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NOVEMBER-DECEMBER, 1941

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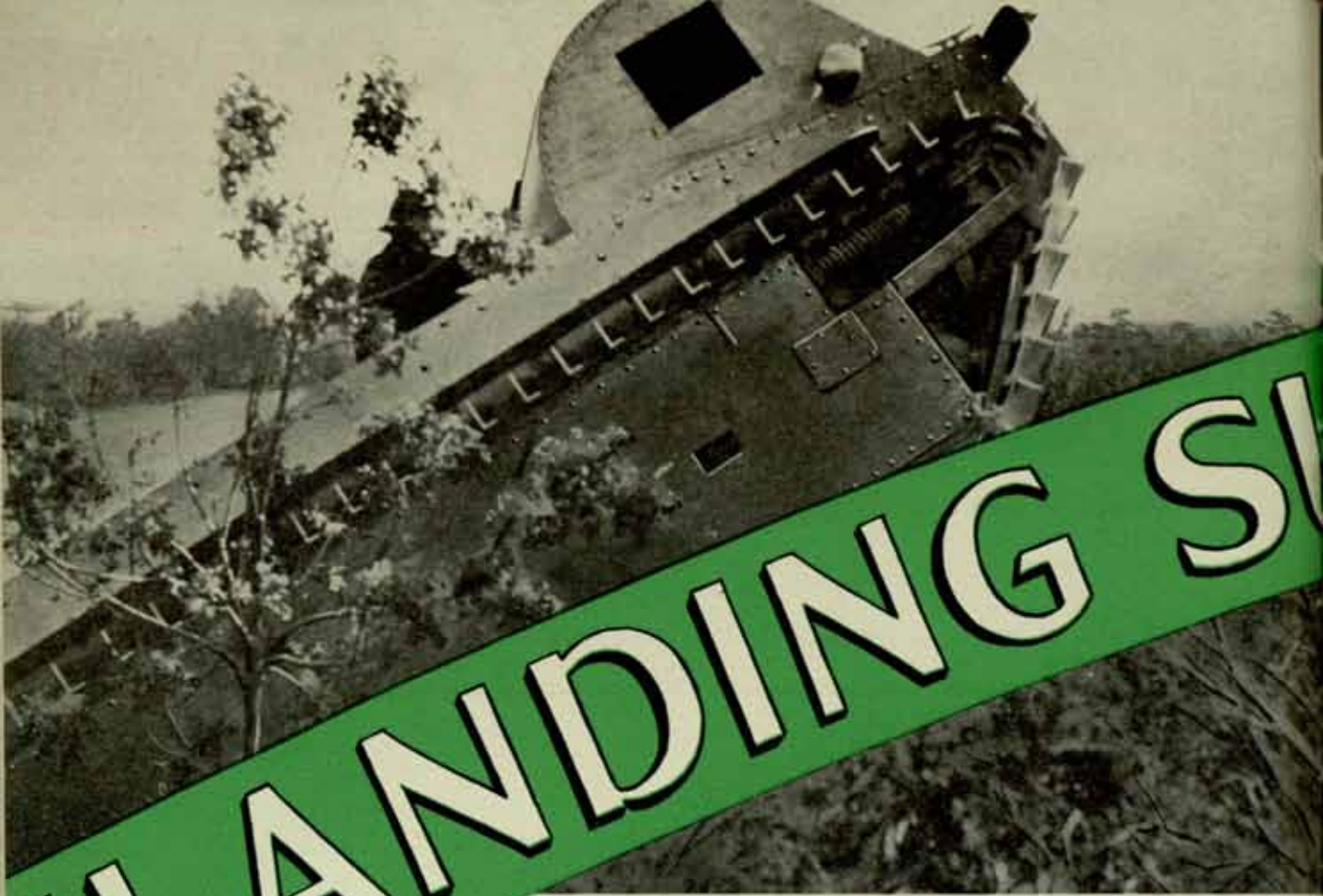


"LANDING SI

By Major A. T. Mason
U. S. Marine Corps

The opinions and assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

The seizure from the sea of a defended shore area is probably the most difficult, involved and hazardous of all military operations. It is also the most romantic and interesting of the varied endeavors of war. The stirring narratives which have been composed on this subject, the half-legendary stories of the Argonauts and of the expedition against Troy, the sea-blown sagas of the Norsemen, the histories of Gallipoli, have assumed epic proportions. That these tales have been most impressively told from the side of the attacker is no accident for his has always been the greatest risk. In history, the successes are glorious and the failures, where not mere bunglings, are treated as gallant.

There are a number of reasons why the amphibious undertaking should engage a share of public attention and concern which is, perhaps, disproportionate. Each such affair is usually an isolated incident, related, it is true, to the national effort and to the strategic conduct of the war, but with a clear beginning, continuance, and climax of success or failure in a relatively brief space of time. It involves travel and a perilous venture far from home. The eternal mysteries and terrors of the sea, mastered only to a degree by the application of science, must enter always into the reckoning; to the opposition expected from man is added combat with the elements.

