NAVAL AVIATION NEWS

Naval Aircraft Rockets
Jap Military Buildings

Apr. 15, 1945

10 mi. to shore...

Experience of TBF Turret Man in 1942 Recalls Turbulent Days in Solomons

Japs were landing troops on the island only 100 miles from our airfield. Although Russell Bradley, ARM2C, had been flying all day on torpedo runs, he went out again, loaded with 100 lb. fragmentation bombs.

Flares silhouetted the Jap ships—six transport destroyers unloading men and supplies. The *Avenger* made two runs, scoring one sure hit and a near miss. A barrage of antiaircraft splattered the plane. Heading back to base, they ran into a storm, got lost, and were forced to ditch.

The crew had been floating on the life raft for seven hours when it suddenly blew out like a punctured tire. Bradley and the pilot started to swim ashore some five miles away. Bucking the current was too much—they returned. After two nights and one day of bouncing around on Mae Wests, Bradley decided to try again—a last desperate effort to find help. By this time, they had drifted 10 miles from shore.

Five hours later, the waves washed him ashore in a semi-conscious state. He felt disembodied as though what remained of himself was up in a cloud casually looking down on this struggle for survival. Bradley was rescued although the search for his pilot and fellow crewman was unsuccessful . . . 59 combat missions, a Navy Cross . . . and one unforgettable experience.

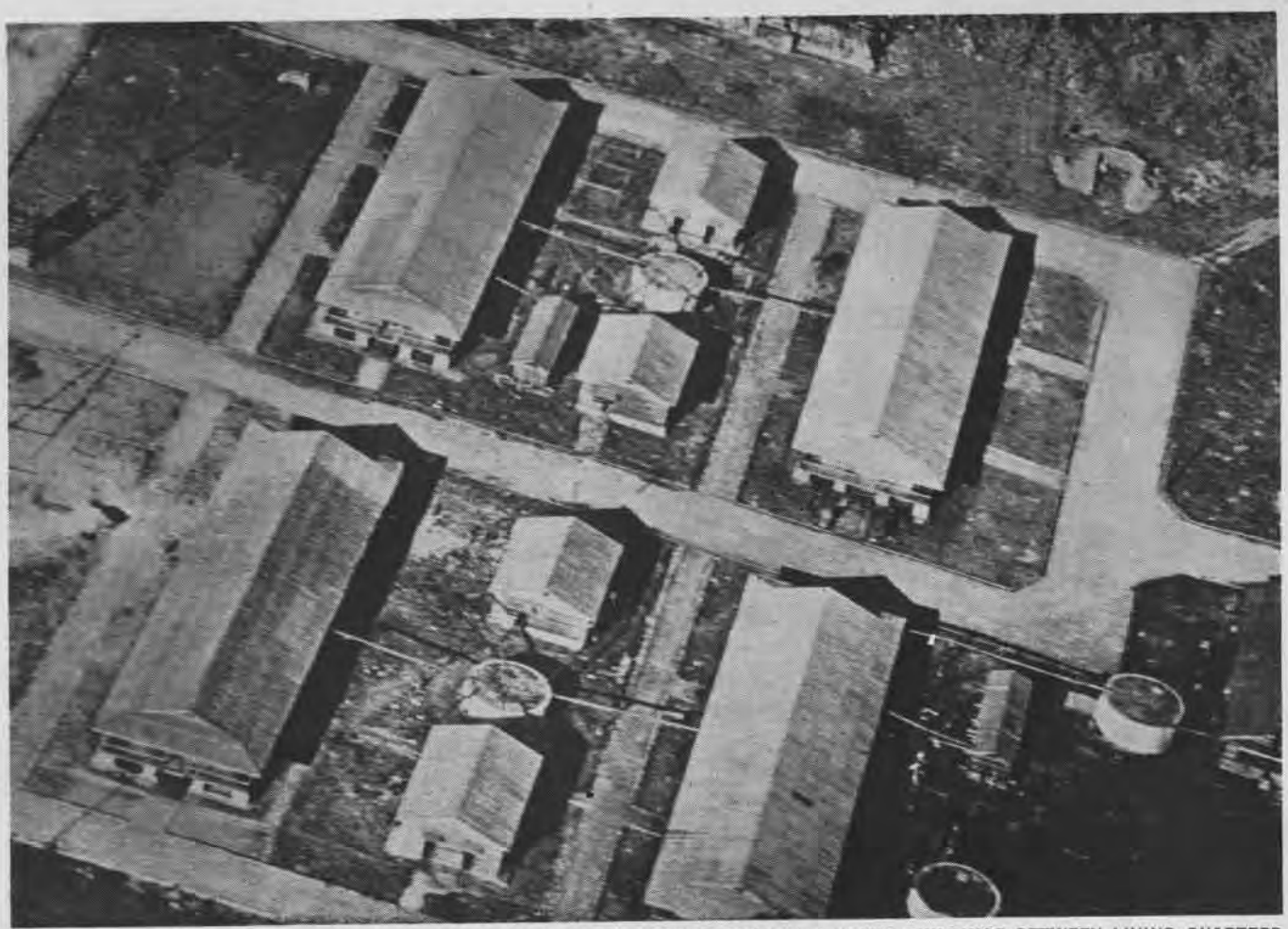
AIRCREWMEN HAVE WHAT IT TAKES

JAP MILITARY BUILDINGS

PHOTOGRAPHIC INTELLIGENCE

BUILDINGS used in connection with the operation of Japanese airfields appear distinctively different from the air, according to their special construction and use. These structures include barracks, tents, wash houses, latrines, personnel shelters, cisterns, Shinto shrines, administration buildings, electronics installations, storage buildings, shops, power plants and hangars. Their construction is standardized by the enemy, and they occur in the same form from island to island and probably to a large extent on the Jap mainland. In addition to their appearance, position of these buildings in relation to air strips and to each other is a good key to their use, and certain standard groupings are found wherever Jap bases exist.

Photographic interpreters have studied hundreds of these Jap units on aerial photographs and have checked their conclusions later with ground information obtained after capture of enemy-held Pacific outposts. These findings are summarized in a book, *Japanese Military Buildings*, recently issued by the U.S. Naval Photographic Intelligence Center. Special emphasis is placed on the fact that the Japs make extensive use of prefabrication to provide readily erected, easily transported military buildings. Knowledge of the different types of structures built near Japanese airfields enables U.S. forces to select vital targets for bombing and strafing attacks and to estimate enemy strength in terms of personnel and equipment.



JAPANESE BARRACKS GROUP ON SAIPAN HAD CISTERN AND SMALL LATRINE AND WASH HOUSE BUILDINGS BETWEEN LIVING QUARTERS

JAPANESE BARRACKS

JAPANESE military barracks observed thus far are one-story, arranged in geometric groups, and are serviced by one or two smaller adjacent buildings (usually wash house and latrine and sometimes a water cistern). In the case of a well-established air base, about 42 percent of all construction is housing. Since the Japs allow approximately 50 square feet of floor space per man, reasonably accurate estimates of personnel strength can be made when photographic coverage is complete.

Officers are housed in buildings similar to those erected for the men, but more living space and more wash room and latrine facilities are provided. From the air, officers' quarters and enlisted men's barracks appear much alike.

The Japs often employ existing native settlements as housing for military units. This is especially true of native buildings situated near airfields. Excessive track activity around native villages often indicates enemy occupation.

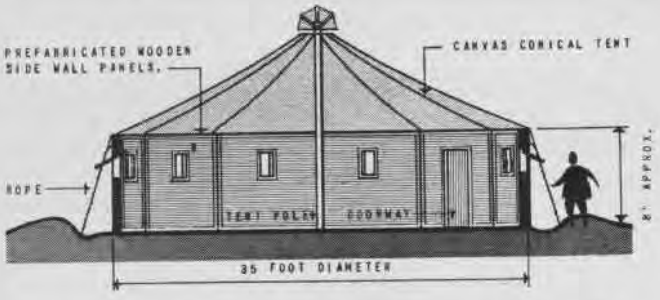
Photographs show that the Japanese frequently construct native-type shacks to house isolated gun battery personnel.

SHED IN REAR OF BATH HOUSE CONTAINS TWO HOT WATER HEATERS AND HAS STACK WHICH SOMETIMES IS VISIBLE FROM THE AIR

NUMEROUS tents are used by the Japs near airfields. Some tents are mobile forms and are not set on prepared bases, but there are two types of circular enemy tents which are mounted on prepared bases for semi-permanent use. The 35-foot diameter circular tent is illustrated here. It has a central pole supporting a canvas roof surface, which is stretched over prefabricated wooden side wall panels that are approximately eight feet high. Tents of this type are seen in groups of eight, with covered passageways between them and a rectangular structure in the center which is probably used as a mess hall.

Japs Use Barracks Buildings as Hospitals

Standard Jap barracks buildings frequently are utilized as hospitals. It is common practice for the enemy to employ one or more structures of a barracks group as a hospital unit. When several buildings constitute a hospital group, they usually are set on level land to permit covered inter-building passageways. Presence of a cross on the roof of a Japanese structure cannot be relied on as positive indication of a hospital or dispensary, since crosses have been seen on ammunition and general storage buildings. A Jap dispensary probably will have adequate road facilities for ambulances, and adjoining latrine and wash room buildings.

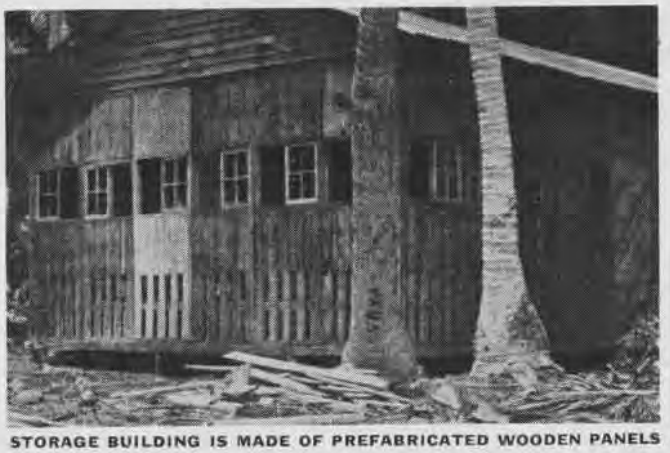


Latrines and Wash Houses Are Separate Structures

Latrines and wash houses are constructed as separate units, but often they are connected to barracks buildings by covered passageways. Standard barracks buildings are serviced by a 24′ x 33′ latrine and a 24′ x 30′ bath house. Both are gable-roofed framed structures. The wash house has a shed at the rear which contains two hot water heaters and has a stovepipe stack that may be visible from the air. One or more cisterns usually is seen near these buildings, collecting rain water and supplying it to head facilities.

The off-shore form of latrine is a common Japanese type, adopted by U.S. units because of its sanitary advantages. Built on piers driven just off shore at low tide level, this open shed-roofed structure is tied to the shore by a narrow pier. Barracks groups set near shore lines are serviced by this standard latrine, which is prominent on aerial photos.

CIRCULAR TENTS AT PARAMUSHIRO ARE CAMOUFLAGED WITH PAINT



STORAGE BUILDING IS MADE OF PREFABRICATED WOODEN PANELS

COVERED PASSAGEWAYS CONNECT UNITS OF JAP BARRACKS GROUP

OFFICERS' QUARTERS HAS PORCH AROUND PARTITIONED INTERIOR

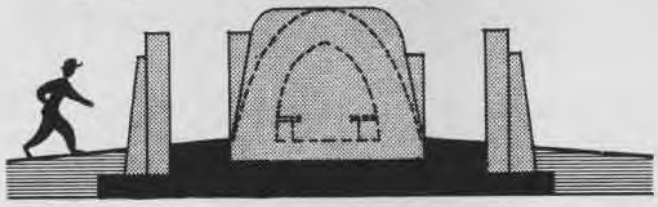
DOUBLE VAULT DOORS, WHEN PROPERLY OPERATED, MAKE JAPANESE AIR RAID SHELTER GAS-PROOF. NOTE ANTI-STRAFING WALL

PERSONNEL SHELTERS

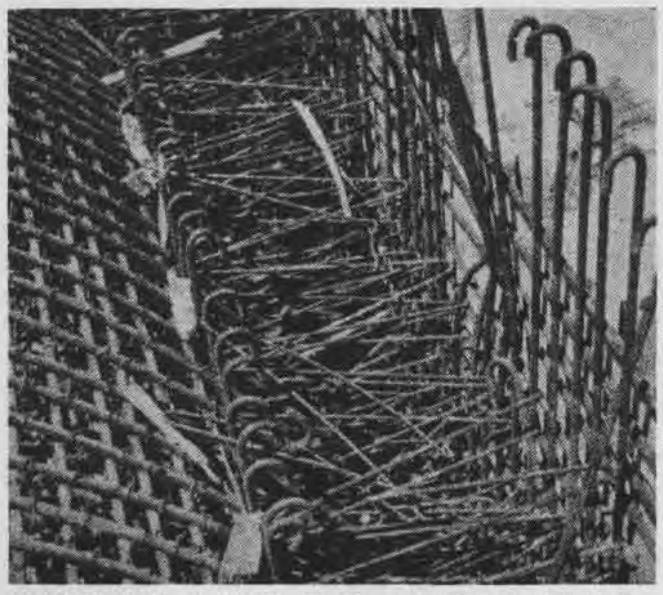
THE STANDARD Japanese personnel air raid shelter is a reinforced concrete form 10 feet wide and 60 feet long. It has three entrances and stands approximately seven feet high. Sloping walls are 18 inches thick, and interior height is about five feet. One hundred men can be accommodated during a bombing attack.

These shelters are found in all permanently occupied Jap areas. They service barracks, usually one shelter to each 100 man unit. They flank hangars and other structures containing large groups of airfield personnel. Numerous similar shelters are seen at factories on the Japanese home islands. Photographic evidence to date reveals that the intricate wood forming necessary to construction of the shelter has been adhered to in the same way regardless of geographical location. Site often is revealed by the tracks.

Cast iron double vault doors make the shelter gas proof if properly operated. In some instances the three entrances are protected by concrete anti-strafing walls, six feet high. Three gun ports sometimes occur opposite the entrances.



Inside, low wooden benches are built parallel to the side walls. At times the Japs apply camouflage, either in the form of paint or netting, or both, to exterior surfaces of the shelters. In the Marshalls one heavily reinforced personnel shelter was used as an emergency communications center.



SHELTER WALLS, 18 INCHES THICK, ARE HEAVILY REINFORCED

INTERIOR HEIGHT IS FIVE FT. SHELTER HAS THREE ENTRANCES

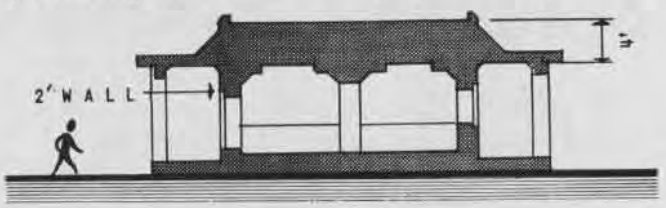
CONCRETE AIR COMMAND HEADQUARTERS STANDS NEAR RUNWAY

CAPTURED PHOTO SHOWS JAPANESE IN COMMUNICATIONS CENTER

ADMINISTRATION BLDG.

THREE DIFFERENT types of administration buildings are photographed frequently at Jap airfields. The most common is a two-story concrete structure, T-shaped in plan, the interior of which is devoted mainly to medium frequency electronics equipment. Auxiliary structures near this building include three cisterns, a flat roofed concrete oil storage building and a water cooling tank. Three steel lattice-type radio masts, spaced 175 feet apart in the form of an equilateral triangle, are set around this building, which in its use is essentially a medium frequency communications center.

The Jap Air Command Headquarters building is a square (39′ x 42′) one-story, flat roofed structure. The outer portion of the reinforced concrete roof rests on columns and forms a porch around the building. In some instances a wood framed tower is located centrally on the roof, and with this addition the structure serves as an operations building. It then is situated adjacent to the airstrip, usually at the edge of the main warm-up apron. Steel plate shut-



ters protect the seven windows, and a vault door covers the entrance.

Administrative activities on Saipan were housed in a one-story gable roofed wooden structure that contained space for staff members, office personnel and duty officers.

AIRFIELD ADMINISTRATIVE ACTIVITIES ON SAIPAN WERE CONDUCTED IN THIS ONE-STORY GABLE-ROOFED WOOD FRAME BUILDING

STEEL FRAMEWORK OF ARCH-ROOFED JAP HANGAR STILL STANDS ALTHOUGH CORRUGATED IRON SURFACING HAS BEEN BLASTED OFF

STANDARD HANGARS

THE JAPANESE rely on a group of standard hangars, dimensions and construction of which do not vary regardless of the geographic location of the airfield they serve. A prefabricated arch-roofed, steel framed form is the most commonly used type. Its design was taken from German working drawings. Sections of the framework are prefabricated in Japan proper, shipped out to island bases, and assembled on the airfield site.

The width of this type hangar is consistent at 140 feet, but it has been observed with different length dimensions ranging from 101 to 200 feet. The 101-foot length is seen at fields that service land-based planes, whereas lengths between 140 and 200 feet occur at seaplane bases. Sheathed in corrugated iron, this hangar has an arched roof with a raised continuous monitor extending the length of the ridge. A shed leans against each sloping side wall of the hangar.

Hangar Is Largest Building at Jap Airfield

A hangar is the largest single structural unit servicing a Jap airfield. As might be expected, enemy hangars are comparatively easy to identify because of their large size in relation to other military buildings near the field.

Japanese hangars of different types and sizes, both steel and wood framed, frequently are constructed side by side.

WOOD FRAMED HANGAR WORKSHOP HAS DOUBLE RIDGE ROOF. DOOR TRACK EXTENDS 15 FEET BEYOND THE BUILDING ON EACH SIDE

ANOTHER steel framed Jap hangar has a gable roof which is capped with a row of circular ventilators. It measures 92 feet wide by 107 feet long, and has a shed leaning against its rear wall. Sliding doors are of wood frame construction, and the track from which they are hung extends 15 feet beyond the building on each side. Exterior surfaces are sheathed with overlapping sheets of corrugated galvanized iron.

