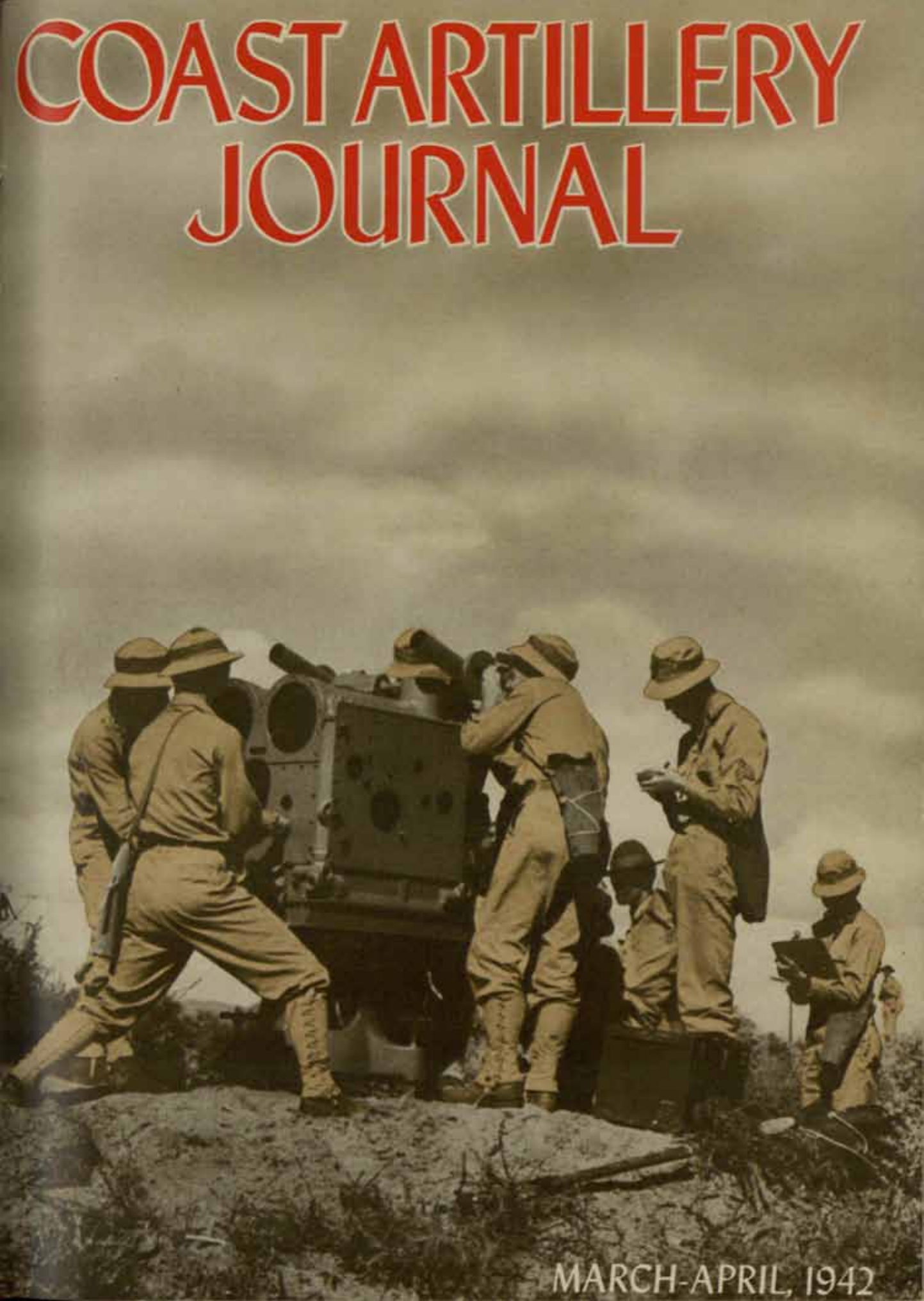
COAST ARTILLERY JOURNAL



MARCH-APRIL, 1942

ON THE F

The entry of the United States into the Second World War found the Coast Artillery already established on the firing lines of the two hot spots of action.

In the Philippines and in Hawaii, Coast Artillery troops received their share of the first fierce unheralded attack by a foe noted for his usual disregard for the humanities. In the forts of Manila Bay, American regiments and Philippine Scout regiments manned adjoining batteries against a common enemy. Diverse army components had no diversion of loyalty, no difference in determination to fight the battle through. Whether Christian, Mohammedan or pagan, whether Filipino, Moro or of the mountain tribes of northern Luzon, Philippine Scouts have sealed their allegiance to the United States with the clots of their own blood. No commander has ever had any finer fighting men than the cool artillerists of the Filipino, the fierce bolo-swinging Moro, or the intrepid tank-riding scouts from mountain pagan tribes.

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In the First World War, Coast Artillery units were trained for field service at Camp Eustis and in the various harbor defenses. Fixed position action for Coast Artillery became overnight but a preliminary phase in artillery training for the action in the mobile warfare of France. Throughout the nineteen months of that conflict, we shipped from the eastern seaboard ports of embarkation a continuous stream of Coast Artillery units that went into action against the Central Powers as antiaircraft units, as trench mortar units, as heavy artillery units manning railway artillery and field guns and howitzers of 155-mm. and above, as sound ranging units and as ammunition trains.

The entry of Coast Artillery units into the action of the First World War presented all the problems of a radical change in training methods incident to conversion from the practically static condition of previous peace to the dynamic action of the ebb and flow of the blazing line of conflict in France. The units that sailed to join the A.E.F. in those days returned later with commendations and citations that attested a job well done. The

RING LINE

medals of officer and enlisted man, the battle streamers of returning regiments remain today as memorials to our efficiency as individuals and as units. In 1917 and 1918 we crossed the Atlantic to take our place among the Allied Powers to end the aggression of the German-Austrian combination. By November, 1918 our job was done.

* * * *

The opening of our participation in the Second World War found Coast Artillery units manning assigned weapons at assigned positions. We did not have to go from here to there to find war there: war came from there to here and found us here!

On the morning of Sunday, December 7, 1941, Coast Artillery troops on Oahu received their baptism of fire. Antiaircraft action at Fort Kamehameha netted at least two enemy planes. Ground troops were strafed by low-flying Japanese planes getting into position to launch their attack against naval vessels in near-by Pearl Harbor.

The following day the Coast Artillery troops manning the island forts of Forts Mills, Hughes, Drum and Frank that stretch in a zig-zag line across the entrance of Manila Bay received their own baptism of fire from enemy planes. Day after day at those forts the troops have been subjected to heavy air raids in enemy effort to soften their defensive strength against the day of a water-borne attack against them.

Their antiaircraft defense has given ample testimonial to long hours of careful training. Plummetting enemy aircraft, in flames, are their citations of work well done. We read in Communique No. 43 of January 3 that, "The enemy air force attacking the island (Corregidor) was composed of at least sixty bombers. There was no material damage to installations on the island. Our casualties resulting from this attack were thirteen killed and thirty-five wounded. At least three enemy planes were shot down by antiaircraft fire."

Items equally suggestive of heavy action appear day after day in the communiques released. Put together they present a picture of a twenty-four hour alert day by day. A

picture of ears straining for the distant sound of approaching planes—a picture of eyes glued continuously to telescopes—of gun and searchlight positions with matériel ready and personnel getting what rest they can until klaxoned into instant action. They keep the watch upon the heights of Corregidor—they keep the faith we have in them!

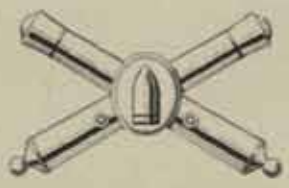
The first published account of action by the seacoast artillery of the island forts was given in Communique No. 87 of February 1, 1942: "An enemy force assembled at Ternate on the south side of Manila Bay, opposite Corregidor, apparently with the object of attempting a landing on our island fortifications. Numerous launches and barges collected near Ternate for the projected expedition. Our big guns were suddenly concentrated on this force. The surprise was complete and the force and its equipment were destroyed."

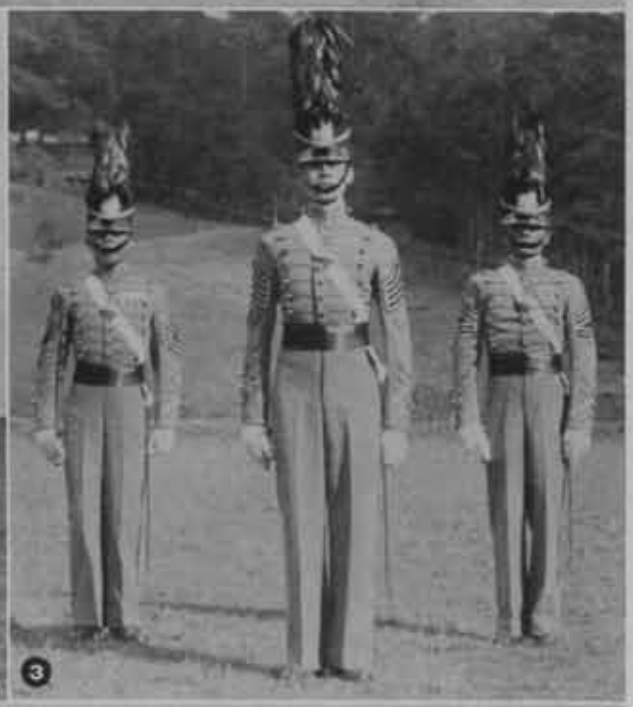
Again on February 5, 7, 8, 9, 10, 11, 14, 17, 18, 19, 21, 22 the forts of Manila Bay were in action against batteries which the enemy had emplaced on the south shore opposite our forts. Heavy counter-battery fire met with considerable success.

During the early phase of action on Luzon when our mobile forces were fighting on two fronts—one south of Manila against Japanese forces which had landed on the eastern shore, and one north of Manila against the enemy forces moving south from the Lingayan Bay area—the troops of the Philippine Coast Artillery Command kept the west flank safe by denying the enemy entrance into Manila Bay. Manila Bay once gained by the enemy at that time would have meant the immediate fall of Manila with the consequent separation of the south and the north field forces. The Harbor Defenses fulfilled their mission.

In a well-planned and brilliantly executed maneuver, our southern mobile force withdrew from enemy contact and moved westward to the Bataan Peninsula joining forces with the northern mobile unit. The resultant defensive force then consisting of the two original mobile forces occupied the jungle heights of the Bataan Peninsula and faced to the north against greatly superior enemy forces.

The Harbor Defenses now became the rear guard for our troops on Bataan. The island forts continued to deny the enemy entrance into Manila Bay. The southern and southeastern shores of Bataan are still safe from enemy landing operations. Again the Harbor Defenses fulfilled their mission.—F.A.P.





Signal Corps, Philippine Army

FIRST-CLASS FIGHTING MEN

1—Future heroes of Bataan. 2—Trainees; proud soldiers of Luzon. 3—Philippine Army cadets on parade. 4—At Baguio, West Point of the Philippines.

THE LANDING operations that are the first stage of Japanese invasion tactics on the various Pacific fronts are following a pattern developed in peacetime tactical training, and repeatedly rehearsed and tested under service conditions ever since the attack on China in July, 1937, according to reports.

Reconnaissance of landing beaches or shores, either by air, through the work of secret agents, or both, is the first step. Troops assigned to effect the landings that ensue have been thoroughly drilled in their tasks.

On the night before the landing, troop-ships, landing-boat carriers, and naval convoys establish a rendezvous at a designated anchorage. If a suitable anchorage is not available, vessels arrive off the beach between midnight and dawn.

Landings are usually made just before dawn, on days when high tide comes just after dawn. When possible, periods of rain or stormy weather are chosen in order to increase the element of surprise. Men are transferred from transports and landing-craft carriers just off the landing beach.

In all their operations in China, the Japanese have had overwhelming air and naval superiority. On one occasion, Japanese destroyers assisted the landing forces by preliminary bombardment of defense positions at a range of about 1,300 yards, and by "howitzer" fire on special areas, which was achieved by putting extreme elevation on the ships' guns and using a reduced charge.

The Japanese landing-craft carrier is a special type of transport similar in construction to a whaling depot ship. From it, landing craft loaded with full complements of men and materiel are slid into the sea through

THOSE AMPHIBIOUS

side hatches. One of these Japanese troop-ships was reported by an observer to be about 260 feet in length.

Among the types of Japanese landing craft are:

Type A, a large open boat, with a landing ramp on the bow which flaps forward onto the sand, enabling guns to be wheeled off. The engine and the coxswain are usually protected by bullet-proof plating. Twin keels provide stability after grounding. This type of boat is used by the main landing force. It has an estimated capacity of 110 to 120 men, fully equipped, and is powered with a two-cylinder gasoline engine, with a speed of approximately ten knots. In a few cases, Diesel engines are used. The over-all length is about fifty feet, and the beam about thirteen feet. The loaded mean draft is slightly over three feet.

Type B, a small open boat, holding from fifty to sixty men. Its speed is from eight to ten knots. It is similar in construction to a steamer lifeboat, and when fully loaded has a draft of thirty inches. Some boats of this type are equipped with a bullet-proof shield in the bow. Some are known to carry a light machine gun in the bow.

Type C, an armored motor launch used for close support work, reconnaissance, and maintenance of communications. It has an over-all length of about forty feet, and a beam of about thirteen feet. One boat of this type was clocked at fifteen knots. It carries an antiaircraft machine gun, and two machine guns or one-pounders.

Type D, constructed solely as a tow boat. It is used to supplement the large open boat of Type A. It has a wooden hull, similar to a standard motor launch. Its over-all length is approximately thirty feet, and beam ten feet.

Type E, airplane-propeller-driven, for use in shallow water or in creeks, smaller tributaries, and weed-bound water. These boats are approximately fifty feet in length, and not over ten feet abeam. Judging by the bow spray in a photograph of one taken as it headed down a river, about ten feet of the forward underwater body rose above the water. The draft at light load appeared to be not over two feet. The craft was steered from forward under the canopy. There was a shield for a machine gun in the bow.

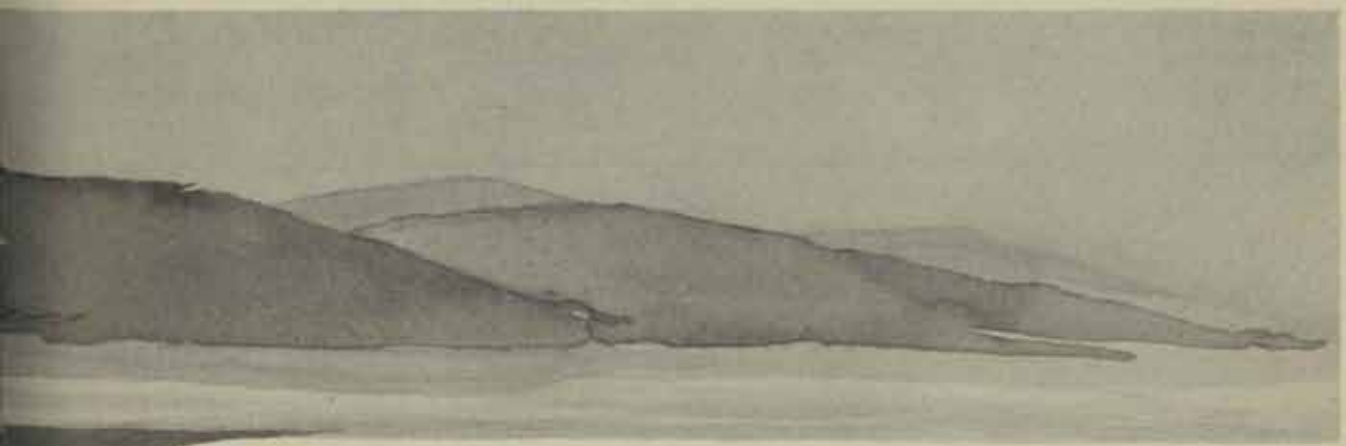
Type F, constructed of steel plates, is in two sizes—thirty feet over-all, and forty feet, with twelve-foot beam. A metal shield is rigged in the bow for protection. In this shield there is an aperture for a machine gun. One of the large ones was clocked at nine knots.

In the Philippines, the typical Japanese procedure in landing operations seems to cover about five miles of beach. A line of destroyers forms about a half-mile from shore, with a heavy cruiser or battleship about three and one-half miles beyond the line of destroyers. Two groups of transports remain between the destroyers and the heavy vessels. An aircraft carrier stays between the two groups of transports. Then about fifty barges with a capacity of 150 men each start for shore, each barge being armed with two or three machine guns. Naval vessels are in a position to fire upon the beaches, and they can also deliver effective antiaircraft fire, which is extremely heavy up to about 3,500 feet. Aircraft carriers and landing fields already established provide the necessary air support.

The V-front light tank which is used by the Japanese in landing operations fires armor-piercing ammunition from .50 caliber machine guns. Direct hits from 37-mm. guns are deflected by the sloping front of this tank.

Fishing boats and lights are known to have aided the

JAPANESE....



Japanese in some of their landing operations in the Philippines. However, the complete extent to which fifth columnists have been used is not known.

Close liaison between Japanese air forces and ground troops is being maintained by means of portable radios. These are equipped with earphones, and are carried on the chest by commanding officers of companies.

With air superiority, the Japanese are able to observe the positions of the Allied front lines and troop dispositions and movements. This information is then relayed to the Japanese commanders, who, in many instances, are told when to move forward and when to halt.

The Japanese infantry, armed with grenades and automatic weapons, have obtained great mobility by leaving behind all other equipment not absolutely necessary. Their attacks usually are made at daybreak. Company commanders move up their companies by squads, and consolidate them with advance security detachments prior to the attack.

In Malaya, heavy motor vehicles have been used sparingly, for in the low, soggy terrain they tended to become canalized on any road that was not hard-surfaced. The Japanese have equipped and trained their soldiers in Malaya to travel for days through jungles with all their supplies either in their packs on on small transport vehicles.

Three types of machine guns were reported in use by the Japanese in the Malayan campaign—a Thompson type submachine gun; a type "96" light machine gun; and a belt-fed medium machine gun. The latter, mounted on a wheeled carriage pulled by truck, is like the British Vickers gun except that the Japanese weapon has a larger water jacket.

DEFENSE.....

Against Low Flying Aircraft

By Lieutenant Colonel O. D. McNeely, Coast Artillery Corps

EDITOR'S NOTE: This article is written as an exposition of antiaircraft gun action against the suddenly-appearing, low-flying enemy plane. The subject of barrage balloons is not treated.

Events of the past two years tend to show that the low flying aircraft has become a most powerful military weapon at the command of the modern army. The principal reason why this weapon has become so powerful is that no adequate defense against it has been devised. Of the three general classifications of air defense: interceptor defense, long range gun defense and close-in defense, the first two have held their own or better with bombardment aircraft. But the close-in defense against both low level and dive bombardment has been woefully lacking.

Let us review briefly why the low flying aircraft has been so successful. First, such aircraft can be of the simpler types, therefore are easier to produce in quantity and easier to train pilots and crews. Secondly, such aircraft go for definite targets and, if unopposed, rarely miss these objectives. Detection and identification of such attacking aircraft is usually difficult. Advantage is taken of approaches from the sun, from clouds, trees and ground forms so that the aircraft can get to its objective before defense aircraft or guns can be warned. The

"The time element . . . is the basic problem"

"The suddenness of low flying attacks provides their greatest defense"

suddenness of low flying attacks provides their greatest defense. The morale effect on ground troops by low flying attacks is frequently disastrous at least until the troops are brought to realize that the best defense against such aircraft is to stand and shoot it out with them.

The Problem

The best defense against such an attack is to smash it before it leaves the ground, to intercept it, or smash it as it attacks. The first will require a clairvoyant intelligence system, the second both a perfect warning system and a vastly superior air force. The third defense is the only sure one and that depends on both air force and ground defenses. Defense by the air force depends to a great extent on close coöperation of the air and ground forces. Ground defense will be both active and passive. This article will deal primarily with gun defense by the ground forces. Such a defense presents several difficult problems. The problems can be generally classified as follows: (1) the target itself, (2) the time element, (3) the limitations of the weapons, and (4) fire control.

The first of these problems, the target itself, can be summed up in the versatility of the low flying aircraft. It not only can maneuver in three dimensions, at the will of the pilot, but can also accomplish its mission in a number of ways and in a very brief time.

The time element, as in all antiaircraft firing, is the basic problem. The time taken to pick up and identify the target, the time taken to get off the first shot, the time taken to observe fire and adjust and the time taken by the projectile to reach the target . . . the sum of all these times must be less than the time between the first sight of the hostile aircraft and the time when it drops its bombs or gets beyond range or vision.

All guns have to be traversed or elevated, and the larger the gun the more time this takes. Also for antiaircraft purposes the gun must traverse the full 360° and elevate from 0° to 90°. Not all guns can do this, especially in the short time available when engaging low flying aircraft. Moreover, the high angular velocities presented by this target require that this traversing and elevating be fast. Many guns will not meet these requirements under all conditions, but all automatic weapons and antiaircraft guns should meet them to a limited degree.

The fire control problem is both simple and complex. The use of tracer ammunition with automatic small arms is a very simple method of control, almost instantaneous, and effective at very short ranges and against coming targets. On the other hand, small arms projectiles are not always destructive to aircraft, individual tracer control is not effective beyond 500 yards, and good gunners are born, not made. Using high explosive shell with a high rate of fire, the automatic cannon can deliver very destructive fire. But here the fire control problem begins to grow more complex. Either sight control or director control can be used. The first is simple but has many of the disadvantages of individual tracer control. Director control is much more accurate but is not as rapid in operation and is not simple. The larger antiaircraft guns cannot depend on their standard fire control equipment against the low flying aircraft, and so far no satisfactory auxiliary system has been adopted.

The Solution

The first solution that must be considered is passive defense. It is possible but hardly practical to hide completely all troop movements, defensive works, etc. In a

Every available gun must be used

war of movement there will not be time for all this work of camouflage and concealment. Field fortifications will also protect to a certain extent troops, guns and munitions from low flying attacks, but here also time to build such fortifications will not always be available.

Interceptor or pursuit protection offers an excellent method of protection against any form of air attack. But to be 100% effective the enemy's intentions must be known well ahead of time to meet such attacks or an enormous superiority of air force must be constantly patrolling the defended area. It is not likely that either of these conditions will always, or ever, be met in this wide flung war.

The remaining solution of defense rests with the ground forces themselves. Their primary ground defense will be antiaircraft automatic weapons. It is hoped that in the near future there will be a great increase in the effectiveness of these weapons as well as a large increase in the number of weapons themselves.

With even a larger array of automatic cannon than we now have, a large scale, determined low-flying attack cannot always be stopped. Here again time and space factors are with the aircraft. They can choose their time and place of attack. The antiaircraft automatic cannon in any one operation will always be outnumbered. One gun can shoot at but one aircraft at a time and destructive fire cannot be expected immediately. Fire must be observed and adjusted. With the authorized number of these units that will eventually be with the field armies and when their training is adequate, they will take a tremendous toll of the hostile low-flying aircraft. By that time, with airplane production what it is, the acceptable percentage of losses to accomplish an important mission will be increased. It is therefore quite obvious that the fire power of all other guns that can fire on aircraft must be used to the fullest extent.

The most important of these other weapons is the machine gun. With good tracer, ball and armor-piercing ammunition, this weapon will prove very effective. But personnel must be trained in this special gunnery problem. All troops armed with machine guns should be given plenty of opportunity to fire at towed aerial targets. The most important phase of this training is to impress all such personnel with the effectiveness of their weapons if they are not caught napping and are able coolly to shoot it out with the aircraft.

Other weapons that can be considered available and able to fire at the low-flying aircraft are antiaircraft guns of 3-inch caliber and above. Unfortunately these guns and their fire control were not designed for close-in firing. It is doubtful if calibers larger than the 3-inch will ever be particularly effective against low flyers due to their slow rate of fire.

The fire control problem is the greatest handicap of the larger caliber AA guns. Such guns are practically useless against the close-in aerial target. Even with estimated data there is little chance of making them efficient at close range. Simple open sights on the guns might be some help. Precut fuses could be used. These would get bursts close enought at least to make the flyer realize he was under fire.

Summary

The problem of the close-in aerial target is not unsolvable. Rifles and machine guns can be quite effective for local defense if the gunners have confidence in their weapons. It must be remembered that the weapon on the ground has many advantages over the same weapon on a moving platform. The ammunition for these guns, especially the tracer, could be greatly improved.

The automatic cannon, within its capabilities, is a very effective close-in defense weapon, but here again a simple method of fire control must frequently be resorted to if the fighting gets too hot for the slower speed of director control.

A larger cannon is needed to fill the gap between the 40-mm. and the heavy guns. It must combine, as far as possible, volume and accuracy. Above all it must be flexible and deadly at very short ranges as well as be reasonably effective up to 5,000 yards.

Our present 3-inch gun has all the needed characteristics of a good close-in defense antiaircraft weapon and there is hardly a plane built today that could stand a direct hit by a 3-inch high explosive shell. It needs, however, a better auxiliary method of fire control to allow it to be pointed quickly at a fast, close-in airplane.

Antiaircraft guns of caliber larger than 3-inches are rather hopeless against the close-in aircraft due to their slow rate of fire. Lower velocity guns are also badly handicapped due to the increased times of flight. Muzzle velocities of all antiaircraft guns must be increased if they are to hold their own with high-speed aircraft. The problem of the defense against the low-flying aircraft can only be solved by a gun that is flexible and has a high rate of fire. The projectile must have a short time of flight and the fire control must be simple but accurate. High explosive shell must be used with supersensitive fuzes and a self-destroying feature. With larger guns these shells should in addition have a time fuze in order to use pre-set fuze control.

The menace of low-flying aircraft can and will be met, but not until its capabilities are fully understood by all ranks. If military objectives and personnel are to be adequately protected, all weapons must be used to their maximum ability.

Camouflage Hints*

Camouflage Do's:

1. DO choose your position carefully. A proper "estimate of the situation" will make your work easier and avoid impossible camouflage problems.

2. DO use common sense "to outwit the enemy. Common sense is very uncommon."

3. DO avoid the skyline when concealing against terrestrial observation.

4. DO make full use of natural cover. The cover of a spreading tree is worth truckloads of artificial material.

5. DO utilize ditches, hedges, edges of woods, folds in the ground, etc. These "accidents" of the ground will prevent accidents to you.

6. DO avoid conspicuous landmarks. You don't want to be at a focal point of enemy attention.

7. DO keep in the shadow. The enemy can't see or take pictures of something in the shade.

8. DO remember that shadows move. Although shadows as a rule fall toward the North of an object, the length and direction of such shadows change throughout the days.

9. DO avoid all regularities of line or pacing. Nature has no straight lines and the enemy is looking for unnatural signs.

10. DO remember that anything unusual catches the eye of the enemy observer. Try to blend into the background; you want to be inconspicuous.

11. DO garnish carefully. Natural garnishing must look NATURAL so use material similar to that in the vicinity and support it as it would grow.

12. DO thin out garnishing at the edges. A regularly garnished net casts a regular shadow which is obviously out of place in the surroundings. It will look like a stamp and we don't want to pay postage on our own death bombs.

13. DO change dead vegetation. Forget it and something (or somebody) else will be dead.

14. DO keep turf or topsoil when digging in. It can be used to cover your spoil on the parapet.

15. DO make bold patterns, in garnishing or painting. You can't see a two-foot break in the outline from a distance of a mile or two.

16. DO look before you leap. Plan and lay out your position in detail before moving in and trampling down promiscuously. Signs of activity lead to enemy activity which reduces the possibility of further activity.

17. DO observe camouflage discipline in making a reconnaissance. Signs of activity before occupation are just as disastrous as signs afterward.

18. DO restrict movement when the enemy is observing. A motionless object may escape detection; a moving one will attract attention.

19. DO take extra care when tired. Fatigue leads to carelessness.

20. DO work in the shade or at night. The enemy is looking for you at all times but his eyes are not as good as a cat's. He can't hit what he can't see.

21. DO keep your tops "Flat." Sagging nets are worse than baggy knees.

22. DO use existing roads and paths. Traffic here will not leave noticeable signs.

23. DO conceal the entire layout. If one tent or truck is seen it makes no difference that the rest of the installation is perfectly covered.

Camouflage Don'ts:

1. DON'T be careless and give away your buddies. They're depending on you just as you are depending on them.

2. DON'T look up at airplanes. The enemy is looking for you too and you're easier to hit than he is.

3. DON'T move unless you have to; then think first how you can move to cover most unobtrusively.

4. DON'T use artificial materials unless the natural cover is insufficient. Natural cover blends best with nature.

5. DON'T be regular in your layout. Regularity is a military attribute and the enemy recognizes it as such.

6. DON'T take shortcuts over the open or step outside cover. Every time you put your foot down you attract forty-eight square inches of enemy attention.

7. DON'T walk around the outside of a net to fix the camouflage. Where you walk will be light in a photograph; the camouflage will be dark. Do you think the enemy will miss such a bullseye?

8. DON'T hide your installation and leave your spoil and belongings in the open. Remember the Ostrich.

9. DON'T let your flat tops sag. They will photograph like a wet blanket laid out on bushes and they are not a bit safer.

10. DON'T lower the sides of your camouflage. Your Commanding Officer cannot see what you are doing, but when the enemy sees the shadow thrown by these sides he will be even more severe.

11. DON'T hide under matted camouflage. It is as conspicuous as a bad haircut.

12. DON'T end a road at an installation or make a lot of trails to a position. Did you ever lose your way to a Canteen?

13. DON'T leave things near the edge of your camouflage. The edge of your camouflage isn't—and shouldn't be—opaque.

14. DON'T crowd around an installation. Dispersion reduces the likelihood of conspicuous trampling.

15. DON'T clean up an old position; it won't look natural to the enemy. If you're moving out, it will remain as a dummy; if you're moving in you don't want to change the appearance.

*Reprinted from *Coast Artillery Information Bulletin* No. 9, The Coast Artillery School, 29 December 1941; credited to Engineer School.

Concerning Dependents

A Guide for Military Personnel in Time of War

*By Major R. D. LaGarde, United States Army, Retired**

Convinced that the time to prepare for contingencies is *before* those contingencies arise, the following guide is offered for those who desire to lighten the difficulties that will fall upon their dependents in the event of death to the head of the family. Since orders to more active theaters come suddenly, it is believed prudent that all the steps to provide for dependents be taken as early as possible in order that nothing be overlooked in the hectic period that usually accompanies changes of station during war time.

Since too much detail is confusing, the advice offered is given as a general guide, and not as a complete discussion. So many unusual conditions can arise that it would be useless to try to provide for every contingency. It should be understood also that some of the laws and regulations mentioned in this article may be out of date by the time the magazine reaches the reader. None the less, these suggestions can be helpful in a general way for a long period to come.

The War Department issues a circular called the "Benefit Guide." It is revised from time to time in an effort to keep it up to date. The last War Department publication on the subject was *Bulletin No. 7, War Department, Washington, July 13, 1939*. Except for a few recent changes that bulletin is worthy of study and file with the family papers of every officer and enlisted man of the Armed Services.

The Government bureaus concerned publish and distribute much information on these matters, but it does not always reach, and it is not always understood, by those whom it is designed to help. Through many years experience in handling claims we have become convinced that government bureaus are generally sympathetic and desirous of assisting honest and deserving applicants toward an expeditious and fair settlement of claims and we recommend that anyone having difficulty with such claims take up directly with the bureau concerned any troublesome questions. A frank appeal for information and explanation of a bureau's action will usually result in understanding and often lead to an early claim settlement. If after a direct appeal to a bureau, a satisfactory solution does not result, then and then only, consultation should be had with an attorney experienced in the prosecution of Government claims.

*For twenty years Secretary of the Army Mutual Aid Association, aiding dependents of deceased officers and soldiers to establish claims for legitimate Government allowances.

SIX MONTHS' PAY GRATUITY

This gratuity is granted by Congressional Act of December 17, 1919, as amended. It is also described in A.R. 35-1540. For particulars and proper application form address The Finance Officer, U. S. Army, Washington, D. C.

This allowance, made in the case of all officers and all enlisted men of all grades, is granted by an Act of Congress where a death occurs while on active duty and not as a result of misconduct, the decision as to duty and conduct resting with the military authorities. This gratuity, which is equal to six month's pay (including longevity, flying, and ratings on account of proficiency with arms but not allowances for rent or rations) is paid to widows, or, if there is no widow, to children under twenty-one-years of age and unmarried, whether designated as beneficiaries or not. However, it saves considerable trouble to the dependent if properly designated. Where there is no widow or dependent children, any other dependent blood relative of the service man or the wife of such officer or enlisted man can be paid the gratuity if properly designated, but unless designated, said relatives cannot receive the payment. No relative who is not actually dependent can be designated to receive the six months' pay gratuity. A friend cannot become eligible to receive this gratuity.

LIFE INSURANCE ISSUED BY THE U. S.

Life insurance issued by the United States is of two general kinds, National Service Life Insurance and United States Government Life Insurance. A description of these follow:

National Service Life Insurance

(For a full description of this insurance see the Booklet issued by the Veterans Administration, Washington, D. C., Insurance Form 398.)

For the present service man this form of insurance fills the need which War Risk Insurance did for the officer and enlisted man of World War I. It has certain limitations, but in its low cost, availability and general provisions it is not only excellent insurance, but it is also the only known low cost, sound insurance for which he is eligible which will not limit benefits in case of death while in the military service in wartime. This insurance can be issued to any commissioned officer, nurse, warrant officer, or enlisted man who is not al-

ready insured for $10,000 Government insurance. The insurance is issued originally on a five-year level premium term plan and can be converted after it has been in force for one year and prior to the termination of the contract into Ordinary Life, Twenty-Payment Life, or Thirty-Payment Life. If the insurance is not converted by the time the five-year contract expires, the policy is terminated. This insurance can be taken out in amounts of not less than $1,000 nor more than $10,000 providing the figure selected is a multiple of $500. The same policyholder, if entitled to carry Government Life Insurance can also carry National Service Life Insurance, providing the total amount of both kinds does not exceed $10,000.

Until April 19, 1942, National Service Life Insurance may be secured without medical examination by filing application therefor (Veterans Administration Form 350). Premium payments while in the service should be deducted from the policyholder's pay by filing *Authorization for Deduction of Pay* (AGO Form 29-3) with your Finance Officer. A copy should be filed with the Veterans Administration with your application for insurance.

Until April 19, 1942, any person in the active service who dies without having in force insurance issued by the United States Government in the aggregate amount of at least $5,000 is automatically granted National Service Life Insurance in the sum of $5,000, payable only to his widow, child or children, or dependent parents, in the order named. In the event less than $5,000 Government or National Service Insurance is already carried, the difference between the amount carried and $5,000 is allowed. *(Section 10, Public Law 360—77th Congress, December 20, 1941.)*

United States Government Life Insurance

Term Insurance and Converted Life Insurance

For a complete description of this insurance see booklet issued by the Veterans Administration, Washington, D. C. (Form 752).

United States Government Life Insurance can be issued to any officer or enlisted man who had service during the World War period and who was then entitled to War Risk Term Insurance, and provided that he has not surrendered his subsequent United States Government Life Insurance for the cash value thereof. To secure this type of insurance, application including full medical examination must be made on Veterans Administration Form 739, accompanied by a premium payment or authorization on AGO Form 29 for deduction of premiums from pay. The physical examination may be made by any medical officer of the Army, Navy or Public Health Service and will be without charge.

The Five-Year Term Plan of United States Government Life Insurance is considered the best plan for the war period. Its cost is comparatively low. The Five-Year Term Plan is not recommended for permanent protection. It should be changed to one of the other plans when peace comes.

United States Government Life Insurance is issued on the following plans: Five-Year Term, Ordinary Life, Thirty-Payment Life, Twenty-Payment Life, Twenty-Year Endowment, Thirty-Year Endowment, or Endowment at Age 62. All United States Government Life Insurance policies are considered excellent and are recommended for those eligible. It has been noted in conversation with hundreds of policyholders that no one having United States Government Life Insurance of the Ordinary Life plan has desired to change his contract to another plan, whereas many holders of other plans or policies have expressed a desire to change.

PENSIONS FOR DEPENDENTS

For information on pensions for widows and dependents of military personnel, the best authority is the Veterans Administration, Washington, D. C. The granting of pension (or compensation) is governed by Congressional Acts approved by the President. Of all the allowances granted to dependent persons there is more misunderstanding about pensions than any other. Probably this is so because there are many amendments to the laws and they contain so many exemptions and exceptions. All dependents' applications for pension or compensation should be made on official form *(Veterans Administration Adjudication Form 534, Revised).*

Dependents Wartime Service Connected Compensation

This allowance, referred to in the statutes as "compensation," is granted to all eligible persons regardless of the grade or rank of the deceased, providing the death of the service man occurred as a result of injury or disease, incurred in line of duty during wartime. It is not necessary that the service man die in the Theater of Active Operations. However, the cause must be wartime service connected and through no fault or misconduct of the deceased. These compensation rates are as follows:

Widow under 50 years of age	$38
Widow over 50 years of age	45
Widow with one child, $10 additional for such child up to 10 years of age, increased to $15 from age 10 (with $8 for each additional child up to 10 years of age, increased to $13 from age 10).	
No widow but 1 child	20
No widow but 2 children (Equally divided.)	33
No widow but 3 children (Equally divided) (with $8 for each additional child; total amount to be equally divided).	46
Dependent mother or father	45
(Or both)	Each 25

The pension for a child continues until age 18 unless the child is unmarried and attending a school approved

by the Veterans Administration, then pension may be continued until age 21.

Dependents Pensions On Account of Peacetime Service

For the dependents of officers and enlisted men, regardless of grade or rank, who died as a result of peacetime service from causes incident to such service, pensions are allowed as follows:

Widow under 50 years of age $22
Widow 50 years to 65 years of age 26
Widow over 65 years of age 30
Widow with one child, $7 additional for such child up to 10 years of age, increased to $11 from age 10 (with $6 for each additional child up to 10 years of age, increased to $9 from age 10).
No widow but one child 15
No widow but two children 24
(Equally divided.)
No widow but three children 34
(Equally divided; with $6 for each additional child; total amount to be equally divided).
Dependent mother or father 15
(Or both) ..... Each 11

These are monthly rates and the total pension payable shall not exceed $56, regardless of the number of dependents. Where such benefits would otherwise exceed $56 the amount of $56 may be apportioned as the Administrator of Veterans' Affairs may prescribe.

The pension for a child continues until age 18 unless the child is unmarried and attending a school approved by the Veterans Administration, then pension may be continued until age 21.

Pensions for Dependents of Spanish War Veterans

Where an officer or enlisted man was in the military or naval service for at least ninety days during the period between April 21, 1898 and July 4, 1902, monthly pensions are allowed as follows:

Widow, provided she was married to veteran prior to September 1, 1922 ..... $30
(With $6 monthly for each child under 16 years of age.)
No widow but one child (until the child attains the age of 16 years) 36
(With $6 monthly for each additional child under 16 years of age.)

There are other laws governing the payment of pensions or compensation to dependents of veterans of the Indian Campaigns or Wars and the Civil War, advice on which can be secured by addressing the Veterans Administration, Washington, D. C. Also pensions have sometimes been granted by special Acts of Congress, but such special pensions have not been allowed in recent years. Since 1934 even when Congress has passed such special legislation, the President has exercised the veto power.

ALLOTMENTS OF PAY FOR DEPENDENTS

(For information about family allotments see Army Regulations and Circular 153, War Department 1941 or apply to the nearest Army Finance Officer. Use War Department A.G.O. Form No. 29 to make allotment.)

Officers and soldiers who believe themselves about to be ordered to Alaska or some other place outside of the continental limits of the United States are authorized to make Class E allotments of their pay in favor of a wife or child or other dependent. The allotment must be approved by the Organization Commander of enlisted men. In the case of an officer the allotment can be signed and left in the hands of the dependent to be mailed upon his departure from the United States to the Finance Officer, U. S. Army, Washington, D. C. Allotments so made can be increased, decreased, or cancelled by the alloter.

BURIAL ALLOWANCES

(Full information regarding burial allowances and transportation can be obtained from the Quartermaster General, War Department, or the nearest Quartermaster.)