Many hazards which can be but imperfectly foreseen and parried may frustrate the most hopeful schemes. The chances of being cut off between home base and overseas theater by enemy action or between ship and shore by sudden and incalculable changes in weather are constant threats to success. The hopes of Xerxes' great land army foundered at Salamis with the Persian ships. Napoleon had to abandon his promising Egyptian campaign after the battle of Aboukir cut his lines of supply from France. Charles V had landed part of his force against Algiers in 1518 when a storm arose

U. S. Marines in Amphibian Tractor: Ashore

CCESSFUL!"

EDITOR'S NOTE: *On occasion the task of repelling landing attacks may fall to the Coast Artillery Corps. For this reason, it is believed that this article will be of especial interest to our readers at this time.*

wrecked many of his ships, drowned over half his men, and ruined the expedition. A sudden change in surf conditions may leave a force stranded on a hostile shore during the few precious hours in which victory turns into defeat. The prospect of such an interruption to the flow of reserves and supplies must always haunt the mind of the commander who attacks across the seas.

In amphibious war small causes have great results. The first British attempt to land at Belle Isle in 1761 was beaten off because the defenders had cut away the foot of the slope behind the beach so that it could not be scaled. Wolfe's landing at Louisburg succeeded after he had given the signal for the boats to retreat only because three junior officers disobeyed the order and got ashore at the cost of stoved boats and drowned men over apparently impossible rocks at one end of the beach. When the Germans moved a buoy off the Belgian coast they thought in their simple Teutonic fashion that the experienced British navigators would be deceived—and they were; the blockships aiming for Ostende ran harmlessly on the beach. Even in maneuvers, the sea plays for keeps, boats are pounded by the waves and broken on the beach or stranded on unknown bars or reefs, soldiers jump over the gunwales into several feet of water not knowing whether they will find firm sand, jagged and poisonous pot-hole coral, or treacherous mud.

The overseas operation has its own literature in

U. S. Marines in Amphibian tractor, afloat.
Marine Corps, Division of Public Relations

Marines land "old style" from ship's motor launches.
Marine Corps, Division of Public Relations

which are to be found those touches of the human comedy which animate its historical bones. There was the affair at Acre which provided its little amenity in the midst of combat during the attack of the English fleet on the citadel. The French governor hoisted the white flag in order to send mail out to the English Admiral who politely returned the compliment by sending ashore several cases of captured French wine. The one bright spot in Wentworth's attack on the Castle of St. Lazar at Cartagena in 1741 lay in the remark of one of the colonels who said, as he lay dying after the miserable failure, "The General ought to hang the guides, and the King ought to hang the General." Not long ago, Marines landed from ships' boats and the Navy coxswains approached the beaches with a caution which was more solicitous of the paint on the boat than of the welfare of the landing party. On one such occasion, the coxswain indicated that he had gone as far as he meant to go for fear of the coral and it is still remembered that the second lieutenant of Marines, with all the enthusiasm of his first maneuver, cried to his men, "Follow me," as he jumped over the side and disappeared into eight feet of water.

Besides arousing interest and imagination, the landing operation deserves attention because of the ever appealing prospect it offers of obtaining great rewards for a small stake. In point of time and numbers involved, the campaign of Louisburg (1758) was minor compared with the duration of the Seven Years War, of which it was a part, and the Continental armies engaged, but the capture of Louisburg gained the English an empire. The investment of men against Gallipoli was no greater than the wager so recklessly thrown into the pot in any one of the slaughters on the Western Front but even the most soberly estimated results to be obtained from success promised to change the course of modern world history.

The reason for the far-reaching effect of the amphibious operation is that it both influences and uses sea power. It influences sea power by either extending or limiting its scope depending on whether the naval power concerned gains or loses bases from which its fleets can operate. Crete is an example of the limitation of sea power in a particular area by the capture of a base. The possession of Singapore decides national destinies over an extensive area of the world. The isthmus of Panama is worth many battleships. Naval strength may be described as the result of ships plus bases, and one naval writer has said, "To destroy a base is worth far more loss than to destroy a Fleet."

Although the amphibious operation may give great returns for a small investment we can hardly go as far as John Cotton, the famous Puritan divine and author of "Milk for Babes drawn out of the Breasts of Both Testaments." Cotton, in urging the attack on San Domingo in 1655, declared that the expedition would lead to the drying up of the Euphrates as foretold in the Book of Revelations. This probably sets an all-time low in the reasons advanced for military operations.

The developments of this war indicate that the air may displace the sea as the medium for movement, partly if not entirely, and perhaps we need a word for land-air as we have "amphibious" for land-sea, but the principles remain the same. Air bases take the place of naval bases and an air power may create decisive effects by the mobility of its planes as naval powers have in the past by the mobility of their ships. Let those, then, who

have an eye to the future, read "air" for "sea" and "planes" for "ships"; the characteristics of the landing operation remain much the same.