Japs Build Standard Type Wood Framed Hangars

The Japs also construct wood framed hangars. One type, measuring 55′ x 90′, has a gable roof covered with corrugated galvanized iron. Side walls are sheathed with horizontal ship lap siding. Special types of wood framed enemy seaplane hangars also have been photographed.

A standard repair hangar and workshop is constructed by the Japanese. It is wood framed and has a double ridge. Each ridge is capped by an extended ridge light, which provides good lighting and ventilation from above.

Permanently established Jap airfields have shop buildings that are constructed for the purpose of making the airfield as self-sufficient as possible. Aslito field on Saipan, for example, had a welding plant, forge, propeller shop, oxygen generating plant, motor vehicle garage and numerous machine shops.

Oxygen Generating Plant Present at Jap Fields

Oxygen is generated in an elaborate gable roofed rectangular building approximately 50′ x 80′ in plan. This structure is of concrete to a height about five feet above ground, and the remainder is of wood framed construction. Its concrete slab floor is set at different levels to accommodate steps in the oxygen generating process. Sloping buttresses, which may be visible from the air, support the side walls. On Wotje Island a square tank, containing water used in the plant, was located adjacent to the building.

Crash trucks, fire trucks, repair trucks and station motor vehicles are serviced in a shed-roofed garage, which has a repair pit dug into its concrete floor. A gable roofed duty room butts into the back wall of the garage, and a rectangular concrete cistern collects water from the roof.

Identification of galleys is difficult because there is no standard Jap galley building. Photo interpreters look for stacks servicing ovens and continuous ventilators if the structure is gable roofed. Galleys logically service mess halls and are located in areas housing airfield personnel.

NAVY PLANES BOMB THREE STANDARD-TYPE JAP HANGARS AT TRUK

REPAIR HANGAR IS GABLE-ROOFED WOOD FRAMED STRUCTURE

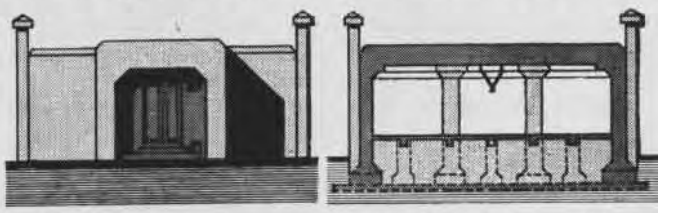
INTERIOR OF ENEMY'S HANGAR WORKSHOP ON SAIPAN IS WELL LIGHTED. BEAMS AND OTHER SUPPORTING MEMBERS ARE OF WOOD

JAPANESE FUEL BURNS AFTER BUILDING IS HIT BY NAVY BOMB

OVERHEAD LOADING TRACK SHOWS IN PORCH OF AMMO STRUCTURE

STORAGE STRUCTURES

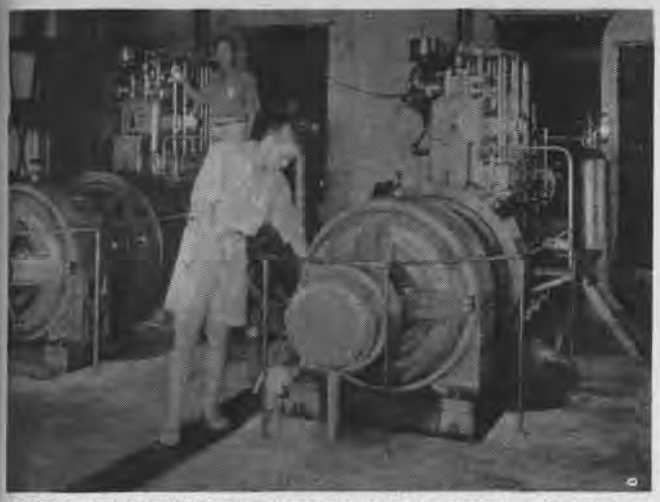
DESIGN of Jap storage buildings varies according to the commodity stored. Fuel in drums is placed in a square reinforced concrete structure. Concrete awnings protect its single side wall windows from bombing and strafing. The roof slab is of reinforced concrete three feet thick, with one foot of sand on top for additional protection. A similar square concrete structure (*above and in drawing*),



with a porch extending from its front face, always houses ammunition. Ventilators set midway on each of the side walls are clearly visible from the air. Fuel and ammunition storage buildings are isolated from other construction in order to minimize damage resulting from explosion.

It has been found that wood framed Jap storage buildings surrounded by a high earth revetment always contain some form of high explosive. Refrigeration buildings, water reservoirs and settling tanks, and food storage structures are other standardized buildings often seen on photographs.

STANDARD FOOD STORAGE BUILDING IS FOUND NEAR AIRFIELDS



CAPTURED PICTURE SHOWS JAPS OPERATING DIESEL GENERATORS

SPECIAL OIL STORAGE STRUCTURE IS IN POWER PLANT GROUP

POWER PLANT UNITS

THE STANDARD Jap military power plant consists of four buildings—generator, oil storage structure, water-cooling tank, and shop. The generator building, housing two Diesel generators, is similar in construction to the typical square concrete fuel storage structure. Its roof is four feet thick and is supported by four-foot-square interior columns. Coral is placed on the roof as additional protection against bombing. Concrete awnings protect the side walls. In some locations a radar or light AA gun has been installed on the roof of this building. Two steel pipes extend horizontally from one side wall of the building above the line of the windows, are bent at a 90-degree angle, and enter the ground near the long side of the adjacent gable roofed water tank.

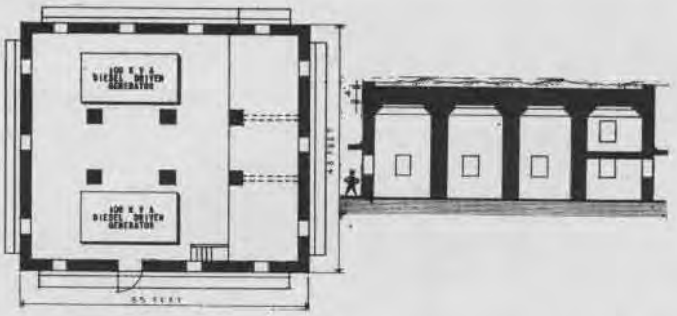
Oil Storage Building Has 11,000-Gallon Capacity

The power plant's flat-roofed concrete oil storage building houses two steel fuel oil tanks with a capacity of approximately 11,000 gallons. Concrete awnings are set over the door and the three windows, and a steel shutter is hinged to each window as additional protection. A blanket of dirt, one foot thick, is placed on the roof. This structure normally is located about 30 feet away from the generator building and is an essential part of the power plant.

A third standard power plant building is the water-cooling tank. Its wood framed gable roof has a raised central portion and is sheathed with corrugated galvanized iron. The concrete tank is divided into six equal vats, and water passes through each vat before entering the generator building, which is approximately 30 feet away.

The fourth standard building of the power plant group is a rectangular gable roofed shop. Dimensions and location of this structure vary from island to island, but it is always present in some form.

The Japanese build a small open framework for use as a



transformer station. Four wooden columns support a platform which is about 12 feet above ground.

On large airfields, subsidiary power plants are present, but in general the standard four-building group is the main source of electric power servicing a field. Its location on each base differs, but the constant relative position of the four units makes their identification relatively simple.

THIS POWER PLANT WAS ON WOTJE. SHOP AT EXTREME LEFT IS WRECKED, AND BOMB HAS PIERCED ROOF OF WATER-COOLING TANK

GRAMPAW PETTIBONE

That "Wheels-Up" Bogey

A review of wheels-up landing accidents indicates that a considerable number of them occur because pilots do not follow the standard procedure for lowering and checking the landing gear.

Wheels should be lowered (not above limiting speeds) before entering the landing approach and *before* the flaps are lowered. This sequence enables the pilot to *feel* the wheels lock down, helps reduce the speed of the airplane to the point where flaps can be lowered safely and gives the pilot time to make a visual check of the landing gear indicators before entering the final stage of the landing approach.

PB4Y Take-off Technique

When he had reached an airspeed of only 100 mph. during approximately 2400 feet of his take-off run, a PB4Y pilot apparently decided he could not become airborne during the remaining 800 feet of runway. At this point he closed all throttles and applied brakes.

Hard application of brakes set up a terrific forward pressure on the nose gear causing it to collapse. The aircraft immediately settled on its nose and went off the end of the runway in this attitude. It was damaged beyond repair.

The investigating board gave an excellent analysis of this accident. Excerpts follow:

"The pilot's psychological reaction to a short runway and his first take-off with military load was to change his normal take-off technique. As he states, he deliberately held the nose wheel on the ground 'to get maximum speed before becoming airborne.' As is well known, this technique is incorrect for the PB4Y aircraft. He should have applied gentle back pressure on the controls as the plane was accelerating to relieve the pressure from the nose gear and to give the aircraft a positive angle of attack.

"When the pilot states that it seemed as if a 'dragging' effect suddenly started to take place, it actually did. What was happening was that the negative angle of attack brought on by the 'nose down' position of the aircraft in the take-off run, tended to *fly* the aircraft into the ground, thereby creating a dragging effect which progressively increased as the speed increased, which further tended to hold the nose on the ground. It is believed that when he actually did try to raise the nose off the ground, the necessary strain was

such that he *thought* something was wrong and consequently would not be able to become airborne in the remaining runway. When the pilot applied brakes under these conditions, the strain on the nose gear became so excessive that it collapsed."

Crime Does Not Pay

The following reprint from the *Aviation Safety Digest* of the Ninth Marine Aircraft Wing should be of interest to all pilots:

In an iron-fisted effort to stamp out violations of flight rules, Wing Court Martial Boards are imposing strict punishment on pilots found guilty of this all-too-common practice.

The following cases are typical of the sentences imposed:

Case 1. For flying over a populated area at an altitude of less than 1000 feet above the ground, pilot of SNJ was tried by general court martial, found guilty and sentenced to lose $50 of his pay for three months, total loss of pay amounting to $150.

Case 2. Pilot of SBD was placed under arrest on charge of flat-hatting. At a general court martial pilot was tried, found guilty and sentenced to lose $50 of his pay for ten months, total loss of pay amounting to $500.

Case 3. Tried by general court martial on the charge of flying at an altitude of less than 50 feet above the ground, pilot of F4U was found guilty and sentenced to lose $50 of his pay for twelve months, total loss of pay amounting to $600.

Case 4. Pilot of an SBD executed a slow roll at an altitude of approximately 1000 feet. Placed under arrest, pilot was tried by general court martial, found guilty and sentenced to lose $70 of his pay for ten months, total loss of pay amounting to $700.

In connection with Case 2 and Case 4, it is worth noting that the pilot of the plane behind attempted to simulate the maneuver, crashed and was killed.

Since all pilots know the flight rules, it is felt that there is no justification for such outright violations which are costing hundreds of thousands of dollars in material and the loss of many lives.

No warning will be issued. The offender will pay fully for any violation of flight rules.

Fool-proof Pilots

An F6F pilot neglected to go over his check-off list before coming in to land. He also failed to shift to the tower radio frequency and therefore did not hear the warning that his wheels were not down. The investigating board made the following comments concerning this accident:

"The safety devices installed on this aircraft make it as fool-proof as possible. Unfortunately, this can not be said of all pilots.

"This is the first wheels-up landing since this squadron was commissioned about eight months ago. Every effort will continue to be made to prevent the contempt of fundamental safety precautions that familiarity breeds. The 10,000th landing must receive the same care given to the first."

"Safe" Altitude

An SNJ pilot flew through some small trees when his engine momentarily cut out immediately after take-off, but was able to remain airborne. He then climbed to 1000 feet and there tested the stall characteristics of his airplane to see if it would be safe to attempt a landing.

▶ ***Comment*—This test procedure was correct except that 1000 feet is not a "safe" altitude for checking the stall characteristics of a possibly damaged airplane. T.O. 48-40 directs that, if the pilot suspects his control system may have been damaged, he shall immediately climb to a minimum of 5000 feet to test his controls. He should conduct the test in the vicinity of his ship, station or other suitable point, after notifying the base of his predicament. This technical order contains other advice that merits re-study.**

There is never any let-up in recognition training in Fleet operations. Sharp-eyed gunners and trained observers are constantly on the lookout for enemy planes. An error in recognition could cost them their lives, perhaps sink their ship, or doom a friendly plane that failed to properly identify.

Deck Spotting

Reports indicate deck handling crews on some carriers are spotting *Corsairs* too close to each other in the wings-folded condition. This results in damage to the flaps when they are later lowered to provide a step for cockpit access.

It is recommended that deck spotters be given a demonstration of the extra clearance needed to lower flaps and warned to spot the planes accordingly.

On Your Toes!

Following a routine training and test flight, the patrol plane commander of a PBY-5 designated his first pilot to make the landing. The first approach was considered unsatisfactory and another attempt was made. The second approach was fast. Upon being cautioned of this by the PPC, the pilot suddenly, without warning, pushed forward on the yoke, causing the plane to fly into the water from about ten feet, resulting in a fatal crash.

The squadron commander recommended that this crash be brought to the attention of all PPC's as a warning against being lulled into a false sense of security when everything appears to be going smoothly.

▸*Comment*—Responsibility for the control of his airplane *always* rests with the PPC. He must be particularly alert when less experienced pilots are at the controls during critical maneuvers such as take-offs and landings.

Don't Spin The *Corsair*

Case 1. A *Corsair* pilot (116 hours in type) attempted a loop with insufficient air-speed and fell off into an inverted spin. *Assuming* he was in a normal spin, the pilot pushed the stick *forward*. He soon became aware of the inverted spin, however, and chopped the throttle, applied opposite rudder and pulled back on the stick. Due to improper adjustment of his seat and rudder pedals, he was unable to get full throw of the rudder. Failing to recover, he bailed out at 1000 feet.

This squadron thereafter required that all acrobatics in *Corsairs* be started above 8000 feet and cautioned pilots to have no less airspeed for such maneuvers than that specified by the manufacturer for inexperienced pilots (see section on "Acrobatics" in *Pilot's Handbook*).

Case 2. A *Corsair* pilot, while making an overhead gunnery run, rolled over on the sleeve too late. Upon seeing his predicament, he pulled through too rapidly, causing a high "g" stall and spin at 10,000 feet. The spin slowed momentarily at 8000 feet, but from there on continued in a normal spin until it hit the water. This pilot did not jump.

It was thought the pilot may have blacked out just before he went into the spin. Being a small man, he also may not have had his seat and pedals adjusted so as to enable him to give hard-over rudder.

▸*Comment*—Due to the relatively heavy control forces involved, voluntary spinning of the *Corsair* is prohibited by TO 128-44. Since involuntary spins do occasionally occur, however, it is necessary that all *Corsair* pilots be familiar with the spin recovery characteristics of this airplane. These are fully explained in TN 54-44. The number of airplanes reported as spinning in from high altitude indicates that not all pilots are familiar with this technical note.

During a recent three-month period, 13 *Corsairs* were spun in during gunnery, combat and acrobatic maneuvers from "safe" altitude. Eight of the 13 pilots failed to jump, or jumped from such low altitude that they were killed.

Being thoroughly familiar with TN 54-44 and complying with the following recommendations will help insure that YOU will not be included in the next compilation of this category of vital statistics:

1. Begin your practice maneuvers with plenty of altitude.

2. Avoid unintentional stalls by starting your maneuvers with proper speeds and by pulling into new attitudes in a manner to avoid "blackout" and high "g" stalls.

3. Make sure that you know the proper recovery technique for various types of spins in your particular airplane. To enable you to carry out this technique, insure before each flight that your rudder pedals and seat (and cushion, if necessary) are properly adjusted to enable you readily to obtain full throw of the rudder.

4. If you do commit the double-barrelled error of going into an unintentional spin without the ability to recover, don't punish yourself by going on in with your plane. Think this thing through on the ground and make up your mind that if you ever get caught in such a predicament, you will jump while still at a safe altitude.

GRAMPAW'S SAFETY QUIZ

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

1. At what rpm should supercharger shifts be made?
2. What is the *one* exception to the rule, that all personnel when flying in naval airplanes must wear parachutes or attachable type parachute harness?
3. When should alternate air be used?
4. With the exception of landing and taking off, what is the minimum altitude for flying above the open terrain elsewhere than over cities, towns, etc?
5. Should "sea level" barometric pressure be used as an "altimeter setting" value?

Answers on Page 40

Altimeter Settings

Case 1. Prior to making a night landing under instrument conditions at an advanced base, a PB4Y pilot was given an altimeter setting of 885. In adusting his pressure scale the pilot set 815, in error, thus causing his altimeter to read approximately 700 feet low. This was a contributory factor in his overshooting the first half of the runway. Nevertheless, he decided to land rather than go around again. The airplane went off the runway and received strike damage.

Case 2. While making an instrument let-down to an airport, an R4D crashed into a rise of ground on the approach. The pilot had apparently failed to set his altimeter setting correctly and therefore approached below the prescribed minimum altitude for that station.

Case 3. Upon returning from a mission, a PB4Y pilot found a ground fog had closed in over the field. Conditions necessitated an immediate landing, but due to an error in his altimeter setting the pilot overshot the runway. The airplane received severe damage and had to be stricken.

Case 4. A TBF pilot neglected to obtain the altimeter setting before approaching the field for a night landing. He flew into the ground while flying his base (cross wind) leg. Although the crew of this airplane were not seriously injured, the airplane had to be stricken.

▸*Comment*—The above cases show the importance of utilizing the current altimeter setting, particularly during periods of reduced visibility.

Altimeter settings can and often do change very rapidly due to changes in temperature and pressure. Therefore, even though a pilot returns to a field from which he only recently departed with the correct altimeter setting, if reduced visibility conditions exist he should again obtain the current setting before he commences his approach.

General information and operating directives are contained in Technical Order 7-45. It is recommended that all interested commands 1. insure that all pilots thoroughly understand this subject, giving such additional instruction and demonstrations as may be necessary, and 2. require strict compliance with the directive.

DID YOU KNOW?

Good Navigation Pays A Pilot

In 52 Minutes A Catalina Rescues Him

NATB PENSACOLA — Demonstrating the value of both the air-sea rescue unit here and good navigation, an officer-pilot of an OS2U who was forced down 60 miles out in the Gulf of Mexico was rescued 52 minutes after reporting his position.

