian front.

North American B–25 (Mitchell)

World renowned as the plane which first bombed Tokio, the *Mitchell* is another of the Army's twin-motored bombers to distinguish itself in action on all fronts. It can carry 2 tons of bombs and has a top speed of more than 300 miles per hour. It has Wright radial engines rated at 1,700 horsepower. Highly valued for antisubmarine patrol in this country because of its speed, range, and ease of handling, it has been described as the most useful and versatile medium bomber in the air. The *Mitchell* has a wing span of 61 feet, is 54 feet long. It has a fairly long range and effective service ceiling that enables it to participate in bombing missions deep within enemy-held Europe. Rated by some pilots as the easiest bomber to fly, the *Mitchell* has been adopted also by the Navy for certain operations where range is vital.

Bell P–39 (Airacobra)

One of the most graceful planes in the air, the *Airacobra* ranks with the P–51 as a lower-altitude fighter. Powered by 1,150-horsepower Allison placed behind the pilot, it is rated in the 400-mile class. Carries 37-mm. cannon in hub of propeller, making it the heaviest armed of our fighters. Used extensively in southwest Pacific and by the Russians, who like it for strafing troops and tanks. Other features include excellent visibility and ease of take-off and landings. Has 34-foot wing span. The *Airacobra* was America's first high-speed plane, having been developed in 1937, and is still one of the best performers below 16,000 feet in hot or cold climates.

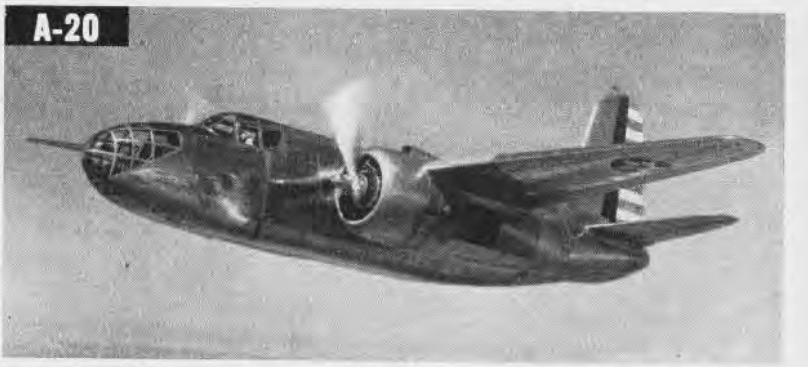
Army Air Forces spoke and Tunisian targets were blasted in action preceding final defeat of Axis in Africa

Lockheed P–38 (Lightning)

A twin-engined one-man fighter rated one of the fastest in the air today. Its .50-calibre machine guns and aerial cannon make it dangerous as a fighter and ground strafer. It is rated one of the fastest climbers and a leader in the 400-mile-an-hour class. Large numbers were used in Africa, the southwest Pacific, and Alaskan areas, equaling or bettering any Axis plane. Wing spread of 52 feet makes it one of the largest single-seater fighters.

Douglas A–20 (Havoc)

The Army's top light bomber and attack plane which is making life miserable for Axis troops and supply lines. The A–20 is powered by two 1,700-horsepower Wright Double Cyclone engines. The *Havoc* has a top speed of more than 350 miles per hour. Planes based on this design have been slightly successful as light bombers, ground strafers, and night fighters. It served widely and well in the African desert campaign and on several other fronts. It is very popular with the Russians and the English. The *Havoc* has a wing span of 61 feet and is 47 feet long. Features are its high wing and dihedral tail plane.



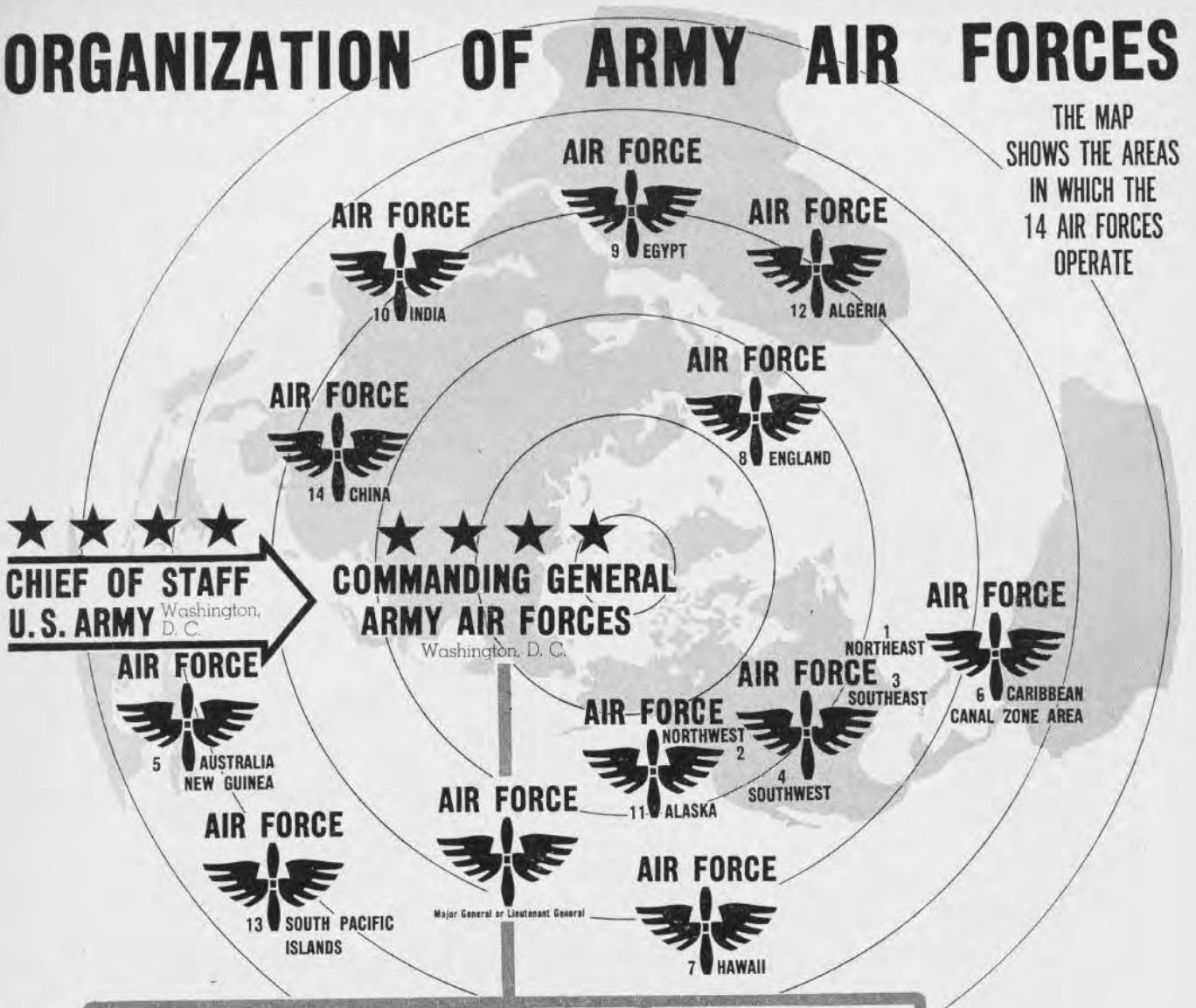
North American P–51 (Mustang)