Certain factors peculiar to landing operations present difficulties which are so universal that they may be considered inherent. These difficulties are, chiefly, (1) those of a logistic nature, (2) the lack of secrecy and surprise, (3) a special degree of vulnerability during the landing, (4) deficiencies in artillery support, (5) the fact that both services work in an unfamiliar element, and (6) the matter of command.

The first logistic computation which must be made is the amount which can be transported. The degree of effort which can be made across the seas is at once limited by this factor, for few nations engaged in a war not strictly a land affair have ever been as rich in shipping as they could wish. Many desirable operations must be put aside because the basic need of transportation cannot be filled on a sufficient scale. To get to Cuba in 1898 we had to hire foreign bottoms. We took about half the A.E.F. to France in our own ships; British and other foreign vessels carried the rest. In this, the second intercontinental war of this century, ships are at a premium.

Without going into details, we may consider that for a single division to move overseas prepared for a landing attack from its ships requires around two and a half million cubic feet of cargo space or, perhaps, sixteen medium-sized ships. This will not include force troops such as aviation or attached base units. At the recent New River maneuvers, an observer on the shore could see nearly forty ships involved with the relatively small force present. The initial landing at Gallipoli required 200 war vessels of various types and 60 transports for the 75,000 men of the landing force; the number of transports was relatively small because the near-by base at Mudros was available.

In addition to transports, there must be vessels of war for escort across the sea and support at the point of landing. The distance to be covered and the nature of the theater of operations affect these requirements as

Landing boats and tank lighters.
Higgins Industries, Inc.

well as the amount of supplies, including water, which must be carried. Even after the landing has been effected, shipping and escorts are required to maintain a flow of supplies and replacements.

The ship-to-shore movement is a major source of trouble, for unless there are sufficient boats of the proper types, which add to the shipping load, the troops will be put ashore piecemeal to be defeated in detail or they will not receive the material necessary to sustain their efforts. In a sense, any landing operation is a race between the attacker to assemble his troops ashore at a certain place and the defender to assemble his reserves and unattached forces against the point of penetration. In this race the question of boats is an important factor.

Many landing operations fail or are not undertaken simply for logistic reasons. Not even the administrative genius of Napoleon could solve the crossing of the English Channel. (Because, however, an attacker cannot cross 20 miles of English Channel does not mean that everything at a greater distance is safe. While Napoleon was stopped by the Channel, the English, over 3,000 miles of ocean, were harrying and burning our coasts, destroying Washington, landing an Army for a major battle at New Orleans.)

Secrecy and surprise are practically impossible to obtain for an overseas expedition. The assembly of troops and ships at a port of embarkation cannot be concealed. The sailing of the force will be known to the enemy and its destination can be estimated with a fair degree of accuracy. It is possible to avoid this betrayal by isolating the force well in advance in some locality not subject to espionage but the difficulty of complete concealment is apparent.

Even if the departure of the expedition should be well guarded, its appearance in enemy waters will surely be discovered by patrol vessels and planes and its arrival at a particular island or portion of the hostile coast is certain to be detected. The intention of the force may sometimes be further displayed by undertaking certain necessary operations preliminary to the main attack such as placing an air base or artillery on land in the vicinity. Tactical surprise may be gained in a measure, sometimes sufficient to tip the scales toward success, by feints. At Gallipoli the demonstration against Bulair succeeded in fixing the attention of the defense commander and some of his troops during the critical period although it was not so far successful as to attract the general reserve and its advantages were lost by failure to push the main attacks with the necessary speed.

The effect of surprise may be obtained by dispersing the attack on a number of landing places, if one is so fortunate as to have a choice, with the intention of pushing in reserves to exploit whichever one may be the most promising. This requires a nice sense of timing in relation to the movement of the defender's reserves. It requires, also, the quick decision necessary to take advantage of an unexpected opportunity and a flexibility of mind which can disregard any previously conceived ideas of the tactical course of the operation, qualities which have not always been found in amphibian commanders.

The high degree of vulnerability of the expeditionary force after it has arrived off the hostile coast is due to the open character of the sea and extends to ships, boats and troops. Cover and concealment are both impossible and even movement is restricted during the period of debarkation from the transports into the landing boats. From the transports to the beach, the troops must violate all the rules of attack on land. They move over an area devoid of natural cover and defilade; they are crowded together in their boats within range of the fire of concealed artillery and automatic weapons, with no opportunity to disperse and little to return the fire; once at the beach, each boat is like the exit from a defile from which the troops must debouch onto an almost-perfect field of fire, delayed by obstacles, confronted with a terrain known only through aerial reconnaissance, gaining their first contact, their first knowledge of the enemy, at his front line. It is no wonder that at Gallipoli boats drifted about with every man in them killed and that the two battalions attempting to land at V Beach suffered 70 per cent casualties.