Forced down by an oil leak, the pilot reported his position immediately. Two PBY5A's from the Corry Field air-sea rescue unit went into the air. The OS2U pilot had reported his position so accurately no search was necessary. First word of his landing was received at 1120 and the rescue plane landed alongside him at 1212. A launch brought in the OS2U undamaged.

Well Done, Instructors

The following is a letter of commendation forwarded to all Navy flight instructors by the Deputy Chief of Naval Operations (Air):

FROM: Chief of Naval Operations
TO: All Aviation Instructors
SUBJ: Commendation

1. It is a pleasure to bestow an unqualified "well done" upon all of the flight instructors in our Naval Air Training Command. Over and over again, the significant combat scores chalked up by Navy airmen have been directly traceable to the thoroughness of their training and the quality of their instruction. Fleet commands have repeatedly commented upon the fine quality of replacements coming from the training centers and their increased proficiency in instrument and night flying. If the Navy flyer is the best in the world today, it is because his instructor is the best in the world today.

2. Tomorrow we hope to improve upon today. To that end we are ordering in from combat many of our top-ranking flyers for duty with the training commands, on the principle that there is no more certain way to produce results. When you realize that there may be as many as 5,000 such instructors for the 13,000 pilots we have in training, you will understand that we know of no better way to put out at interest our best qualified aviators, than to have them impart their experience, their skills, and their enthusiasm to students who desire and deserve the best instruction.

3. Yours is a high honor and a great privilege. You who have carried the burden of training have acquitted yourselves well. You who are now returning from combat know from first-hand experience that the Jap is a fanatically courageous, determined and wily foe, who will take full advantage of any letdown on our part. Upon all of you, as instructors, lies the responsibility for the continuing high quality of the pilots and aircrewmen who must carry on the long tough fight ahead. I know that you will discharge this responsibility fully.

4. Again, well done.

Aubrey W. Fitch

AUBREY W. FITCH,
Deputy Chief of Naval Operations (Air)

WANTED: Back issues of BUAER NEWS LETTER to complete files, as follows:

1942: Feb. 15

1941: All issues

Address to: Chief of Naval Operations, Naval Aviation News, Navy Dep't., Washington 25, D.C.

Confidential Devices Catalog Out

New Publication Is First Of Its Kind

Catalog of Confidential Synthetic Training Equipment, prepared by BUAER's Special Devices Division, has been distributed to special devices officers at naval air stations and other training activities.

First catalog to be published on confidential devices, the publication consists of descriptions, photographs, weight, size, and operation data on 49 devices, including those to aid in teaching various aspects of radar, navigation, gunnery, bombing, and aircraft maintenance. The catalog is an extension of the existing publication *Catalog of Synthetic Training Devices*, published in August 1944.

Navy Cash Goes Into War Bonds

Personnel Lay It On Line For Uncle

Displaying sustained growth, Navy war bond purchases in February totaled $34,289,536, an increase of 11.3 percent over the February 1944 total.

Payroll savings plan purchases by civilian personnel of $17,568,133 and allotment purchases by uniformed personnel of $13,487,268 represented the major portion of the February 1945 total. Cash purchases contributed the remainder.

The Navy yards led the bond program in February, with Naval Air Stations runners-up. Leading air station was Corpus Christi with 95.7 percent of its civilian personnel investing 11.6 percent of its payroll in bonds. Jacksonville was in second place and San Diego third.

Navy Launches Largest Carrier

Two Sister Ships of Midway Building

Capable of operating 80 twin-engine planes, the Navy's newest, largest, fastest and most powerful carrier, the U.S.S. *Midway*, was launched at Newport News, Va., March 20.

First of five in her class, the *Midway* bears the classification CVB. Two sister ships, one named *Coral Sea*, are building for the Navy.

Largest warship ever built, the 45,000-ton *Midway* mounts heavy armor, has watertight compartmentation, intensive fire power and improved damage control. She is about 15,000 tons heavier than the *Essex* class CV's rated at 30,000 tons. The *Saratoga*, built long before the war, is 34,000 tons; Great Britain's largest carrier is 30,000 tons. Two of the Japs' largest carriers, 26,900 tons, were sunk in the Battle of Midway.

RUBBER TERRAIN *model of Iwo Jima showing Mount Suribachi and the beach where the Marines landed are shown in the left foreground. Lightweight rubber models of this type in approximately natural colors have been used for briefing and interrogating carrier pilots during this and other recent Pacific operations. Models of Iwo Jima were prepared by the Terrain Model Shop, Naval Photographic Intelligence Center, Washington, D.C.*

BEST ANSWERS

Birds Also Fly

PICK THE BEST *choice to complete the statements below, then check your answers on page 40.*

1. In order to alight gently on a high perch most large birds—

- ☐ *a*–reverse the pitch of their wings so that they act like a reversible pitch prop
- ☐ *b*–tip themselves up at right angles to their line of travel offering a large surface of resistance, beating their wings for extra resistance and lift
- ☐ *c*–make a sharp pull-up followed by a modified whip-stall down into the perch
- ☐ *d*–approach at a steadily decreasing rate until they are directly over the spot where they intend to land

2. Migratory birds fly a maximum of—

- ☐ *a*–500 miles a day
- ☐ *b*–200 miles a day
- ☐ *c*–50 miles a day
- ☐ *d*–100 miles a day

3. The highest observed altitude of birds in flight is about—

- ☐ *a*–28,000 ft. by the buzzard
- ☐ *b*–20,000 ft. by the crane
- ☐ *c*–12,000 ft. by the golden plover
- ☐ *d*–7,500 ft. by the swallow

4. Reports indicate that the maximum diving speed attained by birds in flight is, roughly—

- ☐ *a*–360 mph by humming birds and fly catchers
- ☐ *b*–270 mph by ospreys and vultures
- ☐ *c*–180 mph by duck hawks and swifts
- ☐ *d*–90 mph by terns and hawks

5. The wingspread of the albatross, the largest sea bird, is approximately—

- ☐ *a*–17 ft.
- ☐ *b*–12 ft.
- ☐ *c*–9 ft.
- ☐ *d*–6 ft.

6. The greatest load that can be carried by a large bird of prey is—

- ☐ *a*–75 lbs.
- ☐ *b*–50 lbs.
- ☐ *c*–25 lbs.
- ☐ *d*–10 lbs.

Carriers
LET NANEWS HEAR FROM YOU!

DOWNED PILOT REPORTS THAT A SEA ANCHOR STABILIZES LIFE RAFT IN HEAVY SEAS

SEA ANCHOR CONTROLS RAFT

"My pararaft capsized three times within a few hours. Then I threw out the sea anchor and the raft rode okay after that."

This statement of a downed VF pilot, and other reported statements, have caused BUAER a certain amount of concern, for it indicates that some aviation personnel are not aware of the primary purpose of the sea anchor. The primary purpose of the sea anchor is to stabilize and buoy down an air-filled raft so that it will ride out a heavy sea. Upon climbing into a raft, the first act of a survivor should be to inspect his sea anchor to see that it is properly secured; then let it down into the water. The sea anchor should be taken aboard only when the raft is under way. Unless the survivor finds himself near a friendly vessel or shore, it usually is wise to spread a dye marker and remain near the spot where he entered the water. This is difficult at best, but the sea anchor will assist. If the sea anchor is missing, the pilot chute will serve satisfactorily. There are numerous cases in which the parachute has been used as a sea anchor, but when there is a high sea or wind, the parachute should be used only lacking the sea anchor or the pilot chute.

Every effort should be made to keep the life raft from capsizing. Survivors who have spent prolonged periods in life rafts regard capsizing as one of the most serious threats to survival. The resulting loss of valuable gear, exposure and exhaustion due to swimming and climbing aboard the raft soon take their toll of the already weakened survivors.

This personal account of a pilot emphasizes the importance of the sea anchor to survivors in rough weather:

▶ There were three of us in the raft. No sooner had we got aboard than, due to the heavy sea and possibly the shock of our water landing, all three of us were violently seasick. Before we had recovered ourselves, the sea anchor broke away.

From that time on, we were like a chip bobbing up and down those long green swells. From the bottom of the trough, they looked two stories high. At the crest, the white water would break over us in a wall of foam. About three of those, and over we went, most of the gear with us on the first flip.

There we were, practically no survival equipment, getting tossed in the water every few hours. In 11 days, the raft capsized 16 times. The sixth day was the worst. We capsized six times. After pulling himself aboard that last time, A— died of exhaustion.

Then the last day was bad too, B— drowned. He just couldn't get on the raft the sixteenth time. That was two hours before I was picked up. If our sea anchor hadn't broken away, maybe all of us would have come through it alive. Maybe.

FLIGHT SAFETY

Safety Officer's Check List

THE SQUADRON Flight Safety Officer is a key man in the naval aviation accident-prevention set-up. Most people working on flight safety warn others by pointing the moral after an accident. By proper indoctrination and training of personnel beforehand, the efficient Flight Safety Officer can keep accidents from happening.

To prevent accidents, the Flight Safety Officer must be conversant with the following problems, procedures and gear:

a. Survival, on land and sea.
b. Air/sea rescue.
c. Ditching procedures.
d. Poisonous gases, incl. carbon monoxide.
e. Night vision.
f. First aid.
g. Life raft equipment.
h. Parachutes.
i. Safety belts and shoulder harnesses.
j. Life jackets.
k. Oxygen equipment.
l. Anti-G equipment.
m. Flight clothing.

The following check list may help even experienced squadron safety officers by showing exactly what he may look for on inspections:

Pilot Check Out

1. Do pilots get a check out on reporting?
2. Are new pilots indoctrinated in local flight rules, operational directives, aircraft power and structural limitations?
3. Are new pilots given cockpit familiarization, including emergency procedures for hydraulic failure, alternate induction, emergency bomb release, etc?
4. Are instrument checks thorough?

Pilots

1. Is pilot discipline in the air and on the ground adequate?
2. Is pilot morale adequate?
3. Are recreational facilities available?
4. Are quarters and food satisfactory?
5. Do pilots display proper judgment on the ground and in the air?
6. Do they adhere to air traffic rules?
7. Do they know current tactical doctrine?
8. Do pilots know lost plane procedure?
9. Do they know limitations of aircraft they fly?
10. Do they know forced landing procedure?
11. Are they reminded, restricted and disciplined concerning reckless flying?
12. Are they reminded of results of abusing aircraft engines?
13. Are pre-flight and post flight forms executed carefully?
14. Are pilots familiar with contents and use of emergency and survival gear?
15. Do pilots use proper radio procedure?

Emergency Equipment

1. Is following emergency equipment properly installed and maintained?
   a. Parachutes
   b. Safety belts
   c. Life jackets
   d. Shoulder harnesses
   e. Life rafts
   f. First aid kits
   g. Pyrotechnic equipment
   h. Emergency rations
   i. Oxygen equipment
2. Are latest instructions pertaining to above available?
3. Is water in emergency rations changed frequently?

Safety Precautions

1. Are bombs, ammo, and fuses stored and handled in accordance with instructions?
2. Are oily rags, waste, trash, and other fire hazards disposed of promptly?
3. Are gasoline, kerosene, etc. allowed to sit around in open containers?
4. Are unauthorized outlets tapped into the electrical system?
5. Are fire extinguishers manned when starting engines?
6. Is ditching and abandon ship bill provided?

Briefing

1. Do briefings cover following points?
   a. Mission
   b. Route to fly
   c. Terrain and hazards enroute
   d. Radio procedure, fixes and contacts
   e. Alternates in case of weather, lack of fuel or malfunctioning of material
   f. Weather to be expected enroute
   g. On strikes, specific objective as well as coordinating features

Operations

1. Are men assigned to the operations officer alert, cooperative, disciplined?
2. Is operations work well organized?
3. Are records neat and properly filed?
4. Is a flight followed from takeoff to destination?
5. What personnel are immediately available or on call?
6. Are facilities for handling itinerant traffic adequate?

Clearance

1. Are forms filled out completely?
2. Are they signed by pilot, aerologist, and clearing officer?
3. Does operations notify traffic control and tower?
4. Is instrument clearance procedure strictly followed?
5. Does operations adhere to instrument flight rules and weather minimums?
6. Are altitudes checked against height of terrain enroute.
7. Is clearance checked for east and west bound cruising altitude?
8. Are flight plan changes made properly?
9. Are NOTAMS, restricted areas posted?
10. Is weather information convenient and complete?
11. Are charts available and corrected?
12. Are all air aids to navigation listed and catalogued?
13. Are all frequencies for local and adjacent stations available to the pilots?
14. Are flights contacted by radio as per schedule?
15. How efficient is radio net?
16. Is weather closely observed in relation to progress of aircraft in flight?
17. What attention is paid to weight and balance control of aircraft?

Station

1. What is the condition of runways?
2. Are approaches clear and unobstructed?
3. Are runways marked and lighted?
4. Is the wind direction indicator conspicuous and properly lighted?
5. Is it necessary to cross the runway in use to get to parking area?
6. Are taxi strips provided?
7. Is there an adequate taxi pattern for all conditions?
8. Are motor vehicles allowed on runways or useable parts of field?
9. Is dual runway traffic permitted? If so, are runways adequate and traffic properly controlled?
10. Are returning planes met and brought into their spots safely?
11. Are standard parking and taxi signals used?

Equipment

1. Are fire truck and ambulance available at all times, day and night?
2. Is control tower properly located?
3. Is vision from tower unobstructed throughout traffic pattern?
4. Are planes protected against elements?
5. Are pitot tubes, etc., closed against water, moisture, etc.?

Lighting

1. Are floodlights readily available?
2. Are obstructions marked and lighted?
3. Are runway end lights located properly?
4. Is runway in use easily distinguished?

Ground Personnel

1. Are officers and men properly trained in duties they are assigned?
2. Are they proud to "Keep 'Em Flying"?
3. Do ground officers and men know the importance of their work? Do they receive recognition for their efforts?
4. Are pre-flight inspections thorough?
5. Are post flight discrepancies corrected promptly?
6. What protection is provided for crew and equipment in bad weather?

Control Tower

1. Is control tower properly staffed?
2. Is tower properly located?
3. Is equipment adequate?
4. Is tower staff properly disciplined?
5. Is tower efficiently operated?
6. Are traffic control lights used?
7. Is tower clearance required for taxiing?
8. Are aircraft identified and followed from traffic pattern to park area?
9. Is "Check Wheels Down" procedure used?
10. How are emergencies handled?
11. What personnel are available instantly or on call?
12. Where is crash alarm? Who sounds it? Who is on crash telephone net?

25 YEARS AGO THIS MONTH

Naval Aviation in April 1920

April 5—McCook Field staged seven live parachute jumps recently with the new pack type chute developed by the Equipment Section of the Air Service. Although it has been customary to release the chute after jumping clear of the airplane, this time the jumper allowed the parachute to open first and drag him off the plane.

Experimentations were made with a Martin bomber which was sent up 2000 feet for the first trial. In some of the tests, jumps were made as low as 1000 feet, proving the practicability of using the pack-type chute in jumping directly, being dragged off the wings, or making close to the ground jumps. The pack type chute withstood all tests satisfactorily.

April 9—ANACOSTIA witnessed the beginning of severe comparative tests between the HS-2 and HS-3 seaplanes. The HS-3 was taken off the water with a useful load of 2035 pounds. Running at 1475 rpm, the plane stayed in the air five hours and fifty minutes. It was necessary to land when all the main tanks were empty owing to falling off of oil pressure. Authorities estimated, however, that there was enough gas in the gravity tank to fly twenty minutes longer.

April 12—The naval air crew, chosen to fly the Navy's new giant dirigible across the Atlantic Ocean from England, has sailed.

April 16—The helicopter of Mr. Emile Berliner was flown at Rockville, Md., and attained a height of three feet off the ground where it was kept from going higher by its attendants. This is believed to mark the first definite success of a helicopter in getting clear of the ground. Problems of control and balance are yet to be solved.

April 19—NAS MOREHEAD CITY has been turned over to Coast Guard for its aviation activities. Navy leased a part of the land from the State and equipped it with necessary buildings and hangars. Now Coast Guard plans to put the station in commission shortly.

April 26—For the first time in the history of aviation a gyroscopic compass was used successfully as a navigating instrument in an airplane. Gyroscopic compasses embodying the same principles have been used for several years on American and foreign war vessels, particularly on submarines that depend almost solely upon such an instrument when submerged. The compass, however, as used upon watercraft weighs 2,000 pounds and is extremely bulky.

MARTIN BOMBER CARRIED SINGLE TORPEDO

The chief problem in adapting a gyroscopic compass to aerial navigation was to design a similar apparatus where weight and bulk corresponded to airplanes with the same accuracy and dependability of the marine type. A model finally was conceived weighing 17 pounds and measuring 14 x 13 inches. Tested in flight, the chief advantages over all former types of magnetic compasses were: compass card was freed from spinning; a true geographic north could be indicated; there was no magnetic effect.

April 29—Excellent motion pictures were obtained of a Mark VII dummy torpedo dropped from a Martin torpedo plane at ANACOSTIA. This drop, which split the torpedo, was successful in every respect as far as operation of the plane and torpedo-dropping mechanism was concerned. Continuation of the tests will be made at the Naval Gun Factory in Washington.

April 30—Twelve HS-2-L flying boats were turned over to Army Air Service from Navy's surplus supply. These flying boats are to be sent to insular possessions. Several are to be stationed in the Panama Canal Zone, Hawaii and the Philippines where the rugged and mountainous nature of the country demands such aircraft.

April 30—Navy dirigible C-6 is scheduled to make a one-day non-stop flight from San Diego to San Francisco. After a brief stay, the return trip will be made via Santa Barbara, Los Angeles.

PILOT WARMS UP THE ENGINE IN ONE OF THE INITIAL TESTS OF THE HELICOPTER INVENTED AND PERFECTED BY EMILE BERLINER

THE NAME and work of Naval Air Material Center, located at the NAVY YARD PHILADELPHIA, are relatively unknown. However, one unit of this organization, Naval Aircraft Factory, is familiar to all aviation personnel, for it has been in existence since 1917.

Soon after the United States entered the present war, NAF was overwhelmed with urgent demands. Annual expenditures, previously that of a small private corporation, jumped to nearly $50,000,000. Employment rose from approximately 1,000 workers during the early 30's to more than 10,000. Buildings were constructed until there was more than 1,800,000 square feet of floor space.