Deceased officers or enlisted men who die while on active duty are entitled to burial in any one of the National Cemeteries maintained for that purpose upon application to the Superintendent thereof, or the remains may be shipped to the home of the deceased if the next of kin requests shipment by the Quartermaster at the place of death. In the Army, the Quartermaster General has authority for shipment and incidental allowances, necessary expenses of interment, transportation of the remains, cemeterial charges for the preparation of the grave, and the minister's fee. An American flag, known as the storm flag, is furnished for the ceremony by the Quartermaster Department and becomes the property of the nearest relative of the deceased service man. Where the remains are shipped, transportation of an escort of one person is authorized at Government expense, ticket to be supplied by the Quartermaster. In all cases military honors will be rendered at the place of interment if available. Application therefor should be made to the nearest commanding officer.

Where the officer or enlisted man dies at some station remote from military control and no authority is present to take charge of the remains and arrange for burial, the next of kin should arrange for preparation for burial and furnishing of casket by a reputable undertaker, keeping all expenses down to a reasonable basis. The Quartermaster General will adjudicate claims, making reimbursement on a basis considered reasonable by that office. Where the deceased officer or enlisted man dies on a military post, it is recommended that the matter of funeral arrangements be turned over to the military authorities with the stipulation that the family will bear

no expenses and will expect a full compliance with the standards set by Army regulations, orders, and customs. Widows and other relatives can save themselves considerable expense, annoyance, and trouble by such action. The standards required by the War Department are fixed by competent authority after consultation with representative morticians, and every proper consideration has been provided for.

Deceased officers and enlisted men who served in a war and who have been retired or who have been discharged from the Service are not entitled to burial at the expense of the military establishment. However, in such cases the Veterans Administration will allow not over $100 reimbursement for burial expenses. Application should be made to the nearest military commander if military honors are desired. Whenever a retired officer or soldier dies, his next of kin should immediately notify the Adjutant General of the Army giving essential details and the name and address of the informant.

ARREARS OF PAY

The balance of pay and allowances due a deceased service man at the time of his death is payable to the executor or administrator of his estate, who furnishes evidence of appointment as such. If an executor or administrator has not been and will not be appointed and the total amount due from the United States is not in excess of $500.00, payment may be made to the widow or child in the order mentioned. If neither widow nor child survives, the payment is made to those who, under the law of the state of which the service man was a resident or to those who under Federal statute, would be entitled to receive payment if administration were had.

Application form for this payment can be secured from the Comptroller General of the United States, General Accounting Office, Washington, D. C. (*Standard Form No. 1055*). The General Accounting Office is deliberate in making settlements and the claimant should not become anxious if payment is not received for several months after filing duly prepared application with all supporting papers.

The Comptroller General is responsible to Congress only and so in case of difficulty with this claim some applicants have appealed to their Congressmen.

THE CLAIMS PORTFOLIO

Every service man should secure the papers listed below and place them in a deposit box in a bank or other safe place to which his wife or other dependents have access. These papers may all be needed in case it does become necessary to file claims for Government pension, National Service Life Insurance benefits, and other Government dependents' allowances or for commercial insurance benefits.

a. Three (3) copies of official record of birth of wife.
b. One (1) copy of official record of marriage of the service man and his wife.
c. One (1) copy of official proof of termination of any previous marriage of either service man or wife.
d. One (1) copy of official record of birth of service man.
e. One (1) copy of official record of birth of each dependent child.
f. Last Will and Testament.
g. Power of Attorney.

Explanation of Use of Documents

a. In pension cases one of the proofs of birth of the wife is necessary because in most cases the rate of pension is fixed by the age of the wife. Another record of birth will be needed if the wife desires an annuity settlement of life insurance policies. One copy can be used for several companies if necessary.

   The third birth record should be kept by the wife for identification purposes to secure passports and the like.

   If there is no official record available, a certified copy of church record of baptism, recorded shortly after the birth occurred, is acceptable. If neither of these records exists the sworn statements of two disinterested persons having knowledge of the facts are generally acceptable. A family Bible record or statement from the Census Bureau can often meet the demands if other proof is lacking.
b. The copy of official record of marriage is needed if the wife applies for pension, to prove her marital status, and it may be useful in other ways. If the official record is not obtainable then a copy of church record, under seal, or the sworn statement of two witnesses is usually acceptable.
c. Proof of termination of any prior marriage is necessary for pension purposes. If the prior spouse died, an official copy of death certificate should be furnished. If such cannot be obtained, other proof such as a record of burial can usually be furnished instead. In case of termination of a prior marriage by court action a copy of the decree of divorce or annulment should be obtained.
d. A copy of the birth certificate of the service man is required only where there are dependent parents applying for pension. If birth certificate cannot be secured, two sworn statements by disinterested persons having knowledge of the facts will usually suffice. Parents who are not dependent at the time of the service man's death but who later lack means of self support are both pensionable.
e. Official record of birth of each minor child (or of a dependent disabled grown child who was disabled in childhood) is necessary for pension purposes. If such official record is not obtainable, a certified copy of church record of baptism, recorded shortly after the birth occurred should be secured. If neither of those is available then evi-

dence from the family Bible, or the sworn statements of two disinterested witnesses as having knowledge of the facts, should be procured.

f. Whether the service man has an estate or not his family or dependents should be protected by the making of a will to meet possible eventualities. Wherever possible a competent attorney at law should be employed to draft the will. The form offered herein should be used only as an emergency measure.

g. A Power of Attorney can often be helpful to a wife or other mature relative or friend who can be entrusted with the service man's personal and business interest during his absence. For instance, it may be desirable for the family to dispose of the automobile, house, furniture, or even a piece of real estate. As noted in the Power of Attorney form in this article, the services of a competent lawyer should be secured in the preparation of a Power of Attorney.

DEPENDENTS EMERGENCY RELIEF

Various agencies have and are endeavoring to assist the bereaved families of persons in the Military Service by rendering legal, clerical, or financial assistance. Any of the following agencies will usually give such aid as they are qualified to perform:

Army Emergency Fund.
Army Relief Society.
American Legion.
United Spanish War Veterans.
Veterans of Foreign Wars.
American Red Cross.
Regular Veterans Association.

FORMS FOR THE PORTFOLIO

Last Will and Testament

The form which follows is a generally accepted type of Will which should meet the requirements of the courts in any part of the United States. In some jurisdictions only two witnesses are required, but even in those there is no objection if three witnesses sign, and a good many states do require three witnesses to a Will. Where alternate executors or alternate beneficiaries are to be named and where other points are to be covered which are not indicated in this prepared will, legal advice should be secured. This Will is suggested for use where no attorney is available in order that there may be a reasonable emergency effort made to protect one's dependents.

LAST WILL AND TESTAMENT OF

. . . . . .
(First Name) *(Middle Name)* *(Last Name)*

Know all men by these presents that I, ...
(First Name)
. . . . . .
(Middle Name) *(Last Name)* *(Rank)*
. . . . . ., now stationed at . . . . . .
(Organization)
do hereby make, publish and declare this instrument as my last Will and Testament.

1. I hereby revoke all wills or parts of wills heretofore made by me.

2. I direct that my just debts and funeral expenses be paid.

3. I give, devise and bequeath to *my beloved wife,*
. . . . . .,
(First Name) *(Middle Name)* *(Last Name)*
and *her* heirs, all the property of which I may die possessed, of whatsoever nature, real, personal or mixed to be *hers* absolutely and in fee simple.

I authorize and empower my *Executrix,* if and whenever in the settlement of my estate *she* shall deem such action advisable, to sell at private or public sale, at such price as *she* shall consider proper, the whole or any part of my real or personal estate, or both, and to execute good and sufficient deeds and other instruments necessary or proper to convey and transfer the same to the purchaser or purchasers thereof, and such purchaser or purchasers shall not be bound to see to the application of the purchase money.

In testimony whereof, witness my hand at . . . . . .
. . . . . this . . . . . .
day of . . . . . ., 19. . . . . .
. . . . . .
Signature of Testator.

The foregoing instrument was signed, published and declared by the testator therein named, ...
(First Name)
. . . . . ., as and for his Last Will
(Middle Name) *(Last Name)*
and Testament, in our presence, and we, in his presence, and in the presence of each other, at his request. have hereunto subscribed our names as attesting witnesses at . . . . . ., this
. . . . . day of . . . . . ., 19. . . . .

Signature of Witnesses *Addresses*
. . . . . .
. . . . . .
. . . . . .

*Note: Words in italics should be changed according to the needs of the case. For instance, proper wording would be my *beloved son,* or my *beloved daughter,* or my *friend,* or the *name of an institution* if such is to receive the bequest. Other words in italics which appear in the body of the text should be changed to suit the case.

Power of Attorney

(It is often helpful if a representative of the service man is empowered to transact business for him and in

his interests during his absence. The laws governing the use of powers of attorney vary considerably in the different states, and accordingly it is recommended that wherever possible, a reputable practicing attorney in the community in which the power is to be used be employed to draft the document. Where it is impossible to secure the services of such an attorney assistance should be requested from an officer of the Judge Advocate General's Department or a licensed attorney who is a member of the command. The form of general power of attorney printed below is furnished only for possible use in emergency when the individual services of a lawyer are not obtainable. The writer is not an attorney, nor is he licensed to practice law, and no opinion is expressed herein respecting the legal effect or validity of the form offered for use in the particular jurisdiction of the reader. This form is offered because it has been accepted in some jurisdictions and because it may be of assistance in emergency when it has been impossible temporarily on account of service conditions to secure the advice of an attorney qualified in the premises.)

General Power of Attorney

KNOW ALL MEN, that I, ...,
(Full Name)

now serving as ....., ...
(Rank) *(Organization)*

in the Army of the United States, do hereby constitute and appoint .....,
residing at .....,
my true and lawful attorney, for me, and in my name.

(a) To ask, demand, sue for, recover, collect and receive all such sums of money, debts, accounts, interest, dividends, annuities and demands whatsoever, as now are, or hereafter shall become, due, owing or payable, to me; and

(b) To make, execute and deliver acquittances, receipts, releases, or other discharges, therefor; and

(c) To purchase, receive, and take possession of all lands, tenements, and hereditaments, upon such terms, conditions and covenants as he may think proper; and

(d) To lease, bargain, transfer, convey, grant and mortgage all lands, tenements and hereditaments, upon such terms, conditions and covenants as he may think proper; and

(e) To buy, sell, mortgage, hypothecate, and, in every way and manner, deal in and with, goods, wares, and merchandise, and choses in action; and

(f) To engage in, do and transact all and every kind of business that he may think proper; and

(g) To make, sign, execute, seal, acknowledge and deliver all such deeds, leases, and assignments of leases, covenants, indentures, agreements, hypothecations, bills of lading, bonds, notes, receipts, evidences of debt, releases, and satisfactions of mortgage, judgments, and other debts, and such other instruments of whatsoever kind and nature, as may be necessary, or proper, in the premises.

And I, the said ....., hereby ratify all that my said attorney may lawfully do, or cause to be done, by virtue hereof.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this ..... day of ....., 194.....

Witness .....

Witness .....

.....(Seal)

STATE OF .....}
COUNTY OF .....} ss.

ON THIS ..... Day of .....,
A.D., 194...., before me, ...
a Notary Public in and for said County and State, personally appeared .....,
known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

.....
*Notary Public in and for said County and State.

*Powers of attorney should be signed before a notary public or a civil officer empowered to administer oaths. An oath taken before a Judge Advocate, or other military officer, is not accepted in certain civil jurisdictions. Two witnesses should also sign at the points indicated above. While in some jurisdictions the signature of the person making the power is all that is required, in other jurisdictions witnesses or notarial identification are required, and in some both witnesses and notarial certification are necessary.

There will be no peace anywhere in the world until we bring it back to the world with our own blood and sweat.—Hon. Robert P. Patterson.

BRITISH COAST DEFENSE

"Action Stations!"—and smartly.

A shipment of steel, to be delivered to an invader with the compliments of a 9.2 battery.

The Eastern Command keeps watch.

Sandbags for heavy stuff; armor for splinters. A 9.2 gun in Scotland.

Enemy Sighted!

...ns from H.M.S. ...ood guard Britain's shore.

All Pictures: ...ish Press Services

The Horizontal Fire Problem

By Captain Wofford T. Caldwell, Coast Artillery Corps

Good tactics call for the use of all antiaircraft weapons to the full limit of their capabilities, including their use against land and water targets. There will be times when any antiaircraft unit may be forced, or assigned, to the mission of engaging land or water targets. Admittedly these weapons are and will remain primarily antiaircraft, but no unit commander can allow himself to be found in a situation where he must engage horizontal targets without first having made provision for such an emergency.

The Problem Is Relatively Simple

The problem presents nothing insurmountable, and no attempt should be made to complicate it. The targets that will be engaged in horizontal fire will travel at comparatively slow speeds, and will be engaged at relatively close ranges. Quite often these targets will be engaged while coming directly at or generally toward the unit's positions, so lead values will not change greatly during the time of action.

Tanks, armored cars and landing boats have their best armor protection in front. Knowing this, the operators of such targets will invariably come at the antiaircraft gun position head on if they can discover the gun position. In an attempt to engage these targets at a favorable angle, the antiaircraft unit will withhold fire until the enemy is relatively close. Another reason for withholding fire until shorter ranges can be obtained is that the guns of the antiaircraft unit will have a better chance of knocking out the enemy quickly. Thus the enemy will have less opportunity to neutralize the fire of the unit's guns from a covered position, to employ avoiding action while advancing, or to escape completely.

Siting Limitations for Horizontal Fire

Each antiaircraft weapon will present a slightly different problem of siting when it is believed that horizontal fire will be necessary. The ideal site for aerial fire and the ideal site for horizontal fire are different. The ideal site for aerial fire (neglecting the need for concealment from aerial observation) is one where complete visibility is possible down to within a few degrees of the horizontal and throughout the full 360°.

Going—

British Press Service

Going— *British Press Service*

The ideal site for horizontal fire is one where sufficient cover is afforded so that a tank or similar mechanized target must approach to within quite close range before the gun is visible to the enemy. This means that when there is a possibility of land or water targets appearing a nice balance must be secured between the two ideals, keeping in mind always that, unless otherwise specifically indicated, the primary mission is that of antiaircraft defense.

All antiaircraft weapons have limitations of depression that will affect the selection of a site if antimechanized fire is expected or assigned as the primary mission. They should not, in general, be sited where an enemy mechanized unit might approach uphill. The general layout of the terrain will also affect the location. A location where an enemy might use covered approaches to place our battery within effective range of his own guns without being seen by the antiaircraft weapons is to be avoided.

When the antiaircraft guns have been given the primary mission of antimechanized fire they cannot be emplaced as far forward in the scheme of defense as the infantry antitank weapons. None of them are as easy to conceal as the infantry weapons. Also they are less mobile and not as capable as the infantry weapons of being pulled out of a tight spot. When firing primarily as antimechanized matériel, the infantry weapons will normally be the farthest forward, the automatic weapons of the antiaircraft will come next in depth, and the 3-inch and 90-mm. guns will be the farthest back.

It is obvious that the solution to the siting problem cannot be prescribed exactly. Every problem will have to be studied on the spot, finding a solution based on the weapons and their mission.

What Range?

At what ranges are targets going to be engaged by antiaircraft weapons with horizontal fire? When assigned a primary mission of aerial fire, the answer to this question is "when a horizontal target presents such a serious threat that it cannot be ignored." The answer to the question is based on the capabilities of the guns, the method of fire control, and whether or not the enemy has discovered the position of the firing unit.

If the enemy has not discovered the firing position of the antiaircraft unit, and is approaching at an angle where he may present a vulnerable part, it will be well to withhold fire. Of course if the enemy has discovered the position, it may be necessary to open fire sooner to

Gone! *British Press Service*

avoid having the fire of the unit neutralized. Briefly, the problem of what range is best to engage the enemy can be discussed in general principles, but the decision must be made for each such target and for each situation.

Observation and Adjustment of Fire

Regardless of whether the director or the "sight control" method is being used, fire adjustment will be the same for all guns. This will be a combination of tracer observation and "splash" observation. The 3-inch and 90-mm. guns, of course, have no tracers to watch and their adjustments must be based on sensings of the apparent location of the fall of the projectiles. When line shots are obtained with these guns it will then be far easier to determine whether or not the projectiles are falling over or short of the target. Sometimes it will be difficult to determine the magnitude of an over or short, however, and adjustment must be done by "feeling" for the range.

All automatic weapons use tracers in firing, but when firing at horizontal targets the impact of the projectiles with the ground gives additional aid in observation. With these guns the adjustment problem is similar to that of the larger guns. Fire is first adjusted laterally to line shots so that range observation is simplified.

The Problem of Several Targets

Seldom will but one target appear, to be engaged by horizontal fire, and whenever more than one target does appear the normal procedure is to have each gun of the fire unit engage a different target. In fact, the technique will be to engage mechanized vehicles at both the front and the rear of a column to cause confusion and block movement to either the front or the rear. When more than one target is to be engaged by the guns of a 3-inch or 90-mm. gun battery the director *cannot* be used, since the director transmits present position to but the one target that is being tracked by the telescopes of the director. The director on the 37-mm. and 40-mm. guns *can* be used in such a condition, since each gun has a director. If a platoon of 37-mm. guns is connected to the control box it can be used to control fire *only* if the targets being engaged are travelling in the same direction and are at the same horizontal range. Even such a circumstance cannot be counted on however, since it is almost certain that the enemy will deploy himself or use avoiding action to make such control

impossible. It stands to reason, then, that the *normal* method of fire control for horizontal fire will be by sights on the guns.

A 37-mm. gun on the M3 mount, using the central tracer control box for aerial fire, will be controlled in this manner when firing at horizontal targets: (1) The vertical and lateral lead dials on the control box will be set at zero and not used. (2) The vertical and lateral trackers on the guns will take approximate leads on the target through their sights in terms of target lengths and heights. (3) Upon opening fire the trackers will adjust fire by observation of their tracers and position of ground impact of the projectiles.

Computation of Leads

From the foregoing discussion it is apparent that the basis of any horizontal fire is lateral and vertical leads. On some sights these leads will be in terms of mil values laterally and vertically. On the vertical sight for the 3-inch and 90-mm. guns these leads are imparted to the gun by reference lines based on the range to the target. On other sights these leads must be taken in terms of target lengths and heights. Whether using mil values or target lengths and heights to offset the sights it is necessary to figure the mil values of the leads first.

This computation of lateral and vertical leads is a simple process of solving right triangles and taking certain data out of the firing tables. Certain assumptions are made that are not exactly correct, but which are so nearly correct that no error of any magnitude is introduced in the results. These errors are within the limits of the probabilities of the guns.

It is assumed (1) that lateral lead will *increase* in direct proportion to the increase in target speed up to fifty miles per hour; (2) that vertical lead is exactly equal to superelevation for the horizontal range to the target, and that it is not affected by speed; and (3) that leads will be the same on both the approaching and the receding legs of a crossing course.

The form *Calculation of Leads for Horizontal Fire* (Figure 1) is a simple method of recording the work of figuring leads. One such form will be required to figure the lateral and vertical leads for a target of one speed and one range to midpoint. (R_m.) The form is self explanatory as are the printed directions for making computations with the Crichlow slide rule.

Since lateral leads increase in direct ratio to the increase in target speed, it will be necessary to compute only one set of lead values. The illustration problems in this article are based on a target speed of twenty miles per hour. For a target of forty miles per hour merely double the lateral lead values.

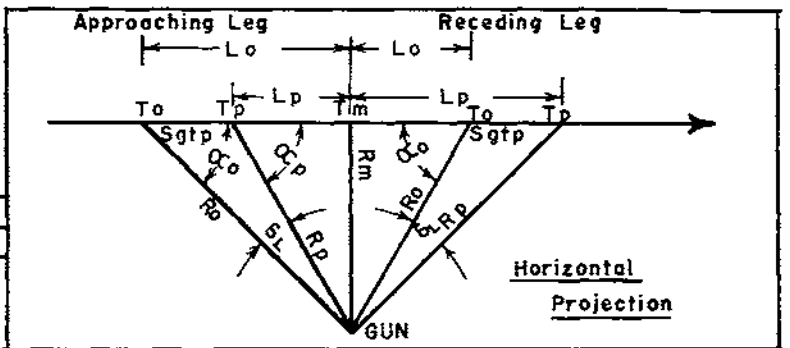
To figure leads for a particular gun and ammunition select a speed of twenty miles per hour and ranges to midpoint every 100 or 200 yards from zero to 1,000 yards (depending upon the range at which the gun will be used in horizontal fire).

Construction of Lead Charts

One very useful way to construct lead charts is to

CALCULATION OF LEADS FOR HORIZONTAL FIRE

Position Data
R_m 600 yds.
S_g 10 y/s
FT 37AA-N-2
Gun 37-mm
MV 2600 f/s.



		Solution by Crichlow Slide Rule: First Step: Hold S on Lesser Value	First Step: Set L on Greater Value	Step 2: Move L	Step 3: Read Under								
1	Lp (assumed)					600	400	200	0	200	400	600	
2	$\alpha_p = \tan^{-1}\frac{R_m}{L_p}$	E	E	S-index	L-C#	800	1000	1273	1600	1273	1000	800	
3	$R_p = \frac{R_m}{\sin \alpha_p}$	index	α_p-D	S-Rm-E	L-E	848	722	632	600	632	722	848	
4	t_p	Firing tables with Rp				1.18	.98	.85	.80	.85	.98	1.18	
5	Sgtp					12	10	9	8	9	10	12	
6	$L_o = L_p \pm S_{gtp}$	(+ on approaching, − receding leg)				612	410	209	8	191	390	588	
7	$\alpha_o = \tan^{-1}\frac{R_m}{L_o}$	E	E	S-index	L-C#	790	989	1260	1586	1286	1012	810	
8	δ_L =	$\alpha_p - \alpha_o$ on approaching leg; $\alpha_o - \alpha_p$ on receding leg				10	11	13	14	13	12	10	
9	σ_L =	ϕ_s-Firing tables with Rp				11	9	8	8	8	9	11	

#If numerator is less than denominator, the angle is less than 800 mils

Figure 1: Typical calculation form for horizontal fire

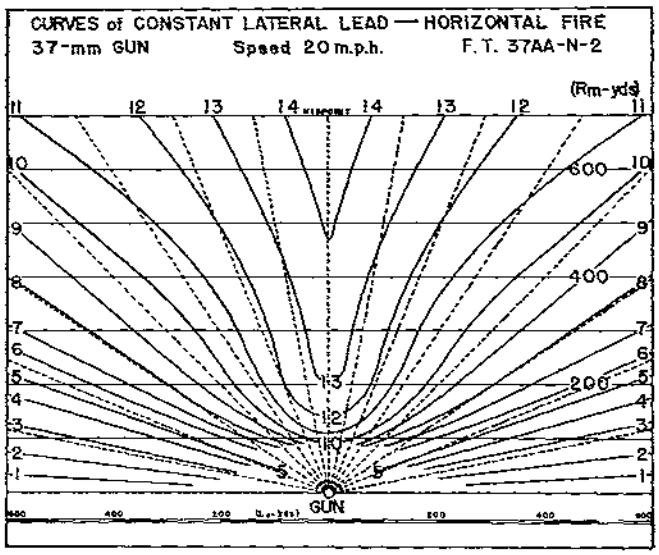


Figure 2a

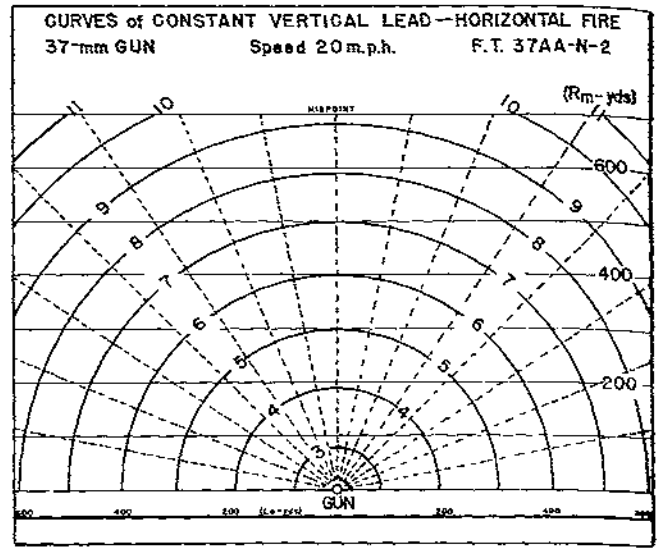


Figure 2b

plot and draw iso-curves of computed values. One chart will be constructed for lateral and another for vertical leads. The charts are constructed in the following manner:

(1) Vertical and lateral leads are computed on the form shown above for one speed of target (twenty miles per hour on the illustrative charts, Figures 2a and 2b). These leads are computed for all values of R_m from zero to 600 yards (1,000 yards for the 3-inch and 90-mm. guns) in 100 yard increments.

(2) A convenient scale is selected for L_o and R_m, and the lines of R_m (representing the course of the target) are drawn every 100 yards apart.

(3) *Lateral Lead Chart.*—Plot the even mil values of lateral lead against L_o values along each R_m line both sides of the midpoint.

(4) Connect all points of the same lead value by a continuous line, smoothing out the curves. (See Lateral Lead Chart.)

(5) *Vertical Lead Chart.*—On the $R_m = 0$ line the even mil values of superelevation are plotted against their proper range away from the position GUN.

(6) Using the point GUN as center, draw concentric semicircles from these even mil superelevation points. (Note: These superelevation iso-curves are now known as Vertical Lead Curves.)

LIGHT TANK
Approximate Dimensions 3-5 Yds. long, 2 Yds wide, 2 Yds. high.

Dimensions (mils) at 600 Yds. Range		
Crossing at right angles	Crossing at 45°	Coming
5-8 mils wide 3 mils high	6-8 mils wide 3 mils high	3 mils high
Dimensions (mils) at 300 Yds Range		
Crossing at right angles	Crossing at 45°	Coming
10-16 mils wide 6 mils high	12-16 mils wide 6 mils high	6 mils high

ARMORED CAR
Approximate Dimensions 3-6 Yds. long, 2-3 Yds. wide, 2-3 Yds. high

Dimensions (mils) at 600 Yds. Range.		
Crossing at right angles	Crossing at 45°	Coming
5-10 mils wide 3-5 mils high	6-11 mils wide 3-5 mils high	3-5 mils high
Dimensions (mils) at 300 Yds. Range.		
Crossing at right angles	Crossing at 45°	Coming
10-20 mils wide 6-10 mils high	12-22 mils wide 6-10 mils high	6-10 mils high

LANDING BOAT

Dimensions (mils) at 600 Yds. Range.		
Crossing at right angles	Crossing at 45°	Coming
22 mils wide 3 mils high	20 mils wide 3 mils high	3 mils high

Figure 3a

HEAVY TANK
Approximate Dimensions: 9 Yds. long, 3 Yds. wide, 4 Yds. high.

Dimensions (mils) at 1000 Yds. Range.		
Crossing at Right Angles	Crossing at 45°	Coming
9 mils wide 4 mils high	9 mils wide 4 mils high	4 mils high
Dimensions (mils) at 500 Yds. Range.		
Crossing at Right Angles	Crossing at 45°	Coming
18 mils wide 8 mils high	17 mils wide 8 mils high	8 mils high

MEDIUM TANK
Approximate Dimensions: 5-6 Yds long, 2.5 Yds. wide, 2.5 Yds. high.

Dimensions (mils) at 1000 Yds. Range.		
Crossing at right angles	Crossing at 45°	Coming
6 mils wide 3 mils high	6 mils wide 3 mils high	3 mils high
Dimensions (mil) at 500 Yds. Range.		
Crossing at right angles	Crossing at 45°	Coming
10 mils wide 4 mils high	10 mils wide 4 mils high	4 mils high
Dimensions (mils) at 300 Yds. Range.		
Crossing at right angles	Crossing at 45°	Coming
20 mils wide 8 mils high	20 mils wide 8 mils high	8 mils high

Figure 3b

(7) With the point GUN as the center, draw mil ray lines on each chart for each 200 mils around the chart.

(8) Construct a scale of the chart along the bottom.

(9) Label each chart with all data pertinent to that chart. (See Figures of Lead Charts above.)

Lengths and Heights of Targets In Terms of Mils

Where leads are going to be taken on horizontal targets in terms of target lengths and heights, these values in yards must be converted into values in mils. This is done by taking the length and height that the target presents to the eye of the observer and applying the "mil formula" to those values at the known range to the target. For example a target twelve yards long and three yards high, when being observed with its long axis at right angles to the observer, and 1,000 yards away will have a length of twelve mils and a height of three mils. This same target, when 500 yards away will have a length of twenty-four mils and a height of six mils. If this target were standing at a 45° angle to the observer the width of the target would also be used. The method here is to merely draw a scale diagram of the target's width and length and scale the presented length at 45°. This length then would be converted into mil values as was done above. A target coming directly at the observer needs no lateral lead anyway, so height only would be used.

In Figures 3*a* and 3*b*, are shown typical targets converted into their mil dimensions at various ranges and angles of presentation.

Converting Lead Chart Leads Into Target Lengths and Heights

Figure 4 shows targets at various ranges and at different angles of presentation with leads for twenty miles per hour converted into "target lengths and heights." The method is to take the lead chart mil lead value and divide it by the length or height of the target in terms of mils. An antiaircraft unit, knowing what targets it might have to engage, the angles of approach, ranges of opening fire, speed, etc., and having lead charts for its guns, can easily construct reference forms similar to the ones shown here. Trackers or adjusters will then be able to study these forms and memorize basic opening lead values to be used when opening fire at horizontal targets.

It may have been noted by the reader that the above process could have been done in the following manner: Convert the Lead Chart mil lead value into yards at given ranges, then divide these yard lead values by the yard values for length and height of the target at that point. The answer will be the same; namely, target lengths and heights.

90-mm Gun		
HEAVY TANK	Range 1000 Yds.	Speed 20 m.p.h.
Crossing at right angles	Crossing at 45°	Coming
δ_L = 12 mils = 1 1/3 target lengths.	δ_L = 8 mils = 1 target length.	
σ_L = 8 mils = 2 target heights.		
HEAVY TANK	Range 500 Yds.	Speed 20 m.p.h.
Crossing at right angles	Crossing at 45°	Coming
δ_L = 12 mils = 2/3 target length		
σ_L = 4 mils = 1/2 target height.		
37-mm Gun		
MEDIUM TANK	Range 600 Yds.	Speed 20 m.p.h.
Crossing at right angles	Crossing at 45°	Coming
δ_L = 14 mils = 1 1/2 target lengths.	δ_L = 10 mils = 1 target length.	
σ_L = 8 mils = 2 target heights		
MEDIUM TANK	Range 300 Yds	Speed 20 m.p.h.
Crossing at right angles	Crossing at 45°	Coming
δ_L = 13 mils = 2/3 target lengths.	δ_L = 10 mils = 1/2 target lengths.	
σ_L = 5 mils = 1/2 target height.		

Figure 4: Lead chart leads (see Lead Charts) converted to target length and height leads. (See Figures 3a and 3b.)

Hold Your Fire, Stay By Your Guns, Give Them Hell While It Lasts

It is well known that targets for horizontal fire will appear usually without warning. Action will likely be of short duration, but that action will undoubtedly be terrific while it lasts. The success or failure of the engagement may depend on withholding fire as long as possible so that it will be accurate from the opening round. Leads should be computed and lead charts constructed for all the types of targets and at speeds and ranges at which they may appear. Computations should be made and tables constructed to aid the gunners in learning proper opening leads for their guns. The gunners should be required to study these tables until they know what leads to use when opening fire on horizontal targets, and to do so without a moment's delay. Finally, to assure the antiaircraft unit's ability to use horizontal fire, make provision in the training schedule for such training and firing.

Identification of Aircraft

Editor's Note: This article was prepared as a pamphlet by Headquarters, Antiaircraft Artillery Command, Eastern Theater of Operations, and distributed in that Command. Sheets containing silhouettes, pictures and means of identifying types of friendly and enemy aircraft were distributed with the pamphlet, and revised sheets and additional material will be issued from time to time. The sheets have not been reproduced with this article.

Quick and accurate identification of both hostile and friendly aircraft is of vital importance in modern war. Your safety and that of the installations you are defending demand that you be able to make this identification at night as well as in the daylight.

METHODS OF IDENTIFICATION

Due to the great altitudes (some can reach 30,000 to 40,000 feet) and speeds (up to 200 yards a second) attained by modern aircraft, you will seldom be able to distinguish markings; often you will have to depend entirely on sounds or prearranged recognition signals, and routes of approach. Two-way radio and warnings from the Interceptor Command and Regional Air Commanders will, of course, be used when available.

However, for precision bombing, aircraft must usually operate at altitudes such that their silhouettes may be distinguished.

It is only by constant practice and training that you will learn to distinguish these planes. You will have ample opportunity to observe United States military and naval aircraft in flight, but your first opportunities to observe enemy aircraft will be under circumstances that will afford little opportunity for detailed study. Therefore, it behooves you to do your studying now, so that you can concentrate on shooting when the enemy arrives.

Identifying airplanes may seem at first a job for an expert. Actually the various models of planes differ from one another in appearance more than automobile models. You can best learn to identify them by separating them into broad classifications and then looking for the combination of special features that identifies the particular plane. When the plane is first sighted, classify it broadly. Then, as other features become discernible, narrow the classification down to the particular plane.

General Types of Planes

For this purpose there are three general classifications which cover all planes:

a. Landplanes and Seaplanes: Seaplanes have either the large, boat-bottomed hull of the flying-boat type of seaplane, or else they are conspicuous by the pontoons that project below the wings or fuselage. In either case their general appearance makes them easy to identify.

b. Monoplanes and Biplanes: This classification is an easy one to make. However, the biplane is a disappearing type in combat planes, and except for a few special-purpose biplanes and some obsolete models, combat planes are of the monoplane type.

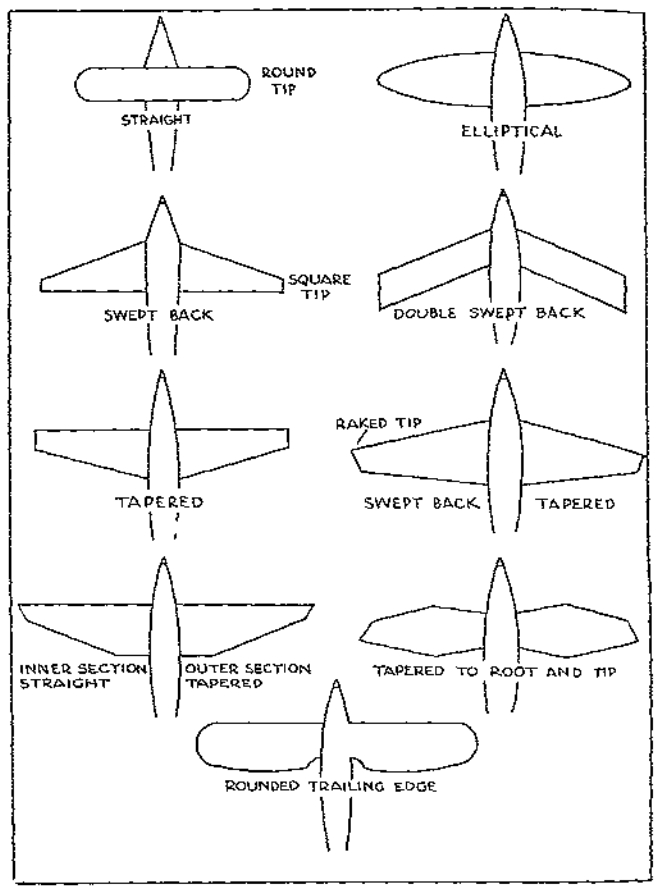


Figure 1

c. Single-Engine and Multi-Engine Planes: The number of engines is easy to note. Of the multi-engine planes, two-motor and four-motor planes are the commonest. The three-motor plane, prevalent ten years ago, has practically disappeared except in the Italian air force.

General Distinguishing Features

By classifying the plane in three easy ways mentioned above, you can considerably narrow your search for its identity. Next you need to know where to look to see the distinguishing features that complete the identification. Here are the points to observe:

a. Shape and Attachment of Wings: The plan of the wings (the wing shape that you see when the plane is directly overhead) shows wide variation in different planes. In Figure 1 note the way of describing

the different wing plans. Note also that the tip of the wing can be either rounded, square, or raked, depending on the type of plane.

In the head-on view of the plane, there is a similar variation in outline of the wings (see Figure 2) and in the place of their attachment to the fuselage (see Figure 3). In the case of a biplane, you should also note whether the two wings are of equal span (distance from tip to tip) or whether the lower wing has a shorter span than the upper, and whether they are unstaggered or staggered. A biplane's wings are said to be staggered when the lower wing is set further to the rear than the upper. There are a few biplanes with a "negative"

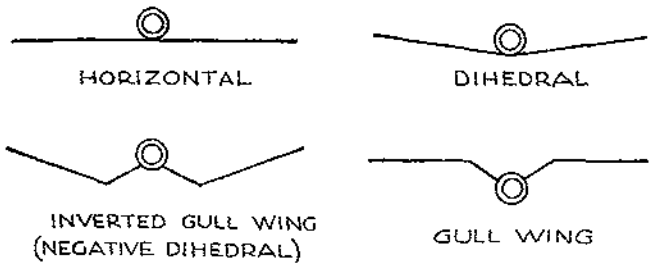


Figure 2

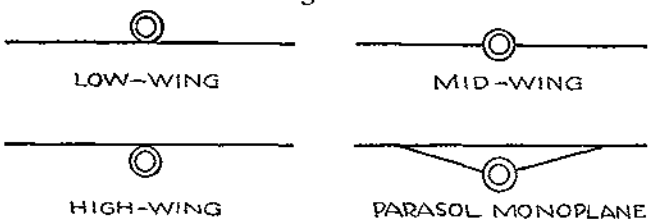


Figure 3

stagger, in which the lower wing is set forward of the upper.

b. Tail Assemblage: The tail assemblage of a plane consists of a horizontal tailplane, with a movable rear section called the elevator, and a vertical plane (or planes) called the fin, with a movable rear section, the rudder. Most single-engine planes have a single fin and rudder, but one of the first things to observe in a multi-engine plane is whether it has a single fin and rudder or two fins and rudders mounted at, or near, the ends of the tailplane (see Figure 4). The tailplane plans of aircraft vary as greatly as wing plans, and the fin and rudder frequently have an identifying shape.

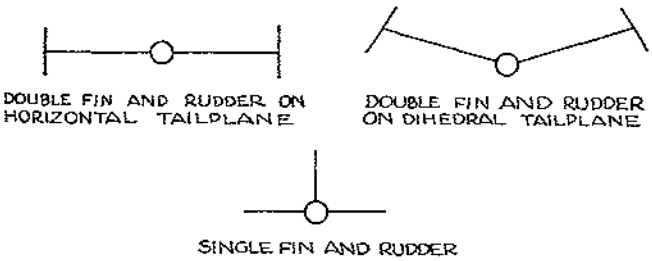


Figure 4

Viewing the Plane in Flight

There are also certain features to note which depend upon the angle from which you view the plane.

a. Overhead Flight

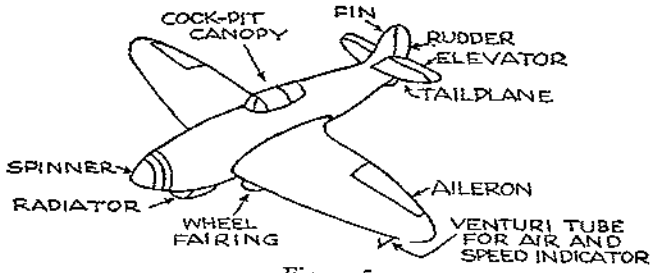


Figure 5

(1) *Shape of wing:* Characteristic shapes of wings are readily apparent in virtually all positions of overhead flight. The general shape and proportion of wings, as long and narrow, short and stubby, etc., should be noted.

(2) *Type and shape of nose:* Notice whether nose extends much or little in advance of leading edges of wings; i.e., whether plane is long-nosed or short-nosed.

(3) *Relative length and shape of fuselage:* In overhead flight the contour of the fuselage is not outstanding as an indication of identity. However, comparison of the relatively short fuselage lengths of small and medium-sized airplanes with the long, slender, streamlined appearance of those in larger ships sometimes gives valuable clues to the recognition of certain types. This is a characteristic feature which should always be considered.

(4) *Location and number of engines:*

(a) It is usually possible in overhead flight, except at very great altitudes, for an observer with field glasses or equivalent optical instruments to determine whether an airplane is a single- or multi-engine craft, and to count the number of engines. In single-engine airplanes, the engine is usually located in the nose and by its type determines the general contour of the nose; i.e., with radial engines the nose is blunt and stubby, while with in-line and V-type engines it is more slender and pointed.