Designed especially for low altitude attacks on ground troops and equipment, the P–51 is the first plane to use the laminar-flow wing. It has a 37-foot wing span, is 32 feet long, and measures only 8 feet 8 inches in over-all height. Powered by a 1,150 horsepower Allison motor, the *Mustang* is rated in the 400-mile-an-hour class. Appearance resembles Germany's *Messerschmitt* 109 and the English *Hurricane* in some respects. It is the first fighter plane to attack Germany proper. Distinguishing features are its low cantilever wing, square tips on elevator and wing, high rectangular tailplane, and square rudder.

Republic P–47 (Thunderbolt)

The newest Army fighter mounts six .50-caliber machine guns. It is powered by a 2,000-horsepower Pratt & Whitney radial engine, the same as used in the Navy's *Corsair,* and will fly at better than 400 miles an hour. A turbo-supercharger permits operation at 40,000 feet. The P–47 had its first real test in accompanying heavy bombers on raids over Germany. It is the biggest single-seater in the war, weighing 13,000 pounds. Like in the *Corsair,* the pilot sits almost in the middle of the fuselage. Included in the outstanding features of the plane are its cigar-shaped fuselage, round wings and a radial cowling of egg-shape contour.

ORGANIZATION OF ARMY AIR FORCES



AIR POWER

Strikes behind enemy lines at industries, communications, supply lines, airdromes.

- BOMBARDMENT COMMAND — Major General
- WINGS — Brig. General
- GROUPS — Colonel
- SQUADRONS — Major

AIR DEFENSE

Intercepts enemy bombers and fighters; gains air superiority over battle areas.

- FIGHTER COMMAND — Major General
- WINGS — Brig. General
- GROUPS — Colonel
- SQUADRONS — Major

AIR SUPPORT

Intervenes on battlefield and works in close coordination with ground forces.

- AIR SUPPORT COMMAND — Major General
- WINGS — Brig. General
- GROUPS — Colonel
- SQUADRONS — Major

AIR SERVICE

Services aircraft and engines, maintains flow of parts and supplies to all areas.

- AIR SERVICE COMMAND — Major General
- WINGS — Brig. General
- GROUPS — Colonel
- SQUADRONS — Major

NEWS LETTER CHART

25 YEARS AGO THIS MONTH

Naval Aviation 1918

June 1918.—USS *Jason* arrives in Europe with first American-built seaplanes delivered abroad.

June 1918.—First liberty engine used by Navy overseas mounted in HS–2 flying boat at Pauillac.

June 10, 1918.—LTA Base at Brest established for use of kite balloons. Commanding officer: Lt. Comdr. W. N. Corry, USN. First attempts of U. S. Navy in France to use kite balloons on destroyers. Experimental flights made from Destroyers *Sigourney, Cushing, Erickson,* and *O'Brien*—also from converted yachts.

June 17, 1918.—No complement of seaplanes for Pensacola was officially established until June 17, 1918, when Director of Naval Aviation, by letter, prescribed the following:

36 N–9's—Hispano-Suiza powered for use in gunnery training.

18 HS–1's, 18 F-boats for bombing training.

12 HS–1's, 24 H–16's for navigation training.

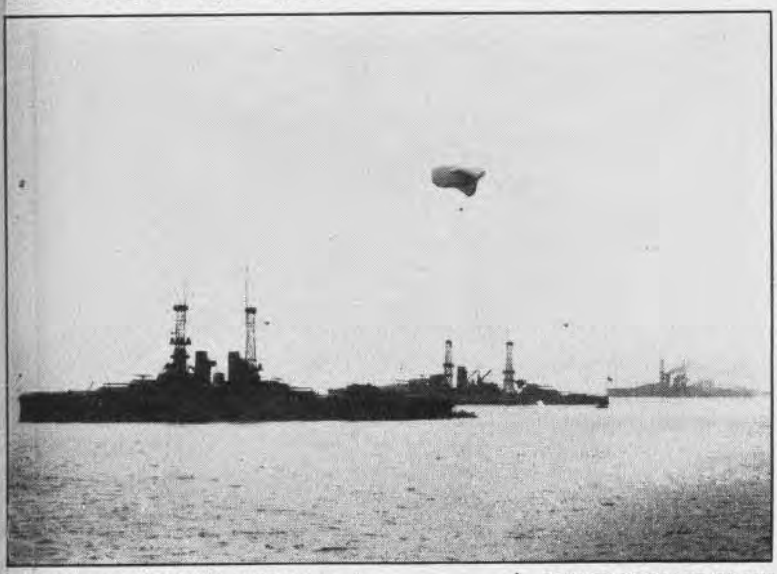
June 20, 1918.—Northern bombing group formed first personnel dispatched to St. Inglevert for further training. Assembly and repair base was set up at Eastleigh, England. Originally it was intended that this group consist of twelve squadrons. Shortage of personnel, however, reduced this number to four Navy night squadrons and four Marine day bombing squadrons. Before aircraft were available to the pilots in their own organization, they were permitted to fly with the British and French landplanes squadrons. Here they flew *Sopwiths, Camels, Spads, Nieuports,* and other fighting planes of that period. These pilots flew with RAF pursuit squadrons 213, 217, and 218.