In order to obtain surprise and reduce vulnerability, landing at night has been frequently attempted although its advantages are reduced by the availability to the defender of detection and illuminating devices and by indirect means of fire. The question of landing by day or night is one of the most debatable of the features of an attack from the sea. The difficulties of a night attack in land warfare are fully recognized; it is ordinarily restricted to relatively minor affairs and the most careful staff arrangements are made to insure success. The landing force, however, cannot mark its route ashore and faces the further difficulty of finding its way from the transports to the beach. The sea is trackless and the compass and plotted courses fail against unknown and variable currents and winds. A slight deviation from the course over an approach of some thousands of yards can cause a major error with boats striking rocks and reefs, landing in the face of the enemy instead of on a flank, or with units separated and the whole tactical plan upset. It is not, of course, fantastic to suppose that some sort of directional gear, such as the radio beam which guides a plane in flight, may be applied to landing boats to make landings on selected beaches certain but even when landing places are found with reasonable accuracy the further prosecution of the attack may be impossible, as at Suvla Bay, because of the attendant confusion.

The use of smoke, laid on the beach from ships or planes, may be of value in covering a daylight landing but its employment is limited to occasions when weather conditions are suitable. Both the landing by night and the use of smoke will limit the value of ships' gunfire in support.

During the critical stage of obtaining a foothold on shore the landing force is largely deprived of the assistance of artillery. The gunfire of warships is effective to a certain degree but has its disadvantages. Naval guns are not ballistically designed for fire against shore targets mainly because of their flat trajectories and because the calibers and types of shell most suitable for naval combat are not those which are most effective on shore. A further limitation on naval gunfire is that the ammunition which can be carried does not permit the tremendous expenditures which are necessary for the destruction of obstacles. Furthermore, the landing force itself is limited in the amount and type of artillery which it can put ashore until the situation has progressed sufficiently to allow the construction of landing facilities at the beach. In special cases, this may be remedied in part by the use of an outlying island as a base of artillery support but so favorable a terrain feature will be exceptional.

Aviation may fill the artillery gap and it is suited to do so but only when it can be employed in sufficient numbers. Here again, the number of planes which can be transported and operated from carriers, lacking a near-by land base, constitutes a severe limitation.

Both services—the military and the naval—in a combined operation suffer from the handicap of having to do with an unfamiliar element. A soldier in a boat is as incongruous as a sailor on horseback. The soldier, however, suffers the more from this disadvantage for he has more to do with the Navy—being carried on its transports, landed in its boats, depending on it for gunfire support, supply and many other things—than the sailor has to do with the shore. To the natural unfamiliarity of the landsman with the sea is added the difference in customs, language and even mental attitude of the two services. Misunderstanding between the two is no myth and has ruined many mutual endeavors. To overcome it, liaison must be continual and complete, and coöperation must be thorough, willing and understanding.

Finally, to put a primary matter last, the problem of command is always vexatious and its unsatisfactory solution fatal. This is why the Chiefs of State have had so often to exercise direction in combined undertakings.

Command may be either divided or united. If it is divided, there is likely to be wrangling, hard feelings and perhaps a complete disagreement which stultifies all endeavor. Many double commands have failed to work together. A pleasant exception illustrating the success of this method is found in the joint command of Hodgson and Keppel against Belle Isle in 1761 where the two commanders reconnoitered and planned the attack together, working so harmoniously for the common object that the general could write to the admiral's brother, "I hear some scoundrels have spread a report that the Commodore and I have disagreed. I believe there never was more friendship and harmony between two persons since the creation of the world than has subsisted between us. . . . The two services have acted as one Corps ever since we left England."

If the command is united in the leader of one service there is likely to be interference with the leader of the other. Of the soldier who tells the sailor how to maneuver his ships to fight a naval battle and the sailor who tells the soldier how many troops he needs and how to form his tactical dispositions on shore, it is difficult to say which is the bigger fool, but both are to be found in the accounts of combined operations.

Whichever method may be adopted, its success will ultimately depend on the personality of the commanders who must, therefore, be selected with the greatest care. That the qualities of aggressiveness, decision and firmness of mind essential to any successful commander are opposed to some of the characteristics required for cooperation render the choice more difficult. Let Smollett have the last word on the subject as "Roderick Random" comments on those two almost unbelievable English commanders who attacked Cartagena: "The general was too much of a gentleman to ask a favor . . . from his fellow chief, who, on the other hand, would not derogate so much from his own dignity, as to offer such assistance unasked; for I may venture to affirm, that, by this time, the demon of Discord, with her sooty wings, had breathed her influence upon our counsels; and it may be said of these great men, as of Caesar and Pompey, the one could not brook a superior and the other was impatient of an equal; so that, between the pride of one and the insolence of another, the enterprise miscarried."

This consideration, though brief, of the handicaps to be overcome by any overseas expedition may explain why leaders of the greatest energy, and breadth and flexibility of mind, commanding naval forces and troops of the highest quality, are essential to success.