Expansion brought confusion, and a reorganization became necessary. Work loads were shifted and re-allocated. Now this important organization carries on vital testing and experimental work, manufacture and modification of planes and accessories.

NAF has grown up. War-time needs of the Navy laid the foundation stone for the present Naval Air Material Center.

Four Units Were Assigned NAMC

A general order approved by the Secretary of Navy on 27 July 1943 designated Naval Air Material Center as an organization with four separate and subordinate commands.

The aircraft activities were removed from the jurisdiction of the NAVY YARD PHILADELPHIA and established under

War-Time Demands Of Naval Aviation Are Efficiently Handled By 4 NAMC Units

the Commandant of the Fourth Naval District. Laboratory research testing and development was turned over to the Naval Air Experimental Station. Operation of MUSTIN FIELD, with its attendant flight-testing and maintenance, was assigned to the Naval Auxiliary Air Station. Aircraft modification and prototyping, placed under the Naval Aircraft Modification Unit operated at League Island until it moved to a plant at Johnsville, Pa., in July 1944. The remainder of the Air Center's activities, consisting chiefly of manufacturing and overhaul, was centered in the Naval Aircraft Factory; thus NAMC grew to its present proportions.

History Began With World War I

The evolution of NAMC can be traced to the establishment of the Factory in 1917 when the Navy acutely needed planes for World War I. Ground was broken on 10 August 1917, and eight months later, NAF had produced its first plane, a Curtiss H-16 twin Liberty-engined flying boat.

With establishment of the Bureau of Aeronautics in 1921, control of the technical functions of NAF was transferred from the Bureau of Construction and Repair (now a part of the Bureau of Ships) to the Bureau of Aeronautics. From that time, the Factory tended to concentrate more and more on experimental aircraft and aeronautical research. In 1924, for instance, the Aeronautical Engine Laboratory moved from the WASHINGTON NAVY YARD to NAF. In 1926 a landing field was constructed adjacent to the Factory, and modification of service aircraft was begun. By this time, aircraft, ordnance material, catapults and arresting gear, and parachute manufacture were part of NAF's program and laboratory testing was rapidly increasing in volume, month by month.

In 1934, the Vinson-Trammel Act, which authorized an expansion of naval aviation, required that 10 percent of all aircraft and aircraft engines procured by the Navy should be manufactured in government factories. This act stimulated aircraft and engine manufacture at NAF, which designed and produced such aircraft as the N3N series of primary trainers, the observation scouts, OS2N-1 and SON-1, and the dive bombing SNB-1.

NAMC Sets Fast Pace In Two Years

For the past two years, the Factory's principal manufacturing job has been construction of the PBN-1 patrol bomber, similar in design to the Consolidated PBY. At the same time, research facilities have expanded greatly, aircraft modification work has spurted ahead, and the flying field has been improved.

NAVAL AIRCRAFT FACTORY

ALTHOUGH the Naval Aircraft Factory is only one of the four major divisions of Naval Air Material Center, it is still the largest as to number of employees and the hundreds of special manufacturing orders handled during the course of a year. By keeping its organization flexible and adaptable, NAF is prepared to fill urgent requests from BUAER for almost any kind of aircraft work.

For example, when an emergency call came through from the Pacific for 500 sets of F6F-3 fairings, the job was started immediately and completed in record time. When JATO kits were needed sooner than private manufacturers could furnish them, NAF again produced.

NAF Jobs Are Many And Varied

Until the past few months, NAF's chief production task was assembly of the PBN-1 patrol bomber. Now with that program ending, overhaul of PBY's and certain amphibian models has been assigned in its place. In addition, a large number of engines and propellers are overhauled on a production line basis each month.

Molten Lead is foundation for many parts made and used at Naval Aircraft Factory

Besides manufacture and repair of planes, Naval Aircraft Factory has a most important responsibility as the activity that designs, procures and supplies the entire Fleet with catapult and arresting gear material. Although a good share of the parts are purchased from private manufacturers, NAF itself produces such items as launching cars, tension rings, deck pendants, barrier cables, launching bridles, sheave wheels and fittings of various kinds. The NAF supply department makes arrangements to ship replacement parts, or complete catapult to warships enroute to bases.

Factory Pioneered Developments

During NAF's 27 years' existence, the Factory has taken an active role in many aeronautical developments. They pioneered the development of the patrol plane, in the conversion from wood to metal as an aircraft building material, and in development of the catapult and lighter-than-air craft. The Factory designed and manufactured the first U.S. large rigid airship, the *Shenandoah;* built and tested experimental planes for submarines and airships.

Since its establishment, NAF has manufactured from 1 to 981 of all different types of aircraft. Wright R760-2 and Wright R760-8 engines have also been manufactured at Naval Aircraft Factory.

AIR EXPERIMENTAL STATION

EVERY Navy plane in active service owes something to the painstaking research that constantly goes on at the Naval Air Experimental Station. NAES has carried out thousands of tests, developed instruments and radio equipment, improved aircraft design, ferreted out weaknesses in engines and body structure, and added to our knowledge of high altitude flying. Each of its six laboratory divisions has devised refinements to bolster the striking power of naval aircraft.

Established first in the WASHINGTON NAVY YARD, the Aeronautical Engine Laboratory was moved to NAF in 1924. A great majority of the aircraft power plants developed during the past 28 years have passed through this laboratory.

In addition to engines, the laboratory works with carburetors, ignition systems, fuel pumps, superchargers, filters, fuels, air and oil coolers. The laboratory developed the present method of calibrating aircraft engines under simulated altitude conditions and contributed to development of floatless carburetors, engine preheaters and improved flame dampers.

Drift sight is tested and checked before delivery. Naval Air Experimental Station ferrets out weaknesses of parts and accessories to bolster striking power of naval aircraft

Laboratories Evaluate Equipment

The Aeronautical Materials Laboratory not only has developed better materials for aircraft use, but also has devised better techniques for conducting the dynamic, static and flight tests.

Using Scorsbys, swinging mirrors and cold chambers for laboratory analysis and evaluation, in addition to every type of Navy plane for flight tests, the Aeronautical Instrument Laboratory has been responsible for many developments to increase flight safety. It designed and developed the MARK 2-C pelorous drift sight, the air position indicator and photo-cell automatic pilots.

The Radio and Electrical Laboratory has tested and evaluated radio communication equipment of all types, headphones, microphones, interphones, secret electronic devices and a great variety of lighting equipment.

In its low pressure chamber, the Aero Medical Department carries on tests with oxygen equipment, flight clothing and high altitude accessories. Newest of the six laboratories is the Photographic Experimental Laboratory, which makes a record of most scientific tests at NAES.

AIRCRAFT MODIFICATION UNIT

THE Naval Aircraft Modification Unit, located at Johnsville, Pa., 25 miles north of the PHILADELPHIA NAVY YARD, is housed in the plant formerly used by Brewster Aeronautical Corporation for assembly of F3A's. When the Modification Unit moved from Philadelphia in July 1944, it found the Johnsville plant with its modern buildings and 1,000,000 square feet of floor space well suited for the type of work to be carried on.

NAMU now employs substantially 3,500 officers, enlisted, and civil employees. To meet BUAER demands for output, NAMU is increasing its force as necessary.

Modification Unit installs F3A-1 rocket-launching brackets. Principal duties include prototype and production modification of all types aircraft. Additional duties are secret

NAMU Fulfills Demands Of BuAer

As its principal duty, NAMU is engaged in prototype and production modification of naval aircraft. Installations of bomb racks, rockets, radar, cameras, or whatever else is desired by BUAER are undertaken. The Modification Unit, now humming briskly, recently turned out 500 modified aircraft in 100 days.

Another important phase of NAMU's work is in the field of special weapons. BUAER has in progress many important projects of a highly classified nature.

Naval Aircraft Modification Unit has a small flying field with reasonably good approaches. With the longest runway at present measuring 3,200 feet, authority is being sought to strengthen, widen, and lengthen these runways.

NAAS MUSTIN FIELD

THE Naval Auxiliary Air Station, Mustin Field, located on the eastern end of League Island, is a flight service unit that handles incoming and outgoing air traffic, conducts catapult and platform landing tests of airplanes, services and repairs aircraft, transports personnel of the Fourth Naval District and cooperates with other NAMC commands in test work. On a favorable flying day, the station clears as many as 200 flights.

Mustin Field pilots attached to the Flight Test Department, most of them fresh from Pacific battle experience, conduct carrier acceptability tests on experimental and new production models.

Field Was Named For Navy Pioneer

The present field, with its 250 acre area and its more than two miles of runways, was developed from the low, marshy land that bordered the Delaware River. The field was officially dedicated 17 September 1926 in honor of the late Captain Henry C. Mustin, a pioneer of naval aviation. The largest runway is now 4,700 feet long; authorization is sought for a new runway 6,200 feet in length.

Two excellent seaplane runways are available, and seaplane operation on the Delaware River is regular business. Mustin Field cooperates with the other three units of Naval Air Material Center.

NAAS Mustin Field provides facilities for flight testing, conducts catapult and platform landing tests, services and repairs planes

Pilots carefully chart course for long ferry hops. Flight service unit handles incoming and outgoing traffic of 200 daily flights

AIRCRAFT ACCIDENT REPORTS

They serve the cause of safety in aviation

THE AIRCRAFT Accident Report, Form Nav-Aer 339, is a flight safety form designed to bring to light failures of material, personnel or operational procedures. AAR's furnish information for analyzing failures so that action can be taken to prevent their repetition, whether this requires aircraft or equipment changes, training changes or changes in operational procedures.
(NOTE: When material failure causes an accident, RUDM also is necessary.)

The Bureau of Aeronautics receives many incomplete AAR's. It is imperative that these forms be filled out *in full* after thorough investigation of every accident. Aviation Circular Letter No. 48-44 tells how to fill out AAR's. Follow instructions.

AIRCRAFT ACCIDENT REPORT
NAVAER-339 (REV. 10-44)

To be made out according to Instructions contained in Aviation Circular Letter 48-44

UNIT TO WHICH AIRCRAFT ASSIGNED	UNIT SUBMITTING REPORT	DATE OF ACCIDENT BOARD MEETING	AAR SERIAL NO.
Composite Squadron 98	Composite Squadron 98	15 March 1945	3-45

DATE OF ACCIDENT	HOUR	PLACE OF ACCIDENT	TIME INVESTIGATORS ARRIVED AT CRASH
15 March 1945	1200	NAS Canberra	DATE 15 March 1945 HOUR 1201

AIRCRAFT MODEL	BUREAU NO.	UNIT TO WHICH PILOT ATTACHED	PURPOSE OF FLIGHT
TBM-1	27641	Composite Squadron 98	Division Tactics

PILOT'S TOTAL TIME	TOTAL THIS MODEL	PRECEDING 3 MONTHS		PRECEDING 24 HRS.	TIME IN FLIGHT BEFORE ACCIDENT
1400 HRS.	154 HRS.	TOTAL HOURS 111	HOURS THIS MODEL 54	3 HRS.	--- HRS. 20 MIN.

CEILING	VISIBILITY	WIND DIRECTION	FORCE	DARKNESS	OTHER WEATHER OR SEA CONDITIONS
4000 FT.	10 MI.	180	15 KNOTS	None	No factor

TYPE OF CLEARANCE	MANEUVER INVOLVED	ALTITUDE OF MANEUVER (RELATIVE TO GROUND)
Local flight training (CFR)	Emergency landing	On ground

PERSONNEL ABOARD

NAME	RANK OR RATE	USN, NR USMC USMCR	DUTY INVOLVING FLYING (Yes or No)	POSITION OCCUPIED (Cockpit, Turret, etc.)	INJURIES CLASS	DESCRIPTION	HOW SUSTAINED
PILOT							
INSLEY, T. R.	Lt.(jg)	USNR	Yes	Pilot's Seat	B	Frac,nasal bones Lac.severe,face	Shoulder straps not tight-hit head on windshield
COE, J. M.	ARM1c	USN	Yes	Radioman's Seat	C	Lac, minor, face & scalp	Shoulder straps not on
CASEY, L. D.	AMM2c	USNR	Yes	Gunner's Seat	D	None	None

CLASSIFICATION OF ACCIDENT

NATURE	RESULTS (PERSONNEL)	RESULTS (MATERIAL)
B(2)	BCD	B

BREAKDOWN OF CAUSE OF ACCIDENT

COLUMN 1 — *Each entry in column 1 must be followed (below) by complete breakdown as it appears on work sheet.*

SAFETY — ***Do Your Part to Promote Safety in Aviation***

SQUADRON NOTES

Catalina Rescues Army Airmen. For nearly 18 days after their transport plane had crashed into the Philippine Sea, four Army airmen drifted about in sight of passing convoys and aircraft. Then they were spotted by the co-pilot of a Navy *Catalina* flying boat. Although the raft was tossing in 12-foot swells, the Navy pilot decided on a landing. Warning his crew and five extra passengers to hang on, he hit the water,

bounced once and settled down. The Army airmen, who had been without food for three days, were waving, yelling and beating each other on the back as the PBY taxied toward them. After loading the survivors aboard, the Navy pilot gave her the gun. The *Catalina* pounded across the water in an extra long take-off run, bounced high, bounced again, then jumped into the air. They were safely off to Leyte.

In 19 Engagements. The Navy's Air Group 11 took part in 19 different engagements during its four-month combat tour in the Pacific, destroying 377 Jap aircraft and helping sink more than 100,000 tons of enemy shipping. This group was in on the October fleet action off the Philippines and the January invasion of the China sea. Air Group 11 sent 2,370 strike sorties against the enemy, piling up a total of 5,400 landings aboard its base carrier.

Did Not Lose A Ship. During all the time Composite Squadron 78 protected huge convoys steaming to and from three major Pacific invasions, it never lost one vessel to Jap air, surface or submarine attack. The squadron's FM2 *Wildcats* shot down six Jap planes and were given half credit for a seventh. During the Palau Islands invasion, *Wildcats* and *Avengers* of the squadron flew ground support operations for the troops, strafing and bombing Jap installations to good effect. The squadron took part in both the Leyte and Lingayen operations.

New Black Cat Record. One member of a *Black Cat* squadron in the Philippines has established what is believed to be a record for that type of aircraft. The *Black Cat* sank 28,000 tons of Jap shipping in the China sea area during 33 nights and damaged another 12,000 tons. During a like period the squadron itself sank or damaged 157,000 tons of enemy shipping. The high scoring plane sank one 10,500-ton Jap transport in a masthead attack, and on one legendary mission made a bombing run so low that the plane carried away part of the mast from a Jap merchantman. A chunk of mast was found embedded in the *Catalina's* wing after it returned to base. Before the Philippine invasion, this squadron operated in the Bismarck Archipelago and Netherlands East Indies.

Make A Good Start. On their first flight from the Philippines, two Navy *Liberator* pilots sank 12 small Jap ships, between them, and shot down one enemy plane. Assigned to the same PB4Y squadron, the two pilots took off soon after reaching their base in the Philippines. They were looking for action and found plenty.

Outgunned The Japs. Navy Patrol Bombing Squadron 101 has returned home for a rest after two years of action in the Pacific war theater. When 101 first went out, its *Liberators* were hardly better than an even match for the Jap bombers they met. But with the improved models they last flew, squadron pilots ended all encounters with Jap planes with a few hundred rounds of concentrated .50 caliber fire. One of the squadron's *Liberators* once fought off 10 Jap fighters in a running battle lasting more than an hour. During its tour, VPB 101 sank or destroyed 54 Jap ships including a minelayer and an escort, damaged 67 other ships and shot down 16 enemy planes, including five fighters.

"Hellcat" Becomes Booby Trap. Struck by ack-ack over Luzon, a carrier-based Navy *Hellcat* pilot was forced to crash-land and hunt cover before he could destroy his plane. Several hours later the air group skipper arrived on the scene with eight more Navy planes, intending to destroy the downed *Hellcat*. When the Navy fliers arrived, 12 members of the Japanese intelligence organization were busily engaged stripping gear from the *Hellcat*. The 12 Japs scattered to nearby gullies, but Navy planes strafed until not one Jap survived. Then they planted an incendiary cluster on the wreck and burned it.

Marines Smash Records. VMO 351 in conjunction with VMF 112, broke two records by making 328 carrier landings in one day and 56 carrier landings in one hour. All landings were completed with only one minor crash caused by mechanical failure.

Carriers
LET NANEWS
HEAR FROM YOU!

Aviator Returns To Life. One of the Navy's fighter pilots with the Fast Carrier Task Forces, is back on his ship ready to fly again, after having been shot down by a Jap off the coast of Luzon. Unable to inflate either life jacket or raft, he swam until exhausted. His last mental picture was of a U.S. destroyer bearing down on him with two men hanging from a cargo net on the side ready to slip a line about him.

Then a wave hit him and he blacked out. When brought aboard he had stopped breathing and drew no breath for fully 15 minutes. His rescuers pumped water from his lungs, administered artificial respiration and gave stimulants. Today the fighter pilot is back in the running, after as narrow a squeak as men can experience and live to tell the story.

Squadron Stands By Him. When a Navy *Hellcat* pilot was shot down in territory then held by the Japs in the Philippines, 11 of his squadron mates assumed the role of guardian angels and shepherded him to safety. By voice, the downed pilot notified the squadron of his plight when ack-ack knocked out the engine. He made a perfect landing on level ground and resumed communication with his squadron mates, then 10 miles away, directing them to him. Japs were approaching from about a mile away, but faded out of the picture when the other *Hellcats* arrived and began circling over their downed squadron-mate. Destroying all gear of any value to the enemy, the downed pilot loaded his arms with survival gear and headed for the mountains. The remaining *Hellcats* strafed and burned the downed plane. Not long afterward word came through that the downed pilot was in friendly hands.

Score was lopsided. During four months of heavy action in the Pacific, Air Group 44 took the long end of a lopsided score with the Japs. The group shot down 49 Jap planes, which was more than the number of planes making up Air Group 44, and it destroyed scores more on the ground. In attacks on the enemy fleet and shipping, this group helped sink a heavy cruiser and three destroyers. These had a tonnage equal to the group's own carrier. In addition, pilots of the group helped send 53,000 tons of Jap shipping to the bottom. Damage was inflicted to 21 other warships and 55,000 tons of merchant shipping. Air Group 44 paid for this toll of damage with loss of 16 pilots and 12 aircrewmen.