June 29, 1918.—In a novel test, three F–2a flying boats with U. S. Navy pilots were towed to sea aboard lighters. These were then flooded, thus floating the flying boats and an effort was made to take off in the open sea. However, the water was too rough, and two of the aircraft were severely damaged before taking the air, and the experiments were abandoned. This experiment was an effort to devise some means of getting the short-range planes of that day to a position sufficiently which would permit them to bomb strategical points in German-held territory.

PUSHER PROPELLOR, SKID FINS AND ELONGATED STABILIZER FEATURE THIS NAVY F-BOAT USED AT PENSACOLA TO TRAIN EMBRYO BOMBERS BACK IN 1918

ERMAN LUFTWAFFE USED TRIPLANE FOKKERS DURING FIRST WORLD WAR ↑

↓ HANDLEY PAGE BOMB CREW FIXES 1918-TYPE "BLOCK BUSTER" BOMBS



KITE BALLOON, HOVERING OVER SHIPS ↑

↓ FOKKER TRIPLANE OF 1918

SHORE STATIONS

New Salvage Yard In Operation

NAS, Grosse Ile, Mich.—This station's conservation department has just completed a new salvage yard which puts the assembly line technique into reverse.

The salvage building was constructed out of a group of WPA huts, which themselves were salvage. It is so arranged that salvage trucks drive into the building between two rows of bins and the various types of scrap are thrown off the moving truck as it passes the proper bin—a sort of disassembly line.

The construction work and painting was done by base personnel. Completion of the building puts into full swing the station's conservation program under which every bit of used and unused material on the base is collected, sorted and redistributed for further utility. Nothing is wasted.

Taxi In the Dodo

NAS, Memphis.—The Dodo, a flightless bird "born" recently on this station, is proving its value training cadets who are backward in taxiing. It was fashioned from a surveyed NR–1—damaged wing panels were removed, damaged prop sawed off, an old oleo taken for a nose wheel, and the carburetor adjusted so it would not rev up. It was set nearly into balance on its main wheels by putting a steel plate on the firewall which also was used as a base for the mechanism of the nose wheel.

BACKWARD CADETS LEARN TO TAXI IN DODO

Strato-Gremlins Help Aviators Endure Altitudes

Low-Pressure Chamber Becomes "Tunnel of Love"

NAS, Seattle.—"Strato-gremlins," with suction cups on their boots to help them ride plane wings at 300 miles an hour, have added a Puckish touch to the interior of the low-pressure chamber at the station here.

The gremlins were painted in oils on the walls and ceiling of the chamber to brighten the interior and help "keep the aviator's minds off the altitude." The idea was conceived first by a lieutenant of the Medical Corps to lessen the mental apprehension of fliers practicing for high-altitude work.

Little girl gremlins, called Finfinellas, sit on the ailerons, just going along for the ride. A widget, a baby gremlin, gently floats down to earth in a parachute in another scene. One fat little fellow is busily engaged in pulling himself out of a cloud in which he had become stuck. Still another carries icicles in buckets, distributing them on the wings.

STRATO-GREMLINS PAINTED ON PRESSURE CHAMBER WALLS HELP PILOTS AVOID TRAINING JITTERS

So colorful is the pressure chamber with its gremlins, plus a picturesque Northwest mountain scene, that naval personnel have nicknamed it the "tunnel of love"—a la Coney Island.

It is of interest to note that since the decorations have been placed on walls, there has been a marked fall in the number of failures due to "apprehension."

Helps Nab FBI Prisoners

USMCAS, St. Thomas, Virgin Islands.—The station crash boat, always alerted, was recently called upon to perform a different type of retrieving. Two FBI prisoners awaiting transportation from the island elected to take matters into their own hands, and with the aid of a hacksaw and a stolen boat departed eastward.

The Coast Guard and local police called on the air station for rapid transportation. It was readily furnished, and the miscreants were flushed from the bush on a nearby island, and returned to incarcerated status at Charlotte Amalie within four hours after the alarm. The station's floating paddy-wagon also brought back the "borrowed" boat, but latest reports still list the hacksaw as missing.

Saving in Oil Effected

Chief Eliminates Needless Change

An oil-saving suggestion by Chief Aviation Machinist's Mate S. Spigel at the Dallas Naval Air Station has resulted in a change in Bureau requirements for testing newly built planes which will save both dollars and urgently needed oil.

Under the Bureau's circular letter 27–42, dated July 21, 1942, after new planes were delivered to Aircraft Delivery Units and checked, the engine oil had to be drained and new oil added before they were ferried away to destination.

It was pointed out there were three prior oil changes before SNJ aircraft reached the delivery unit—by the engine manufacturer, for ground tests by the plane manufacturer (North American), and by the plane manufacturer prior to one-hour flight of airplane and its delivery to the air station.

Accordingly it was urged that examination of oil strainers as they were being cleaned was sufficient to determine whether the fourth oil change was necessary. The Chief recommended that since no foreign particles were found in the vast majority of cases the fourth change could be omitted.