It has always been considered that a prerequisite to any successful amphibious operation is command of the sea, both from the home base to the theater of operations and within the immediate area of the attack. This command must be practically absolute although the lack of full assurance against an occasional submarine attack, for example, would be accepted as a hazard of war and not considered reason for abandoning the enterprise. The convoy must be thoroughly protected en route and the operation of putting troops and material ashore must be undisturbed by enemy activity on the water.

This conception of the necessity for command of the sea has remained valid until the present year and a number of overseas expeditions of both large and small size have come to grief because the enemy had or obtained naval superiority. The operation against Crete, however, must cause our ideas to be modified in regard both to offensive and defensive arrangements and, as mentioned before, the air may be substituted for the sea as the medium of movement under the special circumstance that the area to be attacked is within range of

A tank comes ashore: U. S. Army troops.

adequate air bases. Thus an attacker who has command of the air may, under some conditions, not require control of the sea. The reverse, however, is not true. An attacker who has command of the sea cannot dispense with command of the air. Air superiority should be complete at the point of attack. The terrible vulnerability of massed transports and boats to air attack has been emphasized by the evacuations at Dunkirk and of Greece, to cite only two of many recent examples. Control of the sea has been proved to be not always necessary but control of the air is certainly essential and any landing operation which the attacker cannot contrive to support with an overwhelming superiority of aircraft must be regarded as categorically impossible.

Another essential to success is that the troops must be trained to an exceptionally high degree. Efficiency in all the difficult details of ship to shore movement must be superimposed on complete ability to conduct land operations. In many cases it will be possible, as it is always valuable, to specialize training to the extent of practicing a particular operation against a particular object. For the military forces, there should be three successive stages of training: in land warfare, in ship to shore movement, and, finally, for the particular task. Certain parts of the naval forces, especially those engaged in ship to shore movement, may participate in this final phase of training. It may be conducted in several ways: by the use of small scale models; by exercising the forces on terrain similar to that which they will encounter, as against cliffs and rocks, through mangrove swamps, over coral, or in comparable surf conditions; or, most realistic of all, against a full scale model of the area of attack. This last system was used by the English in preparing for "The Great Landing" which never occurred but which was planned in 1916-1917 against the German right flank on the Channel along the Yser; in this instance, the troops were practiced in scaling a replica of the sea wall and the maneuvers which were contemplated once ashore. The same thing was done in rehearsing the attack which was later made against the Mole at Zeebrugge.

A third requirement for landing against opposition is suitable and often highly specialized equipment. Primarily, this means boats in which troops and material may be carried to the beach. A landing boat, to

be suitable for putting troops ashore in the face of fire, must have certain characteristics. It should be reasonably fast both to decrease the time it is under fire and to speed up the ferry service from ship to shore which may cover a period of days. It must be able to go through surf without damage to itself and under control. It should be able to ground fairly well up on the beach and should be readily retractable from this position even through surf. It should be armored against small arms fire and have some fire power of its own. It should have reasonable carrying capacity and its design should permit rapid deployment from the boat on to the beach. Not all of these qualities may exist in any one boat for some of them are contradictory—armor, for instance, reduces speed—but they are all desirable.

Landings have been made in open pulling boats packed full of soldiers with sailors at the oars, and for many years Marines have trained in the ordinary ship's motor launch although it was far from suitable. The present emergency has permitted the Navy and Marine Corps to provide landing boats specially designed for the purpose.

Various types of boats are required to accomplish all the tasks which are probable components of the landing attack. The small rubber boat, paddled or driven by an outboard motor, is very useful for silently landing small patrols at night and the rubber boat can go many places where the conventional boat cannot. Infantry assault boats are necessary in large numbers for the main attack on a defended beach. Small supporting craft should be provided which can accompany the assault boats close to the beach in order to furnish protection against low-flying aircraft and to deliver machine gun, mortar and small cannon fire against beach defenses.

Many types of lighters to provide tank coöperation to the assault troops have been conceived. Several kinds are probably necessary to an expeditionary force but the question becomes difficult as the size of tanks increases. A lighter capable of handling a medium or heavy tank may be so large that it cannot be carried on a ship and it then becomes necessary to build a tank-carrying craft large enough and seaworthy enough to be able to proceed overseas with a reasonable radius of action under its own power.

The idea of an amphibious tank is an intriguing one and may be the answer to many obstacles. The Marines

Rear echelons on a beach: U. S. Army troops at New River.

are working now with an "Alligator" which, although rather a troop carrier than a tank, is amphibious and capable of going over or through such things as reefs and swamps which are impossible both to a boat and to and ordinary tank.

Other items of equipment may require modification or even elimination. Motor transport can be carried and landed on only a relatively small scale. Some, at least, of the artillery must be of such a type that it can be carried ashore by hand through surf. Special equipment may have to be built for a specific task. Pontoons 500 feet long were built by the English especially for the Great Landing as well as special ramps to enable tanks to cross the sea wall which lined the Belgian coast in the area.