TOKYO TALKS

TO JAPANESE TROOPS

Intervals between enemy air raids have become very short, and since February especially this has become more noticeable. Now it is not surprising to see several raids at night. Since the beginning of March, we have seen raids by single planes almost every hour for several hours or sometimes raids at staggered hours. This is a great change from the past enemy strategy of the night war of nerves.

TO SINGAPORE (*in English*)

Admiral Nimitz, Commander-in-Chief of the U.S. Pacific Fleet, predicted at a press conference, following a conference with Fleet Admiral King, that the war in East Asia would be lost. He gave as reasons that Japan's strategical position is defended by a vast reserve of Army, and that she is manufacturing aircraft faster than the Allies can destroy them.

TO EUROPE

Americans in the frontlines, who had gone crazy with fatigue and fear in the face of the violent Japanese counter-attacks, have been replaced recently by new, poorly trained troops. These replacements are falling in great numbers, victims of the foolhardy operations ordered by their commanding officers.

TO JAPAN

America wants to finish the war in the shortest time possible, because the longer the war is prolonged the more Japan gains, while America will gradually lose her fighting spirit. Secretary of the Navy Forrestal declared frankly that Japanese resistance will increase greatly as the war approaches the Japanese homeland.

TO THE UNITED STATES

Although Admiral Nimitz, as usual, has announced preposterously exaggerated figures on results attained by his carrier planes in raids over Kyushu, Shikoku and Chugoku areas on March 18 and 19, our losses were on the contrary very light. Towards evening on March 21 enemy task forces were seen fleeing southward at full speed in waters east of Okinawa.

TO THE UNITED STATES

Although enemy sources have announced that the latest full-scale night raids on Tokyo, Nagoya and Osaka by B-29's were carred out with a force of 300 planes for each of these raids, this figure is entirely false. This is plainly an attempt to propagandize to the world the strength of the American Air Force based in the Marianas. It is absolutely a misrepresentation of the facts.

For the present at least, the maximum number of planes per raid which can be launched by the American Air Force based in the Marianas is about 100 to carry its B-29 attacks to our homeland. Judging alone from what B-29 crew members say, namely, "We have had to work 36 hours straight, even forsaking meals and sleep," it is quite apparent that the enemy headquarters in the Marianas has little in reserve to re-man the B-29's or make repairs on planes.

TO TOKYO

From Japanese bases in the Philippines comes the report that enemy forces in this sector are confused and in a jittery state. The enemy is using huge sound devices to give the impression that he is employing large numbers of troops and tanks, but the bedlam only serves to confuse the situation, as enemy troops turn and fire wildly on each other.

TO THE JAPANESE HOMELAND

The Agriculture and Commerce Ministry had been making plans to grow victory gardens by utilizing vacant lots resulting from the decentralization of some of the buildings from the capital. With the recent bombings of Tokyo, however, land was made available right in the metropolis. This land will be used for victory gardens as part of the effort to secure a structure for self-sufficiency in home foodstuffs.

TO THE HOME EMPIRE

The enemy has absolute faith in material strength, firmly believes that he can win the war by this sole, obscure strategy and is impatiently trying to bring Japan to her knees by dropping his material indiscriminately from the skies. Owing to this baptism of material fire, however, even if we should be burned out of our homes and turned out into the streets with only what we have, still our faith in ultimate victory shall not waver in the least.

TO JAPAN (*in Cantonese*)

Due to the emergency measure taken by the Japanese Imperial Government toward French Indochina, the Hong Kong government requested the French to take an oath to cooperate with the Japanese forces in defense of operations. The Hong Kong government authorities are treating the French with leniency in that private properties are being placed under special treatment.

TO INDOCHINA

Japan has no territorial ambition in Indochina. Rather Japan is firmly determined to embody the principles of the G.E.A. Declaration in Indochina. When the strategic influence in Indochina has been removed, the long oppressed ambitions for independence held by the people of Annam and other provinces will gather momentum. Japan will exert every effort to help these people achieve their ambitions.

TO THE UNITED STATES

Impregnable are the defenses of Taiwan (Formosa) as an island fortress. Visiting correspondents are moved by the indomitable fighting spirit of the officers and men who are overcoming all difficulties. Blessed with abundant resources and favored geographical conditions, Taiwan will long be able to maintain self-sufficiency.

TO JAPAN

The pattern of bombings for three consecutive days gives an unfailing suggestion of alternate-day bombings. There is also suggested the lawless intention of the enemy, and the bestiality of the enemy who continues his raids irrespective of the weather—fair or foul, night or day, moonlight or dark.

Hitherto the enemy's targets have been essential factories, airdromes and harbor installations; now heedless of the objective, he has started to bomb city streets, secluded mountain areas and transportation systems indiscriminately. He no longer waits a week to 10 days to get ready for another raid. He raids us every other day, which fact merits our closest vigilance, since it is truly descriptive of the intensified preparations at the Marianas bases.

SHOW ME THE WAY TO GO HOME

Astro Compass Problems

On 2 January 1945 at 12-10-00 GCT while in DR Lat. 42° 24′ N, Long. 68° 42′ W, you wish to check the aircraft's compass for deviation by use of the astro compass with the sun.

1. What LHA, Dec., and Lat. would you set on your astro compass?

LHA _____
Dec _____
Lat _____

2. If the aircraft is heading 135° by compass, and the TH by astro compass is 122° (Var 18° W), what is the compass error? What is the deviation?

CE _____
Dev _____

3. If the TAS has been 154 k and the wind is from 267°, force 28 k, what has been the track and ground speed?

Tr _____
GS _____

(Answers on page 40)

Navigation Training Section, Op-33-E, Annapolis, furnishes quizzes to NANEWS.

CARRYING EIGHT 5" HVAR ROCKETS IN ITS LAUNCHERS, F4U HAS FIREPOWER OF A DESTROYER AS IT FLIES OVER INYOKERN RANGE

AIRCRAFT ROCKETS

AIRCRAFT rockets, perfected by the Navy to boost firepower of fighter and bombing planes, are proving the greatest recent development of modern science, making aircraft one of warfare's deadliest weapons.

Thousands upon thousands of rockets are fired with devastating effect on ground targets and enemy shipping in the Pacific. Army Air Forces planes, using Navy rockets, are blasting German tanks, locomotives and other transportation with terrific effect. Addition of rockets to fighter planes' already-powerful armament transforms them into 350-mile-an-hour long-range heavy artillery.

Pioneers in development of aircraft rockets were California Institute of Technology and the Naval Ordnance Test Station, a 700 square mile reservation in California's Mojave desert. CIT scientists began to work on rockets as early as 1941. Navy pilots later tested them on sagebrush desert ranges. Battle reports of tremendous damage by rocket-firing Navy and Army planes attest to their success in a program which started from almost nothing in 1943.

TODAY, NOTS at Inyokern covers the largest area of any continental station. It is being built as a permanent station at a cost of $35,000,000 to further scientific research in naval ordnance, particularly aircraft types. The Navy spends $100,000,000 a month for aircraft and barrage rockets, as much as for all other types of naval ammunition.

Rockets appear to be a "natural" for aircraft armament. Light in weight but packing the tremendous firepower of a ship's heavy guns, they have multiplied the plane's destructive ability. Rockets, unlike guns on planes, have no recoil and require no large heavy installations on planes. Absence of recoil permits the aircraft to stay directly on the target for more shots.

QUONSET HUTS, LANDING STRIPS AND SAND COMPRISE HARVEY FIELD, NEAR INYOKERN, WHERE PLANES FLY OUT TO TEST ROCKETS

ROCKET USE IN WARFARE DATES BACK TO CHINESE WARS IN 1232

ALTHOUGH they have been used for pyrotechnic displays for centuries, rockets were used by the Chinese in 1232 against Kubla Khan and appeared in the Thirty Years War in 1645. They achieved more renown as a weapon when the English fired 24-pound rockets off boats during the siege of Boulogne in 1806. Later they were used at the Battle of Waterloo and in the War of 1812 with the United States.

Development of rifling in cannon in the 1860's led to gradual abandonment of rockets because of their comparative inaccuracy compared to artillery when fired from the ground. Little interest was shown in rockets during the present war until the English developed a successful one for anti-submarine work, using it first in May, 1943. They also are used successfully for antiaircraft firing, especially during the blitz.

In earlier years of the war the Russians and then the Germans began using rockets on aircraft with great success, against both ground targets and other aircraft. About this time the Navy asked California Institute of Technology to develop an aircraft rocket like the British rocket. A project was set up under Commander, Fleet Air West Coast and an experimental unit created to cooperate with CIT.

A month later, on July 14, 1943, the first aircraft rocket—a British model was fired electrically from a Navy TBF at Goldstone Lake, Calif. First rocket developed by the joint Navy-CIT program was the 3.5″ model with a 3.25″ motor, now replaced by larger sizes. The following month this first CIT rocket was fired from the Mk 4 launcher rails, now also replaced by zero length launchers, eight of which weigh only 27 pounds when installed on the aircraft.

DURING the fall of 1943 a number of TBF's, PV's and experimental planes were equipped with the now-obsolete rails and sent to NAS QUONSET POINT for anti-submarine work, later going into action against U-boat packs. High-explosive heads to augment solid heads were developed in November, 1943. The standard 5″ shell was adapted to rocket use with new fuzes to improve combat performance.

Disassembled motor from high velocity aircraft rocket shows many parts which help give this five-inch *Holy Moses* its velocity and striking power. Head screws to fore end of the motor and contains nose and/or base fuze and explosive charge

NAVY, CAL TECH JOIN FORCES TO PRODUCE ROCKETS FOR AIRCRAFT

DEVELOPMENT of the Navy's aircraft rocket program started in earnest when the Army turned over to it a little-used landing strip, now called Harvey Field, next to the desert town of Inyokern, in the fall of 1943. With this as a nucleus, BUORD began development of Naval Ordnance Test Station. Today it is expanding rapidly and employs scores of Cal Tech scientists and other civilian experts on the base, augmenting station complement.

While first operations were being started in Quonset huts in 1943, the Navy-CIT program was experimenting with many types of rockets at nearby Salton Sea for water use. A new instantaneous nose fuze was developed. First zero-length launchers were installed on an F6F in October.

An Aviation Ordnance Development Unit was commissioned on 21 December 1943 to operate under Naval Air Center, San Diego, and the Test Station. The latter has been commanded by a naval aviator since its inception and its activities are largely in connection with aviation ordnance problems and experimentation. The following June the AODU moved to Inyokern and merged its operations with NOTS. Air units were located at Harvey Field and administrative offices at China Lake, 8 miles away.

VC-58 was the first squadron equipped for rocket operations, with VC-7 the first to go to the Pacific theater. In an effort to get greater velocity and impact in its rockets, the Navy brought out that spring the *Holy Moses* or 5" HVAR (high velocity aircraft rocket). It has a 5" motor instead of the 3.25" one on the 5" AR (aircraft rocket). It has a velocity (not counting the additional speed imparted when fired from a moving airplane) of 1350 feet a second, compared to about 750 for the AR. It has a range of 6,800 yards, considerably greater than the 3.25" motor gives the 5" AR.

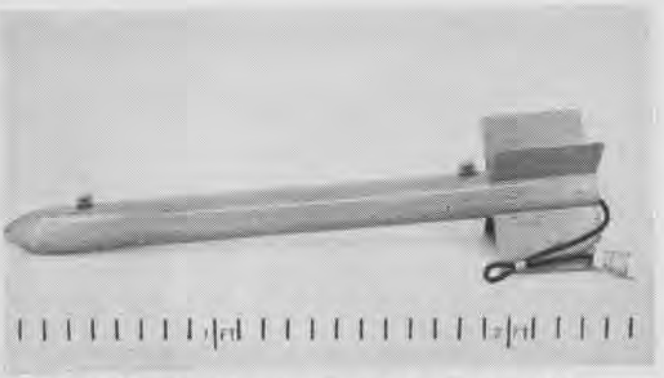
THE NAVY at present has four main types of aircraft rockets which can be mentioned in a restricted publication—the 2.25" sub-caliber (SCAR) for practice firing, the 3.5", the 5" AR, and the 5" HVAR.

The HVAR carries 25 pounds of guncotton and nitroglycerine in its motor, considerably more than the earlier 3.25" motor, thus giving it a flatter trajectory and greater impact. It was first fired off rails and zero length launchers in March 1944. Being a modification of a standard 5" shipboard shell, it gave a plane carrying eight such rockets under its wings the fire power of a destroyer's salvo, with a range limited only by the gasoline the plane could carry.

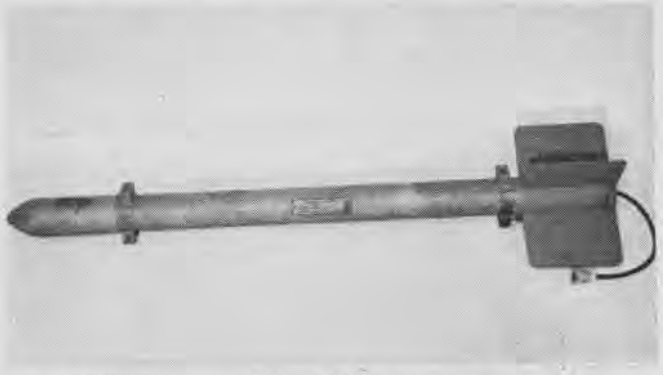
Two main types of fuzes are used on rockets, a base fuze which permits the rocket to penetrate before exploding and an instantaneous nose fuze, which may be replaced by an inert plug if delayed action is desired. With the latter, a rocket can be used for anti-personnel work with deadly effect. Both fuzes are carried in the head.

Both the Japs and Germans have spin-stabilized rockets, which rely on rotation for a true flight rather than fins. The rocket jet itself can be used to produce spin, with its nozzles canted to some angle. The Navy also has a 5" spin rocket for use in shipboard barrages.

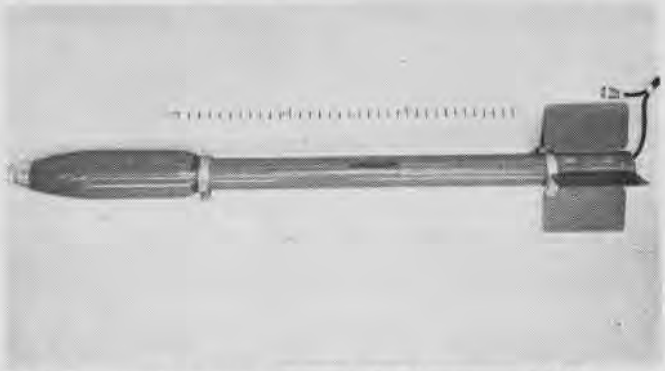
TRAJECTORIES of ground-fired rockets show the major trouble in accuracy occurs just after the projectile leaves the launcher. Its slow velocity at this point makes it hard for the fins to straighten its flight. The same projectile fired from a plane would have the rush of air caused by the plane's speed to keep the rocket headed straight until the jet's force could take over. Accuracy thus is much better.



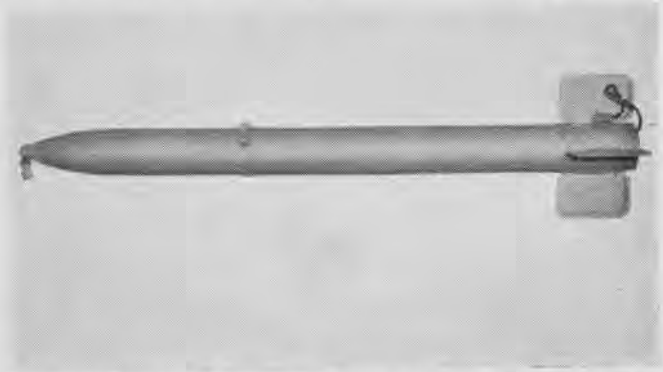
2.25" SCAR, sub-caliber aircraft rocket, a light weight version used for training. This rocket is fired from rails which adapt readily into regular zero-length launcher of plane



3.5" ROCKET, powered by 3.25" motor, not now in operational use was an early rocket developed. Single ballistite grain in motor provides the rocket with propellant



5" AR, aircraft rocket, powered by the same 3.25" motor as is on the 3.5" version. Larger head on this rocket carried a bigger powder charge. These rockets saw early action



5" HVAR, high velocity aircraft rocket with 5" motor. This BUORD model is latest type, fitted with moveable lug bands and one-piece fin assembly. Planes can carry eight

ASSEMBLING, INSTALLING AIRCRAFT ROCKETS

SINCE practically all naval combat aircraft outside of the large bombers carry rockets, the technique of assembling and installing the lethal weapons is a task all aviation ordnancemen must master. The main thing to stress about rocket handling is the care with which they must be handled to prevent breakage of the powder grain in the motor. Such an accident would cause faulty burning and possible malfiring of the round in the air. A rocket is fired by electrical current, so ordnancemen must exhibit at least ordinary care to be sure the circuits are not energized when they plug in the pig tail of the rocket. BUAER supplies test kits which are used to insure that the circuits are functioning properly before the rocket is installed. Since a rocket throws out a tremendous backwash of flame when fired, it behooves ordnancemen and others to stand clear of the rear when the pigtail is being plugged in. Tests showed this exhaust could blow a hole in five-ply veneer. Presented on these pages are major steps taken to prepare HVAR's for firing on a *Hellcat*, from the time the motors and fins are unpacked after removal from the magazine until the safety officer hands the safety plugs to the pilot. Photographs used to illustrate assembly and installation of rockets on these two pages were taken at Inyokern, where an early CIT production model rocket is used for training and experimentation. BUORD service production models have moveable lug bands and one-piece fin assemblies not pictured here.