(b) In multi-engine airplanes, the engines are usually housed in nacelles protruding from the leading edges of the wings. In the more unusual pusher types, the nacelles extend somewhat to the rear of the trailing edges of the wings. In overhead flight it is generally possible, except at very high altitudes, to count the nacelles and thus determine the number of engines. Even at great altitudes, when the number of engine nacelles cannot be exactly determined, their presence will give an unmistakable irregularity of outline to the wings, which is sufficient to warrant identification as a multi-engine airplane.

b. Passing Flight

(1) *Shape and contour of fuselage:*

(a) Notice whether the fuselage is short and chunky, as in the smaller pursuit and training types; elongated and streamlined, as in some of the larger types; or relatively long and thick-bodied, as in other large airplanes.

(b) Notice also the manner in which the contour is

broken by cockpits, canopies, gun turrets, etc. Note the single, relatively-small break approximately in the center, characteristic of single-seaters; the elongated canopies of airplanes with two or three cockpits; the relatively-small protrusions on top or bottom of the fuselage, indicating gun turrets on large bombers, as compared with the smooth, unbroken outlines of transports of generally similar appearance.

(2) *Type and shape of nose:* It should be especially noted whether the nose is slender and pointed, blunt and stubby, smoothly rounded, or whether it has any especially distinctive shape such as the "shark" nose of the American B-24 and B-18A.

(3) *Type of landing gear:* Landing gear of the non-retractable type is almost always plainly visible in passing flight. Since nearly all types of military aircraft are equipped with retractable landing gear, it is not visible in flight, except just before landing and just after take-off. The presence, therefore, of non-retracted undercarriages in normal flight is of great assistance in identifying the type of airplane observed.

(4) *Size, type and shape of vertical tail surfaces:*

(a) The relative size of the fin and rudder with respect to the fuselage is generally quite apparent in passing flight. In many types of airplanes this feature is not sufficiently distinctive to be of much value in identification. In some cases, however, it is an outstanding characteristic that can be distinguished even at considerable distances.

(b) It is not always possible in passing flight to tell whether an airplane has a single or double rudder. If the distinction is apparent, however, it is of great aid in identification.

c. Coming or Going Flight

(1) *Relation of wings to fuselage:*

(a) Whether high-wing, mid-wing, low-wing, or parasol-wing type. This feature is readily discernible in these flight positions and is an important factor in determining identity.

(b) The dihedral angle, whether pronounced, moderate, or practically zero.

(2) *Number of engines:* The number of engines can usually be determined in coming or going flights. As in overhead flight when the plane is at great distances, the irregularity of outline imparted to the wing silhouettes by engine nacelles will usually permit recognition of a multi-engine airplane as such.

(3) *Tail surfaces:* Features of the tail surfaces are generally difficult to distinguish in these positions. It is sometimes possible, however, to tell the difference between single- and double-rudder types.

(4) *Undercarriage:* The undercarriages of airplanes with non-retractable landing gear are plainly visible in these positions of flight.

Sounds

a. The sound of airplanes in flight is frequently the first indication of their presence. Observers hearing such sounds should immediately search the sky in the direction of the apparent source of the sound. They should also note carefully the characteristics of such sounds in order to connect them with the types of airplanes observed.

b. Recognition of airplane types by sound alone is difficult and uncertain except for highly-skilled observers who have constant practice. However, most persons can readily recognize the difference between the sounds made by a single airplane and those made by a formation. They can also be trained to detect the more outstanding differences in the sounds made by different types of airplanes by noting carefully such things as the rhythm, volume, tone, and variations in these. This training can be accomplished only by actual experience and by a conscious effort to analyze these sound effects at every opportunity.

c. Pursuit Airplanes: The sounds generated by pursuit airplanes are characterized by a fast rhythm, high pitch, moderate volume, and by extreme variations in quality of tone during such maneuvers as diving and climbing.

d. Heavy and Medium Bombers: The sounds from bombardment airplanes are generally characterized by a fairly deep pitch, moderately heavy volume, and steady tone and rhythm.

e. Light Bombers: The outstanding feature of sounds from light bombers is the very heavy volume of sound because of their low altitudes of operation. In regular flight the pitch is fairly deep, and tone and rhythm are steady but fluctuate considerably if the airplanes dive or climb.

f. Other Types: It is difficult to point out and analyze sound features generally characteristic of other types of airplanes. However, observers who have frequent opportunities to hear and see particular types of airplanes in operation can by careful attention and study soon learn to pick out certain characteristic sound effects which are of great assistance in recognizing those types.

Markings

Of course, if you can discern the distinctive markings and insignias on the plane, you can easily ascertain its nationality. However, too much dependence must not be placed on markings, since they are often obscured by distance, or poor visibility, and the enemy may resort to such subterfuges as omitting or falsifying them. See Figure 6 for distinctive markings and insignias of United States and other aircraft.

Summary

With all these points of variation, you will find that each plane has its particular group of special features that point to its exact identity. In the training sheets and silhouettes that will be sent your unit, you will find descriptions, pictures, drawings and brief means of identifying the action pictures of planes that you will find in newspapers, periodicals and the movies. If you

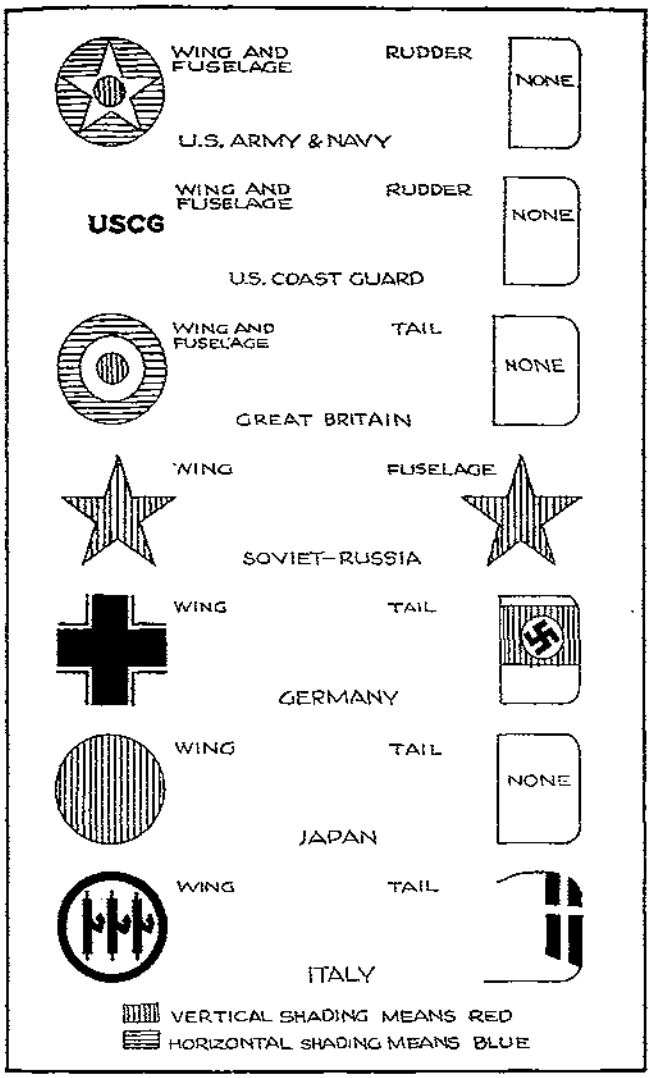


Figure 6

have a reasonably good eye you will find that spotting airplanes in the air becomes easier and easier with practice.

Combat Types, Army

a. Pursuit Airplanes are designed to engage in air fighting. They are characterized by high speed, high rate of climb, and great maneuverability. They normally operate in squadron formation. Pursuit airplanes include the following types:

(1) *The interceptor* is usually a single-seater with one or two powerful engines. Interceptors are very fast and maneuverable and can climb almost vertically.

(2) *The single-place fighter* is a more conventional type of pursuit plane with short span and length and is highly maneuverable. It is used for escort and patrol in addition to ordinary pursuit missions.

(3) *The multiplace-fighter* is larger, heavier, and usually bi-motored. It is used for escort and patrol duty near important objectives and against ground-troop concentrations. It is highly maneuverable.

b. Bombers are classified as heavy, medium and light.

(1) *Heavy and medium bombers* are designed to carry heavy bomb loads great distances for attack of material objectives, and also to conduct long-range strategic reconnaissance over land and sea. They are large airplanes, having two or more engines, and their maneuverability is less than other combat types. They usually operate in formation when on bombing missions. On reconnaissance missions they usually operate singly.

(2) *Light bombers* (formerly designated as "attack") are designed to attack material objectives of light construction, routes of communication and supply, airdromes, troop movements, and concentrations of troops in the open or under light shelter. Light bombardment airplanes are medium-sized airplanes with one or two engines. They have considerable maneuverability and normally operate in formations at low and medium altitudes. Light bombardment is the striking element of combat aviation which operates in direct support of ground forces. Identification of this type of aircraft is therefore especially important to ground troops.

c. Reconnaissance, Observation, and Liaison: Long-range reconnaissance missions are normally performed by airplanes of the bombardment type.

(1) *Reconnaissance airplanes* (corps and division) are medium-sized, moderate-speed, single-engine airplanes. They normally operate singly and at varying altitudes from low to high. Their normal fields of operation are beyond the hostile lines.

(2) *Observation and liaison airplanes* are medium-sized, single-engine, two-place airplanes. They are characterized by ability to fly at very slow speeds and to take off and land within small areas. They normally operate singly, at medium and low altitudes, within our own lines to perform fire-adjustment missions for artillery, maintain contact with our own front lines and marching columns, and carry on other command, liaison, and courier missions. It is especially important that ground troops be able to identify readily airplanes of this type.

Types Other Than Combat, Army

The principal types of airplanes other than combat craft employed by the Army are transport and training airplanes.

a. Transports are large two-engine aircraft generally similar in size and appearance to medium bombers. They are employed for rapid transport of personnel and supplies.

b. Training Airplanes are of several different types, including both biplanes and monoplanes. They are single-engine, two seaters, used, as the name indicates, for training flying personnel. They will be seen in large numbers only in the zone of the interior and in the general vicinity of training centers.

c. The Army also employs certain miscellaneous special-purpose types of airplanes. These are not suf-

ficiently numerous to warrant consideration in this manual.

Combat Types, Navy

Most of the combat airplanes of the Navy are generally beyond the field of observation of Army personnel. However, personnel on duty in oversea possessions, units engaged in joint operations, and personnel on duty near naval air stations must be able to identify Navy as well as Army aircraft. In the Navy, lines of demarcation between special types of combat aircraft for particular classes of missions are not so sharply drawn as in the Army. For example, nearly all fighter (pursuit) types may also be employed as light bombers and are designed and equipped for such missions; nearly all scout, observation, and patrol types are designed and equipped to perform medium or heavy bombardment missions; others are equipped as torpedo planes, as well as for patrol missions. Bearing in mind this overlapping of types and functions, combat types of Navy airplanes may be classified as follows.:

a. Fighters (class VF) are single-engine planes designed for operation from aircraft carriers. They include both biplane and monoplane types with performance characteristics generally similar to pursuit airplanes of the Army; i.e., high speed, high ceiling, high rate of climb, and a high degree of maneuverability. They may also be employed as light bombers. Their tactical operations and formations are similar to those of Army pursuit airplanes.

b. Bombers, Scout Bombers, and Scouts (class VB-VSB-VS) are single-engine landplanes designed for carrier operation to perform any of the missions indicated by their designation. They include both biplane and monoplane types. They are slightly larger than the fighter types, with less speed, lower ceilings, and greater range. They operate in formations or singly, depending on their missions.

c. Observation and Scouts (class VOS-VSO) are both landplane and seaplane types, single-engine, and include both biplanes and monoplanes. The landplanes are designed for carrier operation, while the seaplane types operate from battleships and cruisers. Their normal missions are scouting, observation, and spotting of naval gunfire. They are characterized by relatively low speeds, medium operating ranges, and medium ceilings. They normally operate singly at medium or low altitudes.

d. Patrol Bombers (class VPB) are large flying boats with two or four engines and wing spans in excess of 100 feet. They include both biplane and monoplane types. They operate singly or in formations, from low to high altitudes, depending upon the type of mission upon which they are engaged.

e. Torpedo Bombers (class VTB) are medium-sized, single-engine monoplanes, land type, designed primarily as torpedo planes to operate from aircraft carriers. They normally operate in formation.

Types Other Than Combat, Navy

The Navy has also a considerable number of non-combat airplanes. The bulk of these are training planes, both seaplane and landplane types. Others are transports and utility planes of various kinds, including landplanes, seaplanes, flying boats, and amphibians.

United States Coast Guard Airplanes

The United States Coast Guard operates a considerable number of airplanes for seaward patrolling, rescue work, and other activities connected with its peacetime functions. In time of war, the Coast Guard becomes a part of the Navy. Coast Guard airplanes are mostly of the seaplane or amphibian types. They vary in size from small-type landplanes to large, long-range, twin-engine patrol planes. They include both biplanes and monoplanes. Army personnel on duty in the vicinity of Coast Guard air stations should become familiar with the Coast Guard airplanes operating therefrom.

United States Forest Service Airplanes

The United States Forest Service operates a few airplanes. They are high-wing cabin monoplanes designed for good visibility forward and down. They are painted forest green and are marked with the United States Forest Service insignia. The airplanes used by other United States Government agencies are usually commercial types operating under contract.

TACTICS OF MILITARY AIRPLANES

Pursuit Airplanes

Pursuit airplanes normally operate in formations. The squadron of 18 airplanes is usually the largest group to be seen as a single unit in the air. When two or more squadrons are operating together, the other squadron formations will be seen usually echeloned to the rear and well above the leading squadron. Pursuit formations normally fly at high altitudes, and hence are difficult to see. An observer noting one pursuit formation should look above it and to the rear to discover whether or not there are other units with the formation.

Heavy and Medium Bombers

Heavy and medium bombers flying over friendly territory will generally be seen, both going out and returning from their missions, in route column formations. This is a column of three-plane elements, with successive elements stepped up or down from front to rear. Such formations will usually be seen flying straight courses at medium or high altitudes.

Light Bombers

a. Light bombers normally operate in formations at minimum or medium altitudes.

b. In passing over friendly territory, light bombers will usually be seen flying straight courses at minimum or medium altitudes in formations composed of ele-

ments of three airplanes each. The three-plane elements are usually echeloned to the rear of the leading element at about the same altitude. The normal operating unit is the squadron of nine airplanes. The largest unit that ordinarily operates in a single formation is the group of three squadrons.

c. Since light bombers generally operate within range of small arms weapons on the ground, and since they are the type of airplane which has the mission of direct support of ground forces, it is of especial importance that troops be able to identify friendly light bombers quickly and accurately.

Corps and Division Reconnaissance Airplanes

These airplanes will usually be seen over friendly territory when going and returning from missions over the hostile lines. They will generally fly on straight courses, but may be seen at any altitude from low to high. They operate singly.

Observation and Liaison Airplanes

These airplanes operate almost entirely within our own lines. They will be seen flying singly on variable courses at low and medium altitudes. They will also be seen circling over troops and columns to drop messages and observe panel signals, flying in and out of advance landing fields, and otherwise maintaining contact and liaison. It is especially important that troops be thoroughly familiar with these airplanes and their methods of operation.

AIDS IN IDENTIFICATION

The following form of chart may be made up for different types of planes and should help you to classify the planes and thus facilitate identification:

NAVY PLANES USED IN.....AREA

Type	*No. Wings*	*Wing Location*	*No. Motors*	*Wing Shape*	*Remarks*
PBY-3	1	High	2	Front straight—rear tapered	Flying Boat
SOC-1	2	—	1	Both straight	Non-retractable landing gear
J2F-1	2	—	1	Top swept back—bottom straight	Amphibian
JRF-1	1	High	2	Front straight—rear tapered	Amphibian, same plane as Army OA-9
RD-3	1	High	2	Front straight—rear slight taper	Amphibian. Motors above top wing. Same as Army OA-4

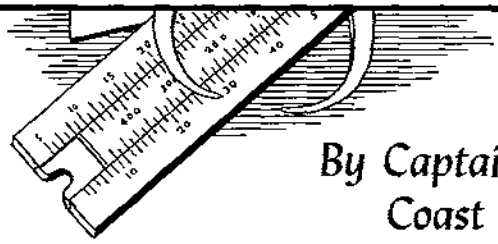
You should make up similar charts for other types of aircraft used by the United States Army and Navy, and by the enemy military forces.

AIRCRAFT DESIGNATIONS

Designations on planes seem complicated, but they really follow a simple system. The B-17-E, for example, is the seventeenth (17) bomber type (B) the Army has had, and is fifth (E) in the series of revisions on the original model. The Navy adds an extra symbol to identify the plane's maker. Thus, the SBC-4 is a scout bomber (SB) made by Curtiss (C) and is fourth in the series. Consolidated, which got its first Navy contract after Curtiss, has Y instead of C. Similarly Brewster is A (Boeing got to B first), Grumman is F, etc. Other naval curioso can be illustrated with the XF4-U: "X" indicates an experimental model, "F" stands for fighter; "4" means that this is the fourth fighter type produced for the Navy by Vought (U); and if the numerical "2," for example, followed the "U," it would mean that the original model had been revised twice. "A" stands for attack, "P" for pursuit, "O" for observation, and "B" for bomber.

There is a principle which is a bar against all information, which is proof against all arguments, and which cannot fail to keep a man in everlasting ignorance—that principle is contempt prior to investigation.—Herbert Spencer.

The FALLACY OF ACCURACY



By Captain R. A. Lepesquer, Coast Artillery Corps

I looked at the design blueprints for the reinforced concrete beams. The distances between steel rods were given to a sixty-fourth of an inch. The dimensions of the beams were given with the same accuracy. The drawings showing the bracing for the form work specified the kind of lumber to be used, and the stresses to be taken by each member.

The above took place in civilian practice. It was not an isolated example. Many times I have met the same fallacies in the military service. However, before going into any details, it might be well to devote some space to the philosophy of accuracy as it applies to the military needs.

The term "accuracy" is a relative one. It is relative because the degree of accuracy required depends on:

1. The accuracy of the measuring device;
2. The time available to measure and apply data;
3. The use to which the information will be put;
4. The accuracy demands of the job.

Let us examine these one at a time.

The first important factor in determining what accuracy is to be obtained is the refinement with which the measuring scales have been graduated. For instance, a ruler may be graduated into quarter inches; it may be graduated into eighths; or it may be graduated into any number of smaller divisions, the limit being imposed by the technical skill of the manufacturer and the brute fact that the smallest practical division is infinitely larger than the smallest space conceived by the imaginative mind.

It is sheer intellectual self-deception to read an azimuth circle to unit mils when the smallest division on that circle is twenty-five mils. The same thing might be mentioned when measuring a distance from one point to another, by pacing to give the result to the nearest inch. In other words, it is dangerous to allow the desire for accuracy to offset one's mathematical logic.

On the other hand, it is just as illogical to attempt to use data in the form given, simply because it is given in that form. For example, a soldier may be locating positions on a map whose scale is one inch equals eight miles $\left(\frac{1}{500,000}\right)$. A change of position of two hundred feet would have no significance and could be forgotten for a map of that scale. To sum up this question of readings from scales, tapes, thermometers, etc.: do not attempt to put into any measuring device an accuracy which is not there.

Regarding the second factor, isn't it true that the time available for measuring or weighing determines, to a large degree, the finesse to which measurements can be made? If a surveyor has a full year in which to make a topographic map of an area, he can be as accurate as his measuring device allows him. If, on the other hand, he has one week in which to do the same thing, expediency will dictate the accuracy.

This is well illustrated in hydrographic surveying when taking soundings. If they are taken from a motor boat, it will be necessary for the transitman to work fast. He cannot work fast and read the angle to the nearest minute at the same time. Accuracy must be sacrificed to speed. The same thing applies in a searchlight plotting room when a plane is being tracked—the speed of the plane doesn't permit unit mils or unit yards to be plotted.

To sum up this phase of the discussion, accuracy varies inversely with time available.

The accuracy to which a given phenomenon is measured is determined also by the use to which information thus obtained will be put. If, for instance, in seacoast gunnery the value of the azimuth is being computed, having given the X and Y coördinates, at least a five place log should be used. On the other hand, if a telephone wire route is being determined, the use of a triangular system would be ludicrous.

It is important to remember that in the orientation of a 3-inch gun the accuracy required compares with that required for a transit, because data coming in from the detector over the transmission system to the guns will bring the shots in the proper location relative to the target only if that orientation is correct. If, as an extreme illustration, the orientation were off by several hundred mils and that fact were not actually known, much time would be lost in checking over the detector, the mechanical equipment of the gun or other places where such a discrepancy might occur.

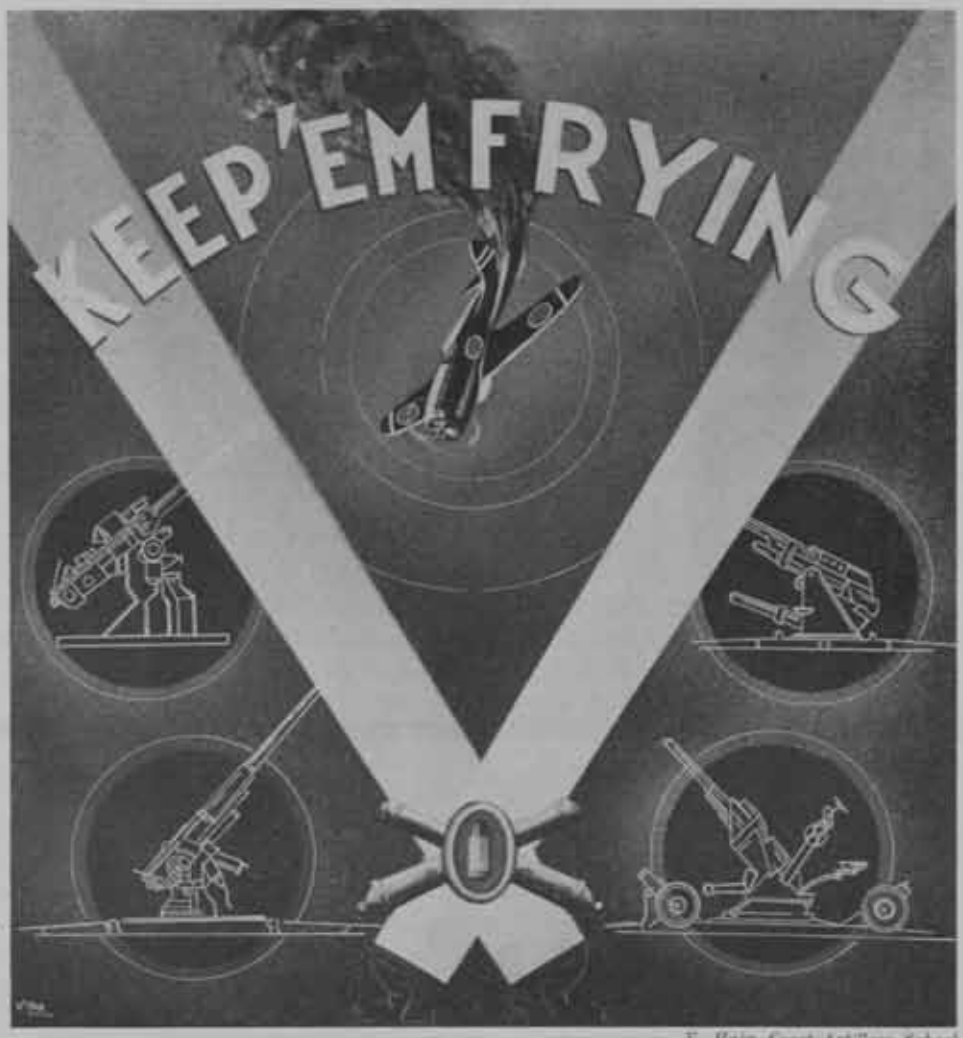
I might sum up this phase of it by saying that what determines the accuracy required is not alone the mathematics of the problem, but the use, the application of

the information which has so recently been determined.

As a final consideration, we might say that the whole question of relativity of values is to be considered. If we take the number 3.405 and we are interested in obtaining a result which depends for its final value upon the multiplication of an unknown by 3.405, the final accuracy will depend entirely upon the accuracy of the unknown. If that unknown is of such a nature that its value cannot be accurately determined, then the number 3.405 is a useless and dangerous attempt to obtain a kind of accuracy which is deceiving. To be more practical, it is stated in FM 4-110 that third and fourth order equations for wind effects are disregarded. This is very wise at the present stage of our knowledge, because a multiplication of a known by a quantity whose value is uncertain, would bring a result which is also uncertain in the same proportion. Again, the multiplication of any two numbers, as in the case of measured lengths where one length has been measured to one-tenth of a foot and the other to one one-thousandth of a foot, results in an inaccuracy which is as great as the difference between the one-tenth and the one one-thousandth measurement.

In short, the accuracy demands of the job call for a commonsense attitude toward values. First: the accuracy of any measurement, that is to say the number of places to which a measurement is carried out, depends essentially upon the value of the smallest measurable division on the measuring instrument to be used. Second: the accuracy of measurement of time, distance, or space, depends upon the length of time available for the accomplishment of a certain job. Third: the job itself will determine how much accuracy is required. And last, the commonsense attitude toward values will settle doubts as to how many places should be used in the final calculations.

I earnestly plead with all artillery experts and mathematical wizards to stop flaunting the term "accuracy" as if it had within itself some magic power with which all evils of gunnery and surveying and plotting and drafting can be immediately eradicated. We live in a practical world. We live in a relative world. And we must always remember that it is a sheer waste of time, not to mention that it is a misunderstanding of the basic problem, to extend any measurement or any calculation beyond the practical demands of the job.



V. Hnig, Coast Artillery School

Talking to the Eye

By Lieutenant Colonel D. C. Tredennick, Coast Artillery Corps

For a long time the War Department has recognized that visual aids are invaluable in education, in training, and in disseminating general army educational information. It is accepted that approximately eighty-three per cent of all learning comes to us visually. Likewise, it is known that the poorest means of instruction is just plain reading. The best instruction is a combination of seeing, hearing, and then doing.

No matter the subject, the mind receives the fullest significance and understands with greatest clarity if the lesson has been conveyed to the eye. Visual aids are used in education and in training for the vitalization, enrichment, and clarification of learning. By showing each progressive step in fundamental work operations film strips and training films enable the student to see and practice each step until he becomes proficient. Not only do students learn faster from instruction that "talks to the eye" as well as the ear, but the films also greatly simplify the work of the teacher.

Before our present emergency the Coast Artillery School realized the need of training aids to assist all coast artillery personnel in our vast training program. In an endeavor to meet the desired objective of the War Department to get training literature and training aids out to the field forces as early as possible the Department of Extension Courses was changed into the Department of Training Publications.

Four sections were organized under this department; namely, the Visual Aid and Miscellaneous Publications Section, the Extension Course Section, the Information Service Section, and the Library and Book Department Section.

As to types, visual aids, broadly speaking, include the use of anything which can be seen to put across a point. Common items are charts, drawings, photographs, actual or small scale models, maps and map boards, lantern slides, and finally film strips and training films. Examples of visual aids are the colored drawings of pistols, rifles, and machine guns furnished by the Ordnance, the sectionalized primer and fuze board usually found in all seacoast batteries and the knot board usually made up by some live-wire noncommissioned officer in a battery.

Of special interest to us now and of particular value to training today are two visual aids being produced by the army: film strips and training films. They are designed as visual aids in illustrating, expediting, and standardizing instruction. They are extremely valuable aids in mobilization training. Each will be discussed separately.

A film strip consists of a number of still transparencies portrayed on individual frames of a strip of 35-mm. motion picture film and used for instructional purposes. The film strip furnishes a comparatively inexpensive medium for telling a connected story in pictures. The typical film strip is made up of titles, subtitles, maps, diagrams, charts, drawings, actual photographs or combination of any of the above.

The film strip is generally produced to cover a subject where no motion is involved; for example, organization of a battery, or to illustrate the nomenclature of the various parts of a gun or other matériel. All army film strips are accompanied by suitable reference texts, by notes, or by complete lectures. Our Coast Artillery film strips are all accompanied by suitable references with notes to assist the instructor.

Film strips are distributed directly to organizations by the Chief Signal Officer. Paragraph 30 *b*, AR 105-260, should be quoted as the authority for the request. A request should be submitted directly through the organization commander to the Chief Signal Officer.

The training film is a motion picture produced specifically for instructional use in connection with military training.

Training films may be exclusively of the "pictorial" types or of the "animated" type, or a combination of the two. All training films utilize sound to assist in conveying the instruction matter. The sound may be exclusively off-stage voice, or natural sound, or a combination of off-stage voice and natural sound. Training films are produced in two sizes; the 16-mm. size with and without sound and the 35-mm. size.

In order to facilitate the distribution of training films and to insure their availability to tactical units and other training agencies in the field, the War Department has established the following distributing agencies:

a. A central distribution library at each corps area headquarters. From this central distribution library a training film distribution service to operate on a temporary loan basis is afforded ROTC and ORC units as well as organizations at posts, camps, or stations within the corps area.

b. A sub-library for training films under the control of the corps area commander is established and maintained for the use of organizations at many posts and camps. Film libraries are furnished with sufficient prints of training film subjects, to meet the estimated needs of all tactical organizations or other installations. Only prints of such training film subjects as are needed for the instruction of the personnel served are stocked at each sub-library. In general, they are 16-mm. sound prints. The desired prints of subjects for showing may be obtained by a unit for whom a sub-library is not

Lights! Action! Camera!

available by application to the corps area commander, as provided in paragraph 20, AR 105-260 dated September 25, 1941.

Visual Aids are tools to assist the instructor. They must not be considered as entertainment features or as time fillers in inclement weather. There is no substitute for actually doing a piece of work. Under no conditions can the use of visual aids be a complete substitute for teaching. The fact is reëmphasized: visual material is only an aid in teaching or training.

With the necessity for speed in mobilization training, the use of training films and film strips has assumed increased importance. In certain instances however the best methods for their use in connection with training have not been thoroughly understood. In the preparation of training programs appropriate training films and film strip subjects should be listed as text references in the same manner as field manuals or technical manuals.

All material, both textual and visual, should be carefully studied and organized by an instructor prior to his presentation. The pertinent visual aid should then be carefully integrated with the schedule and presented at such time as will effectively contribute to a carefully correlated and progressive program. If one is to get the maximum value from the film he must not only have definite aims and objectives in mind, but procedures and certain training activities as well. He must know what the film contains. He must know whether its contents correlate nicely with text and reference material. He must determine where in his training program the film will be presented. He must determine what is the major aim or objective to be obtained. He must determine what method of presentation will put over these objectives or aims. He must know what is necessary to follow up the film in the way of work or activities to secure the desired results.

Training films definitely provide a saving in training time. They concentrate attention on essentials by showing only the significant action or thing. Interest diverting factors are eliminated. They bring demonstrations of tactical exercises or equipment to the troops, thus eliminating the time-consuming factors of moving the troops to the demonstration areas. The same demonstrations can be shown repeatedly without expending time and labor in setting up the facilities or equipment as for each demonstration. This contributes to a saving in equipment, matériel, and transportation. Instruction in the care, maintenance, and operation of new matériel is available in training films, before the arrival of this equipment in the field, thereby, facilitating its immediate use upon delivery to the troops.

Training films are a valuable training aid, yet many officers have not learned how to make the best use of them. Officers must learn to use training films and film strips wisely as supplementary aids, rather than as primary training devices. The present use of training

films and film strips is partially ineffective because of the unfamiliarity of the average officer with the best ways of using such training aids.

The final solution to the problem of instructor's preparation in the use of training films and film strips or other visual aids, lies in a type of instruction in which the required technical and methodological knowledge is integrated with other training in courses in each subject matter field.

There are certain training techniques which are important for an officer to know. Study guides are a desirable aid in the use of training films and film strips. However, no definite rule can be laid down concerning the best technique to use in presenting any one visual aid. Nevertheless officers should be familiar with several methods in order that they may use each aid wisely according to their best judgment. This applies especially to the use of film strips and training films. Officers should be alert to develop newer and better ways of using films or film strips. Training films can to a large extent be made to replace demonstrations or exercises. Training films can become a passing fad and fancy, in other words, an educational luxury, unless officers always bear in mind that such films are merely a supplementary teaching aid. They will not teach by themselves. They require as much effort on the part of the officer as any other training method. They must be integrated with the regular training program. Officers using training films or film strips should make a careful evaluation of all such materials used in order to better their knowledge of that matériel, and also with a view to submitting reports on how to improve the future film program.

In every case, where using a training film or film strip, a follow-up procedure is vital and necessary in order to get the best use out of all training films or film strips. Visual aid must be used in progressive training.

The following list of film strips has been approved and issued by the War Department:

FS 4-1. *Characteristics of Naval Targets.*

This film strip, containing seventy-seven frames, briefly surveys the types of naval vessels to be found in the principal navies of the world. Special emphasis has been placed on identification. Representative views of the various types of vessels are shown together with pertinent data as to displacement and armament. The accompanying notes contain much detailed information which cannot readily be shown on the various frames.

FS 4-2. *Identification of Aircraft.*

This film strip, containing sixty-one frames, deals briefly with identification by sound, markings, structure, and silhouettes. It shows tactical formations. It presents views of the various types of aircraft now in use in the principal air forces of the world. The accompanying notes contain data that cannot readily be shown on the frames. They also contain the International Marking System for aircraft.

FS 4-3. *Antiaircraft Artillery Guns and Accessories.*

This film strip, containing ninety-two frames, is confined to antiaircraft artillery gun material. Fire-control equipment is not included. The film strip traces the historical development of antiaircraft artillery guns. It deals in some detail with the 3-inch, 105-mm., and 90-mm. antiaircraft guns. It covers construction, nomenclature, and emplacement of the guns. The accompanying notes contain many details that cannot be shown on the frames.

FS 4-4. *Automatic Weapons, Antiaircraft.*

This film strip, containing sixty-five frames, deals in some detail with the construction and operation of the caliber .50

The camera follows the action.

machine gun, M2, and the 37-mm. AA gun, M1A1. It also covers the fire-control system used in the operation of these weapons. The accompanying notes contain many details that cannot be shown on the frames.

FS 4-5. *Searchlight Equipment, Antiaircraft.*

This film strip, containing twenty-nine frames, deals in some detail with searchlights, sound locators, and control stations. It covers the construction and operation of the equipment. It also deals briefly with power plants and searchlight trucks. The accompanying notes contain many details that cannot be shown on the frames.

FS 4-6. *Seacoast Artillery Weapons and Matériel.* Part One.

Covers classification; construction; supports; carriages and mounts; recoil and counterrecoil mechanisms; and elevating and traversing mechanisms.

FS 4-7. *Seacoast Artillery Weapons and Matériel.* Part Two.

Covers obturation; breechblocks; firing mechanisms; and loading mechanisms.

FS 4-8. *Seacoast Artillery Weapons and Matériel.* Part Three.

Covers sights; guns, fixed and mobile; subcaliber guns and tubes; and seacoast searchlights.

Other film strips have been approved for production and are now being prepared at the Coast Artillery School. These are:

Fire Control and Position Finding for Antiaircraft Artillery.
Fire Control and Position Finding for Seacoast Artillery.
Coast Artillery Ammunition.
Organization of the Coast Artillery.
The Radio Set SCR 268.
Field Fortifications for the Coast Artillery.
- Part I. *The Antiaircraft Gun Battery.*
- Part II. *The Antiaircraft Automatic Weapons Battery.*
- Part III. *The Antiaircraft Searchlight Battery.*
- Part IV. *The 155-mm. Gun Battery.*

Orientation for Coast Artillery.
Communications Equipment for the Coast Artillery.
- Part I. *Local Battery Telephone Equipment.*
- Part II. *Common Battery Telephone Equipment.*
- Part III. *Radio Equipment.*
- Part IV. *Test Sets, TI, and Tool Kits.*

The 155-mm. Gun Regiment.
- Part I. *Organization.*
- Part II. *Matériel.*
- Part III. *Employment.*

Harbor Defense Searchlights and Power Plants.
Railway Artillery.
- Part I. *The 8-Inch Railway Artillery Battery.*
- Part II. *Railway Cars.*
- Part III. *Hand and Air Brakes.*
- Part IV. *Diesel-Electric Locomotives.*
- Part V. *Track Construction and Maintenance.*
- Part VI. *Train Make-Up.*
- Part VII. *Train Operation.*

In addition to these film strips, 4-3, 4-4, and 4-5 are being revised to bring them up to date and to include much more detail than is now covered.

The revision of film strip 4-3 consists in dividing it into three parts and producing a complete film strip on each part as follows:

- Part I. *Antiaircraft Artillery Weapons and Matériel—General.*
- Part II. *The 3-Inch Antiaircraft Gun.*
- Part III. *The 90-mm. Antiaircraft Gun.*

As soon as new tables of organization are published, it is planned to turn out film strips on organization for antiaircraft artillery gun battalions, antiaircraft artillery automatic weapons battalions, antiaircraft searchlight battalions, and antiaircraft artillery regimental and brigade organizations.

The following coast artillery training films have been approved for release by the War Department. Automatic deliveries are now being made or have been made to film libraries and sub-libraries by the Chief Signal Officer.

TF 4-185. *The Antiaircraft 37-mm. Gun Battery—Organization; Road Movement; Emplacement of the Gun.*

TF 4-186. *The Antiaircraft 37-mm. Gun Battery—Preparation of the Gun for Firing.*

TF 4-187. *The Antiaircraft 37-mm. Gun Battery—Fire-Control Equipment; Firing.*

TF 4-188. *The Antiaircraft 37-mm. Gun Battery—Care of Gun After Firing.*

TF 4-189. *The Antiaircraft 37-mm. Gun Battery—Movement Out of Position; March Order.*

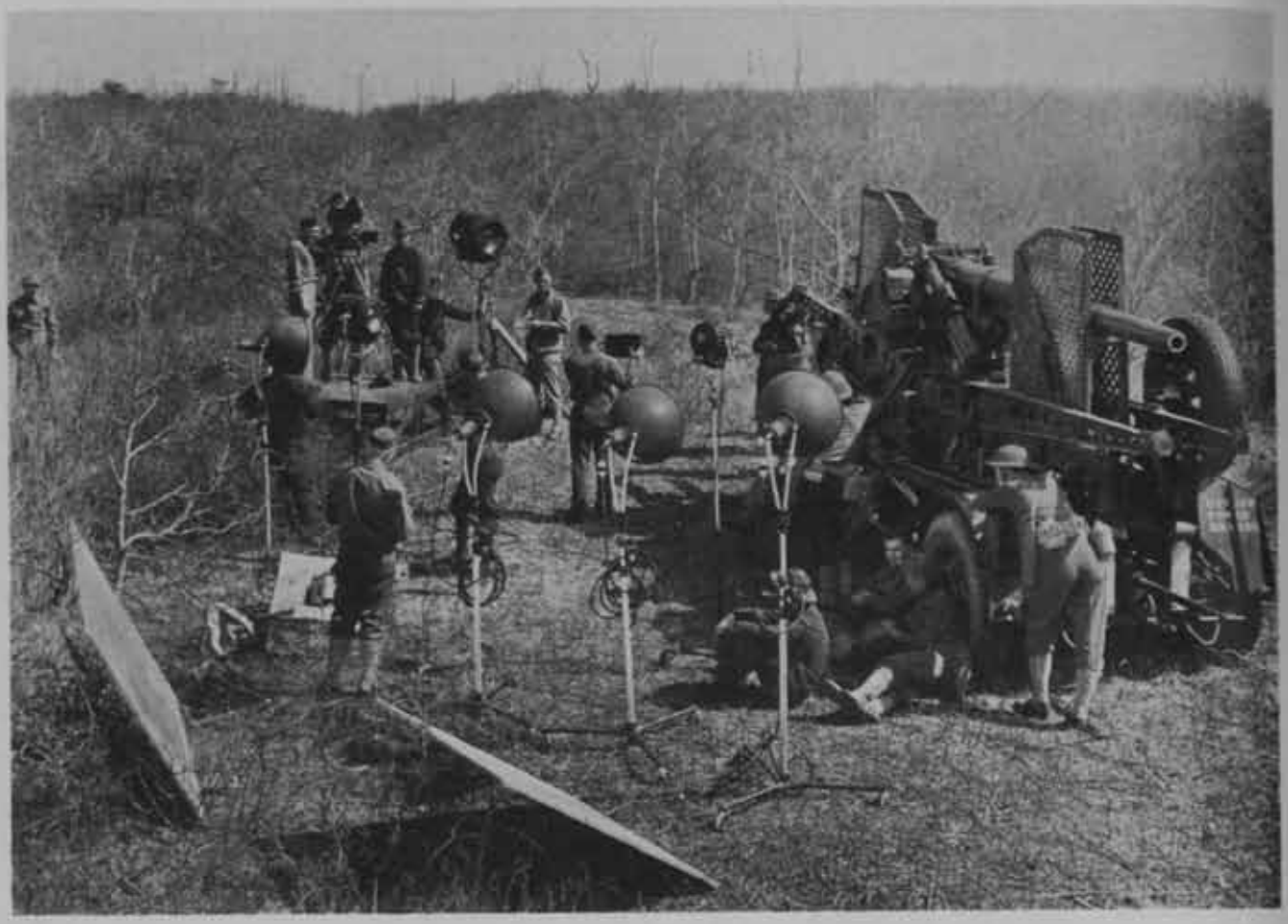
TF 4-190. *The Antiaircraft Machine-Gun Battery—Mission, Care and Adjustment of Gun and Mount, Handling of Ammunition.*

TF 4-191. *The Antiaircraft Machine-Gun Battery—Preparation for Movement, Action on the Road, Emplacement of Gun—Drill, Selection of Position.*

TF 4-192. *The Antiaircraft Machine-Gun Battery—Fire Control Equipment, Firing.*

TF 4-193. *The Antiaircraft Machine-Gun Battery—Care and Maintenance of the Gun and Mount.*

TF 4-194. *The Antiaircraft Machine-Gun Battery—Movement Out of Position, March Order.*



On location.