The Marine Corps is the branch of the armed services primarily concerned with landing operations. It has had an expeditionary force for many years which engaged in actual operations even during periods when the Nation as a whole was at peace. In 1933, the expeditionary force was organized as the Fleet Marine Force and became a part of the Fleet, both for training and for operations. By its background and current service, the Marine Corps is particularly suited for this task and by its very nature many of the difficulties described as inherent in landing operations—particularly those of command and of the relation between two services—are eliminated or reduced. When the Marine Corps was organized in 1775, Congress directed that "Particular care be taken that no persons be appointed to office, or enlisted into said Battalions (of the Marine Corps), but such as are good seamen, or so acquainted with maritime affairs as to be able to serve to advantage at sea when required." Though this direction is not followed to the letter today, its spirit animates the Marine Corps so that Marines are part of the Navy both by law and by common interest. By mobility, constant training for amphibious operations, knowledge of the sea and unity of command with the Navy, the Fleet Marine Force is basicaly fitted for the seizure of a hostile shore.

Nearly every year a large part of the Fleet Marine Force engages in landing exercises with units of the Fleet and these maneuvers have been profitable in developing and testing basic principles and practices. Many operations which can be visualized are beyond the size of Marine Corps forces so that Army coöperation has always been contemplated. To prepare for this task, Army units have occasionally participated in amphibious maneuvers and in the face of many difficulties have proven their potential value.

The most recent of these joint exercises was held in July and August, 1941, on the North Carolina coast with the First Division forming part of the landing force. Since that maneuver, the Atlantic Amphibious Force has been formed as part of the Atlantic Fleet. This force is composed of the First Marine Division, including parachute troops, the First Marine Air Wing, and assigned Army troops, the whole under the command of the Commander-in-Chief of the Atlantic Fleet.

We may expect the Marine Corps with associated Army troops to be just as two-ocean as the Navy. This implies a force on each coast ready for immediate movement to any one of a number of hazardous ventures across the sea. What specific operations may be expected is as unpredictable as the course and spread of the war, and the variety of guesses which are possible is limited only by a knowledge of geography. Speculation must be as wide as the oceans themselves. The complex factors of strategical decision, the foresight and resource required of staff planning, the versatility demanded of troops to meet such a variety of conditions all form the most exacting demands.

Wherever it takes place, the landing operation of the future will be a long way from the recruiting poster picture of a single cruiser anchored on the backdrop of a blue sea with Marines prominently in the fore jumping out of a motor launch and running across a tropical beach into a grove of palm trees. The developments of the present war have brought many changes to landing operations. The vital importance of air power, the value of air-borne troops and armored vehicles are realized and applied to amphibious war. The landing force must have its aviation and its parachutists as well as its combat teams of coöperating and interdependent infantry, artillery, tanks and planes.

Briefly, we may follow the course of a theoretical expedition. After all the the intensive preparation, an armada of transports will set sail, escorted and accompanied by war vessels of many types. Somewhere in the far reaches of the sea, the main Fleet will be holding the enemy battle line at bay. After a voyage, always long to the troops blacked-out, buttoned-up, crowded in their ships, the force will approach its objective. One or more transports may be missing, victims of some rattlesnake of the sea. Reconnaissance planes will fly ahead, photograph beach and rear areas, drop prints to the flagship. Admiral, general and staffs will make last minute decisions as enemy dispositions are discovered and the vulnerability of beaches is assessed. In the darkness, the ships will approach the coast, anchor off a few miles for a night of feverish activity getting boats into the water, assembled, loaded with troops and organized into flotillas. Each group of boats with its combat team starts for its assigned beach.

The sky pales and as the boats speed over the miles, cruisers and destroyers bombard the beach or fire on rear areas; bombers begin their attacks and fighters form a screen over the transports. The gunfire ceases and dive bombers strafe the beach as the boats cover the last few hundred yards. Machine-gun bullets ring against the boat armor, larger projectiles sink an occasional boat. Support craft open at close range against enemy positions as they reveal themselves, watch the sky for a breakthrough of enemy dive bombers.