Ordnanceman at Harvey Field uses wooden mallet to hammer fin on early CIT production model rocket. BUORD service production models are fitted with moveable lug bands and one-piece fin assembly. Latest model of HVAR is illustrated on page 25

Assembled motors and fins are loaded carefully on truck to avoid breaking powder grain, which would cause rockets to blow up in midair. Smoking always is barred in assembling areas. Fire extinguishers always must be kept close at hand

Rocket motors are carried by truck to another shed where the explosive heads are screwed on. Head must fit tightly to permit proper functioning of base fuze. Rockets are easily visible for photographic analysis studies when painted white

Explosive head with its eight-pound charge of powder is put on tightly. Ordnanceman uses strap and wrench to secure it without damage. Rows of different types of heads are on the bench behind, some explosive, some inert for scientific study

Before rockets are installed on the aircraft, ordnanceman checks the circuits to see that each launcher will be energized on firing. BuAer has newer style test kit to supplant this model. A stray spark would cause rocket to fire

Assembled rocket is inserted on the launchers, the rear release pin is cocked and the round secured. Earlier model of launcher has shear pins, which had to be installed prior to final plug-in so the rocket would not drop off while diving

Close-up of rear zero length launcher shows male plug attached to pig tail of a 3.25" motor. HVAR has similar pigtail, which is blown out upon firing. Nose fuze is installed on rocket after it is put on plane, the base fuze only at the assembly shed

All switches off, safety plug in the hands of safety officer, the ordnanceman makes test with no-voltage light to be sure of energy in circuits, then plugs in rocket pig tail. Workers must stand clear of fore and aft ends of rocket during this operation

WITH EIGHT HVAR ROCKETS INSTALLED, SAFETY OFFICER HANDS SAFETY PLUG TO PILOT, WHO INSERTS IT IN INSTRUMENT PANEL

THICK REINFORCED-CONCRETE WALLS AT INYOKERN RANGE GIVE PILOTS A GOOD CHANCE TO STUDY ROCKET DESTRUCTIVE POWER

PILOTS FIRE ROCKETS ON RANGES BEFORE SQUADRONS JOIN FLEET

PILOTS get their first rocket firing after they graduate from operational training and join their squadrons. Fleet air commands have many ranges on the Atlantic and Pacific seaboards. At Inyokern, ordnance officers, chiefs and leading ordnancemen are given special rocket training in classes. Ordnance rates learn how to maintain, assemble and install rockets at Naval Air Technical Training Centers at Norman and Jacksonville. (See *Screen News*, p. 39 for rocket film list.)

Pilots are given opportunities of firing at stationary land and water targets and also at targets towed on the water. Cement walls also show penetration power of rockets. When they are checked out in rocket firing, the pilots keep in radio contact with the range officers at the control tower. The officer advises them of their range, tells them when to dive, corrects them on the angle of dive and finally tells the pilot when to fire. This type of practice enables the pilot to gauge those factors quickly.

Runs are made at various angles; the steeper the dive the flatter the rocket trajectory. Firing usually is between 1000 and 2000 yards and pull-outs high enough to avoid blast effects if explosive heads are used on the rockets.

BECAUSE of different trajectories of rockets and machine guns, pilots must use different mil leads and sight settings, each figured out for a particular type of plane. They must take into account the angle of dive, speed of their plane, range, temperature of the powder (which affects how fast it burns and affects the trajectory of the rocket).

Range officer uses harp to tell the pilot what his dive angle is and when he is in correct range to fire rockets at target

Ordnance officers at rocket school class, Inyokern, inspect Mk 3 station distributor which controls firing from cockpit

NIGHT FIRING OF ROCKETS AT INYOKERN RANGE MAKES SPECTACULAR SIGHT; END OF FIERY TRAIL SHOWS WHERE MOTOR BURNS OUT

NAVY ROCKETS PROVE LETHAL IN KNOCKING OUT JAP SHIPS, GUNS

NAVY fliers have found rockets especially effective against merchantmen and small warships, as well as to wipe out enemy antiaircraft on ships or ashore, artillery, pillboxes and unprotected personnel. Pinpoint targets that require penetration are made to order for rocket-firing planes. They were used with spectacular success against the Japs on Saipan, Hollandia, Guam, Woleai, Truk, Palau, the Philippines and Iwo Jima. One air unit fired more than 8,000 rockets in the space of a few weeks in the Philippines.

Using American and British rockets, Navy planes destroyed 487 Nazi vehicles, including tanks and armored cars, destroyed or damaged more than 200 locomotives, and spread much other destruction in the Southern France invasion. The HVAR can penetrate at least 1½" of armor and cause serious damage. If it carries a base fuze and no nose fuze it can spread internal damage in a ship's interior. Instantaneous nose fuze makes it useful against personnel.

Repeated instances have been reported where enemy shipping has been sunk by rocket fire, including two Jap destroyers in the Philippines. Where ground rockets deviate from 20 to 40 mils in their aim, aircraft rockets can be held to 2 to 4 mil dispersions because the slipstream helps keep them on their target. Pilots have found accuracy suffers when rockets and bombs are dropped in the same run, but that machine guns can be used effectively to strafe when firing the rockets. Best accuracy is secured when the pilot flies and maneuvers properly when making his pass.

EACH TYPE of rocket has a slightly different trajectory, the HVAR, for instance, having a gravity drop about 15 mils less than the 3.5" rocket in a dive under ordinary circumstances. Pilots checked out in one type of rocket, however, can adjust themselves to other types. The slower the velocity the more curved the trajectory. An HVAR fired from a plane doing 300 knots, with its powder charge at 70° F. has a velocity of 1820 feet a second after the ballistite is burned. Velocity falls off as soon as the powder burns.

ZERO-LENGTH LAUNCHERS CUT CORSAIR'S SPEED ONLY SLIGHTLY

NAVY HELLCATS WRECK NAZI VEHICLES IN S. FRANCE INVASION

Radioman at Inyokern rocket-firing range tests equipment before planes fire, to be sure it will function properly. Practice runs with small caliber rockets afford pilots training

Although aircraft rockets are prime interest at Inyokern, the station also tests ground barrage rockets such as these lethal weapons being loaded on jeep. Plane rockets are more accurate

PILOTS USE DIFFERENT SETTINGS ON SIGHT WHILE FIRING ROCKETS

ROCKET trajectories differ from machine gun bullets in three ways—rockets are slower (about half the speed of a .50 cal), their paths are more curved and they follow the aircraft's direction of flight while bullets travel in the direction of aim. Because it takes longer to reach its target, a rocket is more affected by wind and gravity and greater allowances have to be made in setting sights.

Sight settings must take into account many variables, range, dive angle, airspeed, temperature, angle of attack of aircraft datum line and attitude of the launchers relative to this line. Allowances for wind and target motion have to be made the same as for bullets and bombs. Since rockets are slower, the drift is proportionately greater. For the HVAR, time of flight to 1,000 yards is about two seconds. Hence, for a cross-wind, or target motion, of 10 knots it is necessary to aim about 11 yards upwind.

Planes while skidding or side slipping cause rockets to miss the target by almost the entire amount of movement. Pilots have to allow for large errors caused by g's when rockets are fired during a pull-out. Firing during a 2-G pull-out may cause rockets to land 30 mils short, experiments showed. Rockets should be fired before pull-out is started to avoid encountering this error.

As long as the plane flies a steady curve of approach in attack, its line of flight remains essentially unchanged even though bumpy air may cause rapid fluctuations. Rockets tend to follow the airflow rather than the direction of aim.

WHEN rail launchers were used, the speed of planes was reduced substantially due to their air drag. Zero-length launchers have little effect. Tests with the F4U showed the plane, loaded with eight HVAR's, was slowed down by 34 miles an hour at critical altitude, required 53 more feet takeoff distance in a 25-knot wind and lost 2100 feet in service ceiling. After firing the rockets, the speed loss was only 10 miles an hour and other losses were negligible. The launcher installation weighs only 27 pounds. Army planes use jettisonable launcher tubes and a smaller, 4.5" rocket with fins that open upon leaving the tube.

Owing to their high velocity and penetration, small amounts of explosive in the rocket head give adequate destruction. HVAR carries eight pounds of HE in the head.

Since solid-head rockets are valuable against submarines, pilots check out in water firing. TBF here rakes water target

Rockets will pierce armor plate of 1½" or more with ease, as this photo at Inyokern range indicates. Fuzes control firing

HVAR ROCKETS TRACE A FIERY TRAIL ACROSS SKY

Corsair test plane winging over Inyokern rocket range opens fire with its eight HVAR rockets, arranged to fire in ripple

Sequence pictures taken with 35 mm. movie camera, shooting 128 frames a second, show first rockets leaving the launchers

Second pair of HVAR's clear the launchers, close on heels of first two. Firing could be done either in salvo or ripple

Neck and neck, the first rockets race toward the target as the pilot fires the third set of missiles, adding to the trail of fire

Six Rockets are clearly visible in this spectacular picture. Ten degree shutter on movie camera helped to stop sequence action

Two final rockets of plane's original load of eight pass out of sight. Each has punch of a shell from a destroyer's guns

TECHNICALLY SPEAKING

Dipping Saves Hours And Latex

NAMC PHILADELPHIA—A shop painter's improved method of rubberizing radar flex tubing saves an estimated 1026 man-hours on one program alone at the Naval Air Modification Unit, a branch of NAMC. His idea netted him a substantial award from the Committee on Beneficial Suggestions.

SHOP PAINTER WINS SUGGESTION AWARD

The idea grew out of necessity. Flex tubing must be covered with latex and cheese cloth. The old method of applying latex with a spray gun was not only costly in time and material but not enough material was on hand to complete the job.

The necessary speed and conservation were achieved by the painter through a new process of dipping the flex tubing and then hanging the cables over the latex tank to dry. By that means all the excess latex drips back into the tank.

[DESIGNED BY WILLIAM R. MCGHIE, SHOP PAINTER]

Machine Speeds Paint Removal

NATB PENSACOLA—A machine for applying paint remover to PBY hulls, wing surfaces and stabilizers has been developed by a civilian at this station and is now in use. The machine saves more than 175 man-hours and 25 gals. of paint remover per plane. It also reduces the fire hazard by having the supply of paint remover in a closed container.

The device consists of a 55-gal. metal drum, two 25-ft. lengths of 5/16" hose, an air pressure regulator, relief valve, one 10-ft. length of ½" water pipe, a floor brush and an outlet nozzle to fit in the bristles of the brush, Pensacola says:

The machine operates with approximately 20 lbs. of air pressure to force the paint remover from the drum, through the hose and through the brush so that the remover may be applied to the surfaces without waste. The air pressure regulator controls the flow of remover. The complete assembly is on a metal frame with casters.

PAINT REMOVAL IS EASY WITH THIS RIG

To facilitate rinsing aircraft hulls and surfaces after the remover has been applied, a scrub brush, with 6 ft. of ½" water pipe as handle, is connected to a water hose. A hole drilled in the brush permits water to go through the bristles. One man using this brush can apply the water in one-fifth the time it took two men to do it with old methods.

[DEVELOPED BY JENT P. MITCHELL, JR.]

Rotor Puller Prevents Damage

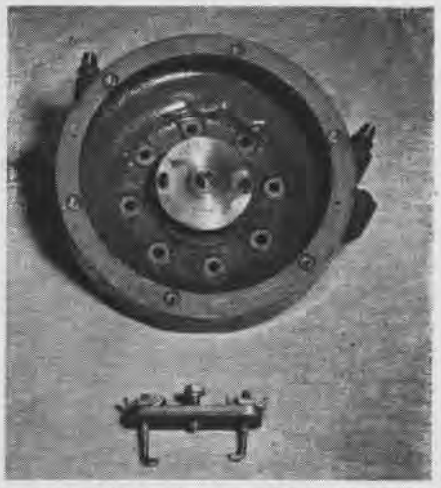
NAS QUONSET POINT—A drive shaft rotor distributor plate puller that removes the distributor drive gear without damaging parts was developed at this station under the Navy's beneficial suggestion program by an enlisted man.

The new puller saves time and eliminates use of hammer, screwdriver and pliers in prying off rotor plates.

With the old method some of the distributor, bodies or rotors were mutilated beyond repair. With the new puller, a job can be performed in two minutes without loss of parts.

Blueprints for construction of the plate puller should be requested from NAS QUONSET POINT.

[DESIGNED BY CLARENCE MATTESON, AMM3/c]



NEW DEVICE ELIMINATES PRY-OFF METHOD

CASU-33 Invents a Film Marker

CASU-33—A photo laboratory cabinet for gun cameras has been developed at this activity. It serves as a two-place loading table, a storage place for loaded magazines, and has an ingenious arrangement in the center section for marking film serially.

To provide for marking film, the designers constructed an enclosed case underneath the desk top at the back of the cabinet. Inside the case is a horizontal spindle arrangement, upon which are mounted three wheels. These have numerals painted at intervals around their circumference, ranging from 0 to 9.

A slot cut into the case across the face of the three numbered wheels creates a dial upon which the numbering camera focuses. A standard GASP gun camera is used for numbering the film. This camera is mounted at a 45° angle upon a bracket fastened to the cabinet top, focusing downward through a slot in the top of the cabinet upon the numbered dial.

String belts from each of the numbered dials extend up through holes in the cabinet top, connecting the dials to small horizontally mounted pulleys built into the desk. Knobs on the pulley spindles permit the operator to spin

the pulleys and turn the dials below from number to number.

Film to be marked is placed in the marking camera, dials are set at the proper serial number of three digits, and the first frame of the film is exposed. Lighting is the conventional 45° set-up used for copy work. The lens angle is 22½°, and the distance from lens to dial is 2′ 2½″. The camera operates from a 24-volt battery, and lights are hooked to a standard 110-volt circuit.

Pine wood an inch thick was used in building the cabinet, and the dial wheels are two inches thick. Wheels

A BATTERY SUPPLIES POWER FOR CAMERA

have 11 sides to their circumference.

Upper shelves of the cabinet will hold 180 magazines, numbered and loaded.

Two purposes are served by numbering film. It is a positive means of identification, and the system provides a development check.

This cabinet unit has been in use several months. By combining its use with a Houston developing machine, one room can be devoted exclusively to gun camera work.

[Developed by W. W. Collier, CPhoM and J. K. Gibson, Sp(X)ED1c]

▸ ***BuAer Comment*—The value of identifying film strips by a serial number is obvious. The subject device is simple, easily constructed, and has been demonstrated to have practical utility. The application of a gummed label bearing the film serial number to the magazine would be of added value in tracing the magazines.**

Cowling Seal Helps in Warmup

NAS New York—A new-type cover for heating aircraft engines in cold weather has been perfected by a chief machinist here, combining cheapness of construction with efficiency and ease of operation.

Constructed of waterproof canvas, it covers the engine from propeller hub to the highest point of the cowling around its perimeter, working with the

SEAL PROVES BOTH PORTABLE AND CHEAP

Herman Nelson gas-fired pre-heater. It is held in place between the trailing edge of the prop and the cowling by bellows action of spring clips. Zippers close all openings.

There is loss of heat by not having the entire nacelle covered but this loss is negligible in comparison to the gain in time required to install the unit and put it in operation. One man can attach the cover in a maximum of two minutes. It weighs only 11 pounds and cost $8 to make. It is anticipated that a maximum of four sizes would cover every type of nacelle. The cover is not designed to retain heat in an already warm engine or as a weather cover for aircraft parked in the open.

[Developed by Chief Machinist M. J. Coyne]

▸ ***BuAer Comment*—This cowling seal has definite advantages. It also might be used for temporary heating and moisture control in the tropics.**

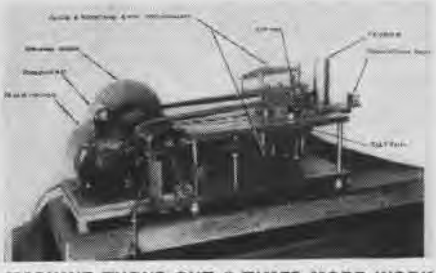
Burring Machine Boosts Output

A&R shops will be interested in a burring machine that Washington Navy Yard has been using to produce a uniform product with greater speed, releasing workers for other tasks.

The machine consists of a 1/3 hp. motor, rheostat, and gears and power transmission. On the driving gear shaft are mounted two pulleys which drive a belt that transmits motion to the two cutter shafts and to the feed mechanism.

Bushings are placed in a cylindrical feeder by hand. This is the only manual operation necessary. Bushings proceed along a prepared slide, are temporarily held in a particular location during application of the two burring cutters and are expelled into a container. Cutters are lowered into position and retracted by operation of a cam mechanism. Prior to installation of the machine, average production was 1,200 pieces a worker.

[Devised by O. V. Rokos]



MACHINE TURNS OUT 8 TIMES MORE WORK

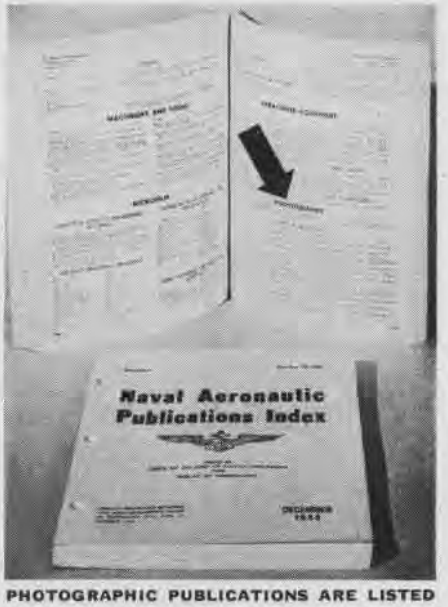
PHOTOGRAPHY

Error Made In D-72 Developer Formula

There is an error in the D-72 Developer Formula on page 299 of Navy Training Course Vol. 2 (NavPers 10372). The correct formula is printed on page 187, Vol. 1 (NavPers 10371).

Naval Aeronautic Publications Index

Attention of all Photographic Officers is invited to *Naval Aeronautic Publications Index* which lists all photographic publications being distributed by BuAer.



PHOTOGRAPHIC PUBLICATIONS ARE LISTED

Photographic Technical Developments

Attention is invited to BuAer Letter Aer-PH-15-DHH, Ser. No. 23365 to All Ships and Stations, dated 9 February 1945 (Navy Department Bulletin dated 15 February 1945) which contains information on BuAer policy regarding the coordination of photographic technical developments.

Pako Glossy Print Dryer, Type B-10

A recent revision to page 1 of AN 10-25-34 (Photographic Glossy Print Dryer, Type B-10), paragraph e., reads as follows:

e. The dryer operates from a 115-volt, alternating or direct current power source, having a capacity of at least 25 amperes. (FOR NAVY ONLY: Early models on stock No. 18-D-810 carried a 220-ohm rheostat and were alternating current only, while early models on stock No. 18-D-815 carried a 440-ohm rheostat and were direct current only. Present models on both stock numbers carry a 350-ohm rheostat and are universal.)