TF 4-195. *The Antiaircraft Searchlight Battery—Preparation for Action; Emplacement of Equipment.*

TF 4-196. *The Antiaircraft Searchlight Battery—Preparation for Use; Orienting and Synchronizing.*

TF 4-197. *The Antiaircraft Searchlight Battery—Preparation for Action; Drill of the Searchlight Section.*

TF 4-198. *The Antiaircraft Searchlight Battery—Movement out of Position; March Order.*

TF 4-240. *3-Inch Antiaircraft Artillery Gun Battery Section I—Movement into Position, Emplacement of 3-Inch Gun M3 on M2A2 Mount.*

TF 4-241. *3-Inch Antiaircraft Artillery Gun Battery Section II—Preparation of M3 Gun for Firing.*

TF 4-242. *3-Inch Antiaircraft Artillery Gun Battery Section III—Fire-Control Equipment.*

TF 4-243. *3-Inch Antiaircraft Artillery Gun Battery Section IV—Drill of the Gun Section—Service of the Piece.*

TF 4-244. *3-Inch Antiaircraft Artillery Gun Battery Section V—Movement out of Position—March Order.*

TF 4-269. *The Antiaircraft 37-mm. Gun Battery—Emplacement of Gun—March Order, (tentative drill).*

TF 4-278. *Antiaircraft Automatic Weapons Trainer.*

TF 4-320. *The 90-mm. Antiaircraft Gun—Emplacement and March Order.*

TF 4-374. *Care and Maintenance of Antiaircraft Searchlight Equipment—The Control Station—The Sound Locator—The Power Plant and Cables.*

TF 4-380. *Care and Maintenance of Antiaircraft Searchlight Equipment—The Searchlight.*

At the present time training films on the following subjects are either in the process of being produced or are being prepared for production:

Searchlight Battery, the Section with the M1 Trailer.

Fire Control and Position Finding for Seacoast Artillery.

Part I. *Position Finding Systems.*

Part II. *Nonstandard Ballistic Conditions.*

Part III. *Computing and Setting of Firing Data.*

Part IV. *M1 Plotting Room Equipment.*

Part V. *Spotting Systems and Fire Adjustments.*

Part VI. *Emergency One-Station Fire Control System.*

Part VII. *Care, Operation and Training of Personnel on Observation Instruments.*

The Height Finder, M1 and M2.
- Part I. *Preparation for Action.*
- Part II. *Adjustments Prior to Operation.*
- Part III. *Drill.*
- Part IV. *March Order.*
- Part V. *Care and Maintenance.*

The Radio Set SCR 268.
- Part I. *Assembly of the Mount.*
- Part II. *Disassembly of the Mount and Packing of Trailers.*
- Part III. *Drill of the Section and Operation of the set.*
- Part IV. *Orientation and Synchronization with the Director.*
- Part V. *Orientation and Synchronization with the Searchlight.*

The Antiaircraft Gun Directors, M4 and M7.
- Part I. *Care and Maintenance.*
- Part II. *Field Checks.*
- Part III. *Trial Shot Problem.*
- Part IV. *Fire for Effect.*
- Part V. *Disassembly and Reassembly.*
- Part VI. *Set-up and Adjustment.*

Care and Maintenance of the 90-mm. Antiaircraft Gun.
- Part I. *Routine Maintenance.*
- Part II. *Preparation for Firing.*
- Part III. *Firing, Safety Precautions, and Maintenance after Firing.*

Care and Maintenance of the 3-inch Antiaircraft Gun.
- Part I. *Routine Maintenance.*
- Part II. *Preparation for Firing.*
- Part III. *Firing, Safety Precautions, and Maintenance after Firing.*

Care and Maintenance of the 155-mm. Gun.
- Part I. *Routine Maintenance.*
- Part II. *Preparation of the Gun for Firing.*
- Part III. *Preparation of the Sights for Firing.*
- Part IV. *Care and Service During and After Firing.*

The 12-inch Gun Battery—Barbette Carriage.
- Part I. *Matériel and Personnel.*
- Part II. *Breech Mechanisms.*
- Part III. *Preparation for Firing.*
- Part IV. *Duties of Ammunition Squad.*
- Part V. *Safety Precautions.*
- Part VI. *Care and Maintenance.*
- Part VII. *Firing.*

The 37-mm. Gun on Mount M3A1 with M5 Director.
- Part I. *Introduction — Personnel — Emplacing the Gun and Equipment.*
- Part II. *Preparation of the Gun and Equipment for Firing.*
- Part III. *Drill of the Section.*
- Part IV. *Firing and March Order.*

Prediction with the Antiaircraft Gun Director.

Tactical Employment of a Battalion of Mobile Sea-Coast 155-mm. Guns.
- Part I. *The Battalion Commander and Staff.*
- Part II. *Movement to and Occupation of Positions.*
- Part III. *Conduct and Control of Firing.*

Orientation for Coast Artillery.
- Part I. *Duties of a Reconnaissance Officer of a 155-mm. Gun Battalion.*
- Part II. *Transit Traverse.*
- Part III. *Intersection.*
- Part IV. *Resection.*
- Part V. *Azimuth Determination.*

Communications for Coast Artillery.
- Part I. *Installation and Operation of an Antiaircraft Artillery Regimental Communications Net.*
- Part II. *Installation and Operation of a 155-mm. Gun Regimental Communications Net.*
- Part III. *Operation of Communications Within the Harbor Defense.*
- Part IV. *Technique of Operating Local Battery Telephone and T.I. Equipment.*
- Part V. *Technique of Operating Radio Equipment.*

Railway Artillery.
- Part I. *The 8-inch Railway Artillery Battery.*
- Part II. *Care and Maintenance of 8-inch Railway Artillery Guns M1A1.*
- Part III. *Track Construction and Maintenance.*
- Part IV. *Maintenance of Cars.*
- Part V. *Maintenance and Operation of Hand and Air Brakes.*
- Part VI. *Maintenance and Operation of Diesel-Electric Locomotives.*

Care and Storage of Explosives in the Coast Artillery.

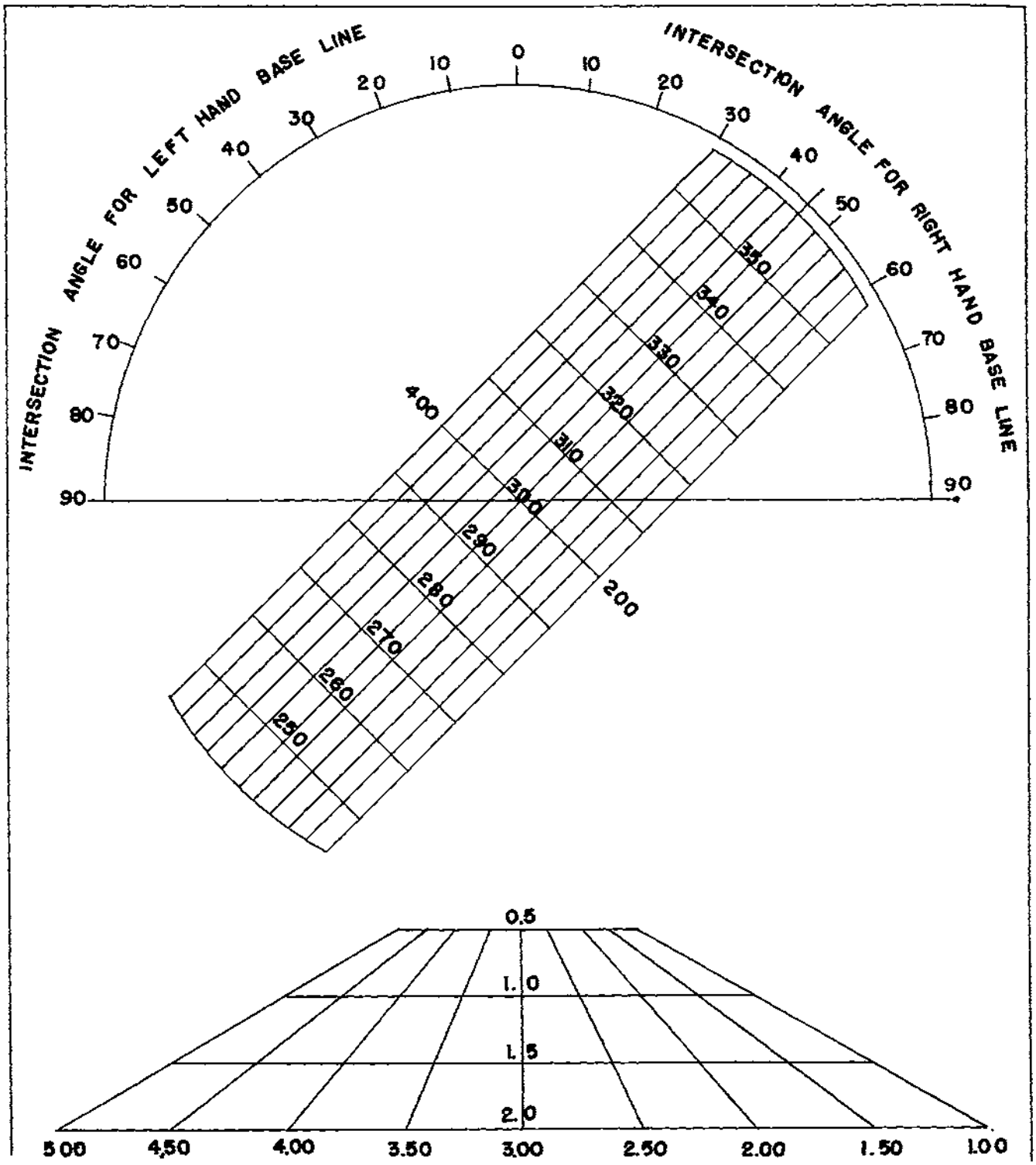
SOMETHING DIFFERENT

In Spotting Charts

By Lieutenant Colonel Louis H. Thompson, Coast Artillery Corps

This spotting chart was designed with the idea of simplicity of operation, ease of transportation for mobile batteries, and low cost of construction. The chart can be placed in operation quickly on any drawing board or table that may be readily available. It can be very quickly oriented for any base line, one end of which is in the vicinity of the firing battery.

To understand the construction of the chart a brief



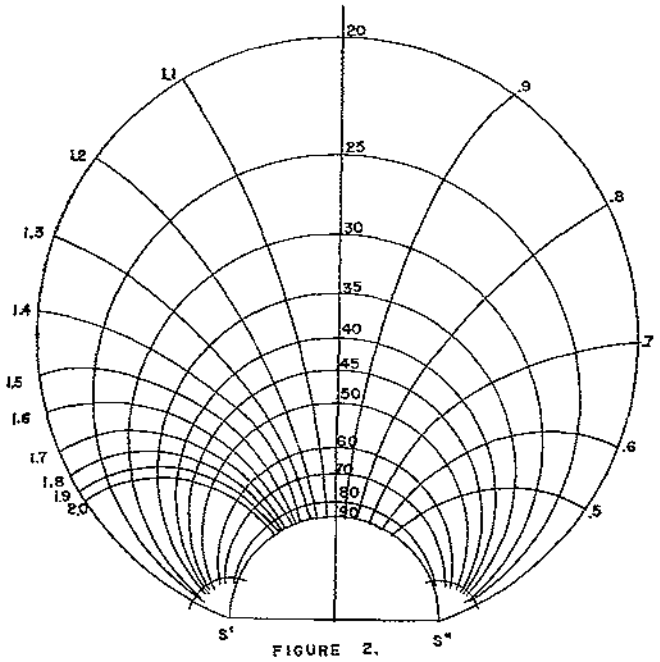


FIGURE 2.

description of the mathematical principles involved will be necessary. If we assume that the S″ spotter is located so the angle GTO (gun-target-observer) is 90 degrees, then it is apparent that a one degree deviation as seen by S″ will represent a deviation of 1.75% of the range from gun to target, provided the range from the gun to the target is the same as the distance from S″ to the target. If these two distances are not the same then the deviation from the gun will be obtained by multiplying 1.75% by the value of S″T/GT (range from S″ divided by range from gun). Should the GTO angle not be 90 degrees the actual deviation will be obtained by dividing the value of the deviation as observed by the sine of the GTO angle.

The chart is designed to solve quickly the above mathematical problems. The construction of the chart is illustrated in Figure 1. The scale at the bottom of the chart is designed to perform the multiplication of the observed deviation by the factor S″T/GT. By setting the grid center line at the proper GTO angle on the semicircular angular scale the problem of dividing the observed deviation by the sine of the GTO angle is mechanically solved. The grid mounted in the center of the chart provides a means of correcting the deviation as seen from S″ for lateral deviation as seen from the gun and also a means of reading deviations in per cent in reference numbers that appear on the percentage corrector.

In the construction of the chart a scale of one inch equal to one per cent is recommended. Draw a circle with radius equal to the maximum deviation to be expected. Graduate this circle in degrees with zero at the top, clockwise and counter clockwise from zero, to the maximum GTO angle to be expected. Two inches below the bottom of the circle draw a line perpendicular to the Y axis. Lay off on this line from the Y axis points 1.75 inches apart, each point representing one degree of deviation, to the minimum reading of the observing instrument deviation scale on the right and the maximum reading of the scale on the left. This scale would be correct to use if the factor S″T/GT were unity. Draw similar lines perpendicular to the Y axis two inches above this line and four inches below it. Graduate the top line in a similar manner but using only one half of 1.75 inches for each degree and graduate the bottom line by using two times 1.75 inches for each degree. Draw diagonal lines through corresponding degree points on each of the above lines. If the measurements have been correct the three points will lie on a straight line. Now subdivide the scale down to a minimum reading of .05 degree and draw additional lines perpendicular to the Y axis for multiplying factors for each tenth from .5 to 2.0, the top line being labeled .5 and the bottom line 2.0. The grid is constructed by taking a radius equal to the radius of the circle described above and striking two arcs diametrically opposed with the length of each arc equal to 3.5 inches. Draw a center line connecting the two arcs and both to the right and left of this center line draw lines parallel to it .175 inches apart, each line representing one tenth of a degree. Since it is not likely that a deviation as seen from the gun will ever exceed one degree, these lines need be drawn only up to one degree on each side of the center line. At the center of the grid draw a line across it perpendicular to the degree lines described above. Draw additional lines one inch apart parallel to this line across the grid for its entire length. Since the scale is one inch equals one per cent the line one inch above the center will represent a deviation of one per cent over and the line one inch below the center will represent one per cent short, etc. This deviation scale should be numbered with 300 in the center, 310 one inch above the center etc., to correspond to the scale on the percentage corrector. The scale should be further subdivided to a minimum graduation of one tenth of one per cent. After the grid has been glued to a thin piece of metal or cardboard and pivoted at the center of the circle the chart is ready to be operated.

In order to obtain the value of the GTO angle and the multiplying factor the chart illustrated in Figure 2 has been provided. It is constructed upon the geometrical principle that all angles constructed within a given circle and using a common chord as a base are equal. The chord of the circle is represented by the spotting base line. To construct the chart, select a given length of base line, six inches for example, and at the center draw a line perpendicular to the base line. Along this perpendicular lay off points representing the centers of the circles for various GTO angles differing by 5 degrees from 90 down to 50, by 2 degrees from 50 to 40 and for each degree below 40. The distance of the center of the circle to the base line will be equal to the cotangent of the GTO angle multiplied by one half of the length of the base line. Using the centers thus obtained and radii equal to the distance from either end

of the base line to the center of the circle, draw the circles as illustrated. A range arm graduated on the basis of 6 inches equal to the length of the base line is pivoted at the S′ station. When this arm is set at the azimuth of the target and a point plotted along the arm at the range to target, the GTO angle may be read from the chart. The multiplying factor curves may be drawn upon the chart by lightly striking arcs of circles from S′ with radii differing by one inch. Then for the .5 curve a scale is pivoted at S″ and with a radius equal to one half of that from S′ intersections are obtained upon the corresponding circles from S′. A smooth curve is drawn through the points thus obtained. The other curves are drawn in a similar manner, but using .6, .7, etc., times the radius from S′. The chart thus prepared is for a right handed base line. For a left handed base line it is necessary to reverse the procedure in drawing the multiplying curves. If the chart has been drawn on tracing cloth the tracing may be turned upside down and retraced, or before the figures are put on it may be printed upside down.

To facilitate orientation of the chart an azimuth circle may be constructed on transparent material such as thin celluloid or tracing cloth. This azimuth circle is pivoted with its center over the S′ station and turned until the azimuth of the base line is over the base line and is then held in this position with a thumb tack. The gun arm is set at the azimuth of the target over the proper graduation on this azimuth circle. To graduate the gun arm rapidly for any desired length of base line a chart similar

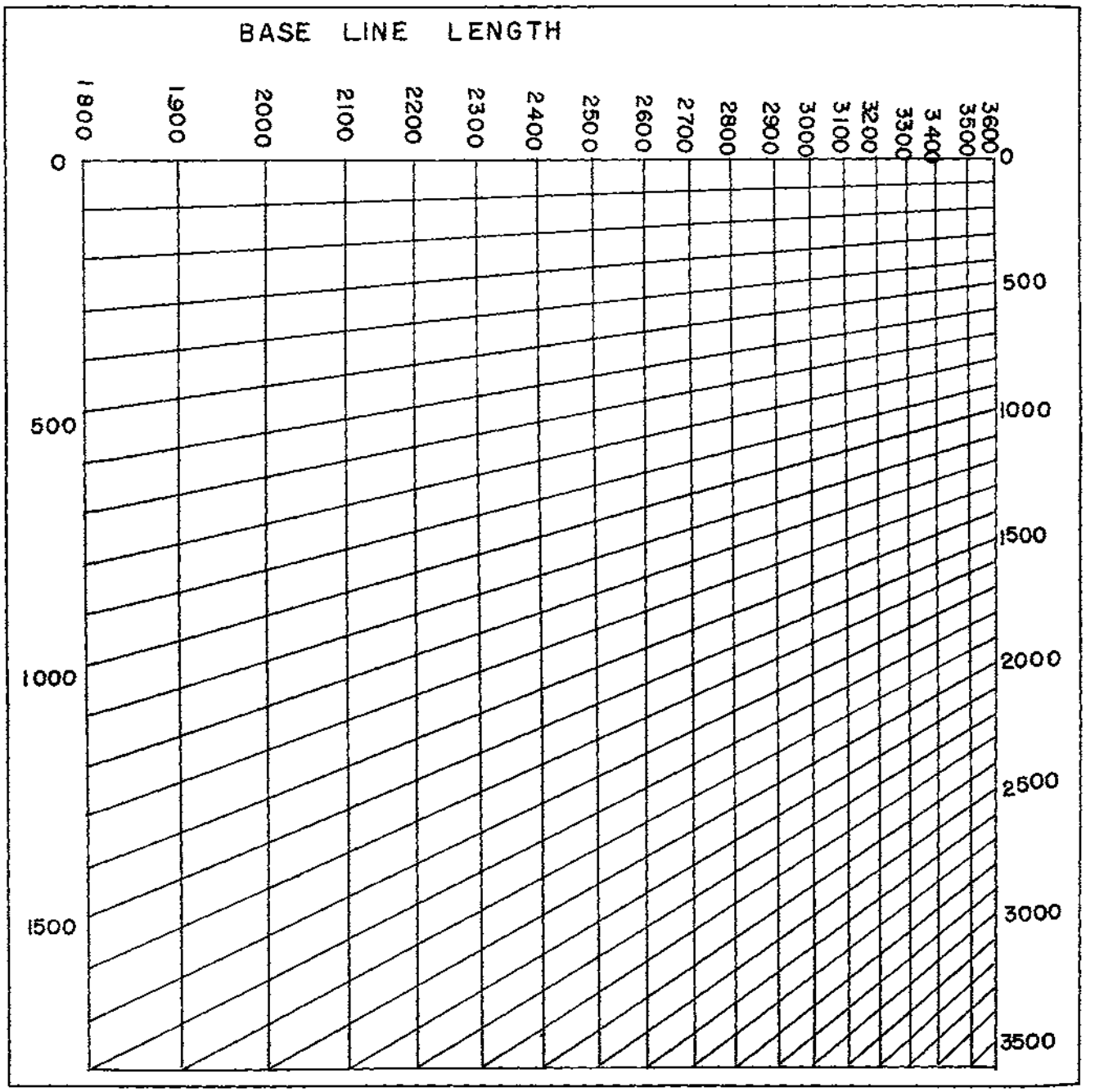


Figure 3

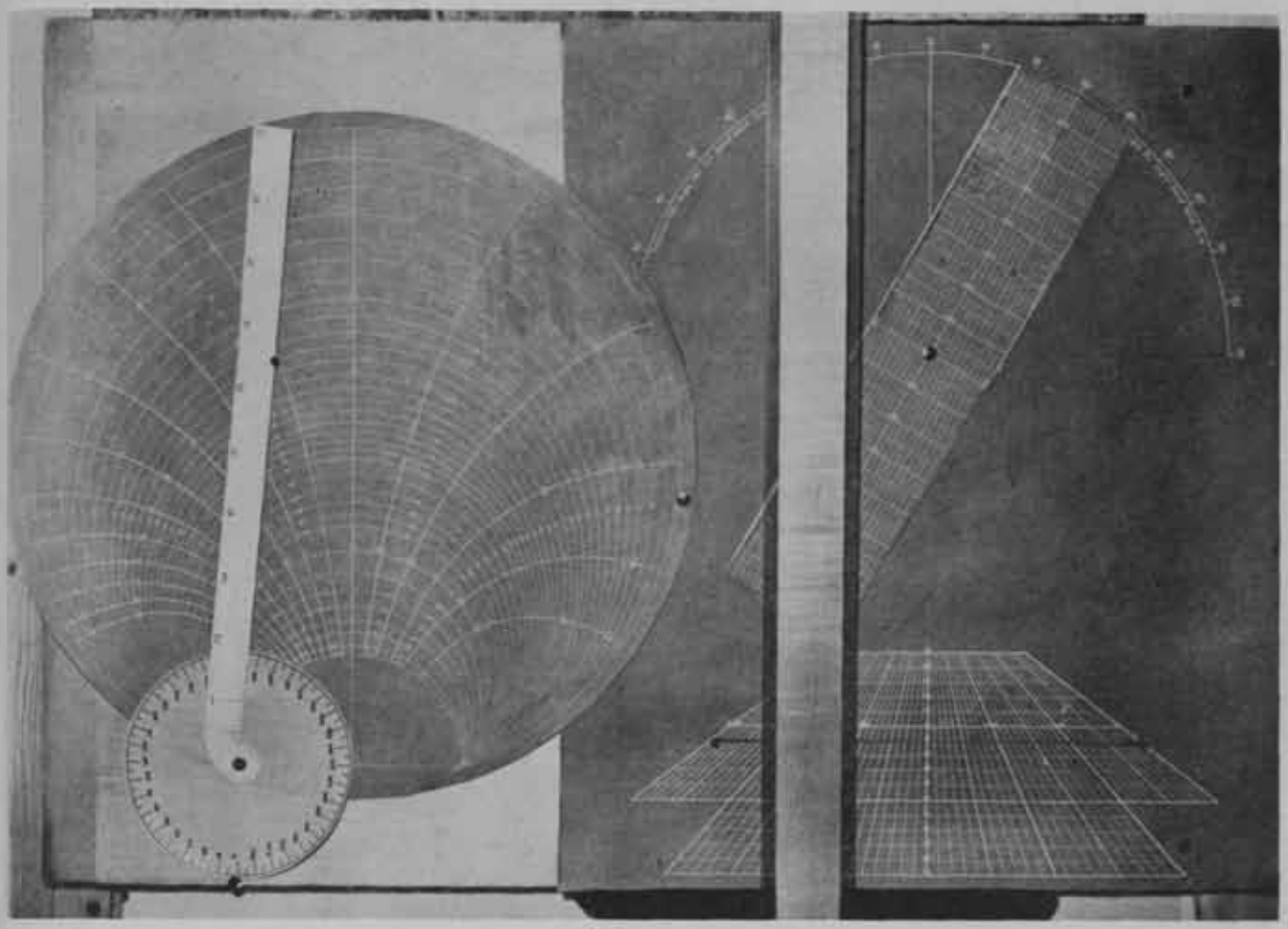


Figure 4

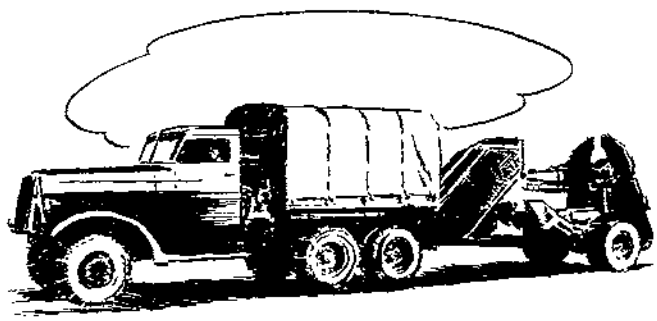
to that shown in Figure 3 may be used. Two parallel lines are drawn any convenient distance apart and connected at the left side by a perpendicular line. The bottom line is graduated to any convenient scale, say 300 yards to the inch. Since the base line on the chart is 6 inches long, this would represent an actual base line of 1,800 yards. The top line is graduated to any other convenient scale, say 600 yards to the inch. This would represent an actual base line on the ground of 3,600 yards. The 100 yard graduations on the two lines are now connected by diagonal straight lines. Six inches to the right of the first perpendicular line another perpendicular line is drawn. Where this line intersects the diagonal lines additional horizontal lines are drawn, parallel to the first two lines drawn, until they intersect the first perpendicular line. These lines are now labeled beginning with 1,800 for the first line at the bottom, 1,900 for the second line, etc. and ending with 3,600 for the top line. Suppose that the actual length of the base line is 2,850. Then the gun arm would be placed on the chart with the pivot over the left vertical line one half way between the 2,800 horizontal line and the 2,900 line, with the edge of the arm parallel to these lines. It would then be graduated at the points where the diagonal lines passed under its reading edge. There is no necessity for graduating the arm with a smaller graduation than 100 yards since close readings are not essential in the operation of the chart.

In mounting the spotting chart on the drawing board or table a T square is placed so the head will rest against the bottom of the board and the chart fastened to the board so the Y axis is parallel to the blade. The horizontal line on the deflection scale corresponding to the proper multiplying factor may be marked by a rubber string stretched between two pins or another T square with the head resting against the right edge of the board may be used. As soon as the target is assigned, the operator, or an assistant operator, will set the gun arm on the auxiliary chart at the azimuth of the set forward point, or a little ahead of it, and will then note at the proper range on the arm the value of the GTO angle and the multiplying factor from the chart. The operator of the spotting chart will turn the deviation grid until its center line is set at the GTO angle on the circular scale. He then marks the horizontal line on the deviation scale at the bottom of the chart, corresponding to the multiplying factor read from the auxiliary chart. This may be done by means of a straight edge, T square or string as explained above. As soon as a splash occurs and the deviation is received from S″ the operator slides the T square over the deviation scale until the reading edge is over the intersection of the proper deviation line

and multiplying factor line. If the shot is a line shot from the battery he reads the deviation in per cent reference numbers along the center line scale of the grid. Suppose the observer at the battery reports the lateral deviation as 2.50, then instead of using the center line of the grid the operator would read the deviation at the intersection of the 2.50 line and the edge of the T square blade.

It will be noted that in operating the chart as described above the same error that is found in the M2 spotting board and all other boards working on the same principle is introduced, that is, the error caused by assuming that the line of sight from the observer to the target moves parallel to itself when moved over to the splash. For intersection angles greater than 20 degrees this error is negligible in comparison with the errors of observation. For a GTO angle of 20 degrees the error is approximately 5% and for an angle of 10 degrees it is somewhat greater than 10%. The error may easily be eliminated in this chart merely by decreasing or increasing the GTO angle used by the value of the deviation from S″. For example if the GTO angle is 20 degrees and the reading from S″ is 2.00 then a GTO angle of 19 degrees should be used, or if the splash is one degree to the left and the reading comes in as 4.00 then the GTO angle to be used would be 21 degrees. The only other errors will be from errors of construction or shrinkage of paper when charts are blue printed. If there are no errors of construction, then the solution will be an exact mathematical solution. After construction the chart should be checked at several points against computed values.

Figure 4 shows the chart set up ready for operation. When the photograph was taken the grid was set for a GTO angle of 30 degrees, the multiplying factor was 1.10, and the reported deviation from S″ was 4.00. If this shot had been line from the battery the computed value of the deviation would be 1.75 divided by .5 (sine of 30 degrees) multiplied by 1.10, or 3.85% short. If the shot had been one degree left as seen from the battery the deviation would have been decreased by the value of 1.75 divided by the tangent of 30 degrees; or if it had been .5 right the value of the deviation would have been increased by .5 times 1.75 divided by the tangent of 30 degrees. All of these computations are made automatically on the chart merely by setting the required data. It can be readily observed that no great degree of accuracy is required in setting the arm on the auxiliary chart shown in Figure 2 and that several minutes may elapse before the GTO angle and multiplying factor change sufficiently to require a new reading from this chart. For this reason only one operator would be required for both charts, although it would be desirable to have an operator for each chart. This spotting device is recommended for situations where it is practicable to have one spotter in the vicinity of the battery. It is not practicable for use with a spotting base line where the S′ station is located at a considerable distance from the guns. To this extent the chart is not universal.



Doctoring the Drift

By
Captain K. C. Smith, C.A.C.

In the Coast Artillery Corps we have generally been thinking of accuracy to within half a probable error as the greatest *practical* accuracy that we can achieve. In considering errors in azimuth, it has been customary to use the firing table probable error, rather than a developed armament probable error. In antiaircraft artillery, firing table probable errors have been the only guide universally available, and it is believed proper to consider one-half this error as a goal. With matériel now in service this firing table probable error in deflection varies between one and eighteen yards, or between zero and eight mils, dependent on quadrant elevation and fuze setting, as well as on the combination of gun and ammunition. If we confine ourselves to mechanically fuzed ammunition—as has been done herein—the firing table probable error in deflection will vary between zero and three mils, although the distance will still vary between one and eighteen yards.

So—let's think of getting firing azimuth with errors of less than two mils, and consequent linear distances of less than ten yards at least half the time.

Using present-day linear speed directors, we require that three-quarters of the lateral errors in yards be less than forty yards and that *all* of these errors be less than sixty yards. If all the errors are within four probable errors, then the probable error in deflection of a satisfactorily functioning director will be almost identical with the firing table probable error.

However, in any static checks to determine satisfactory performance of a director, we have ignored two items. One of these, uneven tracking, has been given no place in this discussion. Spasmodic tracking will result in erratic prediction and consequent deflection errors. A royal road to the source of these errors is not on the author's map. The other item, the use of a flat correction of seven mils for drift, introduces errors which are considered here with available remedies.

In the first pair of sketches, Figures 1 and 2, are plotted assumed firing table drift and the errors which occur when a flat correction of seven mils is used. The limits used in these and subsequent sketches have been based on cam limits, maximum elevation of guns, and with only normal antiaircraft fire under consideration. The errors take a most peculiar form due to the inclusion of lateral jump and initial yaw in the drift effect. In using a constant seven mil correction, only a small area is corrected for drift within two mils (or about half a probable error). In the rest of the field of fire errors of as much as ten mils and thirty yards are willfully introduced.

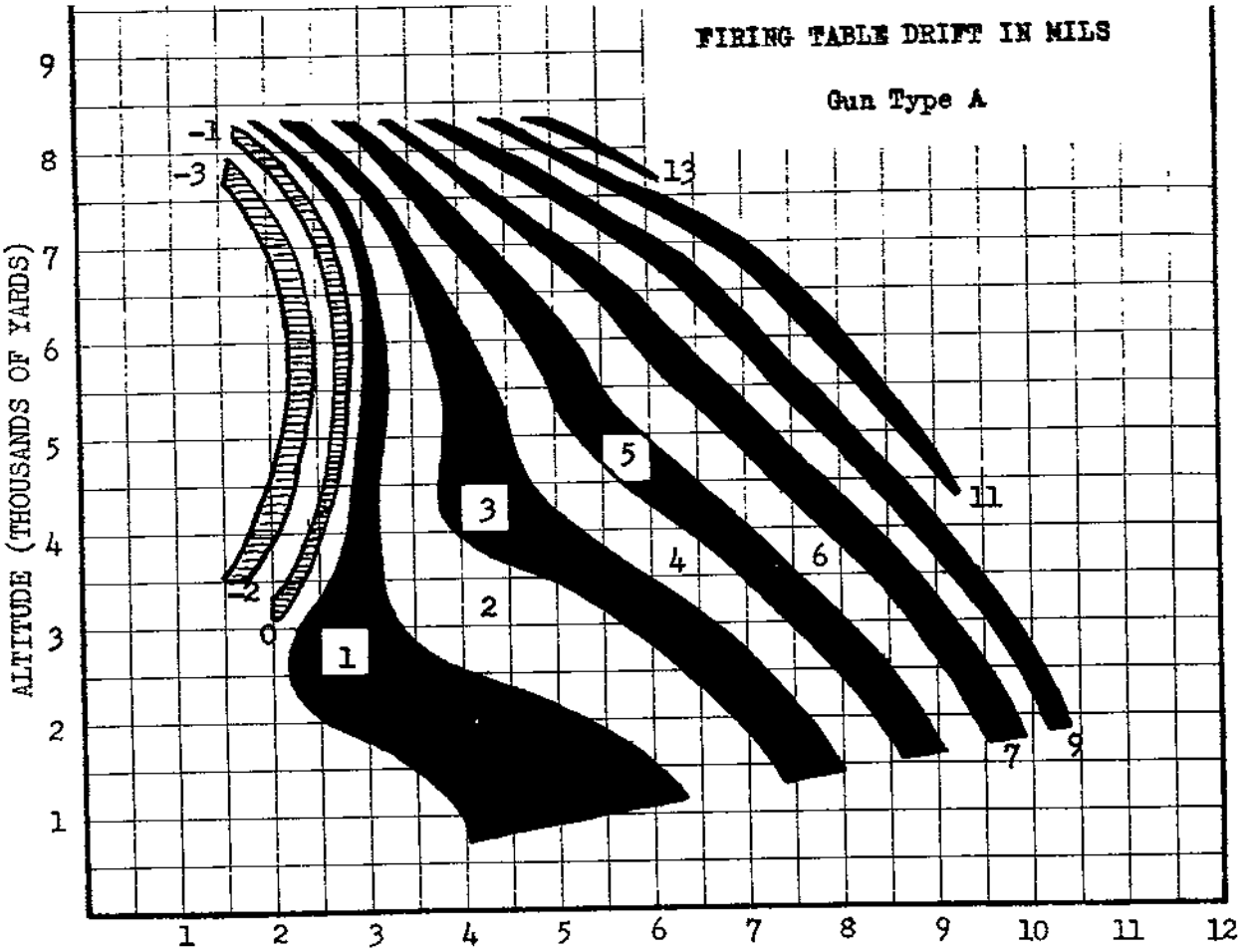
Now assuming that there is some means for considering drift as a straight line function of fuze, in Figure 3 are plotted drift effects if drift in mils is taken as having a numerical value of one-third of the fuze setting. These curves don't look any too much like those in Figure 1, but when we compare the errors obtained in using them, plotted in Figure 4, with those in Figure 2, we see that we have approached half a firing table probable error in deflection with a fair degree of success. In fact we are within two mils of the firing table drift in over three-quarters of the field of fire. If we use a flat value for drift, we are this accurate in only about a third of the field of fire.

We get even more favorable results using the same considerations with a certain heavier type of gun. Figures 5 and 6 show firing table drift and the lateral errors respectively when a flat correction of seven mils is used. Errors of as much as forty yards in deflection have been introduced. Figures 7 and 8 show the assumed value of the drift effect when taken as one-third of the fuze setting and the errors which occur as the result of such an assumption. The errors are two mils or less in the entire field of normal antiaircraft fire, and no error is greater than twenty-two yards. When a flat value of seven mils is used to correct for drift, expected errors of over two mils will be found in about two-thirds of the field of fire. Note that when the field of fire is compared with that for the lighter guns, it has been enlarged to permit use of present altitudes to include 10,000 yards. Altitudes of only 8,350 yards were considered in plotting Figures 1 through 4.

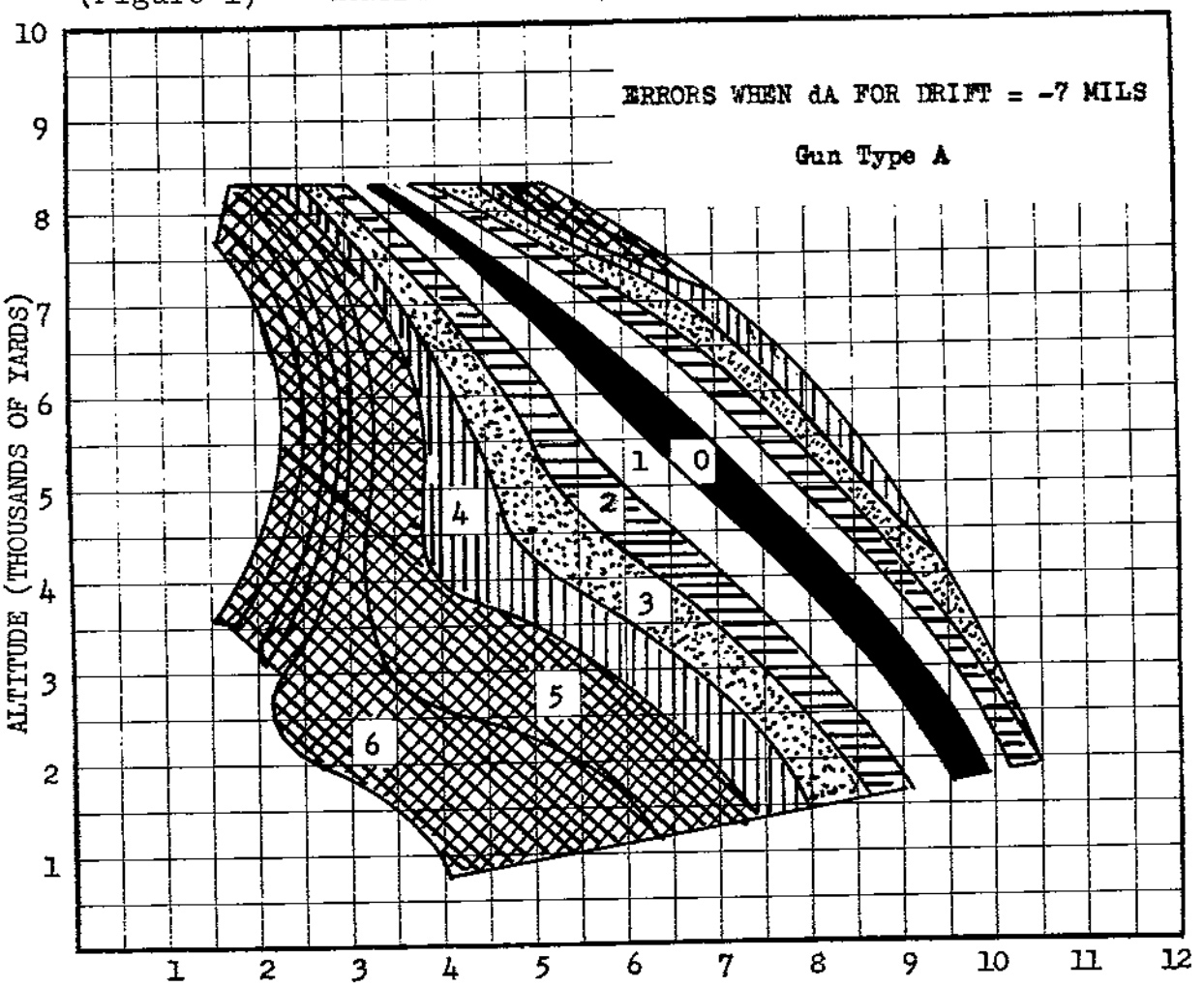
The information which has been developed can be used in either of two ways. Let's dismiss one in a hurry. It is not a field consideration. It would consist of squeezing a pair of gears or so, a shaft, and a differential into the director to divide fuze by three, and subtract the quotient from future azimuth using the differential. We shall, of course, really zero the lateral spot dial so that when it reads zero, $A_f = A_p - \frac{1}{3} F$. We probably don't have room for an additional cam to give us exact values, and this cam would require replacement whenever we changed ammunition.