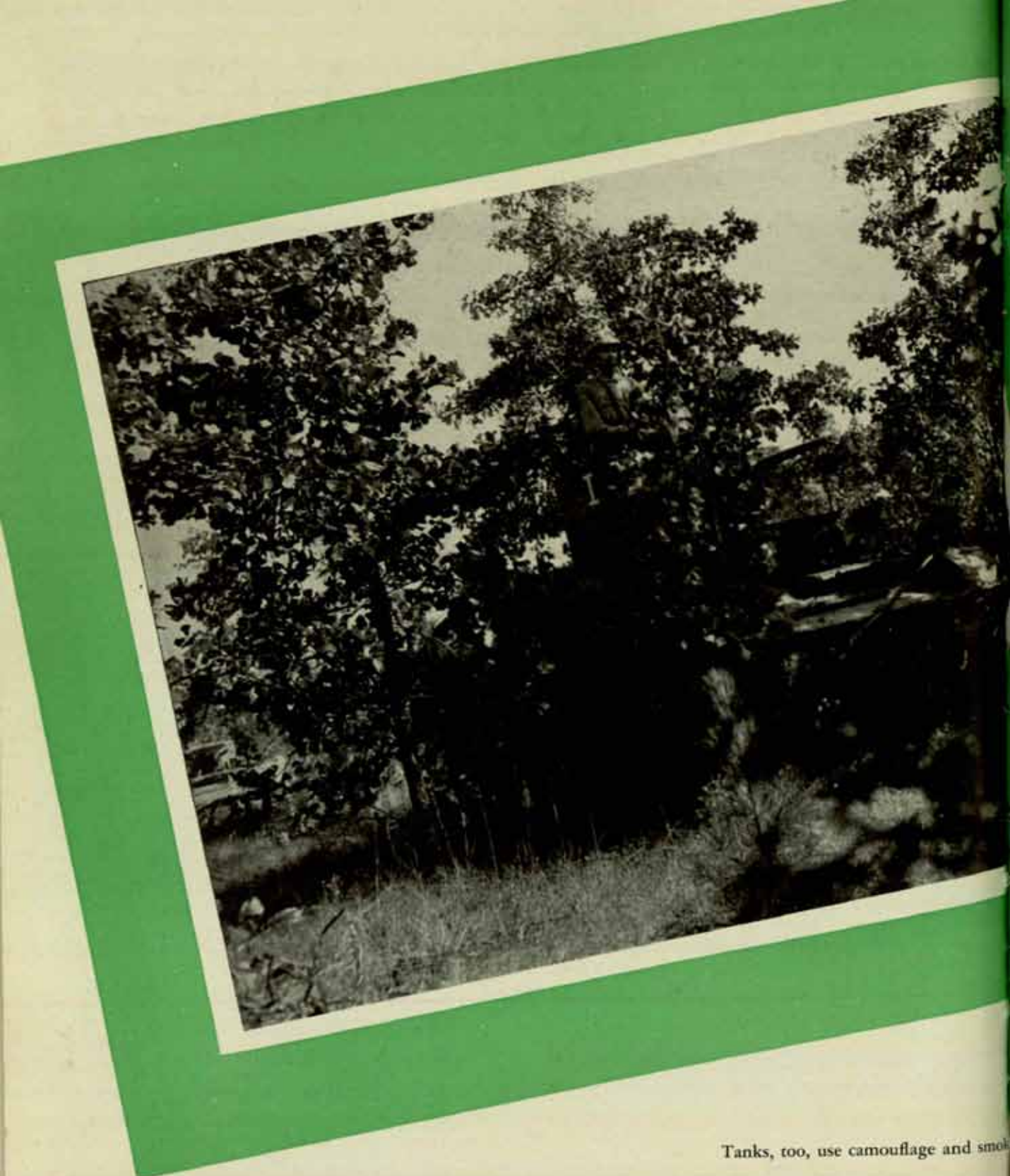
Behind the beaches parachutists drop by the hun

dreds to take beach defenders from the rear, to hold back enemy reserves. As the boats plunge up on to the beach, the ramps go down and the men pour out, engineers first to blow up obstacles, clear paths through mine fields for tanks, then the infantry, rushing through gaps in the wire, crossing entanglements on wire netting, carrying rifles, grenades, flame-throwers. The dive bombers coöperating with the battalion are overhead, the battalion commander speaks by radio to the command plane, the formation attacks.

All this on an open beach. Will an artillery concentration come down where the congestion is greatest or machine-gun fire from some hidden and defiladed emplacement whip across this open stretch, stop the attack on the bare sands? Some battalion will surely get through, rupture the beach defenses, join with a parachute or air-borne unit in the rear. From some beach, the signal will be made, "Landing successful"; the commander will send his reserves through the soft spot which has been broken through. The main hazard will be over, the first throw of the dice won, and the race will begin—against time, the elements, the enemy, to land the tons of manhandled ammunition, heavy weapons, stores, water, to push on to the beachhead line, to hold it against all counter-effort until the energy has been stored up, the weight accumulated, to push on and secure the rewards of the venture.

Wolfe's classic words may well serve to conclude this brief exposition. He wrote, "I have found that an Admiral should endeavor to run into an enemy's port immediately after he appears before it; that he should anchor the transport ships and frigates as close as he can to the land; that he should reconnoiter and observe it as quickly as possible, and lose no time in getting the troops on shore; that previous directions should be given in respect to landing troops, and a proper disposition made for boats of all sorts, appointing leaders and fit persons for conducting the different divisions. On the other hand, experience shows me that, in an affair depending on vigor and despatch, the generals should settle their plan of operations so that no time may be lost in idle debate and consultations when the sword should be drawn; that pushing on smartly is the road to success, and more particularly so in an affair of this sort; that nothing is to be reckoned an obstacle to your undertaking which is not found really so on trial; that in war something must be allowed to chance and fortune, seeing that it is in its nature hazardous and an option of difficulties; that the greatness of an object should come under consideration, opposed to the impediments that lie in the way; that the honor of one's country is to have some weight; and that, in particular circumstances and times, the loss of a thousand men is rather an advantage to a nation than otherwise, seeing that gallant attempts raise its reputation and make it respectable whereas the contrary appearances sink the credit of a country, ruin the troops, and create infinite uneasiness and discontent at home."