The Bureau found that all the other Aircraft Delivery Units which were daily checking, testing, and inspecting new planes, concurred in the recommendation. It thereupon amended its instructions by circular letter 14–43 providing that if no foreign particles were found in the oil the fourth change could be omitted.

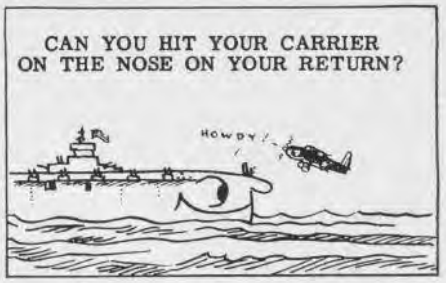
Escape From Mud

F4F Dredged From Quagmire

NAS, Dallas.—When an F4F–4 made a forced belly landing in a muddy field near here recently, the crash was blamed on rapid loss of altitude due to failure of the propellor to return to low pitch.

The field, located in the bend of a river which previously had overflowed its banks, was virtually a quagmire. This increased the difficulty of getting the plane back to the station without further damage or necessitating disassembly. The fuselage, imbedded in two feet of mud, was strongly underpinned and two large six-foot pits were dug in an arc to allow lowering of the landing gear.

By releasing air in the shock struts and attaching a cable from the top of the strut to the wheel axle to prevent them from dropping out, it was possible to rock the plane from side to side, thereby raising one wheel at a time. As each wheel was in a raised position, a heavy block was placed underneath, and by repeating this action the plane was brought to ground



level. The only exit from the field was a private railroad siding one mile distant.

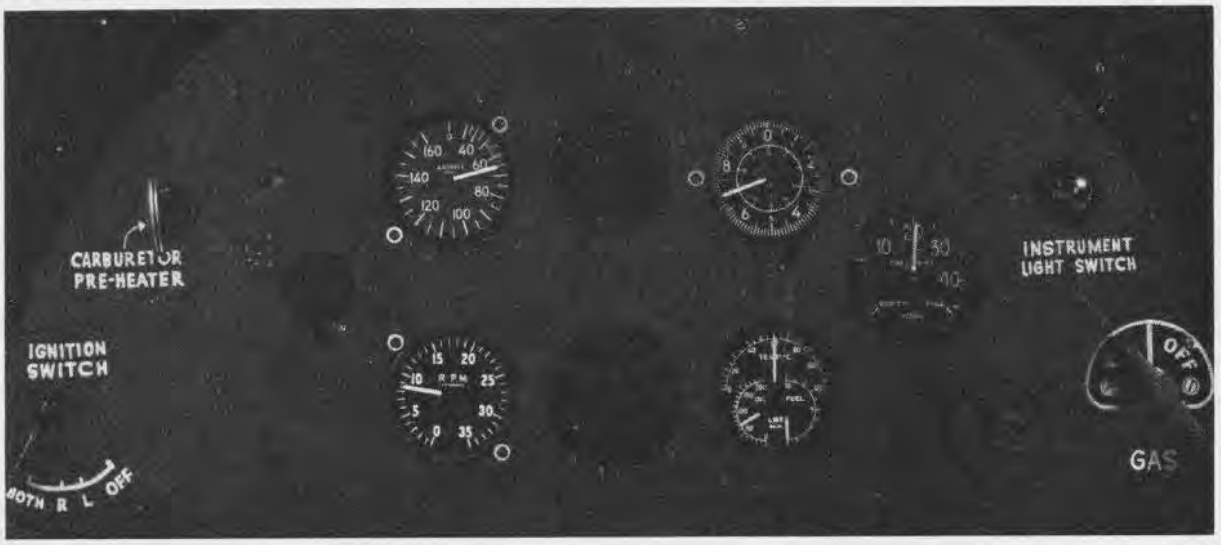
After rolling the plane across the muddy field with the help of 15 men and a jeep, the work crew was confronted by another obstacle. A deep ditch and a six-foot embankment, upon which the track rails were laid, had to be surmounted. A platform was constructed to bridge the ditch and a runway made up the side of the embankment to the top of a flat car. Necessary repairs were made and the plane was in use within a few days.

New Billet Relieves Difficulty

NAS, Los Alamitos.—Appointment of a Service and Maintenance officer for each of this Station's squadrons has worked out well, the Station reports. An officer in charge of the line crews has resulted in careful coordination with A. & R. check and repair crews and minimum lost time from the operating line.

What's Wrong With This Picture?

It's no tough job to pick out the trouble when you're warned that all is not as it should be. But it's when you're behind the instrument panel, with nobody to do your checking for you, that you need that instinct for detecting gremlins. If the answer to this one isn't obvious, turn to page 32.



PENSACOLA STUDENT-PILOTS USE CONTACT REPORT BOX TO SPOT SHIPS' SURFACE FORMATIONS

Contact Report Box

Ingenious Device Speeds Up Identification of Craft

NAS, Pensacola.—A "contact report box" to help train aviation pilots in quick identification of surface ships and their formations has been developed by the ground training school at this Station.

A combination of penny-arcade construction and ingenuity, this box contains miniature ships, cloud effects, lights for daylight and moonlight, and 12 peep holes. Haze effects may be obtained by hanging mosquito netting across the box halfway between deck and overhead. Pebbled glass is used to give sunlight-on-water effects.

The box is constructed of eight sections of 4 feet by 8 feet plywood. Each peep hole is large enough for both eyes of the observer, with two peep holes on each side and four at the top at the corners. Inside, the deck is painted sea-green and the inside walls and overhead sky-blue with clouds.

Ship models are arranged through a 3-foot door on one side. A small movable "island" of concrete, with a rod on which are hung cards giving the latitude and longitude of the "island," is also placed on the deck of the box as a reference point. A compass card on top of the box gives bearings.

Pilots using the box report their findings to persons in the next room via headphones and speakers. A microphone is used to play back a student's voice for corrections in diction while giving information on the "enemy fleet."