The other way we may use this information also requires the elimination of the flat correction for drift from the lateral spot dial and causes the creation of an additional part-time member of the range section. This member will be known as the "Drift Doctor." His qualifications follow:

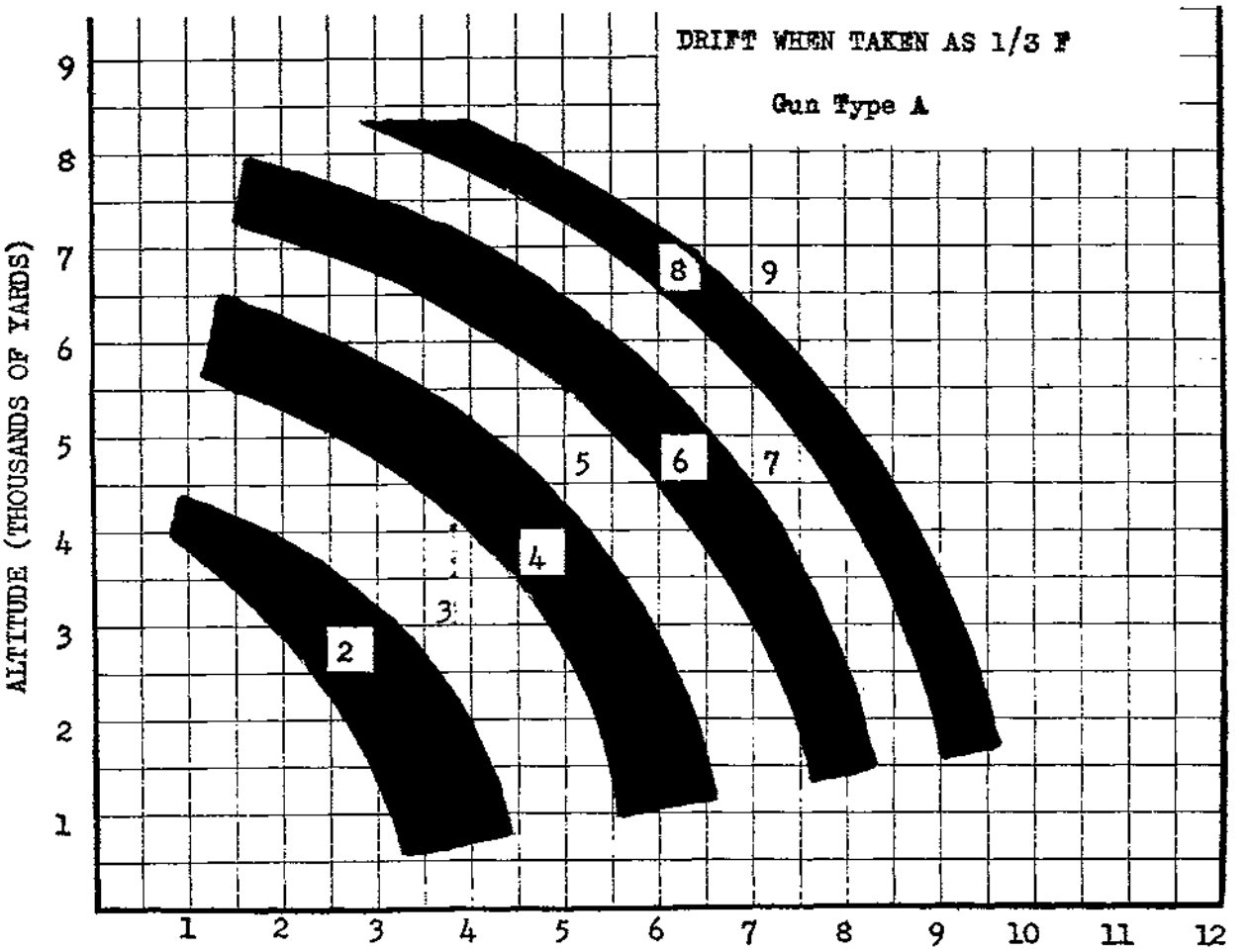
1. *Physical.* *a.* Reasonable visual acuity in at least one eye. *b.* A relatively long right arm, furnished with hand complete w/fingers. *c.* Ability to manipulate this hand to turn a handwheel counterclockwise.
2. *Mental.* *a.* Ability to divide numbers from 2 to 32, inclusive, by 3, to one significant figure. (Two significant figures, if 10 or 11 is the answer.) *b.* Ability to apply the quotient obtained to the lateral spot dial counterclockwise. *c.* Ability to repeat and adjust this process for changing values on the fuze dial, the source of the dividend.
3. *Availability.*—He should be available to doctor the drift whenever tracking is in progress.



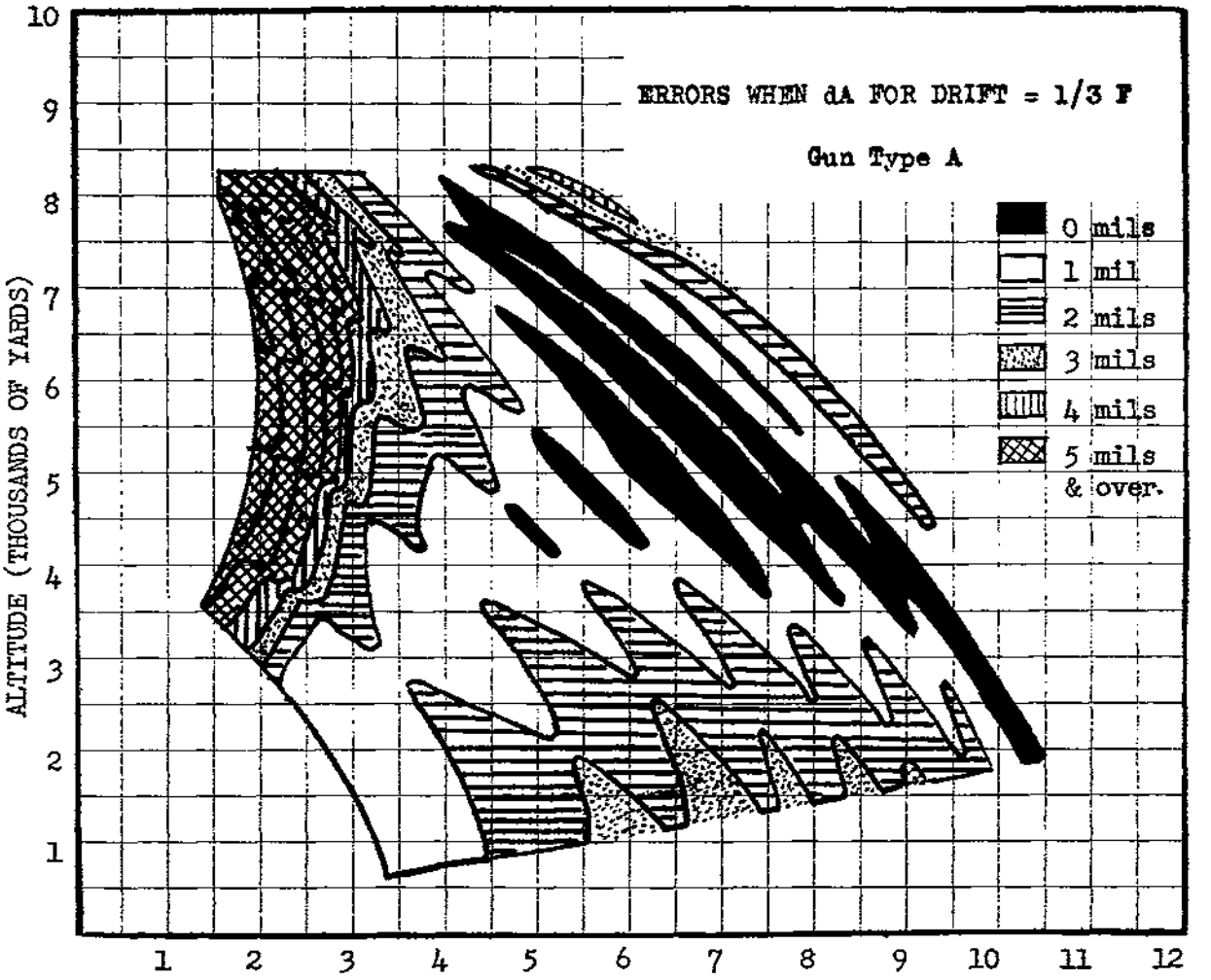
(Figure 1)

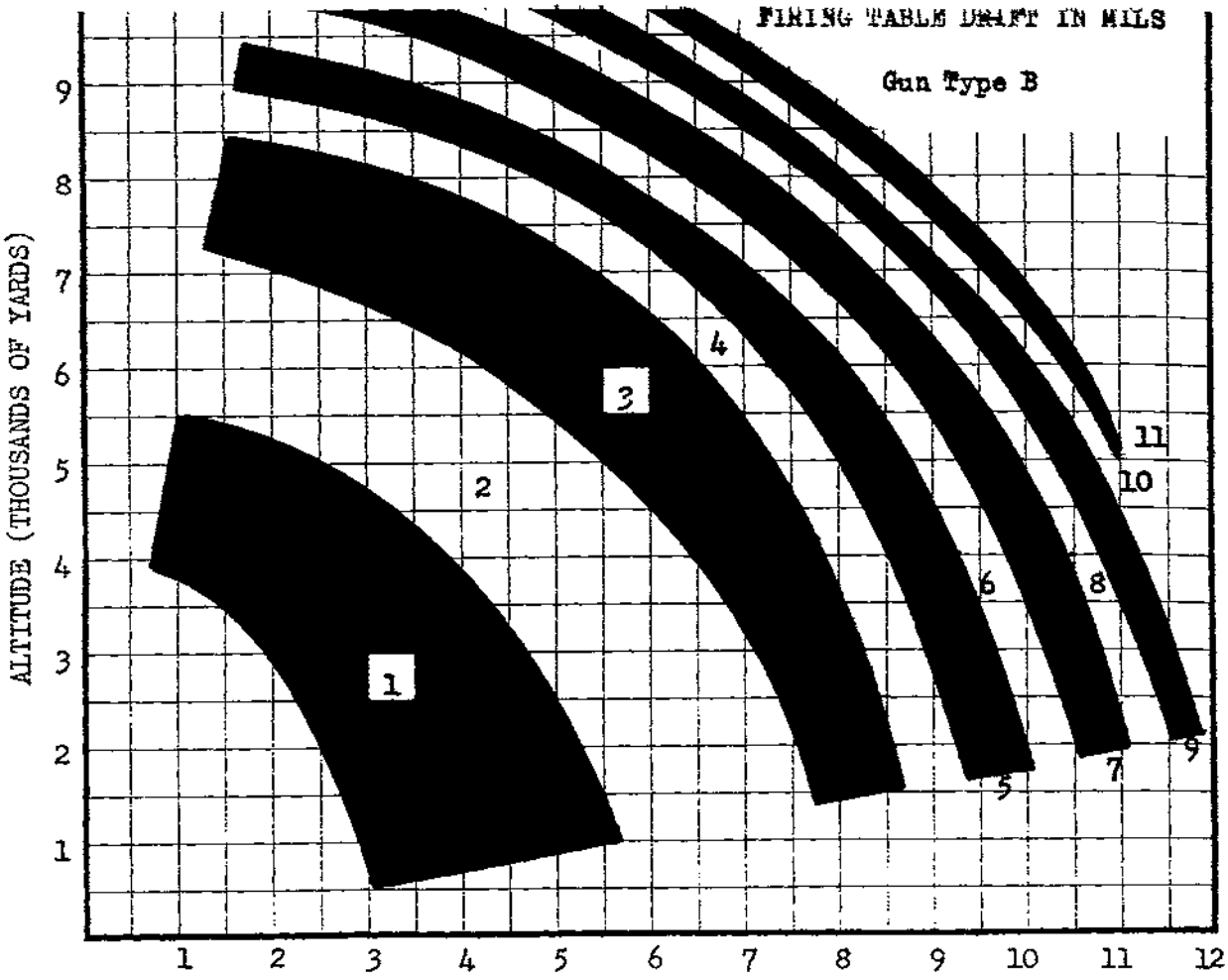


(Figure 2)

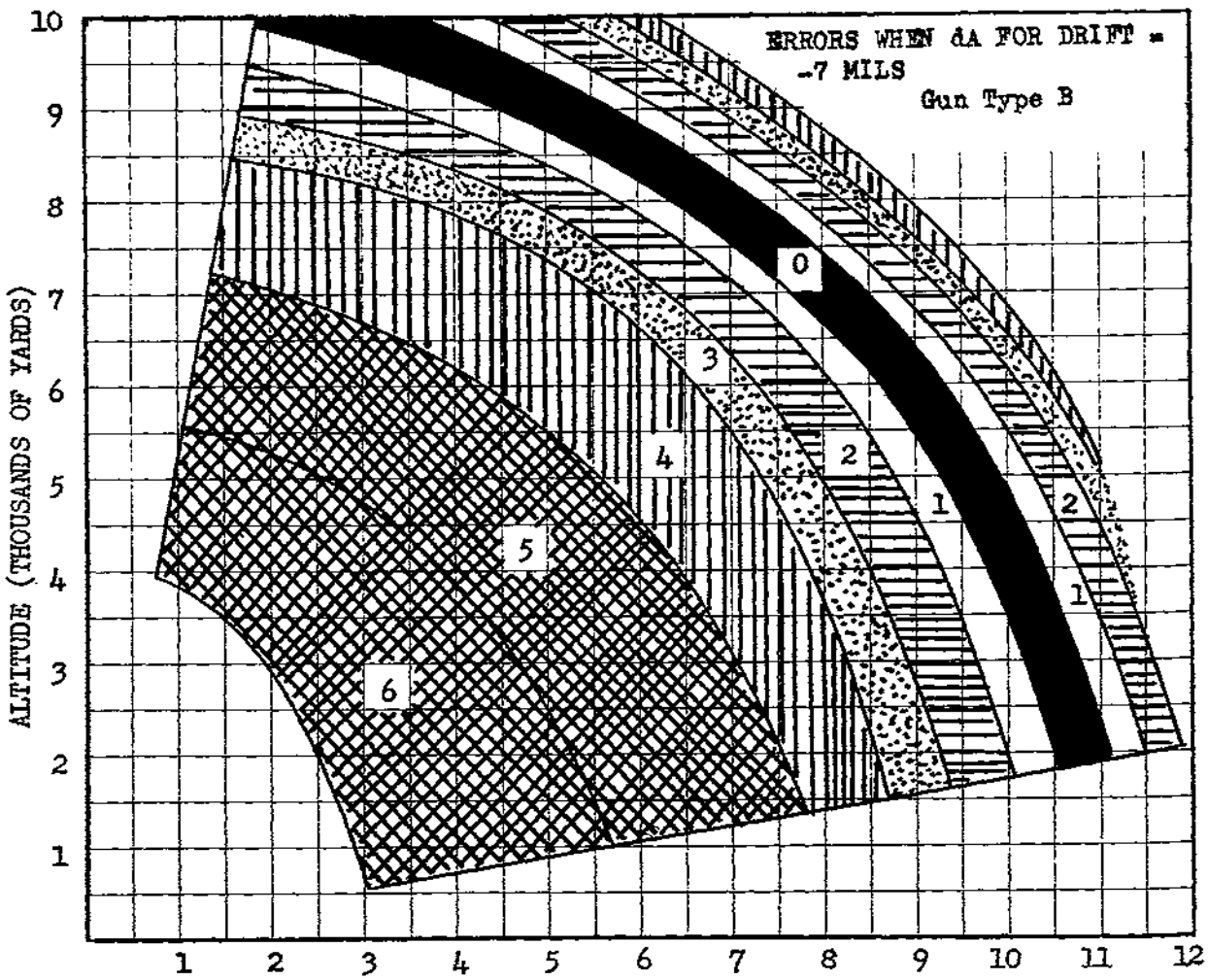

DRIFT WHEN TAKEN AS 1/3 F
Gun Type A
ALTITUDE (THOUSANDS OF YARDS)
HORIZONTAL RANGE (THOUSANDS OF YARDS)
2
3
4
5
6
7
8
9

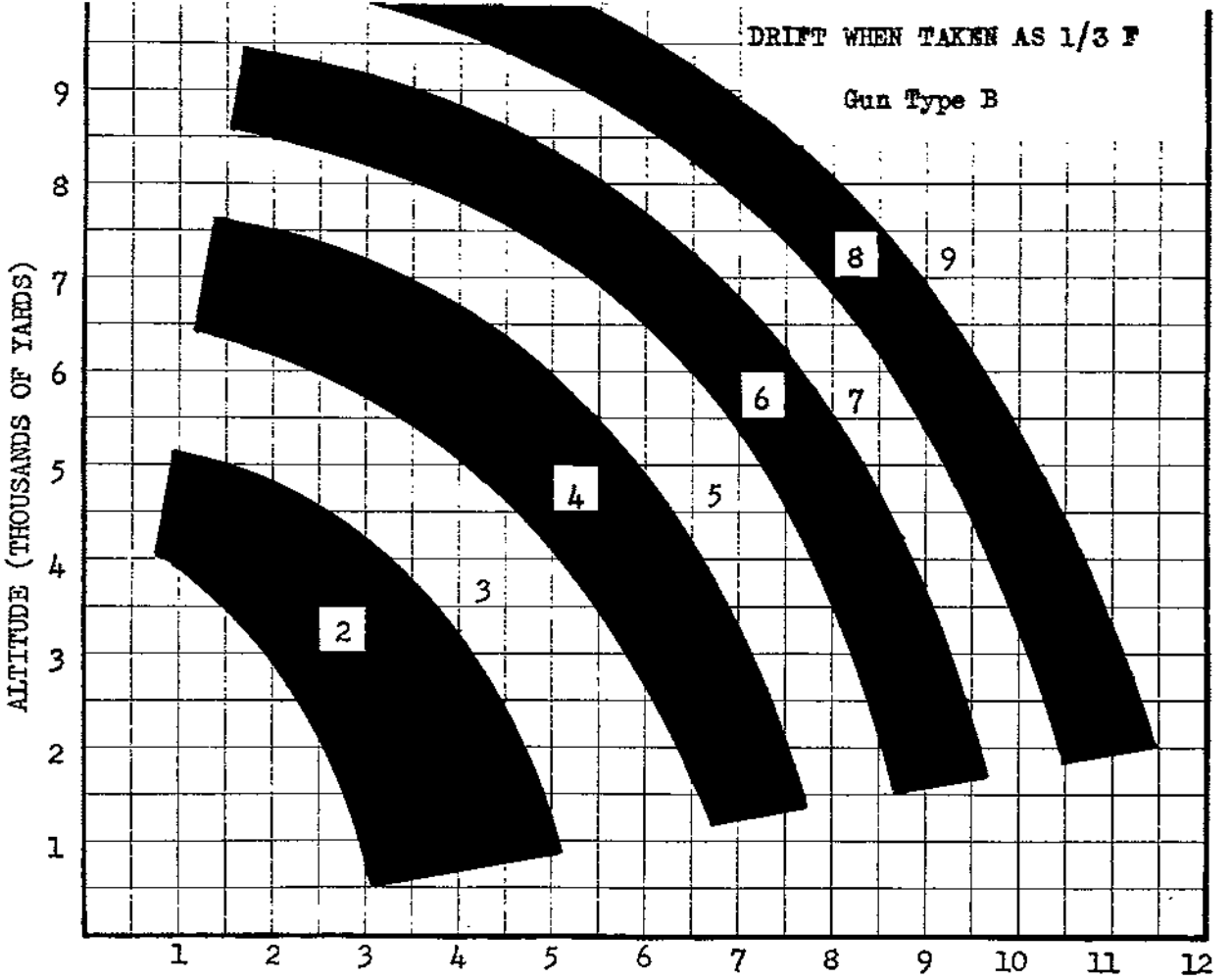
(Figure 3)


ERRORS WHEN dA FOR DRIFT = 1/3 F
Gun Type A
0 mils
1 mil
2 mils
3 mils
4 mils
5 mils & over.
ALTITUDE (THOUSANDS OF YARDS)

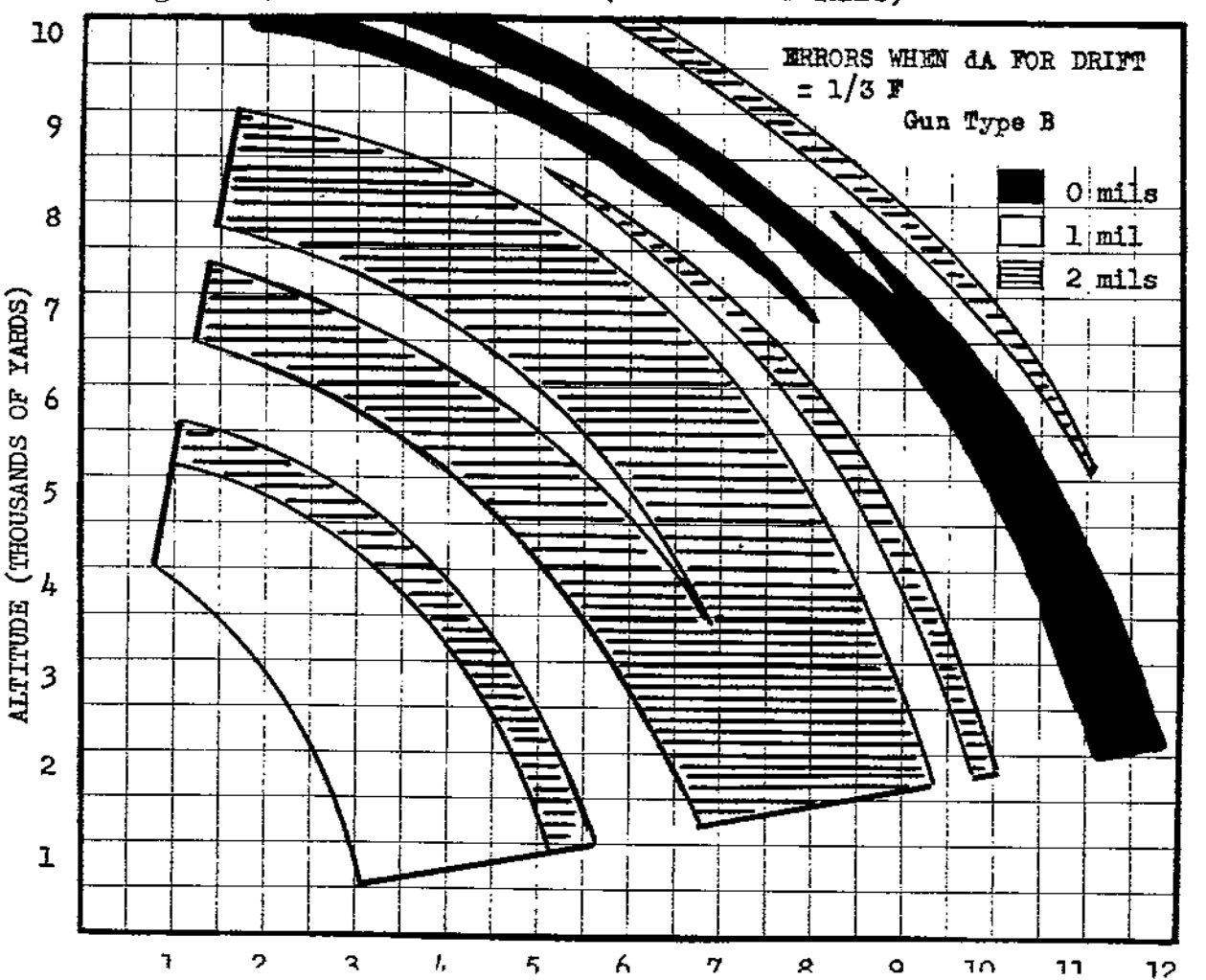

FIRING TABLE DRIFT IN MILS
Gun Type B
ALTITUDE (THOUSANDS OF YARDS)
HORIZONTAL RANGE (THOUSANDS OF YARDS)
1
2
3
4
5
6
7
8
9
10
11
12

(Figure 5)


ERRORS WHEN dA FOR DRIFT = -7 MILS
Gun Type B
ALTITUDE (THOUSANDS OF YARDS)
0
1
2
3
4
5
6
1
2
3
4
5
6
7
8
9
10
11
12


DRIFT WHEN TAKEN AS 1/3 F
Gun Type B
ALTITUDE (THOUSANDS OF YARDS)
HORIZONTAL RANGE (THOUSANDS OF YARDS)
2
3
4
5
6
7
8
9

(Figure 7)


ERRORS WHEN dA FOR DRIFT = 1/3 F
Gun Type B
0 mils
1 mil
2 mils
ALTITUDE (THOUSANDS OF YARDS)

U. S. Hotel Chamberlin

By Major Franklin W. Reese, Infantry

The Hotel Chamberlin at Old Point Comfort, Virginia, for many years one of the South's most famous seaside resort hotels, was taken over by the Navy on January 1, 1942.

Now known as the U. S. Hotel Chamberlin, the huge eight-story, 250 room colonial brick structure was purchased by the government to be operated jointly for commissioned officers of all branches of the service—Navy, Army, Marine Corps, and Coast Guard.

Ownership of the hotel was designed and will go far toward alleviating the shortage of housing which has confronted officials of the Fifth Naval District and the Chesapeake Bay Sector. Operation of the hotel will be continued under the direction of the Navy by its former managers, the Banks Operating Company, headed by Sidney Banks.

The Hygeia, forerunner of the present Chamberlin, dates back to the early days of Fort Monroe. On July 29, 1820, Colonel Charles Gratiot, then in charge of operations at Old Point, was notified that the Secretary of War had granted permission to William Armistead to build a public house at Old Point.

Almost two years later, January 17, 1822, the Secretary of War confirmed the permit to Armistead to build a public house styled by him—Hygeia Hotel. The agreement provided that the hotel would not be put to uses prohibited by any existing or future orders or regulations of the Post to preserve order and discipline, the penalty of violation being removal of buildings by lessee.

Erected on the present site of the Y.M.C.A. building, the Hygeia passed through the hands of many owners who all subsequently subscribed to the Armistead agreement, under which terms, upon orders from the Secretary of War dated September 1, 1862, the hotel was torn down.

An interesting insight into the operation of this early hostelry can be gained from the following excerpts from an advertisement appearing in a newspaper of 1831:

HYGEIA HOTEL

OLD POINT COMFORT

This extensive establishment is now open for the reception of company. Its locality and the various alterations and improvements recently completed must render it, both to the invalid and to those in quest of pleasure, one of the most desirable residences on the sea board.

The BAR is well stocked with the choicest Liquors selected by experienced judges in New York and Philadelphia, and the BEDS are of the very first quality. The proprietor pledges himself at all times to furnish his TABLE with the choicest delicacies the season, market, and neighborhood affords, and every attention shall be shown to those who favor him with their patronage.

There are two commodious Bathing Houses; one is for the exclusive accommodation of Ladies, and the other for Gentlemen, therefore Ladies or Gentlemen can have a Bath at any time of the day. There is also a Warm Bath attached to the establishment.

* * * *

Arrangements will be made for cotillion parties

The Old Chamberlin

U. S. Hotel Chamberlin

and steam boats employed on parties of pleasure to the Capes, whenever a sufficient number justify it, and timely notice is given.

M. Parks,

Old Point Comfort, July 1, 1831.

Shortly after the demolition of the original Hygeia, and under date of May 1, 1863, a license, revocable at will by the Secretary of War, was granted to erect and maintain a building for restaurant purposes at Fort Monroe on the east side of the road near the Baltimore Wharf. During the War Between the States, the building was known as the Hygeia Dining Saloon.

Following the War in 1868, one Henry Clark, who had become owner of the small restaurant, applied for permission to enlarge his property, but was refused. In June of the same year, he was authorized by a joint resolution of Congress to carry out his plans for enlargement, subject to such restriction as the Secretary of War might impose. In 1872, he signed an agreement with the War Department, and in 1875, by an act of Congress confirming the former resolution the Secretary of War was authorized to grant permission to enlarge the hotel with due regard to public interest. The articles of this agreement were signed by the Secretary of War and Samuel M. Shoemaker, who had acquired the property sold by a court decree after the previous owners had failed.

The license of this new 700 guest hotel owned by the proprietors of the newer Chamberlin, was revoked in 1902 by the Secretary of War and the Hotel was razed.

Fifteen years prior to the razing of the Hygeia, on March 3, 1887, Congress granted John F. Chamberlin permission to erect a hostelry upon lands of the United States at Fortress Monroe, provided that the Virginia State Legislature gave its consent by legal enactment, and that the property would be subject to state and national taxation.

Permission was granted by the state legislature on March 30th of the same year, and on February 18, 1890 a company known as the Old Point Comfort Company was incorporated under the laws of Virginia, to which organization Mr. Chamberlin's interests were transferred. The property was mortgaged, funds acquired, and construction begun, though after a brief period funds ran out and the company went into receivership.

From the receivers, the property was taken over by the Hampton Roads Hotel Company, completed in 1894 and put in operation as an imposing eight-story brick structure with accommodations for 900 guests.

Thereafter until on March 7, 1920, when it was destroyed by fire, the Chamberlin became a landmark well known to most Coast Artillery Officers, and flourished as one of the South's most famous resort and health hotels.

Once more on September 14, 1922, Congress authorized the Secretary of War to grant permission to individuals or a corporation to construct, operate, and maintain a hotel upon the Fort Monroe military reservation for a term not exceeding 50 years, provided the State of Virginia gave its consent and subject to state and federal taxation as in the resolution governing the First Chamberlin.

Constructed along colonial lines on the site of the old hotel, the present eight-story Chamberlin, which ranks among the leading hotels of the South, was opened to the public on April 7, 1928. Present capacity of the hotel, in addition to eighteen kitchennette apartments, is listed at 330 persons in 208 single and double rooms.

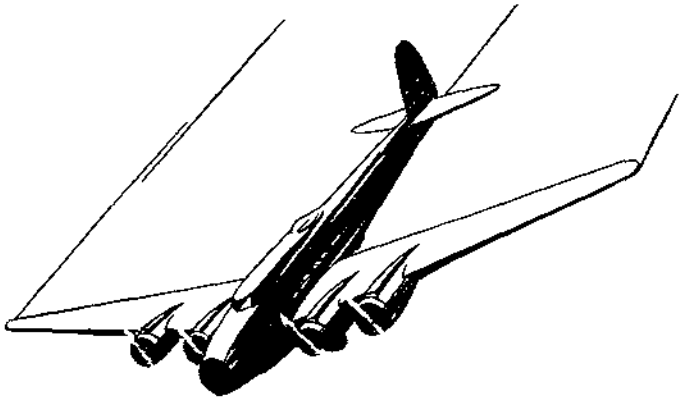
A spacious roof garden accommodating 400 persons, high above the Fort adjoins the luxurious Yacht room, and affords more than pleasant setting for the dances of the residents and officers and wives of the Post and the Naval Base. Indoor and outdoor tiled swimming pools, complete health studios for both officers and their wives, ping pong, billiards, and paddle tennis are some of the recreation facilities available.

On the ground floor a gift shop, gown shop, officer's military apparel shop, barber shop, coffee shop and soda fountain continue to operate under the Navy's ownership.

To become a guest at the U. S. Hotel Chamberlin, an applicant must be certified by the Commanding General at Fort Monroe, the Commandant of the Fifth Naval District, or the Commanding Officer of the Atlantic Fleet. No civilians are admitted to the hotel except as guests of officers. It is primarily designed for transients and officers may remain in occupancy a maximum of two months, unless vacancies are available, in which case the time may be extended.

At present, the daily rates are as follows: housekeeping apartments $3.00 (weekly $20.00). Double bedroom, bath and living room $4.00; Double bedroom, bath, single occupancy, $1.75; double bedroom, bath, two persons, $2.50.

In the main dining room, large enough to accommodate 500 guests, meals are priced as follows: breakfast twenty to fifty cents, luncheon fifty cents, and dinner one dollar. All meals are on a cash basis and rooms are paid for weekly and upon checking out.



Moonlight Diagram

By Captain Oswald H. Milmore, Coast Artillery Corps

A diagram for the graphical determination of the hours of daylight, moonlight, and darkness is useful in the operational control of barrage balloons. It may be found useful in other military operations.

The diagram will indicate at a glance the times of the following phenomena: sunset, end of evening twilight, dawn, sunrise, moonrise, moonset, and transit of the moon, *i.e.*, the time that the moon crosses the meridian. It also shows the phases of the moon. The diagram considered herein is good for one month, but similar diagrams covering longer periods of time may be drawn.

The diagram is theoretically correct only for the place for which the data were calculated. However, within any reasonably restricted area the errors involved are so small that two or three charts would suffice to give data for all points within the continental limits of the United States within the limits of accuracy required in most military operations.

The particular diagram shown in the accompanying figure was calculated for Camp Tyson, Tennessee, at 88° 24′ W. long., 36° 15′ N. lat. If used within a belt in the United States between 30° and 42° N. lat. (which includes Providence, R. I., Jacksonville, Fla., and all of California) the maximum errors for stations at extreme distances from Camp Tyson will rarely exceed five minutes for sunrise and sunset, and sixteen minutes for other phenomena, while at most periods of the month smaller errors would occur. Errors usually twice these magnitudes and sometimes greater would be involved in using the diagram at extreme localities within the United States outside of the restricted 30° to 42° belt.

The diagram comprises two parts: A graphical ephemeris, occupying the lower portion (which must be plotted for a particular time period) and a time scale, occupying the upper portion.

The graphical ephemeris indicates the local civil time of the astronomical phenomena. Data for it are conveniently obtained from the *American Nautical Almanac*, published by the United States Naval Observatory. Tabular values found there are corrected for the latitude and longitude of the center of the area in which the diagram is to be used, following the instructions given in the almanac, with one exception: no reduction to standard time is applied, local civil times being plotted directly.

In the graphical ephemeris a separate horizontal line, known as the day line, is devoted to each day of the period for which the diagram is plotted. Days of the month are shown by numbers in the margins. Each day line runs from noon of one day, through midnight, to noon of the following day. Hence, each line bears two consecutive numbers.

The times of the day that the various astronomical phenomena occur are indicated on the day lines by the intersections thereon of the curves bearing suitable legends. Periods of total darkness, *i.e.*, periods after the end of evening twilight and before dawn during which the moon is not visible, are shaded.

The watch times of the occurrences of the various phenomena depend upon two considerations: *a.* The location of the observer with respect to the standard meridian for the time zone for which his watch is set; *b.* Whether daylight saving time is used and, if so, how far the clocks are advanced. To permit the watch time to be read directly a time scale is provided. This scale is the same for all months, and it may be expedient to draw it upon a sheet of transparent material like celluloid to be laid on the graphical ephemeris instead of plotted at the top of the diagram.

The time scale comprises a series of inclined hour lines and intermediate lines denoting quarter hours, on which the time is read. Hours are numbered from 1 to 24; times from 00:01 to 12:00 are in the morning and those from 12:01 to 24:00 are in the afternoon. When AM and PM designations are used, subtract 12 from hours above 12 to obtain PM hours.

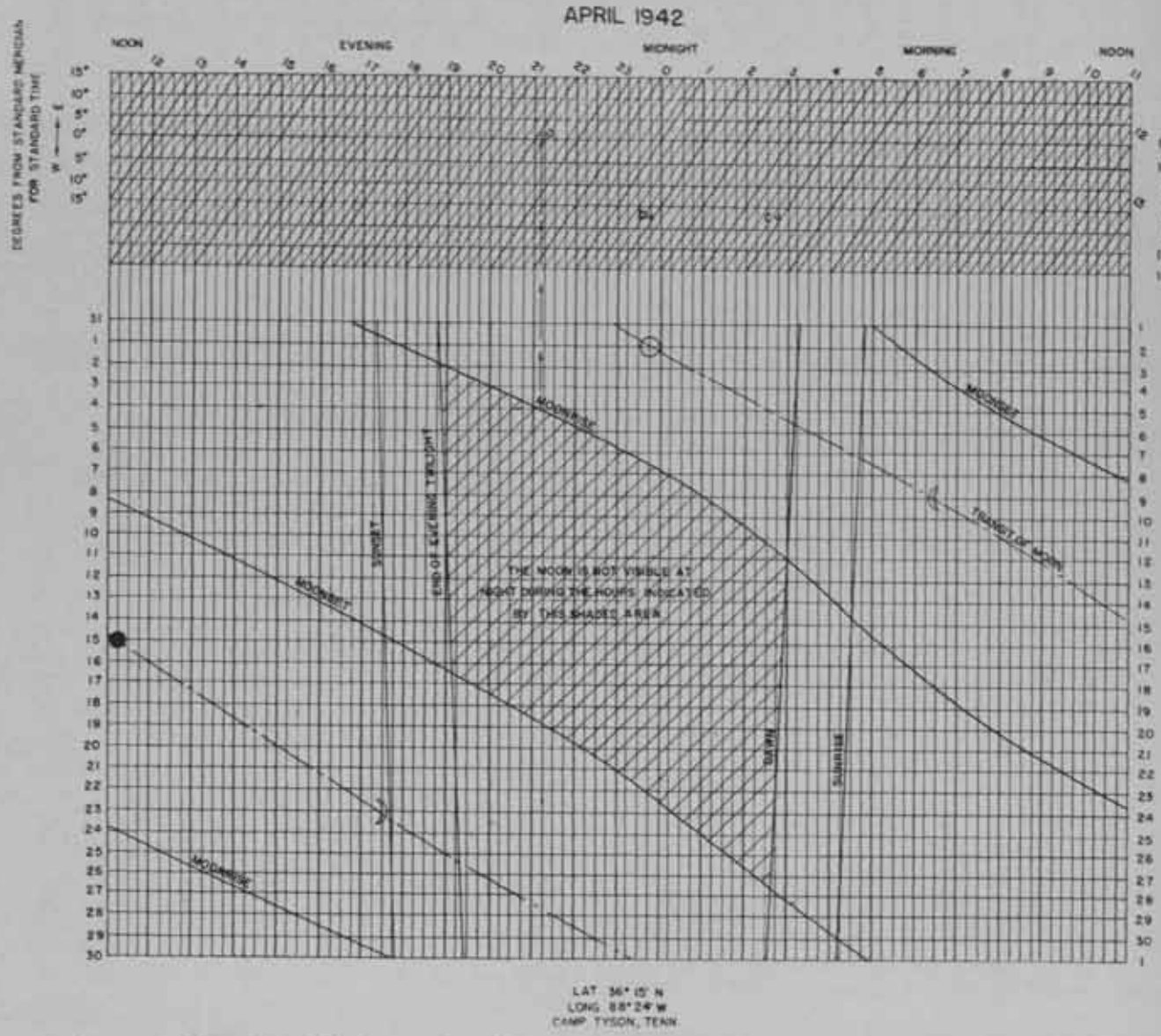
The proper level at which to read the hour and minutes is determined from the numbers in the margins which are in terms of degrees of longitude from the standard meridian to the observer. When standard time is used the numbers at the left of the time scale should be used; when daylight saving time of one hour is used, the numbers at the right determine the level.