CAUTION

FOR NAVY ONLY: Early models should not be used interchangeably on alternating or direct current unless made universal by installation of a 350-ohm rheostat, part No. R-13.

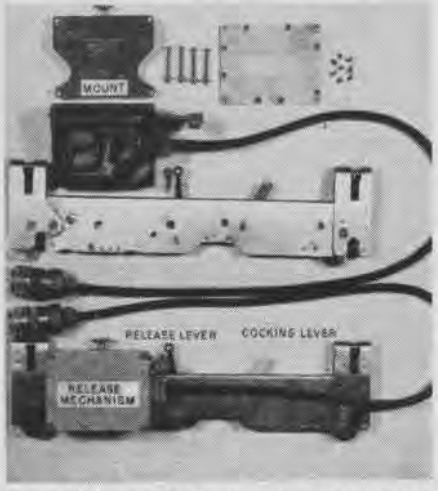
AVIATION ORDNANCE

INQUIRIES SHOULD BE ADDRESSED TO THE CHIEF OF BUREAU OF ORDNANCE

Replacement for Bomb Shackle, Mark 4

A large share of bomb rack and shackle troubles has been attributed to unsatisfactory characteristics of the Bomb Shackle, Mark 4 type. To reduce such difficulties and generally improve bombing results, a replacement for the Bomb Shackle, Mark 4 type, recently has been developed by BuOrd.

This new development consists of a shackle-release combination, the components of which are designated Bomb Shackle, Mark 8 Mod 0, Bomb Shackle Release, Mark 1 Mod 0, and Bomb Shackle Release Mount, Mark 1 Mod 0. Electrical release is obtained through the action of a



COMBINATION GOES ON NEW AVENGERS

spring-loaded pushrod in the release mechanism that flies out and trips the shackle release lever when set free by electromagnetic action. The shackle also can be released manually by the installation of suitable equipment in the airplane.

The release mechanism and its mount may be positioned on either side of the shackle, thus eliminating the need for right and left hand shackles. The mount is designed to fit either side of the shackle and, to change the release mechanism from one side to the other, it is necessary only to reposition a small arm in the pushrod block so that it will extend in the proper direction to bear against the shackle release lever.

No arming provisions are included in the combination since separate electrical bomb arming controls are to be mounted in the airplane.

This combination was designed specifically to replace the Bomb Shackle, Mark 4 type and now is being installed in all new-production *Avenger* aircraft. As soon as sufficient quantities are available, replacement will be made of all shackles, Mark 4 type, now in service.

Operation and maintenance information on this new equipment is given in OP 1342, now under preparation. Distribution of the ordnance pamphlet will be made as soon as possible.

It has been found that early production shackles will corrode to the extent that release failure may occur unless they are properly maintained. BuOrd is taking immediate steps to correct this condition in future production shackles.

In order that required maintenance of these early production shackles can be undertaken immediately, all activities concerned are urged to employ the following procedure:

> *a. New shackles.* As soon as new shackles are removed from the waterproof package they should be immersed in OS 1361 oil (Stock No. R-14-02856) and actuated to oil all parts adequately. Allow to drain for two or three hours and wipe off the outer surface, except the hooks, prior to installation. *b. Shackles in service.* Shackles that have been in service should be agitated while immersed in kerosene or Stoddard solvent to clean. Follow by oil treatment as for new shackles. Because OS 1361 oil affords only short-time protection against corrosion and will tend to collect dirt, all shackles should be inspected frequently and ground-tested without load. Clean with solvent and re-oil as necessary for satisfactory maintenance and performance. *Use only* OS 1361 oil.

No lubrication or preservative is required for the Bomb Shackle Releases or the Release Mounts. Rough landings should be avoided.

Bomb and Torpedo Skid, Mark 8 Mod 0

A new item of aviation ordnance equipment, the Bomb and Torpedo Skid, Mark 8 Mod 0, soon will be issued to the Fleet.

NEW SKID CAN CARRY 2500-POUND LOADS

Designed for manual operation by one or two men, it has a capacity of 2500 lbs. and is for use in transporting bombs of nominal weights between 100 and 2000 lbs., inclusive, or an aircraft torpedo. Handles may be attached to either forward or after end of skid. This makes for ease in loading skid onto aircraft carrier elevators that require loading from one end of elevator platform and removing skid from the other end of platform.

Removal and installation of handles can be accomplished readily by means of knobs on ends of handles most remote from skid. Two stabilizer legs, located on each side of after end of skid, actuate brakes when flush on deck. In addition to this braking system, an auxiliary cam locking parking brake can be operated by means of lever located on aft end between the two legs.

Chain hold-downs to secure the various loads are provided, as are 14" diameter, solid-tired wheels to give maximum ability to pass over arresting gear cables. A movable center bolster is used to eliminate interference with certain bomb lugs that protrude downward, to provide an open tray in the well of the skid for carrying ammunition, etc., and to provide support for four 100-pound bombs. Because of its maneuverability and ability to carry a variety of bomb loads, this skid will replace the Mark 5 Mod 1 skid on all aircraft carriers.

Procurement of Bomb and Torpedo Skid, Mark 8 Mod 0, Stock No. 3-S-3091-150, has been initiated, and deliveries from the contractor are expected to begin in May. An OP change to the existing Bomb Handling OP is under preparation.

Flexible Material Protects Raft Guns

An air group commander while on a strike against an enemy convoy off the Marianas was shot down and spent 11 days in his one-man raft. During this time he purposely kept his cal. .45 automatic pistol completely submerged in sea water in the bottom of his raft. At the end of eleven days his pistol was in firing condition with only a slight pitting of the barrel.

The armory division of NAS Beaufort made a similar test by submerging a revolver and extra parts from a service pistol, and several rounds of ammunition, in sea water. Periodic inspection of the parts revealed no sign of corrosion evident to the eye, indicating that the parts would function perfectly immediately upon removal from the water. However, 20 minutes after removal of the gun, a soft rust began to appear hardening as the parts became dry, and within 40 minutes, rust formed so rapidly that the gun would not have fired without malfunctioning.

For protecting such weapons, there is now available a pistol protective cover for cal. .45 pistols and cal. .38 revolvers. Made of flexible transparent material, it protects these guns from water and oil and is not affected by temperatures from −20°F to 150°F. "Sealing" the gun in the cover is very easily accomplished by means of a non-corrosive metallic fastener. The cover

BAG PROTECTS ARMAMENT ON LIFE RAFTS

adds very little to the size or weight of the gun, as the gun, with cover attached, can still be carried in a holster.

These "Covers, protective for Pistol or Revolver" (Stock No. 74c-307) can be procured on requisition from NSD at Norfolk or Oakland, BuOrd announced recently.

NavAer Form 3142 Is Revised

The advent of Mk 5 Arresting Gear has required revision of Arresting Gear Crash and Damage Report, Form NAVAER 3142. All vessels and shore activities now equipped with Mk 4 arresting gear should continue use of the present form until the supply is exhausted. Distribution of new forms for Mk 5 gear will begin immediately.

Submission of the form is to be in accordance with the instructions of Aviation Circular Letter 48-44 par. 4(b). However, reporting activities are requested to bear in mind that improvements to equipment can be made only if BUAER is kept accurately informed concerning any malfunctioning of or repeated damage to arresting gear and barriers.

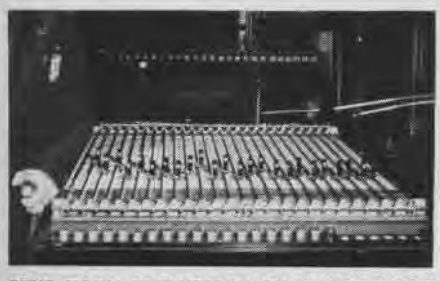
Deflectometer Earns An Award

NAMC PHILADELPHIA – Dangerous and time-wasting methods of recording deflection have been eliminated by invention of the Deflectometer. Its originator, a shop master at NAMC, received an award from the Committee on Beneficial Suggestions.

An operator standing 25 feet away from the object being tested can check any specific reading or ascertain the over-all results of as many as 25 readings at one glance. Formerly a crew of men took 15 to 20 minutes on the job.

The human factor of error, caused by haste in reading and differing eye levels, is removed by this device. Also, the additional improvement of being able to stand 25 feet from the test site minimizes danger from flying fragments during an element or destruction load.

The Deflectometer consists of a series of pens attached to deflection wires. As deflection occurs, these pens ride along the rods of the device and make a permanent black line on graph paper. When the deflection at a certain increment of load is required, the graph paper is moved at right angles to the pen travel by a manually operated solenoid. The pen trace then continues in a line parallel to the original trace. This procedure continues through as many tests as are desired.



PENS MARK DEFLECTION ON GRAPH PAPER

The Deflectometer can be adapted to use anywhere that a wire can be attached.

[DESIGNED BY FRANK FARNESE, SHOP MASTER]

Planes Can Eliminate Battery

Many Navy fighter airplanes with two AN 3151 (24-volt, 17 ampere-hour) batteries installed are being used in combat. In areas where temperatures are above 50° F., one battery should be removed unless difficult starting causes excessive drain of one battery. The change reduces the weight of the airplane by approximately 52 pounds.

Wherever practicable, production airplanes will have space provisions for one AN 3150 (24-volt, 34-ampere-hour) battery. This battery should be installed whenever two 17-ampere-hour batteries are regularly used. The change will save about 30 pounds.

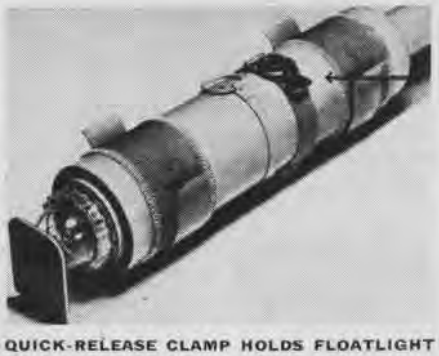
Technical Order No. 66-44 should be consulted for additional details.

CASU Uses Clamp on Floatlight

CASU-2—Several air groups based at this activity have complained that the floatlight, when mounted on the bulkhead behind pilot's shoulder, breaks loose from its bracket during carrier landings and bounce drills.

This unit has equipped all floatlights with a quick-release clamp made at the A&R shop. It is recommended that the manufacturer equip all new floatlight assemblies with a retaining clamp.

▶ ***BuAer Comment*—This light was not designed for use in aircraft. Since the initiated change would adversely affect the original use of the light as a ship's life raft unit, it is believed a specification change is not warranted. However, BuAer has requested additional details from CASU-2 for the preparation of a technical note describing the method used to modify the material for aircraft use.**



QUICK-RELEASE CLAMP HOLDS FLOATLIGHT

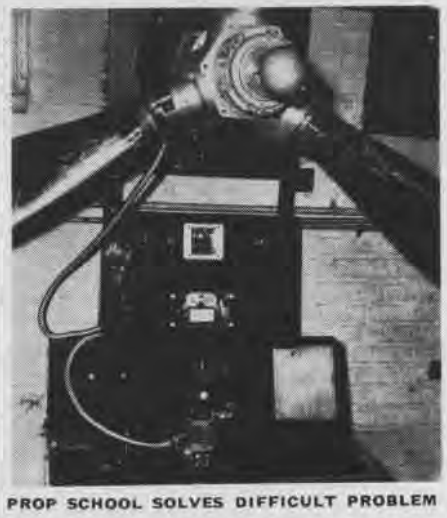
NATechTraCom

Curtiss Prop Governor Control Mock-up

Students in the Propeller School NATECHTRACEN, 87th & Anthony, Chicago, have had difficulty in understanding Curtiss propeller governor operation. To help them grasp the theory of operation and actually see how blade angles are changed, mock-ups have been built in the Curtiss shop that simulate actual installations. By closing switches, circuits are completed so as to operate the power unit as in usual selective fixed pitch manual operation.

In addition, an idea developed in the school makes use of a governor mounted on governor test stand to operate prop.

In order to operate the assembly, the governor test stand is run as in usual governor testing procedure. But, instead of connecting the governor to the electric circuits of the test stand, a connector plug with wire leads running to the relay of the mock-up is inserted. As the test stand RPM is increased or decreased, overspeed, underspeed and onspeed conditions are set up as would be true if an engine were running the governor. The propeller relay therefore closes its contact as the governor demands, operating the propeller power unit that contains a reversible electric motor used to change blade angles to higher or lower pitch.



PROP SCHOOL SOLVES DIFFICULT PROBLEM

By means of this mock-up it is possible to show proportional correction and solid correction as well as the conditions described above. This arrangement also has been a valuable aid in teaching governor calibration. At times, students become confused as to the meaning of the red and green lights on the test stand, which flash on and off during the various checks to show off and on speed conditions. This trouble is corrected quickly once the student has actually seen what the flow of electricity does.

One other feature of the mock-up is the facility with which it can be used for giving practice in trouble shooting, since it actually contains all the parts and connections found on an airplane in actual use.

PROPSTRUCTORS. CUTAWAYS OF AIRCRAFT PROPELLERS, HAVE BEEN COMPLETED FOR THE FM, SB2C, F6F, F4U, SBD, PBY AND PB4Y

JACKSONVILLE'S SPECIAL DEVICES SHOP

UTILIZING salvaged aircraft materials, the Special Devices Shop at NAS JACKSONVILLE develops and manufactures training devices for the air stations of the Naval Air Operational Training Command. It is the only one of its kind in NAOTC and was the first large special devices shop at any NAS.

At the request of CNAOpTRA, BuAer's Special Devices Division furnished technically trained officer personnel, machine tools and operating funds for the shop. NAOTC furnished the space, enlisted personnel and immediate supervision. The complement is 42 men and five officers.

Sixty Cockpitrainers Have Been Built

The shop originally was set up to build Cockpitrainers from stricken aircraft cockpits. Sixty of these have been built and delivered to air stations for use in giving cockpit checkouts to pilots. In addition to those for all carrier types, Cockpitrainers for the PV and PBJ have been made. When removing the cockpit from a crashed plane the gunner's compartment is cut out, trimmed up and delivered to Naval Air Gunners' Schools for use in familiarizing student aircrewmen with the physical characteristics of Navy planes.

First cutaways to be built were called Propstructors, which now have been constructed for the FM, SB2C, F6F, F4U, SBD, PBY and PB4Y. The device consists of a sectionalized propeller mounted on a prop hub and engine nose section, supported by a welded pipe stand.

Popular Jacksonville-built Flight Pattern Demonstrator, using models, shows plane formations and various steps in maneuvers

Sectionalized engines are among shop's cutaways. Engines are disassembled, parts are cleaned, sectionalized, then reassembled

INTEGRATED AERONAUTIC PROGRAM

ASO Bases Allowances Upon BRR's

ALTHOUGH relatively young, the Integrated Aeronautic Program is producing most advantageous results already, particularly in logistics. This fact is evidenced by recent reports from the Aviation Supply Office in Philadelphia. Being most immediately concerned with planning for supply needs, ASO has begun a scientific analysis of data supplied to it by field activities on Section "B" *Report and Requisition* forms.

This information, supplied at various intervals of 30, 45, or 60 days, according to local conditions, forms the basis, largely, on which ASO is enabled to schedule both allowance and procurement of aircraft maintenance spare parts excluding reconditioning and overhaul material.

When land-based Fleet activities submit BRR's to the land-based supply points for their particular area, such as points in the Hawaiians or even more advanced theaters, the supply point promptly ships material required by the reporting activity. There is no delay in actual shipment of needed parts.

No-Issue Items Are Stricken From List

But information of the report does not die at the local supply depot. It is forwarded to certain central points where it is consolidated with other information from similar reports, and ultimately it reaches ASO in Philadelphia. Since the reports show which parts are on hand, which required, and which issued, ASO can design allowance lists and procurement plans with scientific accuracy by studying this combined information.

Already, revisions of allowance lists are nearing completion for all types of aircraft on which sufficient information has been received by ASO to indicate definite trends of consumption. Such trends are well defined.

Items on which the Fleet reports no issue are being cut back on contracts and stricken from allowance lists. This effects great saving of storage, shipping space, and investment in parts seldom needing replacement.

Changes Are Made In VF and In VSB

Similarly, items on which issues have developed to a higher degree than was anticipated originally are being increased now on allowance lists. For example, as a result of studying the data supplied by the BRR's, ASO has made these changes in allowance lists for VF and VSB:

1. Fifty-three percent of items on original lists have been DELETED.
2. On 17 percent, allowances have been INCREASED.
3. On 12.6 percent, allowances have been readjusted DOWNWARD.
4. On 17.4 percent, allowances remained UNCHANGED.

Contractual agreements with manufacturers permit a revision of spare parts procurement approximately every 120 days. That 52 percent of the items on the original allowance list have been stricken, indicates the great value of the BRR's.

▶ No *guesswork*, however expertly arrived at, can supplant a carefully wrought analysis of accurate information in determining allowance lists.

The Integrated Aeronautic Program thus is achieving part of its goal. Soon, as further information becomes available, *all planes* in the Fleet will be similarly studied, and the over-all supply problem will be made less complicated, accordingly.

The BRR program, which makes this revision possible, was initiated by COMAIRPAC in a confidential letter dated 19 March 1944. As a report form, the BRR contains a listing of all items on the corresponding BUAER Section "B" Allowance List. These are arranged numerically by stock class, alphabetically by manufacturer, and numerically by part number for each manufacturer.

BRR Data Must Reflect Actual Usage

Simplicity of analysis is achieved in that this arrangement conforms to the usual stock-ledger card arrangement employed by supply divisions of the operating Fleet units. Therefore, issue cards can be transcribed direct from stock-ledger cards, at the same time each item is being reviewed for requisitioning.

Operating field units which fill out the BRR can easily appreciate the fact that the data which they are supplying must reflect usage as nearly as possible.