New Flight Records Devised

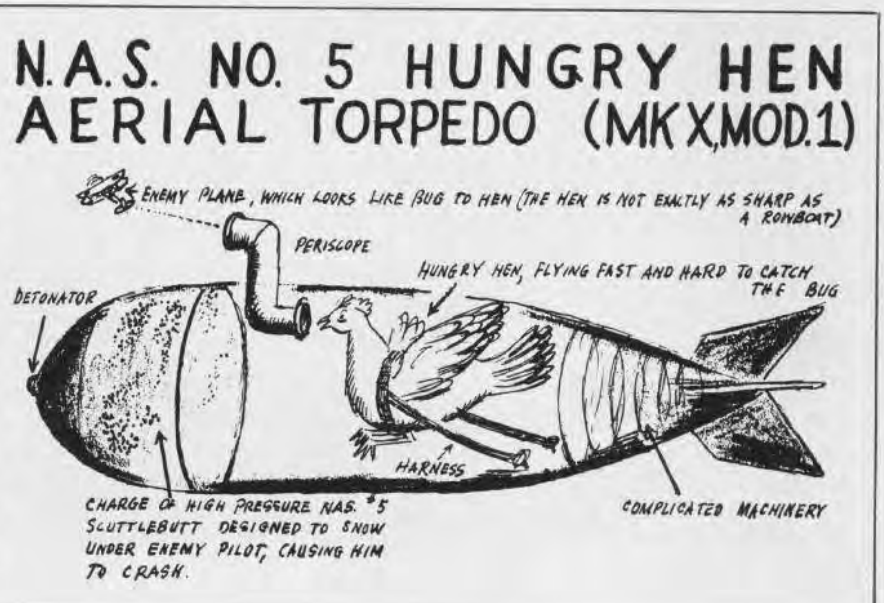
Data Available Continuously

NAS, Bunker Hill, Ind.—This station has installed a new system of keeping flight time records so that an accurate and continuous record of engine logs, aircraft logs, and flight time is available.

The system is operated by means of a special telephone circuit connecting the flight schedule boards in front of the hangars to the flight records room. The headset type of telephone is used to enable one man to work on the boards and act as broadcaster at the same time.

Description: The Mark X Model I Aerial Torpedo is designed for use on inland stations where the required raw material is plentiful, particularly the bust-in charge. (See Diagram.) The banty hen is used as motive power, as this fowl has more spirit than a fighting Marine.

News Letter received these interesting specifications from NAS, Hutchinson. The Station added that in releasing the model for study it was not believed that the enemy would obtain useful information. This conclusion was reached after a period of furious debate and was abetted by the consideration that Model I has been superseded by a Flying Eagle Model.



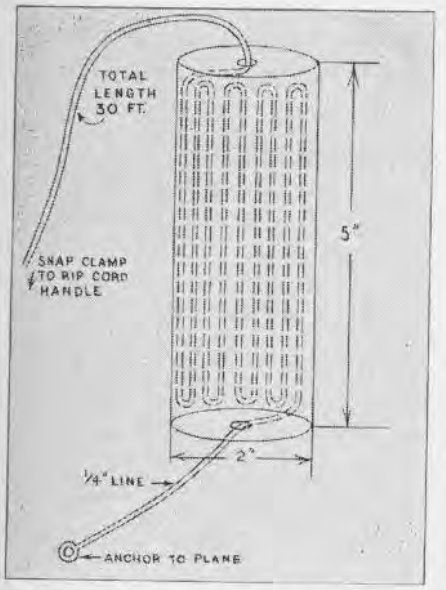
TECHNICALLY SPEAKING

Fatality In Chute Descent

Buaer Comments on Station's Device for Automatic Opening

NAS, PENSACOLA.—Recently a fatal accident occurred when the pilot of a plane attempted to abandon his craft and descend by parachute. It was assumed that the pilot was struck by the plane and this probably disabled him to the extent that he was unable to pull his rip cord.

In an effort to avoid accidents of this sort, a discussion arose as to the possibility of devising some system whereby a line would be anchored to the plane while the other end was attached to the rip-cord handle of the parachute. Thus, in the event of disability, the parachute would open automatically when the line pulled the rip cord.



A container was devised from a discarded hot-air intake pipe. In this tube, which is about 2 inches in diameter and 5 inches long, about 30 feet of cotton line was packed, one end of which was anchored to the plane. The advisability of using this device, however, is questioned because of the danger of premature release due to fouling in the cockpit.

BUREAU COMMENT This idea is as old as parachutes themselves, and is somewhat similar to that used by parachutists jumping from free balloons. Later, in the World War, the idea was employed with the tripping line coiled into a bucket mounted in the cockpit. It soon became evident, however, that this system was impracticable and that a free-fall parachute must be devised. This resulted in extensive experimental work during the latter part of 1918 and 1919, which culminated in the standard parachute as we know it today.

There are far too many conditions under which jumps are made to warrant the use of the so-called automatic release. In the event a plane is in a spin, the line may well foul the plane and result in a fatality. Again, where a plane is in a vertical dive with a velocity which exceeds that of a falling man, it may be desirable that the 'chute not be opened until the man has slowed down. Further, in combat, a pilot may desire to delay opening his parachute to avoid becoming a slow-descending target for enemy aircraft. It is essential that the pilot be the controlling factor in the opening of his parachute due to the variable conditions which may prevail at the time of the jump. Under no conditions should any system be used which connects the rip cord to the airplane.

Test Detects Oxygen Leaks

NAS, PENSACOLA. — The Oxygen Experimental Laboratory of this station reports a test that can be made to insure that oxygen masks have no outside leaks. The test is: Smear a thin coat of oil of wintergreen or oil of mint on outside of mask. If the user can detect any odor of oil, it is apparent that the mask is not air tight.