To use the diagram, first draw a heavy line, preferably with a colored pencil, horizontally through the time scale at a level corresponding to the position occupied. Thus, if you wish to know at what time an event is observed by a person located at 70° W. long., whose watch is set to Eastern Standard Time (for which the standard meridian is 75° W. long.) the position line should be drawn at a level indicated by the number 5° which appears *above* the number 0° at the left of the time scale, because that person is located 5° east of the standard meridian. This line is known as the position line.

Next, enter the graphical ephemeris by selecting the proper day line and follow it to the right until the desired curve is reached. Finally, locate a point on the position line directly above the intersection of the de-

DAYLIGHT & MOONLIGHT DIAGRAM

APRIL 1942



sired curve and the selected day line, and read the watch time in hours and minutes on the inclined lines.

In situations where it is known that the diagram will be used only near one meridian it is advisable to simplify the time scale by substituting for it a single horizontal line and marking on it hours and quarter hours. This single horizontal line would correspond to the position line.

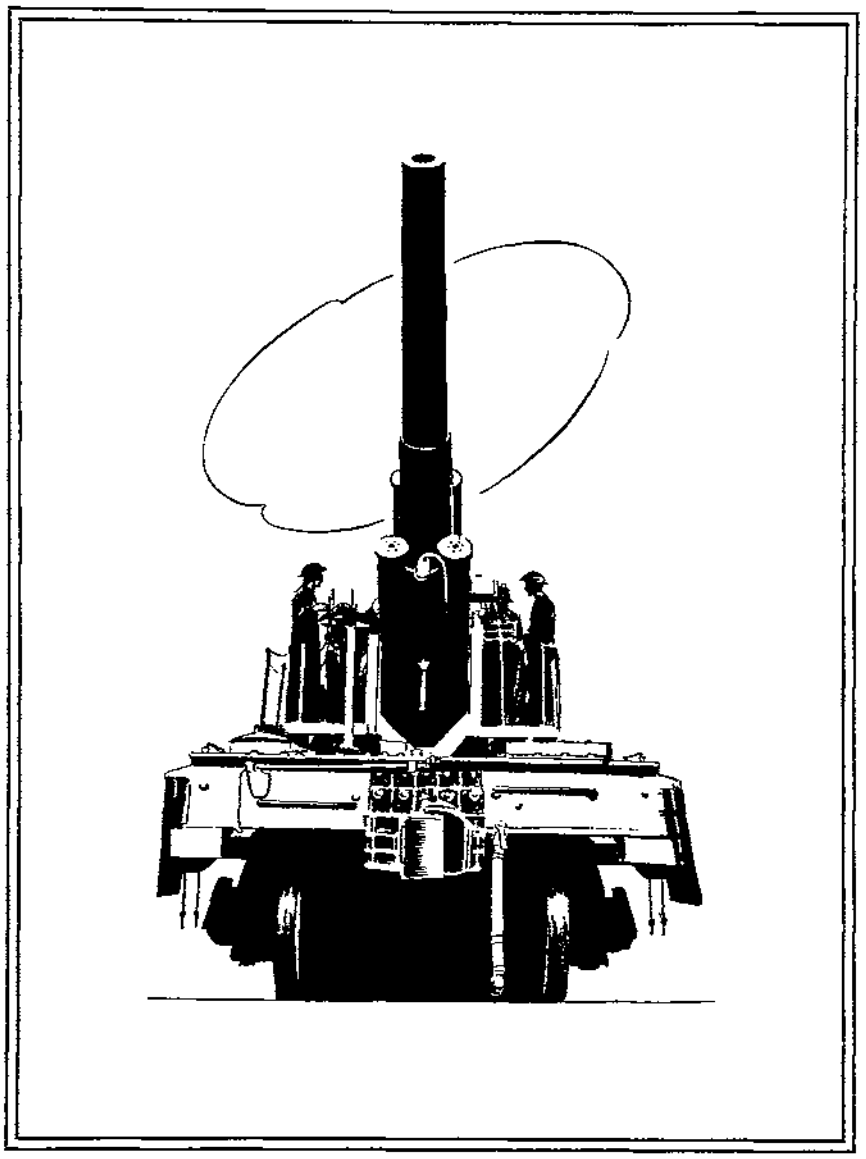
Example 1. You are located at Camp Tyson, Tennessee, and your watch is set for Central Standard Time. It is desired to find the time of moonrise on the night of April 4-5, 1942. The standard meridian for the Central Standard Time Zone is 90° W. long.; Camp Tyson is at 88° 24′ W. long.; you are, therefore, 1° 36′ east of the standard meridian. Accordingly, first draw a position line through the time scale at a level indicated as *east* 1° 36′ by the numbers at the left of the time scale. Next, select the day line joining the numbers 4 and 5 and follow it horizontally until the moonrise curve is reached. Then move upwardly until the position line is reached. The last point is indicated by the letter *a* in the diagram. The time of the moonrise is read as 22:05, *i.e.* 10:05 PM on the evening of April 4.

Example 2. You are located at Mare Island, California, which is at 122° 18′ W. long., and your watch is set for Pacific Daylight Saving Time. It is desired to find the hours of total darkness on the night of April 22-23, 1942. The standard meridian for Pacific Time is 120° W. long.; you are, therefore 2° 18′ west of the standard meridian. Draw the position line through the time scale at the level indicated as *west* 2° 18′ by the numbers on the right of the scale. Next, find the day line joining the numbers 22 and 23 and locate on it the points of intersection of the moonset and dawn curves. These two curves are at the boundaries of the shaded area. Then locate points on the position line directly above these two intersections, indicated at *b* and *c* on the diagram. The times are then read as follows: Moonset at 1:52 and dawn at 4:53. Total darkness will,

therefore, occur from 1:52 AM to 4:53 AM on April 23, 1942.[1]

Example 3. It is desired to find the night on which full moon occurs in April, 1942. Referring to the curve showing the time of transit of the moon, it is seen that the symbol for full moon appears on the day line joining the numbers 1 and 2. Full moon, will, therefore, occur within 12½ hours of the time indicated by the intersection of the transit of the moon curve with this day line. It should be noted that the exact time of the occurrence of the full moon is not shown; however, the moon will appear fullest on the night of April 1-2.

[1]*It is of interest to note that direct calculations indicate that on the* morning of April 23, 1942, the moon will set at 1:59 and dawn will occur at 4:47, Pacific Daylight Saving Time, at Mare Island. Consequently, the errors involved do not exceed 7 minutes.



COAST ARTILLERY BOARD NOTES

Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problems that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

THE COAST ARTILLERY BOARD

COLONEL WILLIAM S. BOWEN, C.A.C., *President*

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A high percentage of the correspondence and projects considered by the Board is classified and cannot, therefore, be released for publication. The following is a brief summary of unclassified items of interest to readers of The JOURNAL:

Deflection board charts for 155-mm. guns. The Panoramic Telescope M8 is now being issued to some 155-mm. gun batteries. The azimuth and deflection scales are graduated in degrees; therefore, when this telescope is used, the deflection board should be operated in degrees also. Charts for the M1 deflection board for operation in mils are not interchangeable with those for operation in degrees. Separate charts must be prepared for each of these two cases. Therefore, when M1 deflection board charts are requested from the Coast Artillery Board, the request should also specify whether the mil or the degree charts are desired. If this information is not furnished, it is usually necessary for the Coast Artillery Board to furnish both types of charts when only one type can be used.

All Universal Deflection Board Charts for 155-mm. guns may be used for operation in either mils or degrees. The Coast Artillery Board furnishes a mil-degree conversion tape for use as an azimuth tape on the Universal Deflection Board, so that azimuths and deflections may be read directly in either mils or degrees. A set of appropriate adjustment scales is also furnished for use in mils and degrees. The 155-mm. charts and scales for the Universal Deflection Board are plotted to a horizontal scale of one inch equals 10 mils or 1.78 inches equals one degree.

Emplacement of 90-mm. antiaircraft mounts. The emplacement operation with the 90-mm. antiaircraft mount is not difficult or complicated but it must be performed carefully in proper sequence to avoid unnecessary damage to the mount. Instructions embodying special cautions against faulty emplacement procedure have been issued to organizations equipped with 90-mm. antiaircraft mobile mounts.

It is necessary to compress the counterpoise cylinder springs by using the counterpoise gear boxes or jacks before loosening the nuts of the bogie engaging eye hooks. When these nuts are loosened before compressing the counterpoise cylinder springs, the gun and mount are lowered until the equilibrator cylinder rests on the frame of the bogie and thus supports the entire weight of the mount less bogie. The resulting pressure on the underside of the equilibrator cylinder is sufficient to crush the cylinder wall. Until corrected this deformation thereafter interferes with the proper operation of the gun in elevation.

In leveling the mount each jack must be raised or lowered as required and at the same time one man must manipulate the auxiliary leveling screw as required to allow operation of the leveling jacks. Unless these instructions are carried out, the auxiliary leveling screw located in front of the mount at about the platform level will oppose the action of the leveling jacks. Since the leveling jacks are more powerful than the auxiliary leveling screw, the latter will jam and bend to such an extent that shop facilities will be required to restore an operable condition of this leveling screw. When leveling the mount, it is essential that the auxiliary leveling screw be manipulated continuously so that it does not oppose the leveling jacks.

The operating handles for the bogie engaging eye are located on either side of the trail just in front of the bogie. These handles are pushed in to disengage the eye

hooks when the mount is being emplaced, and are pulled out to engage the eye hooks when the mount is being placed in the traveling position. These handles have been bent on a number of mounts by attempts at forcing when the engaging eye does not readily engage or disengage the eye hook. Care must be exercised to avoid forcing these handles, otherwise they will soon become bent into an inoperable condition. Proper care in positioning the bogie through the operation of the counterpoise jacks should make it possible to engage or disengage the eye hooks without forcing the operating handle.

Diving target. In the course of experiments with various types of improvised targets for antiaircraft automatic weapons, the Board has built and used a number of types of kite borne targets. Plans for the target found to be the most satisfactory may be obtained upon request.

The target consists of a light wooden frame covered with heavy wrapping paper and supported on a kite string by two pulleys. Two similar wings or vanes are attached to the target frame in a manner which permits them to be extended at approximately right angles to the target. With the vanes in the extended position, the target travels up the kite string on pulleys. On reaching a stop near the kite, the vanes fold together and the target descends along the kite string.

A box kite, 30″ x 30″ x 60″, was found to be the most satisfactory kite to use. It was constructed of light wood and covered with wrapping paper. Two thousand feet of stout cord or piano wire is used to fly the kite. The flying string is wound on a drum or wire reel. When the target strikes the stop and starts to descend, the reel should be allowed to run free, paying out the string as fast as the kite will take it. This causes the first part of the target course to be almost vertical. The reel is then checked and the string is wound in rapidly, causing the target to pull out of its dive.

The target does not possess the speed or presented area that is desirable and its operation is dependent on the velocity and direction of the wind. However, when towed targets are not available, it is believed to have value as a training device.

Cable repair kits. The Cable Repair Kits M1, M2, and M3 were recently tested. This kit is for use in repairing cables of data transmission and remote control systems. The three kits have been standardized for issue by the Ordnance Department on the following basis: M1, one per Data Transmission Systems M6, M4, and M4A1; M2, one per Remote Control System M2; M3, one per eight Remote Control Systems M1 and M5.

Antiaircraft machine gun truck mount. The Truck Mount T10 has been standardized for issue by the Ordnance Department as the Truck Mount M32. The mount consists of a large ring supported by a welded cantilever structure secured to the front edge and sides of the truck body so as to be over the assistant driver's seat in the cab. A hole is cut through the roof of the cab so that the gunner when standing on the seat can aim and fire the gun. A sliding trolley or "skate" rides on the ring and carries the vertical bearing for the cradle pintle. A clamping device is provided to secure the skate in a fixed position for firing. A light cradle, which pivots in azimuth by means of its pintle, rides on the skate and carries the gun. Without shifting the skate, tracking in azimuth is possible through a considerable angle. By shifting the skate in steps, all-round fire may be obtained.

"Tyranny, like hell, is not easily conquered; yet we have this consolation with us, that the harder the sacrifice, the more glorious the triumph."—FRANKLIN D. ROOSEVELT, quoting Thomas Paine.

Coast Artillery Journal

Fifty-first Year of Publication

COLONEL FREDERIC A. PRICE, Editor
MAJOR ARTHUR SYMONS, Associate Editor

The JOURNAL prints articles on subjects of professional and general interest to officers of all the components of the Coast Artillery Corps in order to stimulate thought and provoke discussion. However, opinions expressed and conclusions drawn in articles are in no sense official. They do not reflect the opinions or conclusions of any official or branch of the War Department.

The JOURNAL does not carry paid advertising. The JOURNAL pays for original articles upon publication. Manuscripts should be addressed to the Editor. The JOURNAL is not responsible for manuscripts unaccompanied by return postage.

The United States Coast Artillery Association

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The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of matériel and methods of training and by fostering mutual understanding, respect and coöperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves, and Reserve Officers' Training Corps.

News and Comment

Number Eighteen

With this issue the undersigned assumes the editorship of the COAST ARTILLERY JOURNAL. The eighteenth incumbent of the editorial chair is quite mindful of his illustrious predecessors whose pictures adorn the walls of his office and look down upon him with quite impersonal but appraising eyes. His efforts will be to carry on the standard of their accomplishment: to give to the Coast Artillery Corps such service as he may be able to render: to provide a medium for the interchange of professional opinion and for the dissemination of newly acquired technical knowledge. This paper has served the interests of the U. S. Artillery and later of the Coast Artillery Corps for the past fifty years. Successive editors have made this service possible through their untiring efforts to bring before the personnel of our Corps the latest in thought, in accepted doctrine and in improved matériel. Little of thought may become accepted doctrine—all thought however, if honest and logical, has a real value. Right thought, expressed and considered, always exerts a beneficial influence. It may be recognized as truth and adopted as doctrine. Even if not so recognized, it has been of service not only to the thinker but to all who have read or listened to it.

Illogical thought, if honest, often has its own value in reflex action. A fault is more easily recognizable than a virtue. Humans take a selfish satisfaction in detecting shortcomings in others. Thus having recognized error in the thought of another we may unconsciously give birth to a correct solution by oppositional thinking and so attest the value of the original illogicalness. All of which is to say—we want your ideas. Think, and give us your thoughts.

Frederic A. Price

We're Still the C.A.C.

The reorganization now being perfected within the Army has vitally affected the former organization of the Coast Artillery Corps.

Since it came into existence as a separate branch of the Service in 1907, the Coast Artillery Corps has developed under the direct supervision of its Chief, who with the Chief of each of the other arms and services was charged specifically with the development of his respective branch. Prior to World War I the Coast Artillery Corps was concerned primarily with its two functions of seacoast artillery defense and of submarine

mining. During the first world war we acquired mobile heavy artillery to include railway artillery and tractor-drawn, and shortly thereafter were assigned antiaircraft artillery and just recently the barrage balloon.

In order to carry out his mission, the Chief of Coast Artillery maintained a staff of experienced officers in Washington, a school at Fort Monroe for the professional education of officers and enlisted specialists, and a technical board at Fort Monroe to test new equipment and technique.

The peace-time development of our Corps saw a very material expansion from its seacoast and submarine mine functions in 1907 to its present diversified defensive activities: underwater, at the shore line, and antiaircraft operation of specialized artillery and barrage balloons. Defensive as to position but offensive in spirit and in fire action.

In streamlining the army organization to make more effective the training of all branches for combat service in unified larger commands, certain reorganization measures within the Coast Artillery Corps have been effected.

Major General Joseph A. Green has been appointed Commanding General, Antiaircraft Command, Army Ground Forces. Certain officers of his former staff will accompany him to Richmond, Virginia, to establish his new headquarters in that city. His staff organization will comprise the following sections: Personnel, Intelligence, Training, Supply, Fiscal and Development, Planning and Operations, Adjutant General, Inspector General, Liaison. General Green will have command of all the antiaircraft and barrage balloon units of the Army prior to the time they are assigned to Task Forces, to Defense Commands, or to Theaters of Operation. This command initially will include: the antiaircraft artillery training centers at Camp Davis, North Carolina; Camp Stewart, Georgia; Camp Edwards, Massachusetts; Camp Hulen, Texas; Fort Bliss, Texas; Fort Sheridan, Illinois; Camp Haan, California, with its Mojave Desert Antiaircraft Artillery Firing Range; the Barrage Balloon Training Center, Camp Tyson, Tennessee, to include the Barrage Balloon School and the Barrage Balloon Board; the Coast Artillery Replacement Training Centers at Fort Eustis, Virginia; Camp Wallace, Texas, and Camp Callan, California, which are redesignated respectively Antiaircraft Replacement Training Centers; Fort Eustis, Virginia; Camp Wallace, Texas, and Camp Callan, California.

The Commanding General, Antiaircraft Command, will operate at Camp Davis, North Carolina, an Antiaircraft Artillery School to include an Officers' Division, an Officer Candidate Division, and an Enlisted Division. He will also establish at Camp Davis an Antiaircraft Artillery Board.

The Coast Artillery School as formerly conducted at Fort Monroe, Virginia, will now be divided—the antiaircraft section going to Camp Davis and the harbor defense section remaining at Fort Monroe to operate directly under the Replacement and School Command.

The Coast Artillery Board will likewise be divided to form the Antiaircraft Artillery Board at Camp Davis and the remainder of its activities to remain at Fort Monroe, Virginia, as the Coast Artillery Board to operate under the Requirements Staff Section of the Army Ground Forces.

The Plans and Projects Section of the former Chief's Office becomes a section within the new Service of Supply, as does the Harbor Defense sub-section of the old Matériel Section and the Fiscal Section also.

The Army Ground Forces of the new Army organization includes a Coast Artillery section under its Requirements Division.

The duties of this section will include the development of tactical and training doctrine, tables of organization, tables of basic allowances, military characteristics of weapons and equipment, and operational changes needed in equipment for the Coast Artillery. In general it is charged with the responsibility of furthering the orderly continuity and progressive development of the Coast Artillery Corps. It will be headed by a general officer from its own arm.

Insofar as the formulation and promulgation of tactical and training doctrine pertaining to antiaircraft artillery and to barrage balloons are concerned, the Commanding General, Antiaircraft Command, will submit his recommendations to the Commanding General, Army Ground Forces, together with recommendations concerning the development and standardization of matériel and equipment and concerning changes in tables of Organization and tables of Basic Allowances for both antiaircraft and barrage balloon organizations.

The Command organization of the Army Ground Forces includes a Replacement and School Command. This Command will coördinate the handling and training of all replacements and the operation of the various Service Schools (except antiaircraft) in order that all training of both officers and enlisted men throughout the Army may be directed toward the one main objective—efficiency for combat service.

Coast Artillery units now assigned to Harbor Defenses or to other tactical combat units are integral parts of higher active commands. They have completed their preliminary training phase, they are now front line troops in action which has already been joined.

Whether you are with the Army in the field or with the Army in training, you are still of the Coast Artillery Corps as long as you wear the crossed cannon with the red center. You may be directing deliberate fire of seacoast artillery against a raiding enemy squadron, you may be pumping antiaircraft shells as fast as human hands can operate against dimly seen enemy bombers, you may be watching the lights on a panel in the mining casemate, hauling 155-mm. guns into auxiliary positions along the shore, or you may be hauling aloft your balloon-supported spider web of steel wires: you are still Coast Artillerymen.

Peacetime organization must be superseded by a more efficient streamlined organization for effective combat purposes. There is now just one objective for the Army—to win the war in the shortest time possible. To do that means unified and coördinated training within the Army Ground Forces to prepare them for their rôle in combat.

With the passing of the Office of the Chief of Coast Artillery as such, The Coast Artillery Journal takes on an added responsibility in the maintenance of our *esprit de corps*. This Journal can now be of greater service than ever to the personnel of our Corps in providing a medium for "Information Please" and a material tie to hold together the interests of our various activities during this emergency of war.

The Coast Artillery Journal remains at your service wherever you are and to whatever force you are assigned. It is the "tie that binds" us in our common interest, in our common loyalty to our Corps.—F.A.P.

Reserve Divisions

Twenty-seven Organized Infantry Reserve Divisions will be changed from the old style square divisions into triangular divisions. Cavalry Divisions of the Organized Reserve will be disbanded as divisions and their components assigned to other field duties.

Since Organized Reserve units are now at greatly reduced strength in officers, officer and enlisted cadres for the divisions to be activated will be selected by the War Department from all available sources and will furnish the framework upon which the complete divisions will be formed. Most of the Reserve officers whose peacetime assignments were to these divisions are now in the Federal service on other assignments. However, all qualified Reserve officers not now on active duty will be included in the officer personnel required to fill the new units.

Three of the existing four regiments of Infantry in each division will be retained and the fourth transferred to the Coast Artillery Corps for antiaircraft defense.

National Service Life Insurance

The Chief of the Special Services Branch has asked the Journal to remind our readers that any person who was on active duty with the armed services on December 20, 1941, may apply for National Service Life Insurance *without physical examination* until April 19, 1942. Those who have this insurance may increase their coverage to the limit permissable—$10,000.00. After April 19, evidence of good physical condition must be submitted with the application.

Military personnel entering the service after December 20, 1941, still have the 120-day period to apply for National Service Life Insurance without medical examination. Thereafter they may apply at any time, but their application must be accompanied by evidence of sound physical condition.

Applications should be submitted on Veterans Administration Form 350, obtained through commanding officers. In emergency situations where this form is not available, any statement in writing sent through channels giving the following information will be considered:

a. Date of application.

b. Signature of applicant, who is properly identified in the communication.

c. The amount of insurance desired.

d. Proper authorization for deduction from service pay of first premium (or application may be ac

A British "40" British Press Service

companied by remittance to cover premium).

e. Effective date of insurance.

f. Names and relationship of designated beneficiaries.

National Service Life Insurance contains no restrictions as to residence, travel, occupation, or military or naval service, and covers death from any cause.

Steel Cartridge Cases

Steel cartridge cases for artillery shells of various sizes are being produced on developmental orders by several manufacturing concerns.

The use of steel for cartridge cases will help alleviate the estimated shortage of copper, which is an important component of brass, the traditional cartridge case material. Extensive firing tests have shown that steel cases can be used successfully.

Developmental contracts have been awarded for the manufacture of steel cartridge cases for several sizes of artillery shells ranging from 20-mm. to 105-mm.

Based on actual performance of the cases produced, additional lines will be established by concerns holding educational contracts.

Suppliers of cartridge cases are being canvassed to determine the feasibility of converting their facilities to the manufacture of steel cartridge cases. It is not anticipated that the conversion of manufacturing lines from brass to steel cases will result in serious delay. Ordnance Department experts in the drawing of steel will act as consultants to manufacturers in making the conversion.

Officer Candidates

War Department Circular 48, dated February 19, 1942, directs that the widest possible publicity be given the opportunities and procedure for qualifying as officer candidates. The circular directs further that commanders study all their men, and encourage those who demonstrate the capabilities of leadership to qualify as officer candidates. It is desired also that the men picked as likely candidates be given some opportunity within their units to demonstrate and further develop their capacity as leaders.

Plotting Boards

Plotting Boards M3 and M4 are now being delivered to certain harbor defenses. These plotting boards permit shifts from one base line to another without the loss of an observing interval. With them, data from observing stations too remote for the use of couplers, can be plotted conveniently at the normal observing interval.

Production of these boards is being initiated as rapidly as manufacturing data is received from the harbor defenses.

Major General Andrew Hero, Jr.

One of the best-loved of the old guard of Coast Artillery soldiers died on February 7, at Walter Reed General Hospital. Major General Andrew Hero, Jr., former editor of the *Journal of the United States Artillery* (as the JOURNAL was formerly known), former Chief of Coast Artillery, and one of the original officers of the Coast Artillery Corps, was buried at Arlington National Cemetery on February 10.

General Hero's military service began in 1887, when he was appointed to the United States Military Academy from his home state of Louisiana. Commissioned as a first lieutenant of Infantry in June, 1891, Lieutenant Hero transferred to the Artillery in November of the same year.

As a captain, General Hero was the fourth editor of the JOURNAL, serving from 1902 to 1907. During this period, immediately preceding the separation of the Coast Artillery Corps and the Field Artillery, interest in artillery matters had reached a new high. Captain Hero succeeded in reflecting that interest in the JOURNAL, which during this time was at one of its high points as an instructive and valuable service publication.

General Hero was Chief of Coast Artillery from March, 1926, to March, 1930.

About Clark Lee

The JOURNAL has received much favorable comment about the article in our last issue by Clark Lee, reprinted from the Associated Press, concerning an antiaircraft regiment on the Bataan Peninsula. It is believed that a word about Mr. Lee might prove interesting to JOURNAL readers.

Clark Lee was born in Oakland, California, but came to East Orange, New Jersey, at an early age. After graduating from Rutgers, where he was distinguished both as one of the most unconventional dressers on the campus and as a third baseman, he went to work for AP's Newark Bureau. His AP duties then took him to Mexico City, Honolulu, Tokyo, and thence to wandering over the Orient.

After nearly three years in Shanghai, Lee was on his way home for a vacation, and was in Manila when the invasion of the Philippines began. From the first flash of the news of war, Lee has been at (and all over) the front, having miraculous escapes from Jap action at many points. He was at Lingayen, Bataan, and Corregidor, as well as all points between, and seems to have a knack for turning up where the fighting is hottest.

Decoration of Graves

The Chaplains of Fort Myer, Virginia, and the Presidio of San Francisco, California, have arranged to serve the personnel of the military services by decorating on Memorial Day, May 30, the graves of the relatives and friends of such personnel, in the cases where the graves are located in Arlington National Cemetery or in the Presidio of San Francisco National Cemetery.

A standard floral emblem, to cost two dollars, has been designated. However, if larger floral tributes are desired, the chaplains will purchase them upon receipt of remittances. Decorations that are sent direct to either chaplain will be placed upon the graves as soon as received. It is desired, however, that the standard floral emblem be used in as many cases as possible.

Remittances should be sent to either The Chaplain, Fort Myer, Virginia (for Arlington); or to The Chaplain, Presidio of San Francisco, California, and should be in their hands no later than May 25. Requests should indicate the name, rank, and organization of the deceased, and the grave or lot number where known.

New Tables of Organization

New Tables of Organization for antiaircraft artillery units will be distributed in the near future. They will reflect a substantial increase in the ratio of fire power to man power. The Mobile and Semimobile regiments will be identical in basic organization and armament, the only difference being that the amount of motor transportation and number of enlisted men provided in Semimobile units will be somewhat less than in Mobile units.

The new regimental organization is indicated in the chart below. Figures not in parentheses apply to Mobile units; those in parentheses apply to Semimobile units.

Regiment - Antiaircraft Artillery
93 (93) 10(10)WO 2244(2114)

Regimental Headquarters & Headquarters Battery	Regimental Band	Gun Battalion (4 Batteries) 16 3" or 90-mm Guns 16 Cal. .50 M.G. 4 Detector Units	Automatic Weapons Battalion (4 Batteries) 32 37-mm or 40-mm guns 32 Cal. .50 M.G.	Searchlight Battalion (2 Batteries) 20 Searchlight Units 12 Detector Units 20 Cal. .50 M.G.	Attached Medical	Attached Chaplain
11(11) 3(3)WO 99(95)	1(1)WO 28(28)	24(24) 2(2)WO 785(715)	32(32) 2(2)WO 785(743)	17(17) 2(2)WO 490(476)	7(7) 57(57)	2(2)

Personnel and equipment	Regt Hq & Hq Btry	Band	Gun Bn	AW Bn	SL Bn	Total	Attached Medical	Attached Chaplain	Aggregate
Commissioned officers	11 (11)		24 (24)	32 (32)	17 (17)	84 (84)	7 (7)	2 (2)	93 (93)
Warrant officers	3 (3)	1 (1)	2 (2)	2 (2)	2 (2)	10 (10)			10 (10)
Enlisted men	99 (95)	28(28)	785 (715)	785 (743)	490 (476)	2187 (2057)	57 (57)		2244 (2114)
Gun, 3-inch or 90-mm			16 (16)			16 (16)			16 (16)
Searchlight unit *					20 (20)	20 (20)			20 (20)
Gun, 37-mm or 40-mm				32 (32)		32 (32)			32 (32)
Gun, machine, AA, cal. .50			16 (16)	32 (32)	20 (20)	68 (68)			68 (68)
Pistol, automatic, cal. .45	31 (31)	29 (29)	77 (69)	85 (81)	62 (62)	284 (272)			284 (272)
Rifle, U.S., Cal. .30, M-1	82 (78)		734 (672)	734 (696)	447 (433)	1997 (1879)			1997 (1879)
Ambulance							3 (3)		3 (3)
Trailer, 1-ton, cargo	3 (3)		31 (10)	47 (10)	15 (11)	96 (34)			96 (34)
Trailer, water tank, 250-gal.	1 (1)		5 (5)	5 (5)	5 (5)	16 (16)	1 (1)		17 (17)
Truck, ¼-ton	6 (6)		17 (12)	17 (16)	12 (12)	52 (46)	4 (4)		56 (50)
Truck, 3/4-ton, carryall	1 (1)				1 (1)	1 (1)			1 (1)
Truck, 3/4-ton, C & R	2 (2)		6 (6)	6 (6)	4 (4)	18 (18)			18 (18)
Truck, 3/4-ton, weapons carrier	1 (1)		10 (10)	18 (10)	10 (8)	39 (29)			39 (29)
Truck, 1½-ton, panel delivery	1 (1)		1 (1)	1 (1)	1 (1)	4 (4)			4 (4)
Truck, 2½-ton, cargo	8 (7)		59 (26)	95 (40)	27 (19)	189 (92)	4 (4)		193 (96)
Truck, 2½-ton, special body			8 (8)			8 (8)			8 (8)
Truck, 4-ton, wrecker			1 (1)	1 (1)	1 (1)	3 (3)			3 (3)
Truck, 6-ton, prime mover			20 (6)			20 (6)			20 (6)
Detector unit *			4 (4)		12 (12)	16 (16)			16 (16)

*Complete with transportation.
xNote: Figures not in parentheses apply to mobile regiment; figures in parentheses apply to semimobile.

Another mine planter for the CAC

Camp Newspapers

The JOURNAL has been receiving several camp and post newspapers with gratifying regularity. It is suggested that newspapers of other Coast Artillery Corps camps and posts be sent to the JOURNAL—they help us keep in touch with what the people in the field are thinking and doing, and will assist us to publish the sort of JOURNAL our readers want.

General Officers from the CAC

The following Coast Artillery Corps colonels have been appointed brigadier generals (temporary), Army of the United States, since the last issue of the JOURNAL was published:

Lawrence B. Weeks, Frank J. McSherry, Gordon de L. Carrington, Henry B. Holmes, William M. Goodman, John T. Lewis, Charles D. Y. Ostrom, Earl H. Metzger, James R. Townsend, Charles S. Harris, LaRhett L. Stuart, Stanley R. Mickelson, and Robert M. Perkins.

Gunners' Instruction

Two new Technical Manuals of interest to all Coast Artillery Units have been issued recently. TM 4-330, *Coast Artillery Gunners' Instruction, Antiaircraft Searchlight Batteries, First and Second Class Gunners*, and TM 4-325, *Coast Artillery Gunners' Instruction, Antiaircraft Gun, Automatic Weapon, and Headquarters Batteries, First and Second Class Gunners*, have been issued since the last number of The JOURNAL. The first-named pamphlet supersedes Gunners' Instruction Pamphlets 2 and 4; the second takes the place of GIP's 1 and 3.

Since the contemplated distribution of the new TM's is in the neighborhood of forty to forty-five copies to interested batteries, and fewer to higher headquarters, your JOURNAL will be pleased to accept orders for additional copies. TM 4-325 sells for forty cents; 4-330 is listed at thirty-five cents. Federal law does not permit discounts on government publications, but the prices quoted include mailing charges to any place within the continental limits of the United States, and to military organizations or individuals anywhere whose address includes an Army Post Office designation.

Still Climbing

The JOURNAL circulation department reports that since our last issue, there has been only one large group subscription order, although the number of smaller orders continues to grow. Lieutenant Colonel William C. McFadden, executive of the 69th Coast Artillery, sent in twenty-five subscriptions from officers in that regiment. Colonel McFadden went to the trouble of having mimeographed forms prepared for the use of the officers who cared to subscribe, all of which bears out our contention that subscriptions must be sought—they don't "just happen."

With the new reorganization of the army The JOURNAL is more important than ever both as a medium of instruction and as a point of contact among the members of the Corps. It is up to the older officers, who already know the value of The JOURNAL, to bring to the attention of their juniors the benefits to be derived both from The JOURNAL and membership in the United States Coast Artillery Association.

Fort Custis

Fort Winslow, at Cape Charles, Virginia, has been renamed Fort Custis, in honor of Captain John Parke

Custis, a stepson of George Washington, and Washington's aide-de-camp. Captain Custis served with the Continental Army at the siege of Yorktown.

Cape Charles was the place of residence of many members of the illustrious Custis family. John Custis IV, father of Martha Washington's first husband, Daniel Parke Custis, was buried near Fort Custis—in a standing position, at his own request. The inscription on his tomb, placed there by his own positive order, reads:

Beneath this Marble Tomb Lies ye Body
Of the HONORABLE JOHN CUSTIS, Esq.
of the City of Williamsburg and the Parish of Bruton
Formerly of Hungar's Parish on the Eastern Shore of
Virginia and the County of Northampton the
Place of His Nativity
Aged 71 Years and Yet lived but Seven Years
which was the Space of time He kept
a Bachelor's house at Arlington
on the Eastern Shore of Virginia.

Table of Basic Allowances

A new Table of Basic Allowances for the Coast Artillery Corps has been approved and is in the process of publication. This table includes all changes which have been approved since October 1, 1941, date of the current table. Furthermore, the new table is the product of an effort to reduce and eliminate items considered surplus or unnecessary in Coast Artillery organizations, in accordance with the streamlining process which is taking place throughout our entire Army. An attempt also has been made to change the nomenclature of items where necessary to conform to the standard nomenclature used by the supply arms and services.

In view of the fact that the Tables of Organization for most types of Coast Artillery Units are undergoing continual change and modification, it is anticipated that it will not be long before still another Table of Basic Allowances will be published and issued.

American Defense Service Medal

War Department Circular Number 44 announces a new medal: the American Defense Service Medal. The new medal will be issued to personnel of the Army for honorable service by those who entered upon a period of active Federal service of twelve months or longer, and who in the discharge of such service served at any time between September 8, 1939, and December 7, 1941, both dates inclusive.

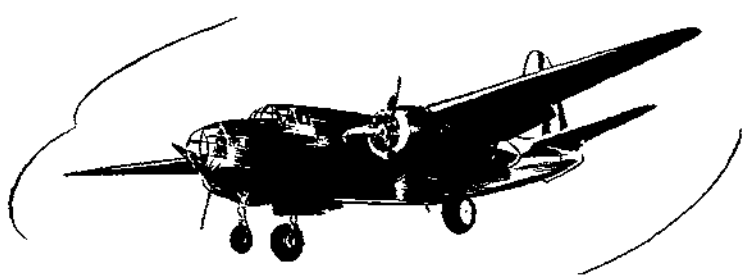
Applications for the medal will *not* be received until the medals are ready for issue, which date has not yet been announced.

No Silkworm Need Apply

The substitution of nylon and other fibers in the manufacture of parachutes and powder bags is proceeding satisfactorily, according to a release from the Materials Division of the Office of the Under Secretary of War.

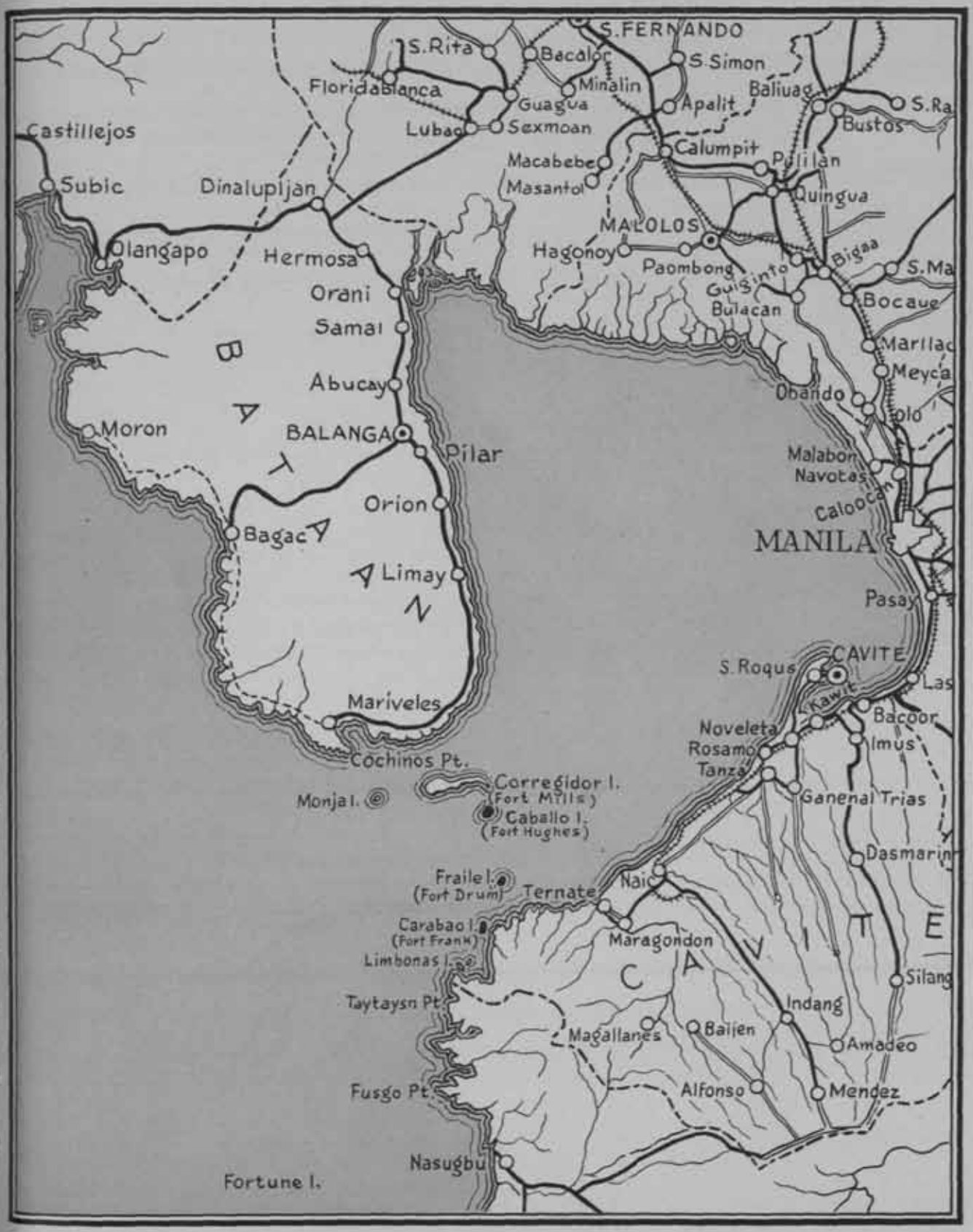
Emblem of Honor

Do you know a four-star service mother? The Emblem of Honor Association, a non-profit organization, presents an emblem to mothers with four or more sons in the service, and has asked the JOURNAL to aid in the search for eligible mothers. Readers who know mothers with four or more sons in the service are asked to inform the JOURNAL of the names and addresses of such families.



Coast Artillery Forts

The Anchors of Bataan



COAST ARTILLERY IN ACTION

From the Communiques

Number 34: December 29, 1941
A very large force of enemy aircraft bombed the Coast Defenses of Manila Bay continuously for three hours. At least four Japanese bombers were shot down by antiaircraft batteries.

Number 36: December 30, 1941
Casualties among our troops as a result of yesterday's bombing of Corregidor are approximately twenty-seven killed and eighty wounded.

Number 40: January 1, 1942
. . . the harbor defenses and island fortifications are strongly held by our troops. (Philippines.)

Number 41: January 2, 1942
American and Philippine troops are occupying strong positions north of the city (Manila) and are holding the fortified island of Corregidor and the other defenses of Manila Bay effectively, preventing the use of this harbor by the enemy.

Number 43: January 3, 1942
Corregidor Island in Manila Bay sustained a five-hour aerial bombardment yesterday. The enemy air force attacking the island was composed of at least sixty bombers. There was no material damage to installations on the island. Our casualties resulting from this attack were thirteen killed and thirty-five wounded. At least three enemy planes were shot down by antiaircraft fire.