This type of aircraft also will be affected logistically by ASO program which already has benefited VF and VSB allowance lists

When land-based Fleet activities submit BRR's to the land-based supply points, such points ship required material without delay

(*Succeeds List dated 20 February 1945*)

LATEST BULLETINS ENGINE, AUXILIARY POWER PLANT, ACCESSORY, PROPELLER 19 March 1945

ENGINE	BULLETIN	DATE	SUBJECT	EXPLANATION
PRATT & WHITNEY				
R-985	0 Rev. 1	2-22-45	*Numerical Index of R-985 Engine Bulletins*	Provides index of bulletins in effect.
R-1830	0 (Rev. 1)	2-13-45	*Alphabetical & Numerical Index of Pratt & Whitney R-1830 Engine Bulletins*	Provides index of bulletins in effect.
	391	1-16-45	*Oil Seal—Rear Oil Pumps*	Instructions for installation of new oil seal that minimizes possibility of scoring pump shaft.
	397	2-24-45	*Gasket—Propeller Shaft*	Instructions for using gasket between propeller shaft tube support cover and propeller shaft tube support, to eliminate oil leakage.
R-2000	0 (Rev. 1)	2-22-45	*Index, Alphabetical and Numerical—Pratt & Whitney R-2000 Engine Bulletins.*	Provides index of bulletins in effect.
	96	2-24-45	*Gasket—Propeller Shaft*	Instructions for using gasket between propeller shaft tube support cover and propeller shaft tube support, to eliminate oil leakage.
	97	2-17-45	*Valve Timing and Spark Advance—Differences in*	To delineate differences in applicable engines thereby preventing inadvertent installation of wrong parts.
R-2800	106 (Supp. 1)	2-24-45	*Gasket, Blank Under "Full Rich" Plates on Stromberg Injection Carburetors—Installation of*	To eliminate leakage past the "Full Rich" Plate.
	120 (Supp. 2)	2-16-45	*Jet Metering Water Injection Regulator—Replacement of*	To maintain satisfactory engine performance at combat power, as established by BuAer, with reduced water consumption.
R-2800	111 (Supp. 1)	2-2-45	*Rear Counterbalance Intermediate Drive Gear Shaft Bushing*	Information on installation of a new rear counterbalance intermediate drive gear shaft liner of harder steel in models listed under this application.
	193	2-24-45	*Gasket—Propeller Shaft*	Instructions for using gasket between propeller shaft tube support cover and propeller shaft tube support, to eliminate oil leakage.
	194	2-19-45	*Distributor Drive Idler Gear Locking Bolts and Nuts*	Information for installation of distributor drive idler gear locking bolts and nuts.
	195	Being issued	*Crankshaft Bolts—Identity of*	To prevent crankshaft bolt lock failures and to identify acceptable and unacceptable locks.
	197	2-21-45	*Covers—Thrust Bearing*	To prevent oil leakage at propeller shaft thrust bearing covers.
WRIGHT				
R-975	0 (Rev. 1)	2-1-45	*Numerical Index of R-975 Engine Bulletins—Cancellation of*	Provides index of bulletins in effect.
R-1820	0 (Rev. 1)	2-6-45	*Numerical and Alphabetical Index of R-1820 Engine Bulletins*	Provides index of bulletins in effect.
	351	2-3-45	*Oil Pressure Relief Valve—Replacement of*	For improved oil pressure recovery after momentary oil circulation interruption caused by acrobatic maneuvers.
	373	2-15-45	*R-1820-60 Engine for Installation in R-50-4, -5 and -6 Airplanes—Conversion of*	To permit installation of R-1820-60 engine in R50-4, -5 and -6 airplanes as an alternate engine.
R-2600	0 (Rev. 1)	2-13-45	*Numerical and Alphabetical Index of R-2600 Engine Bulletins*	Provides index of engine bulletins in effect.
	151 (Supp. 1)	2-19-45	*Clutch, Supercharger—Rework to Improve Operations*	To reprovide steel high and low clutch plates, WAC Part Nos. 64992 and 113526 in place of sintered bronze plates 118493 and 117145.
	159	2-16-45	*Priming System—Conversion from Three Point to Two Point System*	To reduce fire hazard caused by failure of manual shut-off valve, WAC Part No. 115179N1.
AUXILIARY POWER PLANT				
	18	1-29-45	*Fuel Line Pump to Carburetor—Replacement of With Flexible Tubing Assembly*	To preclude fire hazard resulting from fracture of metallic fuel line.
	19	1-4-45	*Muffler and Exhaust System—Inspection and Replacement of*	To prevent exhaust system from becoming clogged causing excessive exhaust back pressure and eventual engine failure.
HAMILTON STANDARD PROPELLER				
	14	1-23-45	*Hamilton Standard Eclipse Electric Governor Control Head Types 492 and 493—Modification to Incorporate Latest Changes*	Modifications to be incorporated in subj. governor control heads used on PB4Y-1, -2 & RY-3.
R-3350	0 (Rev. 1)	2-1-45	*Numerical Index of R-3350 Engine Bulletins*	Provides index of bulletins in effect.
GENERAL ENGINE BULLETINS				
	21 (Supp. 1)	1-24-45	*Ignition Sealing Compound—Instructions for Application of*	To make instructions in original bulletin mandatory To delete use of carbon tetrachloride.
	55	2-23-45	*Studs—Methods for Easy Replacement of*	Up-to-date information on methods of replacing loose, broken or stripped out studs in all aeronautical equipment, but with particular ref. to aircraft engine studs.
ACCESSORY POWER PLANT BULLETINS				
	3	1-17-45	*Hydraulic Pumps, h-12*	To effect a tight seal, valve seat was redesigned to provide a seal ring groove which permits more "squeeze" on seal ring.
	4	1-22-45	*Miscellaneous Accessories, J-14*	To advise activities how to convert Ceco water pump model 9136 to the Model 9158AB water pump.
	5	1-19-45	*Hydraulic Pumps, h-13*	To advise activities that if pump is damaged due to broken or damaged feet, pump motor can be readily salvaged and repaired.

Milady's Lipstick Goes To War

Gas Tank Leaks Remain Marked With It

Old time shellbacks of the more rugged school may be interested in knowing that "kissproof" lipstick now has gone to war in naval aviation repair shops. It's being used at NAS PATUXENT RIVER to mark leaks in aircraft wing gasoline tanks.

Eyebrows were raised in that station's purchasing division not long ago when a WAVE Supply Corps officer put in a request to purchase a gross of milady's lip cosmetic. The explanation—lipstick was thought to be ideal for marking wing tank leaks prior to repair since it would be more difficult to rub off than marking materials previously used.

Extension Makes Valve Accessible

Fleet Air Photographic Squadron Five submits the following information concerning the belly turret retraction release valve handle in PB4Y-1 airplanes.

When flying at an altitude demanding oxygen, the existing arrangement requires that the waist turret gunner leave his post, with a portable oxygen source, to operate the valve and lower the turret. The belly turret gunner is not able to leave his turret without removing his oxygen mask, because of the insufficient length of mask

VALVE IS REACHED WITHOUT LEAVING POST

hose. The necessity of the waist gunner leaving his post has been eliminated by a modification to the valve handle.

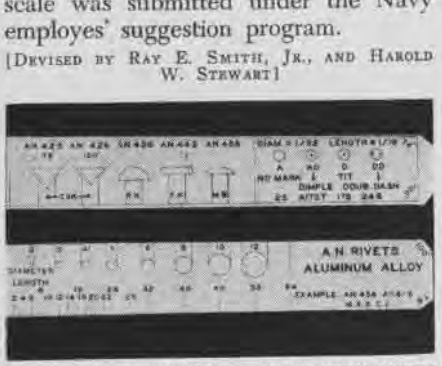
An extension to the handle was run aft through the bulkhead at station 7.0, which enables the waist gunner to operate the valve without leaving his post.

Rivet Scale Aids Identification

NAS CORPUS CHRISTI—Two men at this station have devised a rivet scale to train green employes while they learn automatically to identify A.N. rivet numbers.

Conversion of units of measure to the special code needed to describe the rivets is unnecessary. As a result, orders for rivets are more accurate and speedy and errors are eliminated, especially in rivets more than an inch long. On the side of the scale appears the shape of the rivets with head designation. On the other appears the diameter and lengths of standard rivets. The scale was submitted under the Navy employes' suggestion program.

[DEVISED BY RAY E. SMITH, JR., AND HAROLD W. STEWART]



RIVET SCALE HELPS TRAIN NEW WORKERS

SCREEN NEWS

Keeping 'Em Corked. When the Navy took the Marines and the Army into Japan's back yard, in 700-league boots, about 100,000 by-passed Japs were stranded on islands all over the Pacific and forced to watch the war go by. Just to make sure the Nips would watch it in comparative idleness,

MILK RUN MARINES ARRIVE ON SCHEDULE

with a minimum of backstage heckling, Marines of the air were assigned to "neutralize" them—*i.e.*, knock the living hell out of Jap airfields, planes, installations and personnel. The painstaking care and regularity with which the Marines have been doing this vital job are well illustrated in:

MH-5574 *Pacific Milk Run* Unclassified, 20 min.

Synopsis: The Marines never let the Japs get set to sneak a punch. With monotonous regularity, like a train caller intoning railroad stops, they bomb and strafe enemy island bases on a day to day schedule. The Japs try to fight them off and sometimes the flak is thick enough to walk on, but the Marines stiff-arm their way through, shoot Japs out of the sky, and complete the mission. Sometimes they get a special rush assignment, when news comes of a Jap convoy forming or something like that, but mostly it's the Milk Run—routine, timetable destruction. The stranded Japs are in a bottle; Marines are keeping it corked.

Airborne Fire. Use of fire as a war weapon goes back to the days when men stormed castles with burning brands hurled by giant slingshots. In modern war, the airplane plus a new incendiary mixture has brought devastation-by-flame to its fiercest peak. Even the fighter plane is carrying fire to the enemy, as demonstrated in:

MA-4963 *Fighter Borne Fire Bombs* Restricted, 18 min.

Synopsis: Shows how belly and wing tanks of fighters can be converted to fire bombs by filling them with a combination of aviation gas and Napalm in a mixture tested for greatest possible efficiency. Demonstrates results of too little and too much Napalm in the mixture. Illustrates the incendiary and anti-personnel effectiveness of fire bombs against such targets as wooden structures, trenches, pill boxes, piers, ships. Bombs will ignite on either water or land targets because each bomb is equipped with both types of fuzes.

For Those Who Can't Take It. Few adults have been able to shake off the deep-rooted aversion to taking medicine which is a persistent hangover from childhood. Carried into war, this anti-pill prejudice becomes a reckless gamble with suffering and death at the hands of bacterial or parasitic enemies. The child who shrank from castor oil becomes the fighter who says the hell with that atabrine pill. In the following movie, this problem is treated in light cartoon style, but with an undercurrent of dead seriousness:

MN-2808a *The Ten Commandments of Health—1 — Taking Your Medicine.* Unclassified, 6 min.

Falling star of the animated cartoon is a guy named McGillicuddy. By sleight of hand and other devious tricks, McGillicuddy attempts to wangle a way out of the pill-taking chore and finally succeeds in putting one over—on McGillicuddy!

Rocket Films Recently Shipped:

MN-4050a *Airborne Forward Firing Rockets—CV Type Aircraft Service Unit Training* Conf., 26 min.
MN-4050b *Airborne Forward Firing Rockets—Installation of Mark 5 Zero Length Launcher Kit* Conf., 10 min.
MN-4051 *Airborne Forward Firing Rockets—CV Type Aircraft Pilot Training* Conf., 23 min.
MN-4383 *Airborne Forward Firing Rockets—Tiny Tim* Conf., 21 min.
MG-5160 *Airborne Forward Firing Rockets—General Indoctrination for Aircraft Pilots* Conf., 20 min.
MG-5157 *Ground Firing Rockets—Aircraft Pilot Indoctrination* Conf., 41 min.
MN-4382a *Airborne Forward Firing Rockets — Carrier Loading and Stowage of Aircraft Rockets* Conf., 22 min.
MN-4382b *Airborne Forward Firing Rockets—Carrier Procedure for Assembling, Testing, and Loading of Aircraft Rockets* Conf., 22 min.
MN-5036 *Airborne Forward Firing Rockets — Tiny Tim: Handling Aboard a Carrier, CV-9 Class* Conf., 20 min.

Where to Get 'Em. Central Aviation Film Libraries and Sub-Libraries are located at:

Naval
ABATU, NAS St. Louis
CASU's 2, 4, 23, 24, 31, 32
CASU ComDet., Port Hueneme
ComAirPac
FAW 15
Hedrons 2, 4, 7, 10, 12, 16, Det., 17
NAB Seattle
" Navy 939
NAC Navy 140
" Navy 3205
NAS San Diego
" Squantum
" Willow Grove
" Navy 115
" Navy 117
" Navy 720
NATB Pensacola
" Corpus Christi
NATEC Lakehurst
Navy 3233
TAL Navy 116
NAMC Philadelphia
NAOTC Jacksonville
NAS Alameda
" Atlanta
" Brunswick
" Clinton
" Kodiak
" Moffett
" New York
" Norfolk
" Patuxent
" Quonset
Marine
MarFairWestCoast
MCAD Miramar
MCAF Newport
MCAS Cherry Point
" Eagle Mt. Lake
" El Centro
" El Toro
" Mojave
" Navy 61
" Parris Island
" Santa Barbara

LETTERS

SIRS:

I understand that there has been formed a so-called "Hedgerow Club" for those in aviation ratings who have crashed in a plane among the proverbial and ever-present hedgerow.

Would you forward information to me concerning this matter.

FAW 7 ARM3c, USN

¶ NANEWS has no information about such a club. If anyone does, please advise.

SIRS:

In the March 15 issue of NANEWS, you had an article on the Aviation Storekeeper School at Jacksonville. In this article was the statement that graduates of this school wear the SKV insignia, established in August of 1943.

AVIATION STOREKEEPERS GET NEW BADGE

Most of the SKV's stationed here have been under the impression that the SKV rating badge has not been officially approved by BUPERS, and therefore, continue wearing the SK rate.

An SKV rating badge is something desired by every SKV and is often the subject of many arguments. Can you officially state the exact status of the SKV rating badge? Is it or is it not authorized?

If this rate has not been authorized, what are the prospects of it becoming official and being placed on sale in all clothing and small stores?

AVIATION STOREKEEPER 1c

NAS QUONSET POINT

¶ The SKV rating badge was authorized 15 March 1945 in BUPERS Circular Letter 65-45 and will be on sale as soon as it can be made in sufficient quantities.

SIRS:

If the readers of NANEWS need any assurance that the "Navy takes care of its own," a visit to the convalescent hospital at Harriman, N. Y., should dispel all doubts.

Located on the 18,000-acre Harriman estate 50 miles above New York City on the west side of the Hudson River, the hospital cares for male officer patients who are convalescing from wounds or who need a rest for other reasons.

Everything is done to get away from regimentation. You don't even have to sign out for books in the library! They wake you up in the morning with chimes, but you don't have to get up if you don't want to. The food is prepared by an ex-chef from one of the big New York hotels and is the best I've ever tasted. The co is a great guy, and he and his charming wife make you feel that you are their guest.

Practically all sports are available, but no heat is put on you to participate if you're not in the mood. All in all, Harriman is the most un-hospital-like hospital you can imagine.

REGIMENTATION IS GIVEN LOW PRIORITY

Harriman, N.Y. LIEUTENANT (jg) USNR

SIRS:

An article appearing on page 25 of NAVAL AVIATION NEWS for February 15, 1945, titled, "Home From The Aleutians," regarding this squadron's duty in the Aleutians, although technically correct is rather misleading.

The squadron's designation was changed from VB-135 to VPB-135 on 1 October, 1944. After 1 October, 1944, there were no casualties or losses of aircraft; however, during the five months previous, there were casualties.

This command requests the source of information on which the above mentioned article was based.

Information concerning this squadron's last tour of duty in the Aleutians can be obtained through the History Unit, OP-33-J6.

CO, VPB-135.

¶ The item was a re-write of a Navy Public Relations press release. NANEWS appreciates the fact that VPB-135 has called this implied inaccuracy by inference to its attention, since this squadron suffered loss of both planes and personnel in establishing a combat record that is outstanding.

NAVAL AVIATION NEWS

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ANSWERS TO QUIZZES

● BEST ANSWERS (p. 14)

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

● NAVIGATION PROBLEM (p. 22)

1. LHA 293°
   Dec 23° S
   Lat 42.4° N
2. CE 13° W
   Dev 5° E
3. Tr 117°
   GS 178 k

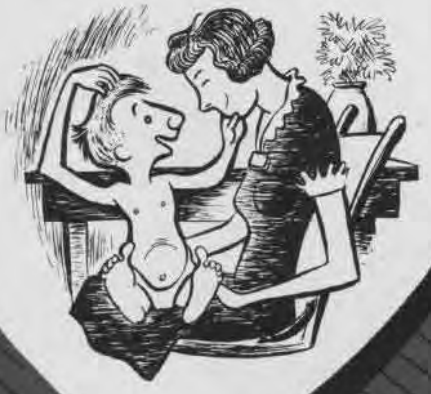
(Tolerances: For Nos. 1 and 2, one degree; No. 3, two degrees and two knots from ans.)

● GRAMPAW'S QUIZ (p. 12)

1. Not over rated rpm (except in emergency). If shifts are made at lower rpm, the life of the supercharger clutch will be prolonged. Ref: TO 11-45.
2. Chutes or harnesses may be omitted only in multi-engine transports when the plane can maintain flight with 50 percent of its main power plant. Special instructions for NATS in *NATS Manual*. Ref: ACL 16-45.
3. Whenever there is any possibility of icing. Ref: FSB 10-44.
4. 500 ft. except for certified flight instruction as specified in Section 60.3505 Civil Air Regs.
5. No Ref. Para. 8(f) ACL 1-45.

Tussies always "fall" for the Ladies

1 *The Old Lady*



2 *The Young Lady*

3 *The Fighting Lady*

DIDN'T IDENTIFY

4 *The Gray Lady*

Don't be the fall guy: **IDENTIFY when approaching friendly ships**

PRELUDE TO IWO JIMA INVASION

WHEN the Marines hit the beaches at Iwo Jima, they found the going tough and resistance heavy, but they also found grim evidence of the devastation caused by the Fleet. Reconnaissance photograph above shows four Jap ships beached on the bomb-pocked volcanic sand further disfigured with antitank ditch, trenches and rifle pits. Lower photo shows close-up of another Jap landing ship, stripped and beached after U.S. bombs had found their mark during the naval bombardment.