(Succeeds list dated April 20, 1943)

LIST OF THE LATEST NUMBERS OF ENGINE BULLETINS AND CHANGES
MAY 20, 1943

ENGINE	PRATT & WHITNEY		WRIGHT		DATE
	BULLETIN	CHANGE	BULLETIN	CHANGE	
R-985	173				Being issued.
R-1340	190				Do.
R-1830	311				Do.
R-1830	312				Do.
R-1830	313				Do.
R-1830	303 (Supplement).				Do.
R-2000	25				Do.
R-2000	26				Do.
R-2000	27				Do.
R-2000	28				Do.
R-2000	29				Do.
R-2000	30				Do.
R-2800	58				Do.
R-2800	59				Do.
R-2800	60				Do.
R-2800	61				Do.
R-2800	62				Do.
R-760			78		Do.
R-975			18		Do.
R-1820			323		Do.
R-1820			324		Do.
R-1820			325		Do.
R-2600			81		Do.
R-2600			82		Do.
R-3350			15		Do.
Ranger					
V-770			13		5-1-43.
V-770			14		5-3-43.
V-770			15		5-3-43.

INSULATED AIRCRAFT ENGINE COVER HELPS WARM UP AIR-COOLED ENGINES IN COLD COUNTRIES

Landplane Engine Covers

An insulated aircraft engine cover to help warm up air-cooled engines in cold areas, or to keep warm those already heated, has been developed by the Navy. Tests have been made with this cover, designated No. 1, and it has been found satisfactory with the following aircraft engines: F4F–3, F4F–4, SBD–3, PV–3, PBJ, PBY–5, PBM–1, F4U, and PB2Y.

It also can be used on smaller engine cowlings by using the take-up strap. Another engine cover, designated No. 2, has been tested and found satisfactory for all engines having cowling of the TBF and similar size.

The cover envelops the entire engine from propeller hub to and including cowl ventilator flaps. It may be used with portable gas-fired preheaters, electric preheaters that fit entirely within the engine nacelle, without any heating unit to preserve heat in a warm engine, and for drying out engines after a rainstorm.

Constructed from two thicknesses of 12.29-ounce duck, it has been flameproofed, waterproofed, and mildewproofed. Between the two surfaces of duck is a one-inch quilted layer of flame-proofed Kapok. The cover is fastened together on the bottom side with a heavy zipper of nonlocking type.

Cover Has Two Compartments

The cover is held tight around the engine section by means of a web take-up strap extending around the entire circumference. When tightened, the cover is separated into two compartments, thus permitting heated air to pass through and around the engine without passing over the outside of the engine cowling.

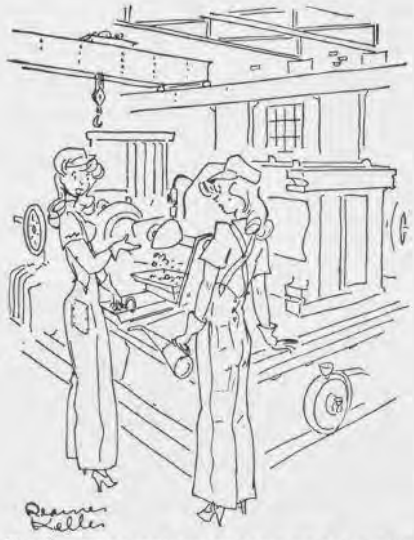
There is another similar web take-up strap at the trailing edge of the cover with felt padding beneath it, which when drawn tight against the cowling prevents escape of heated air to the outside. This makes possible the recirculation of air through the outlet duct opening at the bottom of the cover.

The 12-inch collapsible canvas entry and return ducts, which permit recirculation of hot air, are so designed that they can be adapted to various types and sizes of heaters or close the duct opening and keep the motor hot for several hours.

Sun Filter Stop

The A. & R. Dept., Naval Air Station, San Diego, has issued Local Change No. 111 which describes the installation of a stop for the sun filter on the Mark 8 gunsight of the Model F4U-1 airplanes. The stop is designed to prevent breakage of glass due to contact with the windshield when the sun filter is thrown to the right. Copies of this local change, with the necessary drawing, have been sent to all interested stations.

It is recommended that action similar to that outlined in the above change be taken by any activity where difficulty due to this breakage is encountered. Copies of the change and drawing may be procured from the NAS, San Diego.



"The foreman wants me to come up to his office to look at his blueprints"

COLLIER'S REAMER KELLER

Reversing Relay

Fleet Air Photographic Squadron 1 has reported that when the guns in the Martin 250 CE–3A turrets on the PB4Y–1 airplanes were depressed with some force against the post stops, the gun mount adapter brace often broke. This difficulty has been remedied by that squadron by installing a reversing relay in the elevation-depression control circuit which causes the guns to reverse their direction just prior to striking the post stop. The circuit is again reversed as soon as the guns leave the danger area.

All new Martin turrets of similar design are being delivered with a similar modification incorporated. Since there are only a limited number of these 250 CE–3A turrets in operation in PB4Y–1 airplanes and at gunnery training centers, no mandatory turret change for the incorporation of this change will be issued. Service activities who may be interested in this change, however, are requested to secure information thereon directly from Fleet Air Photograph Squadron 1.

Facilitating Manufacture of Sun Gear Bushings

NAS, DALLAS.—The Assembly and Repair machine shop at this station has adapted a new type of fixture to the crosshead of its engine lathes to facilitate the manufacture of sun gear bushings. The fixture consists of a piece of heavy angle iron upon which three cutting tools are mounted, two in an upright position and the third in a horizontal position to take the final cut. The bushings are now cut in three operations without removing the stock from the machine. Tool No. 1 is used to take the first rough cut and to finish the larger diameter. Tool No. 2 then cuts the smaller diameter and fillet, following which tool No. 3 severs the finished bushing from the stock. The time required to produce a finished sun gear bushing is now 2½ minutes as compared to the 20 minutes per bushing previously required.