Number 44: January 4, 1942
Corregidor Island in Manila Bay sustained another attack by heavy Japanese bombing planes last night. Twenty-one enemy planes attacked the fortifications for half an hour, causing only minor damage to installations and inflicting slight casualties. Four enemy bombers were shot down and others damaged by our antiaircraft batteries.

Number 45: January 5, 1942
Enemy air attacks on the fortified island of Corregidor were renewed yesterday, for the third successive day. Fifty-two Japanese bombers participated in the attack which continued for three hours. Material damage and casualties were slight. Our antiaircraft batteries shot down four Japanese bombers. Four more were hit but reports of their destruction were not confirmed.

Number 47: January 6, 1942
The fortifications of Manila Bay, including Corregidor Island and Mariveles, were again heavily bombed by enemy planes yesterday. The bombardment continued for four hours with fifty planes participating. Material damage and casualties were light. At least seven enemy planes were hit by our antiaircraft fire.

Number 49: January 7, 1942
The fortifications on Corregidor Island and installations on Bataan Peninsula again were bombed for several hours yesterday. The extent of damage and casualties has not yet been determined. It is estimated that at least forty-five bombers participated in this attack. Several hostile planes were hit by our antiaircraft fire.

Number 50: January 8, 1942
For the first time in several days there were no enemy air attacks on the fortifications of Manila Bay. Enemy air activity was confined to reconnaissance.

Number 54: January 11, 1942
Hostile aircraft resumed bombardment of fortifications of Manila Bay and defense positions in that vicinity after several days of inactivity. The bombing attack was relatively light and did no serious damage.

Number 60: January 15, 1942
Nine heavy Japanese bombers attacked the fortifications on Corregidor Island in Manila Bay. Two were shot down by our antiaircraft artillery and others were hit. Damage to fortifications and casualties among our troops were slight.

Number 87: February 1, 1942
An enemy force assembled at Ternate on the south side of Manila Bay, opposite Corregidor, apparently with the object of attempting a landing on our island fortifications. Numerous launches and barges collected near Ternate for the projected expedition. Our

big guns were suddenly concentrated on this force. The surprise was complete and the force and its equipment were destroyed.

Number 93: February 5, 1942
Japanese gun emplacements on the southeastern shore of Manila Bay were destroyed by fire from our fortifications. These artillery positions were presumably designed by the enemy for an attack against Corregidor.

Number 95: February 7, 1942
Concealed enemy batteries near the southeastern shore of Manila Bay bombarded our harbor defenses with heavy artillery for three hours. Most of the fire was concentrated on Fort Drum, but some was directed against Fort Mills and Fort Hughes. No material damage was done. Our guns returned the fire with undetermined results.

Number 97: February 8, 1942
Bombardment of our fortifications at the entrance to Manila Bay by concealed enemy batteries on the Cavite shore was resumed. The fire was concentrated on Forts Mills, Hughes, and Frank for two hours. Projectiles were fired at four minute intervals. No serious damage was done.

Number 98: February 9, 1942
Some of the concealed enemy batteries which have been firing on our harbor defenses from the Cavite shore have been located and attacked by counter-battery fire from our forts. Several direct hits were observed and some of the enemy batteries were silenced.

Number 99: February 10, 1942
During the past twenty-four hours our troops shot down seven enemy planes. . . . Siege fire directed against our forts from concealed enemy batteries along the Cavite shore continued. Our counter-battery fire met with some success.

Number 100: February 10, 1942
Fort Drum was under enemy artillery fire for a brief period. Our counter-battery fire is believed to have been effective.

Number 101: February 11, 1942
There were intermittent artillery exchanges between the guns of our fortifications and enemy batteries on the Cavite shore. Our counter-battery fire appears to have been effective.

Number 105: February 13, 1942
Enemy dive bombers were active. Two were shot down by our antiaircraft guns. (On Bataan.)

Number 106: February 14, 1942
Enemy artillery fire from the Cavite shore was again directed against our harbor defenses. No material damage resulted.

Number 110: February 17, 1942
Heavy enemy artillery from the Cavite shore bombarded our harbor fortifications with increasing intensity during most of the day. Damage to our installations and casualties were not great.

Number 112: February 18, 1942
Hostile artillery fire on our forts from positions on the Cavite shore continues. New enemy batteries in Bataan have increased the density of artillery fire on our positions.

Number 114: February 19, 1942
Enemy batteries on the Cavite shore continued to pound our harbor defenses, without accomplishing a great amount of damage. The fire on Fort Frank was particularly heavy.

Number 117: February 21, 1942
Hostile artillery fire on all our fortifications was resumed, with Fort Frank bearing the brunt of the attack. Our harbor defense batteries returned the fire.

Number 119: February 22, 1942
Intermittent artillery dueling continues between hostile batteries on the Cavite shore and the guns of our harbor defenses.

Number 120: February 23, 1942
Firing from hostile shore batteries on our harbor defenses, which has been intermittent for several days, has now entirely ceased.

Number 126: February 27, 1942
There has been no firing on our fortifications from enemy artillery positions on the Cavite shore for several days.

Number 127: February 27, 1942
. . . our Army Air Force and our antiaircraft artillery shot down a total of 245 Japanese airplanes (thus far in the war). In this total are included only those where the destruction was officially confirmed. Many other airplanes were hit and some of them were last observed smoking and rapidly losing altitude. It seems probable, therefore, that the total enemy losses in aircraft were much greater than the figure given.

Citations

A Battery in Hawaii

The 155-mm. battery in Hawaii commanded by Captain Frank W. Ebey, CAC, has been commended by Colonel E. B. Walker, CAC, commanding Fort Kamehameha, for bringing down two Jap planes on the morning of December 7.

According to the letter of commendation, it is believed that these were the first casualties caused by any Coast Artillery units. Captain Ebey believes that his battery was the first unit of the entire United States

Army to open fire in the present war, and the first Army unit to bring down a plane.

The planes were brought down by a machine gun operated by Sergeant Casimir Jankauskas and Corporal Charles D. Keith. The commendation went on to state "the actions of the entire personnel of the battery showed a fine fighting spirit and discipline and reflected the results of careful training and numerous practice alerts." Battery officers, in addition to Captain Ebey, included First Lieutenants Herbert J. Garilli and Walter Knox. James A. Heisler is First Sergeant of the battery.

Soldier's Medal

February 18, 1942
WAR DEPARTMENT,
Washington, January 31, 1942

GENERAL ORDERS)
No. 8)

* * * *

II—Awards of Soldier's Medal.—By direction of the President under the provisions of the act of Congress approved July 2, 1926 (Bul. No. 8, W. D. 1936), a Soldier's Medal is awarded by the War Department to the following named enlisted man:

SOLOMON CRYSTAL, Army serial No. 20260903, private first class Battery E, 244th Coast Artillery, United States Army. For heroism displayed in rescuing a man from drowning in the Atlantic Ocean near Virginia Beach, Virginia on July 2, 1941. Upon hearing a cry for help from a comrade who became exhausted while swimming and was rapidly being carried out to sea by the rough winds and heavy undertow and was in grave danger of drowning, Private First Class Crystal, with utter disregard of his own safety, although himself a poor swimmer, went to the assistance of the drowning man. With great difficulty and exceptional bravery Private First Class Crystal succeeded in bringing the man in distress safely to shore thereby saving his life. The heroism displayed by Private First Class Crystal on this occasion reflects great credit upon himself and the military service. Residence at enlistment: New York City, N. Y.

* * * *

By order of the Secretary of War

G. C. MARSHALL,
Chief of Staff.

OFFICIAL
E. S. Adams,
Major General,
The Adjutant General.

The First Casualty

The first Coast Artilleryman, officer or enlisted man, killed in action in the present war was First Lieutenant William G. Sylvester, a Reserve officer from Bakersfield, California. Lieutenant Sylvester was killed by an enemy bomb on Oahu some time between 7:57 and 8:06 AM the morning of December 7, 1941. Lieutenant Sylvester was assigned to an antiaircraft unit.

By the time this issue of the JOURNAL reaches its readers, one of the new mine planters will have been named for Lieutenant Sylvester, and launched, the first vessel of the Coast Artillery fleet to be named for a Reserve officer.

Corregidor in the News

By FRANK HEWLETT
United Press Staff Writer

Corregidor, Manila Bay, March 10 (Delayed).—At least 1,500 Japanese bombs, mostly high explosives but interspersed with a few incendiaries, have fallen on this fortress and the garrison shows not the least sign of faltering.

Japanese heavy, medium and dive bombers have filled the sky above this fort but the destruction has been negligible and beyond a doubt a real disappointment to Tokyo.

Corregidor, despite the absence of fighter plane protection, apparently has made the cost of bombings prohibitive to the enemy.

Never has a Nipponese flight escaped unscathed from Corregidor's straight-shooting antiaircraft batteries.

Some days they have destroyed a third to a half of the attacking planes.

For hours the enemy has pounded away at Corregidor, causing huge bomb craters and starting fires. But always when the smoke cleared away a check-up showed that the damage was only superficial.

The Japanese steered clear of Corregidor's antiaircraft guns until December 29, when 36 heavy and 10 dive bombers raided the island for two hours, dumping 1,000-pound bombs.

That attack cost the Japanese heavily—11 heavy bombers and 4 dive bombers shot down and others damaged. It was the biggest one-day score for American antiaircraft gunners.

After that costly lesson, the enemy steered clear of these rocks for two days. But on New Year's Day a lone Jap plane suddenly dove from low-hanging clouds, apparently bent on dropping its load on a special target. A 50-caliber machine-gun crew was on its toes, however, and it hit the plane so hard it never emerged from its dive, and crashed into the sea without releasing its bombs.

That Jap plane cost United States taxpayers a total of $15 for 260 rounds of ammunition the machine gun expended.

The greatest number of bombs in any raid fell on January 4 when heavies and a few pursuits darkened the skies, releasing approximately 400 bombs. Our antiaircraft shot down six bombers and hit four others hard.

Today, Corregidor still stands, a great headache to the Japanese war lords, and it lays claim to two highly significant war records:

1. This tiny island (15 square miles) controlling Manila Bay has been subjected to the heaviest bombings of any place of its size in the world.

2. To Corregidor's big guns go the distinction of being the first United States seacoast batteries to fire on an enemy target since the Civil War.

It is conceded that other war theaters, including Malta, London, Chungking and a few others, have been subjected to more raids with more bombs dropped, but the poundage dumped here per square mile is believed never to have been equaled anywhere, even at Coventry.

Now, Corregidor's battle scars are noticeably disappearing and from the highest point on the fortress, the Stars and Stripes still wave.—*United Press.*

Once the shackles of the defense myth are thrown off, strategy becomes free to impart the element of surprise into operations, to do what the enemy least expects; tactics will attack its objectives, not with any stereotyped methods, but with an infinitude of combinations put into play by American resourcefulness as the situation demands. To do this is to think offensively. But to think offensively, with the resources at our disposal, is to win the war.—Lt. Col. W. F. Kernan, *Defense Will Not Win the War.*

There Is Only One Way

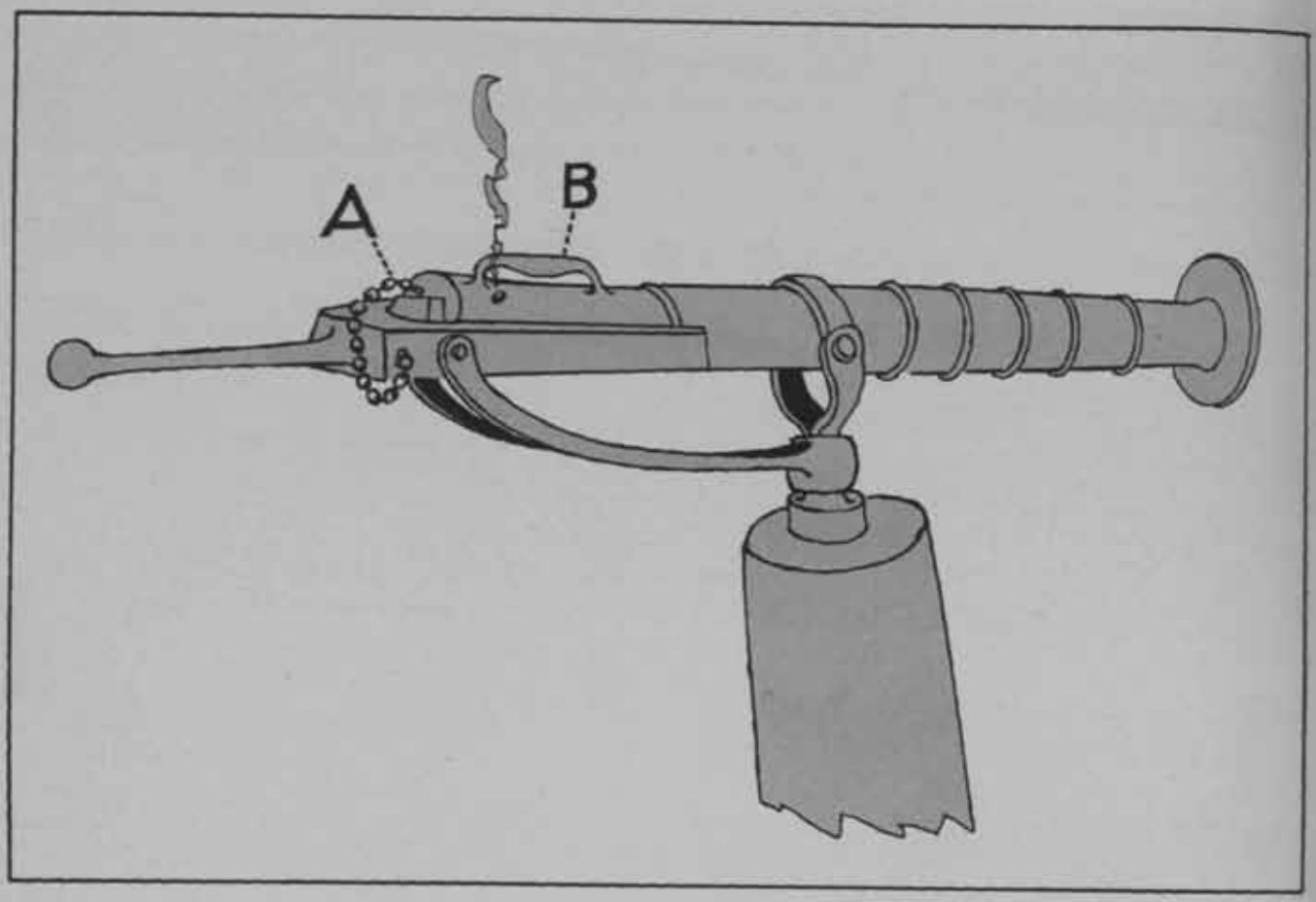
For The Journal to know your latest address.

The Journal does not receive Special Orders from any source, nor can it get addresses from the War Department.

Please let us know when you change station. A penny post card will do the trick.

The Story of Artillery Through the Ages

By W. A. WINDAS



Chapter 19. EARLY BREECH-LOADERS

Breech-loading weapons are generally considered a fairly recent development. Actually they were built and widely used within a century after the discovery of gunpowder in Europe. Some were entirely sound and practical—from the standpoint of design. Workmanship of the times, however, often could not carry out the ambitious plans of the inventors.

The 15th century "Peterara," depicts the most conventional type of the day. It was cast of bronze, or as in this case, built of forged iron bars, hooped together by iron rings . . . not the best construction in the world, but much cheaper than the cast models.

Attempts had been made to cast guns of iron and steel, but metallurgic knowledge was limited, and results were unsatisfactory.

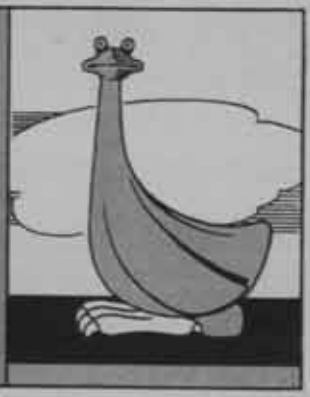
The Peterara was loaded from the breech-end by removing the locking-block at (A). The detachable chamber (B) could then be pulled slightly to the rear and lifted out. The chamber was then charged, a shot seated in the throat of the tube, the chamber inserted (the front end of the chamber fitted into the throat of the barrel something like the cartridge of the Russian Nagant revolver) and the locking-block replaced. Despite the locking system, we imagine that the gunner caught some smoke in his face upon discharge.

The pedestal mount is noteworthy, for it changed but little for the "swivel" guns of the next five centuries.

The breech-loader had come—but not to stay. Powders improved faster than gun metals, and it soon became evident that power, accuracy and safety were more important than speed of fire, so the breech-loader was shelved to await a more scientific era.

This shelving has occurred several times in the history of artillery. Even during the middle 19th century the British navy, due to many blow-ups, reverted to muzzle-loaders when the rest of the world was using breech-loading cannon. An inadvertent double-charging of a muzzle-loader (which resulted in a terrible accident) was necessary to remind England that no machine is infallable, and a final re-adoption of breech-loaders was made.

Coast Artillery Activities



Norfolk AAA Region*

BRIGADIER GENERAL CLAUDE M. THIELE, *Commanding*

By Captain William D. Workman, Jr.

Centered in a hotbed of defense activities, the antiaircraft artillery troops of the Norfolk AAA Region have found much to occupy their time since the outbreak of war even though enemy planes have not put in an appearance to date.

First priority, of course, has gone to the vital task of maintaining a twenty-four hour vigil over the many "targets" round about Norfolk. Of that job, suffice it to say that the vigil goes on, with officers and men ever ready to open fire on the first hostile plane approaching the area.

Along with the business of looking for the enemy, the troops have been looking out for themselves, and many a man-hour of honest labor has gone into the construction of housing accommodations for soldiers who have been weathering Chesapeake Bay's none-too-pleasant winter weather in tents. Throughout the area there are springing up structures which will bring the artillerymen greater warmth, comfort and cleanliness.

Fulfilling the major mission of standing guard over the region still has left time for steady and valuable training, and there has been no abandonment of drilling in anti-paratroop tactics, small arms employment, bayonet drill, infantry tactics of small units and gunners' instruction. Although not on the move as during maneuvers, the antiaircraft troops have not been standing still as regards training.

Into the full program of training there has been injected a new type of instruction, the War Department's well-publicized "orientation course." Difficulties were experienced in planning the program for AAA troops in the region, for assemblies are out of the question when troops are in the field, manning stations under battle conditions. To reach the dozens of installations throughout the region, arrangements have been made whereby the men listen in twice weekly to broadcasts over Station WTAR, Norfolk, to hear the Introductory Lecture of the Orientation Course. In addition, all units hold daily formations to hear the summaries of war news and to have developments explained by officers. Maps, bulletins, pamphlets, etc., have been distributed among all units, and many of the men are digging into the subject of war's background with considerable interest.

What the months to come will bring, no one knows, but the troops of the region are ready for any contingency, be it in Norfolk or elsewhere.

*This title used in lieu of military designation.

Camp Tyson

BRIGADIER GENERAL JOHN B. MAYNARD, *Commanding*
Barrage Balloon Training Center

The new Coast Artillery Corps post, Camp Tyson, Tennessee, is now practically complete. A few finishing touches by the Area Engineers and they will move out with the realization that they have done an excellent job in record time. Work was first started on September first and less than six months later an area that was cornfields and sage brush is now a modern army camp, ninety-eight per cent complete.

On November 22d Colonel John E. Hatch, Field Artillery, arrived as Commanding Officer, and began plans for the organization of the Station Complement. Soon the first contingent of troops arrived and active preparation for the arrival of others was begun.

Everything was in readiness for the Barrage Balloon School which arrived from Camp Davis on schedule. Then came a Barrage Balloon Battalion, which according to present plans is to be a permanent installation as the training, or demonstraton battalion.

Work was immediately begun on balloon beds and the training program was picked up where it had been left off at Camp Davis. Friday, February thirteenth, defying any jinx connected therewith, the first barrage balloon was flown at Camp Tyson.

On February 16th, Brigadier General John B. Maynard arrived and assumed command. General Maynard comes to Tyson from Camp Wallace, Texas, which post he commanded and organized from its beginning.

Camp Tyson is unique in that its main function is to be the training of officers and men in the tactics and technique of Barrage Balloons. Battalions will be activated here, trained, and sent to the field.

The Camp is divided into a Station Complement with Company A, 85th QM Battalion attached, the Barrage Balloon School, a School Battalion, the Barrage Balloon Board, and training battalions. The latter are at Tyson only for instruction and will move out as soon as their training program is completed. The other installations are of a permenant nature and, while the personnel may and probably will change, the organizations at the camp will remain the same.

The Barrage Balloon Board, consisting of seven officers and ten enlisted technicians, has as its primary function to investigate and make recommendations for improvements in technical matters affecting the operation of the balloons. Tests have been begun on twenty projects which, when completed, will effect improvements in this branch of the Coast Artillery Corps.

Naturally there are a great many details that a good Coast Artilleryman needs to learn before he is qualified to perform efficiently his duties in the flying of the balloons. The Barrage Balloon School's object is to train officers and enlisted men in these technical details. Another new class of the school began in February and satisfactory progress is being made.

Situated seven miles south of Paris, Tennessee, about half way between Nashville and Memphis and near the Kentucky-Tennessee boundary, Camp Tyson meets a primary requirement of location near the source of supply. Also, it is the point in this general area determined by survey to be farthest from civilian and army air fields and commercial air routes.

The citizens of Paris have responded magnificently to the emergency demands upon their hospitality. The number of invitations for soldiers to eat Christmas dinner in their homes more than doubled the number of men available to accept. Invitations for Sunday dinner are the rule for soldiers who attend church in town.

The Defense Council Recreation Committee has, through smoothly-working sub-committees, provided suitable recreational facilities in Paris. Other towns within a radius of fifty miles are also coöperating to furnish the soldiers entertainment. The men of the School Battalion were the guests of honor at a dance recently given by the young ladies of McKenzie, Tennessee.

The morale of the soldiers is high and they are enthusiastic about their new camp, its location, and surroundings. Many improvements were incorporated in the plans for barracks and mess halls which were lacking in those previously built. By a combination of long hours; the eagerness to learn, already expressed by the new men; and the painstaking and faithful efforts of the Instructors in the School, the Cadre Instructors of the School Battalion, and the personnel of the Station Complement, it is expected that this camp will soon reach and pass a state of training efficiency that other Coast Artillery Training Schools and Centers have set.

The first barrage balloon to be sent aloft at Camp Tyson

Chesapeake Bay Sector

BRIGADIER GENERAL ROLLIN L. TILTON, *Commanding*

By Major Franklin W. Reese

Recent reports to Headquarters at Fort Monroe from all units in this intensely vital area have shown a new alertness by officers and men.

In the latter part of December troops were ordered to historic Fort Macon on the Carolina Coast. The strategic value of this particular part of the coast line has been realized through the last two centuries. Numerous forts and stockades have been built to protect the inlets and natural harbors.

Old Fort Macon, where some of the batteries are now quartered, is rich in tales of battles and troops stationed there during the Civil and Spanish-American wars. As long ago as 1712, records reveal the fact that forts existed on the site to protect Beaufort Inlet, known as "Old Topsail," from the raiders and pirates who plundered this area.

The present fort was completed in 1836 after twelve years of construction, replacing a fascine type of fort built in 1756. Using slave labor mostly, the fort cost $436,700, and was named in honor of Senator Nathaniel Macon who was largely instrumental in securing the necessary appropriations.

In many ways the fort closely resembles Fort Monroe, being designed by Vauban and Naizet, French architects of the 18th century. Complete with moat, sally-ports and casemates with narrow slits for windows, it bears all characteristics of the medieval forts. In 1861 it was seized by Confederate forces, only to be captured by the Union forces a year later. Its fall, in the latter instance, was due to the fact that the artillery protecting the fort pointed north, east and south, ignoring the west from which the Federal army advanced. Perhaps a more recent parallel might be drawn from the fall of Singapore.

It was last garrisoned during the Spanish-American war. In the last decade, the fort has been partly reconstructed by the C.C.C., and was opened to the public as a historic landmark in 1936.

One incident which received nationwide publicity under the caption "Civil War Casualty of 1942" oc-

Men of the Coast Artillery Corps respond to a midnight alert at Fort Monroe, Virginia

curred during the first days of occupation. One of the enlisted men, attempting to start a fire in one of the old fireplaces, used a Civil War "3 incher" as an andiron and the shell exploded. Fortunately, it was badly corroded and the victim escaped with minor burns.

In spite of the vast amount of work entailed, the training program has not been overlooked, with coördinated stand-to drills, alerts, and blackout tests an integral part of the weekly schedule. Intelligence, Signal, First Aid and Chemical Warfare Schools have been initiated. All of this is being done as a means of increasing the military proficiency of each individual soldier. The zest with which the gun crews performed during the recent calibration firing is an example of the men's eagerness to take a "Slap at the Japs."

Fort Custis, formerly known as Fort Winslow, is the newest outpost of the Harbor Defenses of Chesapeake Bay. Located on the Cape Charles Peninsula, it forms the northern barrier to hostile ships trying to force the water gateway to the cities of Norfolk, Newport News, Baltimore, and Washington, D. C.

When Fort Monroe was recently redesignated as Headquarters of Chesapeake Bay Sector, Headquarters of the Harbor Defenses of Chesapeake Bay was moved to Fort Story, Va. Brigadier General David P. Hardy was placed in command. A staff of experienced Fort Monroe, Fort Story, and Camp Pendleton officers was soon assembled and a rigid twenty-four hour schedule, seven days a week was made effective at once for all personnel in the Harbor Defenses.

Notable in the field of training has been the alertness of particular battle stations when called upon to fire a shot across the bow of a vessel. This has happened at odd hours on several occasions when ships have not responded to instructions. Positive results have been gained at once, in each instance, proving the effectiveness of such means of warning. Opportunities to fire are stimulants to gun crews, and are included in the same category as Camp Shows and Service Club dances as morale builders.

The major part of the construction of temporary barracks was performed by the men of this command in addition to their regular duty, during off duty time.

Since our last news letter, Camp Pendleton has, in effect become a replacement center and staging area. Training activities of Coast Artillery units stationed there have been curtailed. Old organizations have been replaced by new units in process of organization, some of which have also been sent to other stations as rapidly as they could be formed and equipped.

One new regiment at Pendleton is commanded by Colonel C. D. Hindle, CAC.

Throughout the Sector, many schools have been organized, mostly on a regimental basis, and conducted on a variety of essential subjects.

Chemical Warfare Schools are in progress continuously and upon completion of the school, the officers who are graduated will be capable of performing the duties of regimental or battalion Gas Officers, while the enlisted men who earn certificates will be eligible for assignment as regimental, battalion or battery Gas Noncommissioned officers.

Another school is being conducted at Fort Story to afford seacoast artillery officers a better knowledge of emergency fire control. The courses offered are: aerial fire control, aerial spotting, and emergency one-station fire control.

In addition to the various schools being conducted, a series of orientation lectures of fifty minutes each, is being given at Fort Monroe, Fort Story, and Camp Pendleton to acquaint the men of the post with the world situation and events of the last several years which led up to it. Each lecture is repeated two or three times and as many men attend as are permitted by their duties and assignments.

A considerable number of improvements throughout the sector have been evident in the past few weeks. Uniforms have been standardized, including the head wear; there are more men in training and fewer in the guardhouse than formerly; the general appearance of all guns, plotting rooms, and matériel has taken on a very polished and live glow, and there is a look of purposeful readiness evident throughout. The morale of the personnel is in keeping with the condition of their equipment and that which goes to make up an effective fighting force. With this has come the atmosphere of a challenge to be ever alert and ready to defend this area against a surprise attack. Rigid tactical and administrative inspections by the Commanding General and members of his staff have done much to develop this fine bulwark of coastal defense to its present formidable status.

Whole hearted support of defense preparations in the Sector has not been confined to the male members of the command alone. Brigadier General R. L. Tilton requested 2,500 knitted "beanies" (skull caps) for soldiers on 24-hour alert in the freezing January weather. Immediately the Fort Monroe chapter of the American Red Cross swung into action, and accomplished the emergency request in record time. In this splendid local effort they were aided by many women, girls, clubs, and associations of the surrounding community. This "head and heartwarming" job was completed in addition to all of their regular work and quotas.

Camp Callan

BRIGADIER GENERAL F. P. HARDAWAY, *Commanding*

By Captain W. J. Hauser

Camp Callan completed, on March 6, 1942, one year of training. During this first year of existence, some 25,000 men have received their basic instruction in preparation for duties with Coast Artillery installations and organizations. Although the first Regular Army enlisted men arrived for the raising of the flag on a temporary flag pole February 15, 1941—Organization Day was officially set as March 6, which marked the arrival of the first trainees.

Before the Camp was completely activated for the first training cycle, the first War Department Theater was opened on March 28. Just after complete activation the first military review was held in honor of Major General Joseph A. Green, the Chief of Coast Artillery. This visit of Major General Green occurred on April 2, 1941.

Friday, April 4 marked the date of the initial appearance of Camp Callan's seven column standard size weekly newspaper, *The Range Finder*. On the 14th the senior hostess, Mrs. Helen Bennett Priest, arrived to assume her duties at the Service Club, and before the end of the month, the first of the weekly battalion dances was held in the service club (April 25).

May 7 at Camp Callan marked the arrival of the Coast Artillery Replacement Training Center Band which was one of three such bands trained by Leopold Stokowski. I Am An American Day was celebrated with appropriate ceremonies on the 17th of May followed on the 20th by the initial weekly radio broadcast by Camp Callan over radio station KFSD, San Diego, California. Towards the end of May, the 155-mm. guns were first fired from the bluffs overlooking the Pacific Ocean.

June events started out on the third with the initial 3-inch antiaircraft firing. On the 10th Bob Hope and his radio troupe put on a national hook-up broadcast and outdoor show for the personnel of the camp. The second week of June marked the departure of the trainees who had completed the first cycle of training at the newly constructed installation. This was soon followed by reactivation of units by trainees of the second training cycle. June also marked the graduation of the first students of the Enlisted Specialist School and the preparation by the School Staff of a bigger and more extensive school for the larger student body. On June 27 the Camp enjoyed the treat of many Hollywood celebrities when Kay Kyser, Marlene Dietrich, Kay Francis, Carole Landis, Ginny Simms and many other screen and radio stars put on a show and entertainment at the camp.

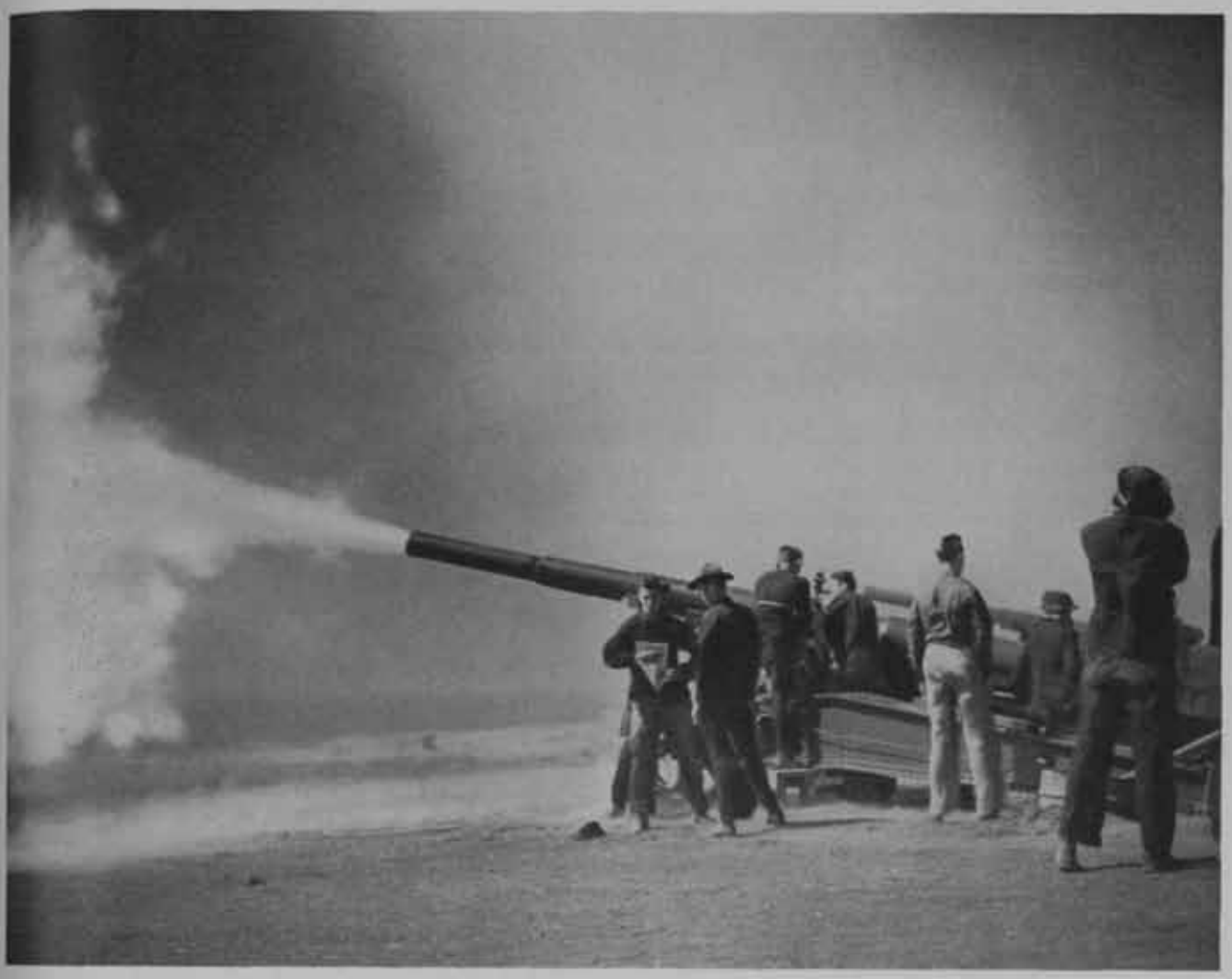
The pleasant evenings of July brought about outdoor night athletic contests, such as the first boxing show on the 14th. A few days later all organizations participated in the first track meet on the 19th of July.

The early trainees can't forget August, 1941, when Congress passed the bill extending the time of the Selective Service men. During August the obstacle course construction began and hard surfacing of roads in Camp and the battalion Areas was started. The La Jolla Rough Water Swim attracted many Callanites on August 17th. On the 23rd the first chapel was completed and dedicated with appropriate ceremony and many high local citizens joined with Camp Callan officers and men in these services. To complete the month of August, the local USO temporary Club House in the neighboring Community of La Jolla was opened.

September marked the completion of the second training cycle and the start of reactivation for the third. Rudy Vallee and his troupers of radio and stage fame visited Camp Callan on the 2nd and entertained with a most enjoyable show. The twenty-eight-year-old releases to the Enlisted Reserve began on the 10th and these men, numbering about 1,000, were rapidly transferred out at the rate of twenty-five to forty per day. On September 20 the third big Hollywood show troupe entertained the officers and men of Callan.

In October War Department plans for Camp Callan expansion to accommodate about fifty per cent increase in strength were made public. On Halloween the citizens of La Jolla planned and held a street dance for the soldiers from camp.

On Armistice Day the Camp Callan Band, men, and equipment led the parade in La Jolla when the citizens were hosts to the Army, Navy and Marine Corps for the



Camp Callan: First time with the 155's

day. A barbecue and rodeo were scheduled to follow the parade, and the Armistice Ball was held in the evening. Thanksgiving day San Diego citizens threw open the doors of the San Diego USO Club. Before the end of November the War Department plans for liberal Christmas furloughs were announced, followed by plans of enlisted men to go home for the holidays.

The one unforgettable date of all Americans, December 7, and Pearl Harbor caused the cancellation of many plans and the immediate formation of new and different ones. On December 2, Camp Callan staged a mammoth outdoor night parade under a canopy of Callan searchlights. Now on a War footing, furloughs and passes were cancelled. Troops were ordered transferred to permanent organizations to fill vacancies, created in many cases by the release of the twenty-eight-year-old men. New trainees were immediately sent in for the ensuing shortened training cycle. Christmas and New Year's Eve were spent quietly by camp personnel in performance of their duties as on any other day in the calendar.

January announcements relative to expansion of Officer Candidate Schools brought new higher quotas and opportunities for qualified enlisted men. The War Department announced plans for increase in strength in the fifth training cycle.

In February Bob Hope and his radio troupe again visited Camp Callan, providing entertainment for the fourth cycle troops who started to depart later in the month. Major General Walter K. Wilson, commanding the Southern California Sector of the Western Defense Command visited the Camp at the close of the fourth cycle and reviewed the troops in the first all-camp ceremony since the nation's entry into the war.

To end the first year of Camp Callan's existence as a Coast Artillery Replacement Training Center, Brigadier General Dale D. Hinman from the Office of the Chief of Coast Artillery paid the camp an official visit the first few days of March, 1942.

Starting the second year of its existence, the Camp Callan Coast Artillery Replacement Training Center became the Antiaircraft Replacement Training Center, Camp Callan, on March 9, 1942. With this new designation the Training Center will function directly under Major General Joseph A. Green, Commanding General of the Antiaircraft Command.

Ninth Coast Artillery District

BRIGADIER GENERAL E. A. STOCKTON, JR., *Commanding*

The events of December 7, 1941, with the consequent increase in activities within all Harbor Defenses in this district, have so far over-shadowed any of the prosaic happenings of the days prior to this memorable date that all thoughts of compiling information from previously submitted News Letters sent in by Harbor Defenses have been discarded.

Since December 7th there has been little change in the personnel within the Harbor Defenses, except that units have been augmented by additional enlisted strength in order that all important project armament can be manned.

The Ninth Coast Artillery District Headquarters has, however, been affected to a marked degree in a change of personnel. Major General Walter K. Wilson has been relieved from command of the district and is now commanding the Third Army Corps, and Brigadier General E. A. Stockton, Jr., is now District Commander.

Sector and subsector headquarters have been activated. Headquarters, Ninth Coast Artillery District, is continuing to handle all matters having to do with Harbor Defense Projects, Modernization Program, etc., and the personnel of the District likewise constitute the Harbor Defense Section of Headquarters, Western Defense Command.

Needless to say, all of the Harbor Defenses on the West Coast are operating on a complete war basis, and it has been a source of never ending gratification to note that this transition has been made with a minimum of confusion.

Enemy submarine activities against friendly shipping in the coastal waters adjacent to the West Coast have been of sufficient magnitude to keep all of the Harbor Defenses very much on the alert. As was to be expected, for the first week after the outbreak of war a constant flow of messages filtered through to Harbor Defense Headquarters, indicating activities far beyond that which actually later proved to be the case. The intelligence system now is operating much more smoothly and the evaluation of false or incorrect messages is being accomplished to the end that the presence of actual enemy vessels is being predicted with great accuracy. Enemy naval action against coast-wise shipping has been active in areas away from the Harbor Defenses themselves. Competition is keen however, and the officers and men of this command are anxiously awaiting their opportunity to sink enemy vessels.

SAN DIEGO

One of the toughest jobs a soldier has is to stand by his post when the guns and the planes and the ships are banging out a real war elsewhere. He'll do it, though, if he knows his job is important. With this in mind, a series of twenty-minute orientation lectures is under way. Conducting the lectures are Major L. E. Devlin and Lieutenant De Von Ellsworth. The course follows an outline planned by the War Department to acquaint soldiers with the background and current events of the present war, and to encourage original thought.

Through the efforts of Corporal Creamer, who was Carole Lombard's agent before he joined the Army, Miss Lombard gave to the men of Fort Rosecrans a public address system. The first words broadcast over the new system were in tribute to the warm-hearted and widely beloved actress.

On the "Morale Front": vaudeville, sponsored by the WPA, the Globe Theatre's production of *Springtime for Henry*, sponsored by the San Diego Community Theatre players; the USO unit's initiation of reduced rates to public concerts; and the Amphion Club's arrangements for service men to be admitted to its concerts for the tax only are but a few of the sources for recreation available to service men in Fort Rosecrans.

Within the past few weeks hundreds of books have been donated to the Fort Rosecran's library. Colonel W. W. K. Hamilton, U. S. A., Retired, of San Diego, sent a truck-load of 200 books, hand-picked from the library he has been collecting during his long Army career. Many of these volumes are of particular interest at this time, since they concern the geography, racial characteristics and customs relating to the Pacific Theatre of War.