DALLAS A & R SHOP DEVELOPS A NEW TYPE FIXTURE TO SPEED UP MAKING OF SUN GEAR BUSHINGS

Compartmentation Asked In Wing Tip Floats

PATROL SQUADRON 42, PACIFIC.—On innumerable occasions O. S. float type aircraft have turned turtle while moored in comparatively calm water. In a recent case investigation showed a nail-sized hole to be in one float. This had allowed enough water to seep in to capsize the plane. It seems highly desirable that a system of float compartmentation be devised to solve this problem.

BUREAU COMMENT Watertight compartmentation in small wing tip floats to be effective would require numerous compartments. This is not justified in view of the additional weight. If only one-third of the buoyancy were lost the airplane would probably capsize due to the C. G. position relative to the center of buoyance while the airplane is listing. Sufficient handholes are provided for frequent inspection and drainage.

(Succeeds list dated April 20, 1943)

THE FOLLOWING SHOWS THE NUMBER AND DATE OF ISSUE OF THE LAST SERVICE AND OBSOLESCENT AIRPLANE BULLETINS AND CHANGES (CONTRACT CHANGES ARE NOT INCLUDED)

MAY 18, 1943

AIRPLANE	BULLETIN	DATE	CHANGE	DATE
BD-1	10	5-3-43	13	1-30-43
BD-2	5	5-3-43	16	3-6-43
F2A-1	9	5-5-43	40	3-24-43
F2A-2	22	5-5-43	59	3-24-43
F2A-2P	10	5-5-43	21	3-24-43
F2A-3	26	5-5-43	57	3-24-43
F2A-3P	19	5-5-43	47	3-24-43
F4F-3	38	4-14-43	127	3-30-43
F4F-3A	31	4-14-43	105	3-30-43
F4F-4	30	4-14-43	84	3-30-43
F4F-7	8	4-14-43	32	3-30-43
FM-1	10	4-14-43	23	3-30-43
F4U-1	10	4-23-43	37	5-6-43
GB-1	13	2-5-43	12	2-5-43
GB-2	5	2-5-43	7	1-22-43
GH-1	6	3-3-43	7	4-17-43
J2F-1	38	7-27-42	57	5-4-43
J2F-2	19	9-11-42	38	5-4-43
J2F-2A	12	9-11-42	39	5-4-43
J2F-3	13	9-11-42	28	5-4-43
J2F-4	8	9-11-42	21	5-4-43
J2F-5	9	1-2-43	14	5-4-43
JRB-1	11	3-31-43	12	4-8-43
JRB-2	10	3-31-43	13	4-8-43
JRF-1	8	7-23-42	8	4-9-43
JRF-1A	8	7-23-42	9	4-9-43
JRF-4	4	7-23-42	6	4-9-43
JRF-5	4	7-23-42	4	4-9-43
JRS-1	21	6-18-41	55	1-7-43
JR2S-2	1	7-1-42	0	.....
N3N-1	32	11-5-42	77	3-30-43
N3N-3	18	11-5-42	37	3-30-43
NP-1	13	9-31-42	16	12-26-42
NR-1	5	9-14-42	21	3-25-43
N2S-1	15	4-14-43	30	3-31-43

(Continued on page 32)

Note On Operating Cartridge Starters

Reports still are being received of unsatisfactory operation of cartridge starters, particularly the Eclipse Type III starter on F4U–1 airplanes. It should be remembered that a cartridge starter is basically a gun, and unless the same care that is given a gun is given a cartridge starter, unsatisfactory operation will result.

If maximum striking power is to be obtained from a gun, the gases of combustion cannot be allowed to escape without doing useful work. This is even more important with cartridge

STARTER REQUIRES SAME CARE AS A PISTOL

starters than with guns in the normal sense, since design limitations permit use of only relatively low pressures in comparison with those obtained in guns.

It is imperative, therefore, that every precaution possible be taken to insure that when a cartridge is fired maximum allowable operating pressure is obtained. This can be done by making sure that the overload protective device is not defective, that the intake tubing connections are tight, and that the exhaust valve is seating properly.

Only by frequent and regular inspection and cleaning can satisfactory operation be guaranteed. Activities therefore are urged to take care of the cartridge starter by keeping it clean, for unless it is fired first there never will be a chance to use the other guns on the airplane.

The poem Gull of My Dreams *appearing in the May 1* NEWS LETTER *was written by D. S. Brown, not by A. E. Montgomery.*