LOS ANGELES

The night of December 7 found Fort MacArthur in complete blackout. For a solid week every soldier on the post slept with his boots on. Working by shielded candle-light, the public relations office launched an appropriately named 8-page weekly tabloid newspaper, *The Alert*, which has since gained the enviable reputation among other camp newspapers as a true spokesman of the enlisted men.

Always anxious to help the deserving, Hollywood has organized a Voluntary Army Canteen Service which has taken over the Battery D mess hall on the topside reservation, furnishing it like an elegant night club and serving free coffee and doughnuts from 11 AM to 11 PM to soldiers off duty. The canteen was quickly tabbed "The Soldiers' Ciro's" by the enlisted men being entertained there. It's now a common event for soldiers off duty to stop in and chat or play cards with Anita Louise, Sally Eilers, Lana Turner or any of many other cinema stars.

Fort Eustis

BRIGADIER GENERAL FORREST E. WILLIFORD, *Commanding*

By Lieutenant Peter D. Gomsak

With the shortening of the basic training period from thirteen to eight weeks and the increased need for men trained in the more technical branches of Coast Artillery, new and better facilities for this type of work have been secured and schools are now operating at full blast.

At the same time the enlisted personnel of the Fort has become Officer Candidate School-minded and the business of selecting officer material is increasing at a rapid rate. One hundred thirty men have already been ordered to Coast Artillery, Infantry, Quartermaster, Armored Forces, Ordnance, Medical, Administration and Chemical Warfare Officer Candidate Schools where they are now undergoing intensive training for their commissions, while many others are hopefully looking forward to receiving their orders in the very near future.

Going back to the schools, more than a dozen of these are now operating with high efficiency and turning out hundreds of well-trained specialists every eight weeks. Each school is operating on a four weeks schedule and takes up an important part of the special student's training periods.

Included among these schools are Automotive Mechanics, Bakers, Buglers, Clerical, Cooks and Mess Sergeants, Meteorology, Observers (Height Finders), Observers (Seacoast), Radio, Telephone, General Mechanics, Special Training, and others.

A two-weeks- tractor school has been conducted for fifty officers and enlisted men, which trained personnel from this post and nearby stations. Civilian instructors were Mr. Adrian M. Warner in charge, assisted by Mr. V. L. Stater, both of whom had been loaned by the International Harvester Company.

The Meteorology School, under the direction of Lieutenant A. E. Bigelow, is one of the more difficult from a technical standpoint, and usually requires a college man. A large part of these students have majored in either Engineering or Chemistry during their university training. Men who have been trained, or are being turned out by this school have come from universities all over the nation, from the University of Colorado to Dartmouth College, and from Yale to Georgia Tech.

Blackouts are taking place quite often, the latest coming at one o'clock in the morning.

Men working in the messenger service here are helping conserve gasoline and rubber, and at the same time are getting themselves in good condition. Heretofore they have been operating jeeps and other four-wheeled vehicles to transport themselves back and forth over the post. But now twenty-five new bicycles have been issued and they're scooting about the Fort under their own power, conserving much-needed gasoline and rubber, and building powerful muscles at the same time. More bicycles may be issued later if this innovation proves successful.

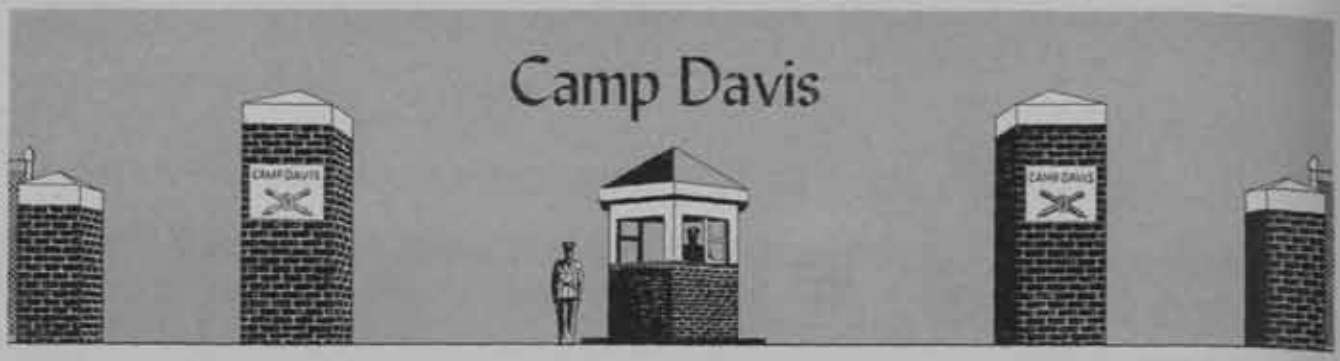
Firing practice on the 155-mm. guns recently has been decidedly successful. Using case III firing, one battery pierced the target with a double hit. Radio communication was used to the base end station instead of telephone communication.

Officers from the first five corps areas have been sent here in a steady stream recently to join the Officers Pool. They are oriented in their duties, and then sent on to other posts, which has created a fast turnover among the officer personnel of the Fort.

Slides are being made by different departments to illustrate orientation lectures for both the officers and enlisted personnel here. The slides are made of maps, charts, and other phases of army training, and have proved very helpful in bringing out special points in the orientation lectures.

Extensive bayonet drill has continued in the training schedule and the boys are quite serious about their work.

Anemometer and wind-vane at Meteorology School, Fort Eustis



MAJOR GENERAL FREDERIC H. SMITH, *Commanding*

By Lieutenant L. B. Wantuck

Camp Davis, a proud camp anyway, was especially proud of the Barrage Balloon Training Center. The balloons were different and often made visitors wonder whether they were seeing "gray elephants" in the sky. Well, the B.B.T.C. is gone. It's at a new base in Tennessee. Everyone, naturally, was sorry to see the balloonists leave Camp Davis; they were here nine months and had become part of the family. But the War Department has arranged things so that Davis personnel can still point proudly to a unique distinction. The newest "one and only" is the Coast Artillery Officer Candidate School transferred here from Fort Monroe.

There is a reminder of the days of the B.B.T.C., in the person of Colonel Harold R. Jackson, commanding officer of the school. Colonel Jackson formerly served as assistant commandant of the Barrage Balloon School, which was a part of the training center. Organization of the Officer Candidate School* at Camp Davis began in earnest February 16 with the arrival from Fort Monroe of the advance party of sixteen officers and seventy-two enlisted men who set about the task of preparing for the arrival of the first students on February 24. The Officer Candidate School and the school regiment have three regimental areas at their disposal, and the school eventually will have a total enrollment of 3,200 students seeking commissions as second lieutenants. Counting students, school troops and overhead personnel, the O.C.S. will number approximately 5,000 officers and men.

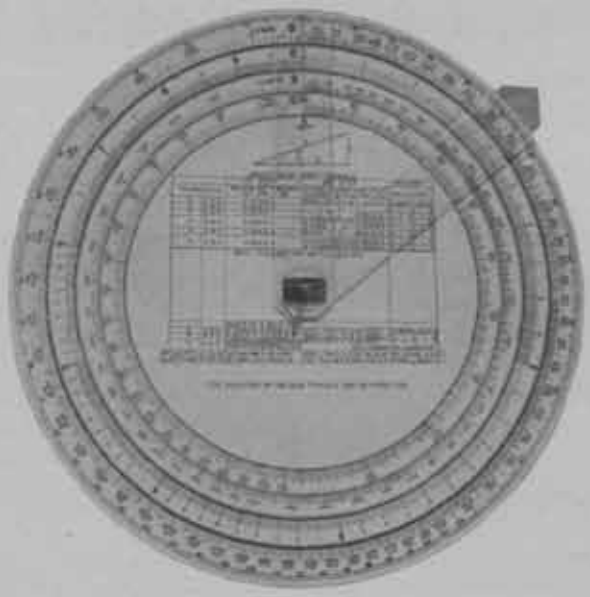
Training activities of other units at Camp Davis continue to increase in tempo, the soldiers obviously realizing to the fullest extent that the blue chips are on the table, that they may be called upon at any time to play an important part in actual combat. The searchlight units are putting on some spectacular displays these evenings and the target plane pilots report that the searchlight crews are turning in some neat performances. The crews camouflage their positions and dig fox holes; carry rifles and wear gas masks; reconnoiter; fend off simulated mechanized paratroop attacks, and develop versatility in a dozen other ways. The commanding officers are placing emphasis on the necessity for physical fitness by means of athletics and games, and the batteries have been going out in the field as part of the "toughening up" process. In daytime the men are occupied with infantry drill, searchlight maneuvering, and classes in identification of aircraft.

Camp Davis troops are making good use of Farnsworth Hall, new sports arena. Two regimental teams for example started the basket ball season with a combined total of eighteen victories without defeat, taking the measure of several colleges and outstanding independent teams. In a memorandum sent to all units, Major General F. H. Smith urged regiments, separate battalions and the station complement to organize teams in various sports. Use of government vehicles has been authorized to transport athletic teams to games away from the post, and the commanding general suggested that, whenever possible, Camp Davis teams schedule contests with civilian aggregations. Baseball, football and basket ball have been the major sports at Davis. Although there was a post team in baseball and football, the althletic department did not form a basket ball squad from all the units, feeling that the spirit of competition in camp would be keenest if each regiment had a team. As it turned out, some of the regimental outfits were able to defeat visiting post teams.

Two new U.S.O. buildings have been opened in nearby Wilmington since our last news letter.

Searchlight drill at Camp Davis

*Since this article was written, the Officer Candidate School has been split into two sections. The Coast Artillery section of the School has returned to Fort Monroe, and the AA section remains at Camp Davis as the "Officer Candidate Division, Antiaircraft Artillery School."



The Coast Artillery School

BRIGADIER GENERAL LAWRENCE B. WEEKS, *Commandant*

The war tempo of the School continues. Since our last letter, three Refresher Courses, comprising Groups XLI, XLII, and XLIII, have begun work. Groups XLI and XLII are the last of the ten-week refresher courses as known to the thousands of graduates of those courses. The course for Group XLIII will be a seven-week course with one week of instruction in Tactics, five weeks in Seacoast Gunnery, and one week in Seacoast Firing. This type of course will replace the refresher courses of the Officers' Division, and future courses in Automatic Weapons and Antiaircraft Searchlight will each be of six weeks duration, and the course in Antiaircraft Gunnery will last seven weeks. These courses will specialize in their particular phase of the work, whereas the refresher courses covered the general field of antiaircraft or seacoast artillery.

Groups XXXIV through XXXIX have graduated a total of 353 officers, about one-fourth being in Seacoast Artillery, and the remainder in Antiaircraft Artillery.

On January 31, the second Field Officers' Course drew to a close, fifteen officers completing the Seacoast Section. A third section, in Antiaircraft Artillery started on February 7.

Also in the Officers' Division a Stereoscopic Height Finder Group graduated and another entered. Another group has entered the Submarine Mine Course.

On January 10, the first Artillery Engineer Course was inaugurated with Major William L. McNamee as instructor.

Lieutenant Francisco Llerena y Sabio, of the Cuban Army, graduated from the Seacoast Course on January 17. Lieutenant Llerena had previously graduated from an Antiaircraft Course.

In the Enlisted Division, 365 men have graduated from the Electrical, Radio Communications, Truckmasters and Mechanics, Master Gunners, and Stereoscopic Oberservers courses.

The Officer Candidate Course has outgrown the facilities of the Coast Artillery School, so its Antiaircraft Section has moved to Camp Davis, North Carolina, and has become a school in its own right, the Officer Candidate Division of the Antiaircraft Artillery School at that post. The Commandant of the school is Colonel Harold R. Jackson, C.A.C.

The Assistant Commandant is Lieutenant Colonel John H. Madison, and the Executive is Lieutenant Colonel Herbert T. Benz, both of whom have been with the Officer Candidate Course since its inception last July. Lieutenant Colonel Paul W. Cole is the Secretary of the school and Lieutenant Colonel Wilmer B. Merritt its Director of Instruction. All these officers had previously been on the Staff and Faculty of the Coast Artillery School.

Majors Arthur H. Bender, Richard F. Connery, Frederick E. Day, David F. Sellards, Jr., and William J. Wuest, of the Coast Artillery School, have moved to Camp Davis and become members of the Staff and Faculty of the Officer Candidate Division of the Antiaircraft Artillery School.

In addition to loss of officer personnel due to the above move, the School has suffered loss from another source; that of promotion of many of the ranking officers and their assignment to tactical duties.

On February 18, Colonel Lawrence B. Weeks, Commandant, was promoted to the rank of brigadier general.

New England Sector

MAJOR GENERAL THOMAS A. TERRY, *Commanding*

By Major Leigh M. Nisbet

What may be said of one Subsector in the New England Sector may be said of all, for each Harbor Defense has effected its transition from a peace-time to a war-time basis with a minimum of confusion and loss of efficiency. The reported presence of enemy submarines along the Atlantic seaboard has served to put all units on their toes and constant alertness is evident on the part of every individual.

Mobile seacoast batteries from the several Harbor Defenses along this coast have moved into positions to guard strategic points and antiaircraft artillery has been placed near vital industrial centers.

To date, the New England winter has been relatively mild and this has contributed to more effective handling of personnel and matériel needed for the defense of these coasts. Hutments have been built or are being built near positions and all troops are equipped with heavy winter clothing.

Since Pearl Harbor, the interest of the civilan population in the Army has noticeably increased and isolated detachments as well as posts report that adjacent communities are doing everything possible to provide recreation and to open their facilities for the use of the men stationed nearby.

Sickness is at a minimum among the coast defense troops in New England. This may be attributed in great part to the rigorous outdoor training program which keeps all commands in an excellent state of health.

While there is much work to be done in attaining the highest possible state of efficiency in each unit, it is felt, nevertheless, that the Harbor Defense groups of the New England Sector have improved greatly since the outbreak of war in December, and if called upon to go into action in defense of the Sector, will give an excellent account of themselves. Morale is very high and the men ask nothing more than an opportunity to demonstrate their combat efficiency.

"The firmness requisite for the real business of fighting" (George Washington) said, "is only to be attained by a constant course of discipline and service." May we never ignore that warning again.—HON ROBERT P. PATTERSON.

The JOURNAL can supply any book in print, at the usual Association discount.

Today's War

Under the Waves

THE WAR AT SEA. By Gilbert Cant. New York: The John Day Company, 1942. 332 Pages; Appendices; Index; Illustrated. $3.00.

Gilbert Cant is naval expert for the *New York Post*, and seemingly has sources of information not open to most of us, who get our news from the public prints. This book is a resume of the naval actions in the present World War, up to and including the attack on Pearl Harbor.

The book was written before the Roberts Commission report was released, and some of the author's conclusions are at a variance with the published portions of the Roberts findings. His attitude toward the American military services is not uniformly favorable.

A large part of the material in the book has been covered in the daily newspapers, but Mr. Cant has been able to present new angles and later developments that make rereading of the naval actions most instructive. The integrated story of the actions in the Mediterranean is particularly valuable—it is hard for the average reader to understand the complete picture from the fragmentary reports that have come from time to time. The speculations on the "now you see it now you don't" actions of the Italian fleet sound logical—Mussolini at first kept his fleet in hiding as a trump card for use at the peace table, and later was forced to use it in an attempt to save the situation in Africa.

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DEFENSE WILL NOT WIN THE WAR. By Lieutenant Colonel W. F. Kernan. Boston: Little Brown and Company, 1942. 193 Pages; $1.50.

An exposition of the proverbial international attitude of democracies. Their wish to live in peace with a main desire to better the economic standard of their people finds the inertia of peace-time ease carried over into the opening phases of war. The author takes a keen thrust at many of our hitherto accepted doctrines, stemming from the famous, "Millions for Defense," which many would have the country believe to be adequate provision for the preservation of our nation. Whatever the "military action" concept of our body politic may be as a democratic nation in time of peace —as far as the United States Army is concerned every service school has always stressed the offensive as the one means of attaining a victorious conclusion to military effort. The doctrine of the offensive is one of our Army's fundamental dogmas.

An extremely readable book, it holds your interest throughout and when you have finished you remember the admonition, "Think on these things."

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SEA POWER IN CONFLICT. By Paul Schubert. New York: Coward-McCann, Inc., 1942. 247 Pages; Index. $2.50.

In these days of broad statements and partisan arguments about the relative values of sea power, air power, and land armies, it is refreshing to read a measured, conservative estimate of the situation by a writer well-qualified to write of navies and their effect on the international situation.

Paul Schubert, former naval officer, writer, and radio commentator, gives us an interpretation of sea power that seems logical. He describes air power as a necessary adjunct of sea power, rather than a replacement for it; and draws the distinction between a navy of sea power and a navy of squadrons. He takes the actions at Dunkerque, Oran, Otranto, and Pearl Harbor, and explains them not as individual actions, but as part of a pattern.

To Mr. Schubert, the Japanese navy and the Japanese nation are sadly deficient in the sense of long-range timing that wins wars; they are experts at winning battles. Our own navy, on the other hand, is well-balanced and superbly manned and trained; with the results of our productive capacity and our naval philosophy utilized to the utmost, there can be no long-range defeat.

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Retreat in the Balkans

FROM THE LAND OF SILENT PEOPLE. By Robert St. John. New York: Doubleday, Doran & Company, 1942. 353 Pages. $3.00.

Robert St. John is one of our more famous foreign correspondents. This book is the story of his flight from the Axis war machine; it opens in Belgrade and closes in Cairo. The adventures the author and his fellow newspapermen encountered during the long flight would provide material for several novels.

METEOROLOGY

Weather

By WILLIAM H. WENSTROM. 1942. 476 Pages. $4.50.

A grand book for the layman who wants to know the background of the weather, and for the serious student who is just starting meteorology. Complete, with charts and pictures, as well as full information on weather instruments.

Synoptic and Aeronautical Meteorology

By HORACE R. BYERS, U. S. Weather Bureau. 1937. 279 Pages. $3.50.

This book is intended for advanced airplane pilots and meteorologists who wish to familiarize themselves with the methods of air-mass analysis being generally adopted by airways and meteorological services.

Dynamic Meteorology

By BERNHARD HAURWITZ, Massachusetts Institute of Technology. 1941. 365 Pages. $4.00.

Provides a concise treatment of the laws of thermodynamics and dynamics that hold in the atmosphere. Discusses fundamental principles and theories underlying modern method of air-mass analysis, isentropic and frontal analysis. Contains a simplified treatment of the wave theory of cyclones.

Introduction to Meteorology

By SVERRE PETTERSSEN, Massachusetts Institute of Technology. 1941. 230 Pages. $2.50.

Discusses in an elementary way the basic principles of meteorology. Gives special attention to recent advances in weather analysis and forecasting; particularly to modern methods for frontal and air-mass analysis.

Weather Analysis and Forecasting

By SVERRE PETTERSSEN. 1940. 505 Pages. $5.00.

Unique in scope, this new book presents a complete, authoritative treatment of modern methods of weather analysis and forecasting. It discusses in detail the underlying theories and their application to weather charts and upper air charts and offers numerous examples of correct analyses and forecasts.

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St. John writes vividly; perhaps too vividly. A certain amount of restraint is necessary to good writing, but the author is so intent upon painting the picture he saw that at times he becomes almost hysterically insistent that the reader understand the facts as he saw them, and then agree with the conclusions he draws. It is not hard to see why he writes as he does: Robert St. John lived through experiences and horrors that do not often come to American noncombatants, and he tries sincerely to describe what has happened to him and to the Balkan nations.

The author is at his best when he explains why the Balkan nations and the Balkan peoples act and react as they do. His descriptions of what it feels like to be on the receiving end of an attack from a stronger enemy will be remembered long after the rest of the book is forgotten. His pen-picture of Mike, a gnarled old Serb who aided his escape in a small fishing boat, brings a catch to the throat. But even in spite of the author's desire to awaken America to what war means, the more emotional material in the book that does not bear directly on the story detracts from the general tone.

Still, the book is well worth reading on several counts: it portrays the Balkans in understandable fashion, it tells a few things about war that are new to most of us, and it is exciting fare for the reader who is tiring of dry economic and political treatises.

A Prophet With Honor

THE GREAT PACIFIC WAR. By Hector C. Bywater. Boston: Houghton Mifflin Company, 1942. 321 Pages. $2.50.

This book was published first in 1925, when very few Americans gave a moment's thought to war with Japan. Hector Bywater, naval expert for the London *Daily Telegraph*, not only thought of the possibility—he wrote a book about it.

Hector Bywater's American-Jap war started in 1931 because Japan felt American penetration was loosening Japan's monopoly in China, and Japan's fanatical leaders wanted to head off internal disturbances by means of the obvious diversion of a foreign war. The imaginary war started with no Kurusu-camouflage attack on Pearl Harbor, but with the explosion of a Japanese freighter in the Panama Canal—while diplomatic negotiations were still in process.

Bywater knew his tactics and his fleets. He also knew how to describe a war. Aside from the author's prevision of diplomacy and strategy, the book is an exciting account of of both naval and land warfare that loses none of its interest because it was written of an imaginary war. And imaginary or not—the parallels between Hector Bywater's war and the real war will cause the reader to pause to remember which war he is reading about.

A Better Prophet

THE VALOR OF IGNORANCE. By Homer Lea. New York: Harper and Brothers, 1942. 344 Pages; Illustrated. $2.50.

Since the Jap attack on December 7, there has been an epidemic of reprints of books about the Japanese menace, written years before the present war. This book, first pub-

lished in 1909, is almost uncanny in its predictions. The reader is led to believe that if Homer Lea had known about air power, the parallel would have been perfect.

Lea foretold even the landing on Lingayen Gulf; his predictions of the helplessness of our West Coast will prove less accurate due to our recent opportunities for preparedness there, and to our strides in air power.

Lea, the American who became a lieutenant general in the armies of Sun Yat Sen, and military consultant to other foreign governments including England, had the knack of writing forcefully as well as solidly. Some of the gems follow:

"The modern American's conception of military efficiency is but a succession of heroics culminating in victory.

"To believe that the scatter-gun marksmanship of civil life is a factor in warfare is not other than a yellow-flamed *ignis fatuus*, starting up out of the Dismal Swamp of ignorance and national vanity.

"The most promiscuous murderer in the world is an ignorant military officer. He slaughters his men by bullets, by disease, by neglect; he starves them, he makes cowards of them and deserters and criminals. The dead are hecatombs of his ignorance; the survivors, melancholy spectres of his incompetence.

"The coast artillery is one of the most highly specialized corps in the army, and requires men of superior intelligence and training. To fill their ranks with civilians recruited after a war is begun would be the same as detailing a salesman to make a topographical survey, or a tinsmith to complete a work of electrical engineering."

Reading this book for the lessons it teaches would be a waste of time—we are learning those very lessons in a harder school, in a school where the spankings leave permanent scars. We are already committed to a term in that school. However, *The Valor of Ignorance* belongs in the personal library of any thinking officer who has often wondered how to say the things he felt, but had not the facility of language to say them. Homer Lea says them, says them with salty phraseology that should have attracted attention thirty-three years ago. In peace or war, army officers should be salesmen spreading the word about preparedness—*The Valor of Ignorance* would make a fine salesman's manual.

* * *

DEADLINE. By Pierre Lazareff. New York: Random House, 1942. 359 Pages; Index. $3.00.

A top-notch Paris newspaper man, the editor of *Paris-Soir*, was in an excellent position to observe the rottenness and the corruption that prepared the way for the fall of France. Pierre Lazareff moved in the highest circles (or the lowest, if you prefer) of people who through lust for power, dishonesty, graft, or ignorance, made their great nation a hollow shell, ripe for puncture and disintegration. As a writer, Lazareff has a facility of expression that wastes no words, and strives for no emotional effect. The reporting, rather than any descriptive passages, provides the depressed feeling that grips the reader.

For once we have a writer on this much-worried subject who does not blame the fall of France on the French army, or upon British diplomacy. He places the blame on venal politicians, on their mistresses and their selfish ambitions, and on the venality of the French newspapers which had descended from their true function to the level of cam-

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paign handouts, working for the highest bidder. It was France's misfortune that the highest bidder was usually Germany—Hitler's Germany.

This book is not pretty reading; its perusal is much like viewing the obscene death of some one of whom we once thought highly. However, there is many an apt lesson here for study of what happens to a disunited democracy.

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Military Sidelights

Meteorology

WEATHER. By William H. Wenstrom. Boston: Houghton Mifflin Company, 1942. 476 Pages; Index; Illustrated.

Occasionally we find a book that makes interesting reading for the layman, that is a competent text for the serious student, and that is able to strike a happy balance between those two functions. This is that sort of book. Major Wenstrom, former meteorological officer at Bolling Field and other stations, has done a superb job of explaining a science that is unfamiliar to most of us—and he has done it without "writing down" to the uninitiated.

Charts, pictures, patient explanations and personal anecdotes form a readily understandable and militarily valuable book. The first part of the book explains the different weather characteristics and influences, and describes the composition and operation of weather instruments. The second part of the volume takes in meteorology and forecasting for farmers, flyers, mariners and soldiers.

Since the Coast Artillery Corps took over barrage balloon functions, the Journal has had many requests for books on meteorology, many of which we could not fill because we knew of no complete text. This is it.

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The Last Thing

THE FOURTH HORSEMAN. By Lieutenant Colonel J. H. Doherty. Harrisburg: The Military Service Publishing Company, 1942. 82 Pages; Index. $1.00.

The title page of this booklet carries the line, "Death is not the worst thing that can happen to you; it's just the last thing that occurs to you." This is just another way of phrasing a trite idea, but trite or not, it is still true.

The Fourth Horseman is a handbook for heirs, and for those who expect to have heirs. Many destitute widows, many expensive and wordy court battles, and much suffering might have been avoided if a book of this sort had been available to service officers in the past. Colonel Doherty has done something about the things most writers on the subject only talk about—he has given us the forms for the papers and records that will save our survivors much research when we die.

The first part of the book is a discussion of the rights, privileges, and duties both of the officer and his family. That much has appeared in other books. But the larger part of *The Fourth Horseman* has space and forms for all manner of records that will save the soldier during his life and his family after his death, days of research and months of delay in ordering his affairs. There will be *two* copies of

this book in the reviewer's family—one for him and one for his wife.

We are at war, and the probabilities of death no longer can be abstracted from the actuaries' tables. The least any of us can do is have our affairs in order. This is the greatest single aid for that purpose we have seen.

Keeping Up to Date

OFFICER'S GUIDE: 7TH EDITION. Harrisburg: The Military Service Publishing Company, 1942. 474 Pages; Index; Illustrated. $2.50.

COMPANY ADMINISTRATION AND PERSONNEL RECORDS: 11TH EDITION. By Major C. M. Virtue. Harrisburg: The Military Service Publishing Company, 1942. 394 Pages; Index; Illustrated. Paper: $1.50; Cloth: $2.00.

New editions of both of these military best sellers are just off the press. Both books have been revised, rewritten in portions, and generally brought up to date. The books were revised with wartime conditions in mind. It is hard to understand how any officer, more particularly those from the civilian components, can get along without these two valuable basic books. Every officer of company grade should have a late edition of both books with him constantly.

"Welcoming" the Nazis

THE HOME GUARD TRAINING MANUAL. Edited by John Langdon-Davies. Brooklyn: Chemical Publishing Co., Inc., 1942. 169 Pages; Illustrated; Index. $2.50.

The British take their Home Guards seriously, and believe that this force will take a great part in stopping the Nazis if, and when, a landing is made. The object of the Home Guard, its relation to other military forces, its weapons, and its tactics are explained in this text.

The section on rifle shooting is particularly interesting because the author of the section, Lieutenant Colonel J. A. Barlow of the West York Regiment, offers advice counter to the methods taught in our army for years. In short, Colonel Barlow does not believe in the trigger squeeze, insisting that rigid holding is more important, and faster. His recommendations for the prone position, too, are somewhat different.

The chapters on night operations and training, road blocks, and village fighting might well be studied by any officer or soldier.

T-Square and Triangle

TECHNICAL DRAWING: SECOND EDITION. By Frederick E. Giesecke, Alva Mitchell, and Henry Cecil Spencer. New York: The Macmillan Company, 1942. 687 Pages; Appendices; Index. $4.00.

An invaluable text for the engineering student and an excellent reference volume for the technical draftsman and practicing engineer. From the first chapters which present the use of standard drafting equipment and materials to the appendices which give tables of design standards and symbols, *Technical Drawing* logically develops the subject.

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The new chapters, illustrations, and problems added in the second edition of *Technical Drawing* have made it even more valuable to the draftsman or engineer who is getting back into practice to answer the need created by the war effort speed-up in development and production.

Building for Bombs

WARTIME BUILDING CONSTRUCTION. Reprinted by permission of the Controller of His Britannic Majesty's Stationery Office. Brooklyn: The Chemical Publishing Company, Inc., 1942. 151 Pages; Illustrated. $4.00.

The experiences of the British in war-time construction are condensed into this manual. Fire protection, use of other than critical materials, and other wartime procedures and considerations are stressed. Temporary office buildings, single story buildings for troop and other housing, and temporary hospitals have been given prominent part in the text.

The book is well-illustrated.

Information, Please

THE ARMY OFFICER'S MANUAL. By A. C. M. Azoy. New York: D. Appleton-Century Company, 1942. 366 Pages; Illustrated; Index. $2.50.

Colonel Azoy, author of many JOURNAL articles, has compiled this manual primarily for the inexperienced officer who wants a quick and ready source of useful information. There is much that is of value in the book. Its handy, pocket size makes it easy to tuck away into a small corner of an officer's personal baggage.

A.D.C. to Zombie

ARMY TALK: THE LANGUAGE OF U. S. SOLDIERS. By Elbridge Colby. Princeton: The Princeton University Press, 1942. 232 Pages; Illustrated. $2.00.

Colonel Colby has done a bang-up job with a difficult subject. The lists of so-called Army slang which have appeared in civilian publications and military journals have no more relation to a work of this sort than a roller-skate resembles a prime mover.

The author has been careful to choose words for his book that are in general use in the army, and that have not been taken in from civil life without a change in meaning. Slang is the smallest part of the book—the author has concentrated on the words the army uses that have meanings peculiar to the army.

The meanings of the words, their history, and anecdotes about their use make good reading. Before entering the army in 1917 Colonel Colby was an instructor in rhetoric at the University of Minnesota, and he knows his language, both English and Army. *Army Talk* is recommended for any soldier's library, especially for the library of the citizen soldier who wants to be sure that he uses the right word in the right place.

Sub Stories

RENDEZVOUS. By Alec Hudson. New York: The MacMillan Company, 1942. 94 Pages. $1.50.

For several years Alec Hudson's stories have been appearing in national magazines of general circulation, and have created much favorable comment. Hudson (really Lieutenant W. J. Holmes, U.S.N.) has the gift of imparting the real flavor of the Navy without straining for effect.

Rendezvous is a collection of three of his stories. *Rendezvous*, the first one, is a tale of submarines refueling planes in a remote harbor, with the enemy providing complications to delight any sea-story fan. *Up Periscope!* takes the reader along on the short-lived cruise of an obsolete submarine being used by a foreign power during war-time. *North of Terschelling* is a story of submarine against submarine on the floor of a narrow sea. All three tales flow so smoothly that the suspense does not bother the reader until he tries to turn to something else.

The Army needs some writers as gifted as Alec Hudson to bring our stories of adventure before the public at large.

AA in Fiction

ATTACK ALARM. By Hammond Innes. New York: The MacMillan Company, 1942. 287 Pages. $2.50.

This is fiction—a novel of counter-fifth column activity by a private in an antiaircraft battery sited on an important English airdrome. It is an adventure-detective story that rings the bell for action, suspense and credibility.

The gunner, a newspaper reporter in civil life, with nothing to back him up but his suspicions and a fellow soldier with a knife, blocks a well-laid plot to land airborne troops on British airdromes, and thereby stops an invasion attempt in its first stages. Pure blood and thunder, the book is one that is hard to put down—it kept the reviewer up far past bedtime.

WAR AND NATIONAL POLICY: A SYLLABUS. Edited by Grayson Kirk and Richard Poate Stebbins. New York: Farrar and Rinehart, Inc., 1942. 131 Pages. $1.00.

An excellent source of references for the student or soldier who must perform research in broad military subjects. The book is laid out in logical chapter form, and the editors seem very familiar with the literature in the field.

HISTORY OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, 1891-1941. By Colonel Edgar Erskine Hume. Washington, Association of Military Surgeons, 1941. 354 Pages; Index; Illustrated. $2.00.

Older by one year than the COAST ARTILLERY JOURNAL, we believe the *Military Surgeon* is the oldest of the service journals. The fifty-year history of the Association of Military Surgeons first appeared last year as a supplementary issue of the *Military Surgeon*—now we have it beautifully bound, with added material.

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index to the important articles that have appeared in the magazine is particularly valuable. Other material includes abstracts of the more important articles that have appeared in the journal, as well as pictures and papers of many kinds from the various annual meetings of the Association.

Colonel Hume has done a thorough, painstaking job of collecting facts; the attractive presentation of these facts does credit both to Colonel Hume and his Association. Every member of the Association of Military Surgeons of the United States should be able to find an honored position in his library for this volume, and all military surgeons, whether or not members of the Association, should find much of value here.

* * *

Miscellany

Synthesizing Nationality

THE PHILIPPINES: A STUDY IN NATIONAL DEVELOPMENT. By Joseph Ralston Hayden. New York: Macmillan Company, 1942. 984 Pages; Illustrated; Appendices. $9.00.

The author, a professor of political science at the University of Michigan, and Vice-Governor of The Philippine Islands, 1933-35, has written a personalized history of the islands under the guidance of the United States. It is a story which sacrifices drama for thorough and accurate reporting of events. However, the book's timeliness will enhance its drama which, though not emphasized, is inherent. Professor Hayden authoritatively analyzes the background of the problem of Filipino nationhood, emphasizing the development achieved as a major experiment in political science.

Beginning with the people themselves as the basis for building a nation, he justifies their fitness for such a rôle. Next are stated the problems inherent in welding the inhabitants of the archipelago into a homogeneous unit through the process of political instruments. A detailed story of what took place, who the leading personalities were, and the impact of their temperaments and capabilities upon events follows. With scholarly thoroughness, the author analyzes the delineation which he has just portrayed both with reference to the original objective and with a forecast as to what this will mean in future national development.

Following the above-noted method of discussion, problems of government, political parties, the movement for independence, problems of education, language, and race are treated with painstaking detail. As a valuable adjunct to such a type of presentation, Professor Hayden interjects comparisons with American achievement in related fields as a convenient yardstick to the reader. On the whole, the impression of Filipino progress toward nationality is optimistic.

The voluminous size of "The Philippines" may deter some readers, though it should not. For those who have a speaking acquaintance with the islands, this book will make such acquaintance intimate. For those who expect a guide-book type, it may prove disappointing. More emphasis on geography and native peoples, which the author knows from personal experience, might have added to the volume. However, an understanding treatment of language

and racial problems, social and economic relations, the peculiar influence of Spanish tradition, and the excellent prognosis of the international position of the Philippines more than overshadow any omissions that may come to mind in other fields.

The world is witnessing today the results of American policy toward the Philippines. The United States not only promised autonomy to a struggling people, but advised and aided them spiritually and materially toward the achievement of self-government, and even set the date for it. America gave the Filipinos something to fight for. The results of this are now evident in the Far East. For those who would know how this policy, with all its problems and inherent difficulties, was advanced toward fruition, *The Philippines* holds the answers.

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Why War Is Total

WAR ECONOMICS. Edited by Emanuel Stein and Jules Backman. New York: Farrar and Rinehart, 1942. 443 Pages; Appendices. $3.00.

This book is a detailed discussion of how the nation, collectively and individually, is to produce guns and bullets, while insuring the continued supply of bread and butter in necessary quantities. Too few people understand the complexities of the economic supervision which government is called upon to provide, particularly in wartime. This book analyzes such supervision. Some fundamental grasp of economic principles will be necessary, however, in order for the reader to appreciate fully the wide field treated by the authors. However, the economic field, from problems of transition from peace to war; maximizing wartime production; labor problems, wages, and collective bargaining; war finance, the price problem, and general fiscal control; foreign trade control; transportation and public utilities; wartime housing and food control; the position of the consumer during war; business and finance under the U. S. Defense Program, 1940-41; and finally, post-war problems of Industrial Demobilization are all covered. The foregoing topics are treated by a group of economics experts of the faculties of New York University, University of California, and a member of the U. S. Department of Commerce.

Although certain phases of the problem may be somewhat advanced for the average reader, the sections relating to taxes, war finance, consumers in wartime, and the prognosis of post-war industrial problems should be of real interest to all those who wonder why John Q. Public must change his living habits during war. Above all, it should impress those who read it with the fact that is fast coming home: The complicated integration of our present economy makes this a total war whose impact no one can escape, either in prosecuting it or paying for it.

✓ ✓ ✓

CORDELL HULL: A BIOGRAPHY. By Harold B. Hinton. New York: Doubleday, Doran and Company, 1942. 364 Pages; Index; Illustrated. $3.00.

Cordell Hull has been one of our most publicized and least known statesmen. The diplomatic tight-rope walking that our Secretary of State has performed in his sincere effort to avert the disaster of war has elicited the admiration

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Loaded Words

LANGUAGE IN ACTION: A GUIDE TO ACCURATE THINKING. By S. I. Hayakawa. New York: Harcourt, Brace and Company, 1941. 245 Pages; Index; Bibliography. $2.00.

To military men, the meanings of words are important. To every officer who still cannot understand why his solution was cut because he said "Near CR 146-B," and why Bill Jones' effort was not cut when he said "In the vicinity of CR 146-B," this book is recommended. Many shades of meanings, and many differences in meaning, cannot be explained in dictionaries, because most words have a different meaning to different people.

The book touches upon such things as the difficulties in trying to keep a witness to facts rather than opinions, even though the witness is sure his opinions are facts, and honestly cannot understand that there is a difference. Most of us have heard a speaker (or a salesman) prove to us that something we don't believe in is worthy of our trust, and were unable to put a finger on the flaw in his argument. The person who reads and digests this book will have come a long way in the practice of recognizing the use of "loaded" words, or the use of the same word with two different meanings to confuse us, or the use of opinions under the guise of facts.

For those dogmatic individuals to whom right is always right, and black is always black, there is much to be learned in *Language in Action*. Diagrams, concrete illustrations, and selections from good and not-so-good literature add solidity and realism to Mr. Hayakawa's study of words as tools, rather than as pleasant sounds.

Monkey Wrenches

SOMETHING WENT WRONG: A SUMMATION OF MODERN HISTORY. By Lewis Browne. New York: The MacMillan Company, 1942. 353 Pages; Index. $3.00.

The Industrial Revolution and what followed have had many interpretations, but there have been few as biting (in a nice way) as Lewis Browne's version of man *vs.* the machine. The author's style may be deduced by this one example. Speaking of Gavrilo Printsip, who shot the Archduke Franz Ferdinand, we have ". . . pulled out a pistol, leveled it wildly, and fired twice.

"Nineteen million people fell dead."

The tone of the rest of the book is in character.

Mr. Browne describes the coming of the machine and its effect on world economy. Imperialism, war, economic isms

and other effects are traced to the machine and its works. The author does not regret the Machine Age; he regrets our handling of it.

✓ ✓ ✓

Hawaii—Before the Attack

TROPIC LANDFALL. By Clifford Gessler. New York: Doubleday, Doran and Company, 1942. 321 Pages; Index; Illustrated. $3.50.

Although the subtitle of this book is *The Port of Honolulu*, the author ranges far over the South Seas for his material. The work seems to have been written as a series of chapters rather than as a book, but even though the thread that ties the chapters to the whole may be weak the chapters in themselves are well done. The past and the present of the South Seas (pre-December 7) are treated with a detached view.

Goethals' Handiwork

THE PANAMA CANAL IN PEACE AND WAR. By Norman J. Padelford. New York: The MacMillan Company, 1942. 314 Pages; Index; Illustrated. $3.00.

The complicated administrative organization of the canal, the canal's legal and economic history, and the standing of the canal in international law are covered by the author of this book in comprehensive fashion. The greater part of the book is factual, with copious references to sources including Acts of Congress, treaties, and court decisions.

The defense of the canal is hardly touched; the only military activities mentioned are those charged with portions of the administration of the enterprise. Particularly interesting are the relationships among The Panama Canal, The Panama Railroad, The Panama Railroad Company, the Canal Zone, and the Republic of Panama. Seemingly anomalous situations are explained clearly.

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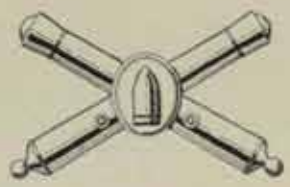

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