NUMBER AND DATE OF ISSUE OF LAST SERVICE AND OBSOLESCENT AIRPLANE BULLETINS AND CHANGES—Continued from page 31

AIRPLANE	BULLETIN	DATE	CHANGE	DATE
N2S–2	10	4–14–43	12	3–31–43
N2S–3	9	3–20–43	21	10–26–42
N2S–4	4	4–14–43	3	2–23–43
OS2N–1	20	11–27–42	26	3–25–43
OS2U–1	42	11–27–42	61	4–1–43
OS2U–2	53	11–27–42	73	4–1–43
OS2U–3	46	11–27–42	60	3–25–43
PV–1	3	4–7–43	14	5–7–43
PV–3	4	1–20–43	5	4–6–43
PBM–1	9	8–27–42	47	4–5–43
PBM–3	21	4–9–43	56	4–8–43
PBM–3C	18	4–1–43	25	3–27–43
PBM–3R	13	4–9–43	51	4–8–43
PBN–1	2	3–26–43	2	3–15–43
PBO–1	2	7–1–42	9	1–14–43
PBY–1	94	4–28–43	176	3–22–43
PBY–2	79	4–28–43	141	3–22–43
PBY–3	83	4–28–43	128	3–22–43
PBY–4	57	4–28–43	95	3–22–43
PBY–5	32	4–28–43	117	4–20–43
PBY–5A	37	4–28–43	114	4–20–43
PBY–5B	2	4–28–43	20	4–20–43
PB2Y–2	4	1–10–42	38	3–20–43
PB2Y–3	4	3–25–43	54	4–1–43
PB2Y–3R	2	4–7–43	40	4–29–43
PB4Y–1	12	3–27–43	27	4–10–43
R3D–1	3	5–23–41	21	9–1–42
R3D–2	3	5–23–41	22	9–1–42
R3D–3	0	.....	5	9–1–42
R4D–1	8	5–4–43	13	3–11–43
R4D–2	4	1–4–43	2	11–2–42
R4D–3	6	2–22–43	10	4–2–43
R4D–4	3	2–22–43	1	4–2–43
R50–1	7	8–24–42	22	4–12–43
R50–2	7	8–27–42	18	4–12–43
R50–3	9	8–24–42	21	5–3–43
R50–4	2	8–24–42	9	5–3–43
R50–5	1	1–8–43	2	4–12–43
SBD–1	49	5–3–43	98	4–19–43
SBD–1P	34	5–3–43	58	4–19–43
SBD–2	52	5–3–43	106	4–19–43
SBD–2P	38	5–3–43	69	4–19–43
SBD–3	62	4–8–43	117	4–19–43
SBD–3P	49	4–8–43	99	4–19–43
SBD–4	11	5–3–43	20	4–20–43
SBD–5	2	3–18–43	1	(*)
SB2A–4	0	.....	8	4–13–43
SB2C–1	7	5–6–43	2	1–4–43
SNB–1	5	4–9–43	9	1–28–43
SNB–2	7	4–9–43	6	1–21–43
SNC–1	12	2–15–43	66	1–21–43
SNJ–1	10	12–19–42	12	2–12–43
SNJ–2	11	4–8–43	15	2–12–43
SNJ–3	18	4–8–43	17	1–8–43
SNJ–4	11	4–8–43	12	4–19–43
SNV–1	8	10–24–42	30	4–12–43
SOC–2	79	1–20–43	114	8–14–42
SOC–2A	8	6–26–42	8	8–14–42
SOC–3	69	1–20–43	88	8–14–42
SOC–3A	6	6–26–42	8	8–14–42
SO3C–1	15	2–19–43	36	4–8–43
SO3C–2	8	2–19–43	21	3–31–43
SO3C–2C	1	2–19–43	2	1–20–43
SON–1	32	1–20–43	61	8–14–42
SON–1A	6	6–26–42	8	8–14–42
TBF–1	50	3–5–43	109	4–28–43

* Canceled.

What's Wrong With This Picture?

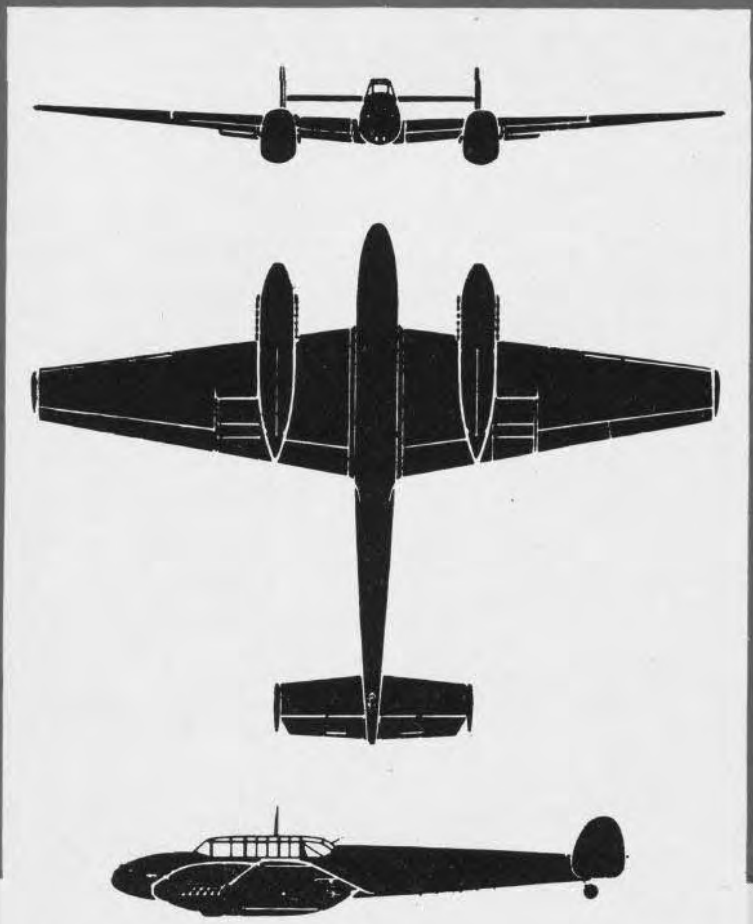
Answer to Panel Board Teaser on page 27: No Fuel Pressure

"Count not upon certain promotion,
But rather to gain it aspire;
Through the sight-line end of the target
There cometh perchance a miss-fire."

Down the Ramp

Messerschmitt Me-110

GERMAN FIGHTER



Span—53 ft. 11 in.
Length—40 ft. 4″
Service Ceiling—34,000 ft.
Approx. Speeed—350 mph at 22,000 ft.

DISTINGUISHING FEATURES: Twin-engine, low-wing monoplane. Tapered wings have full dihedral and square tips. Twin inline engines are underslung. Fuselage is slim and narrow with long greenhouse set atop fuselage. Twin fin and rudders, oval in shape, and with flattened bottoms, are set outboard of the stabilizer and elevator.

INTEREST: The Me 110 first flew in 1938. Although it is a fast aircraft, its inferior maneuverability made it somewhat more vulnerable than the Me 109, and it is now infrequently used as a fighter on the European front. It has been used extensively, however, as a day and night fighter on the Russian front and in Libya. The Me 110 is also being used for bombing and for ground attacks. Certain reconnaissance squadrons are now equipped with them. Some long range fighter versions are equipped with a special blister tank under the fuselage in addition to their two jettisonable wing tanks.