It is much easier to train yourself for a new business than for the civilian to be trained to be a soldier. Whether an officer or an enlisted man, the civilian undergoes in his course of Army training not only a mental transition but also a physical one, and sometimes a moral transition as well. Moreover, his associations are completely changed and the nature of his competitive life. This is emphatically the case when the recruit is a selectee.—Lieutenant General Ben Lear.



Tanks, too, use camouflage and smok

Under modern battle conditions, in this the year 1941, the chaps who have to "take it" in the thick of action are the young bucks and NCO's manning automatic weapons or outposts, far removed from the nerve center of their regimental or battalion command post, and the collective security of numbers common in a gun battery, or an infantry company.

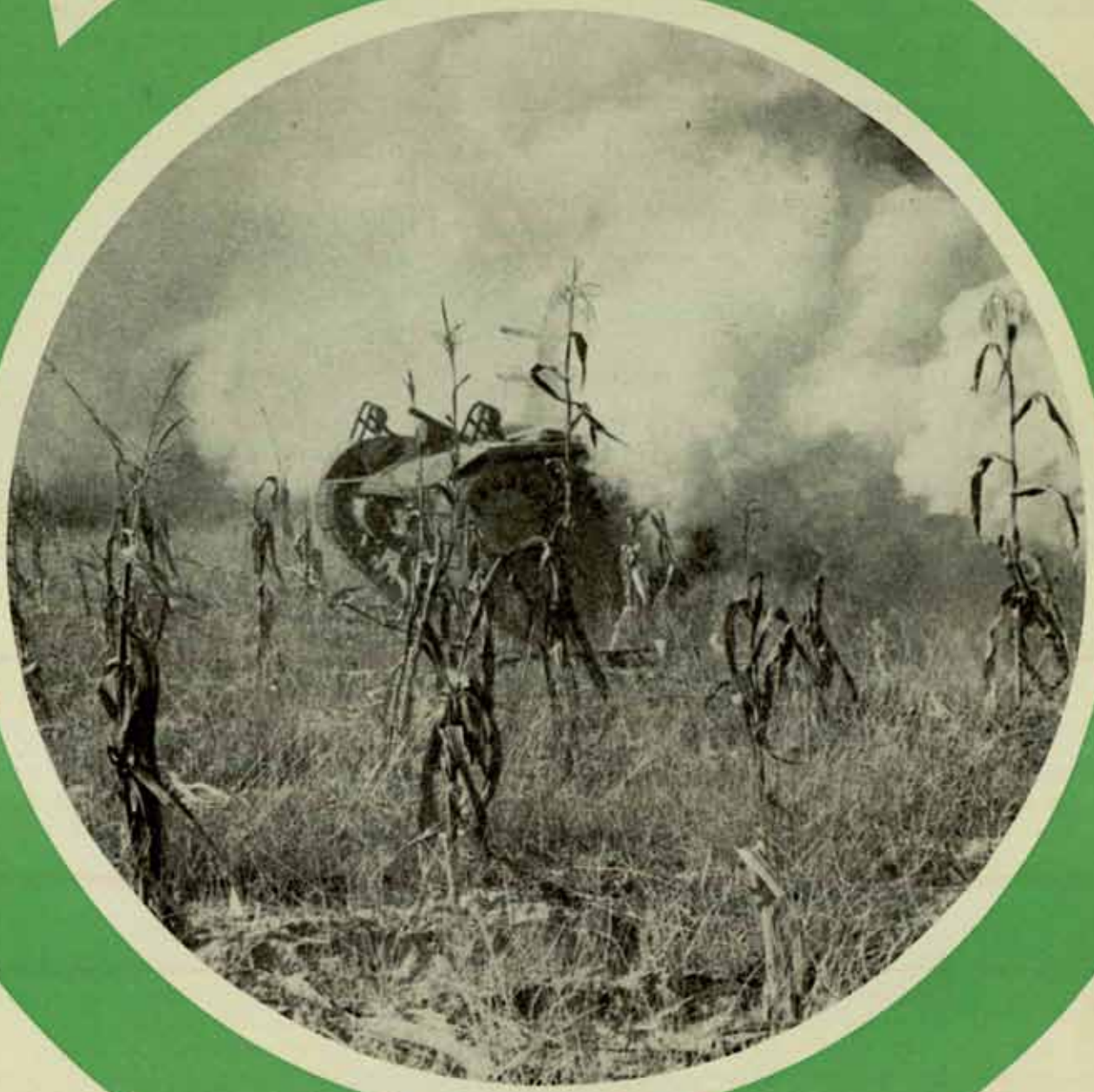
You may well ask, "How does this affect the Co Artillery, and how does it affect me?"

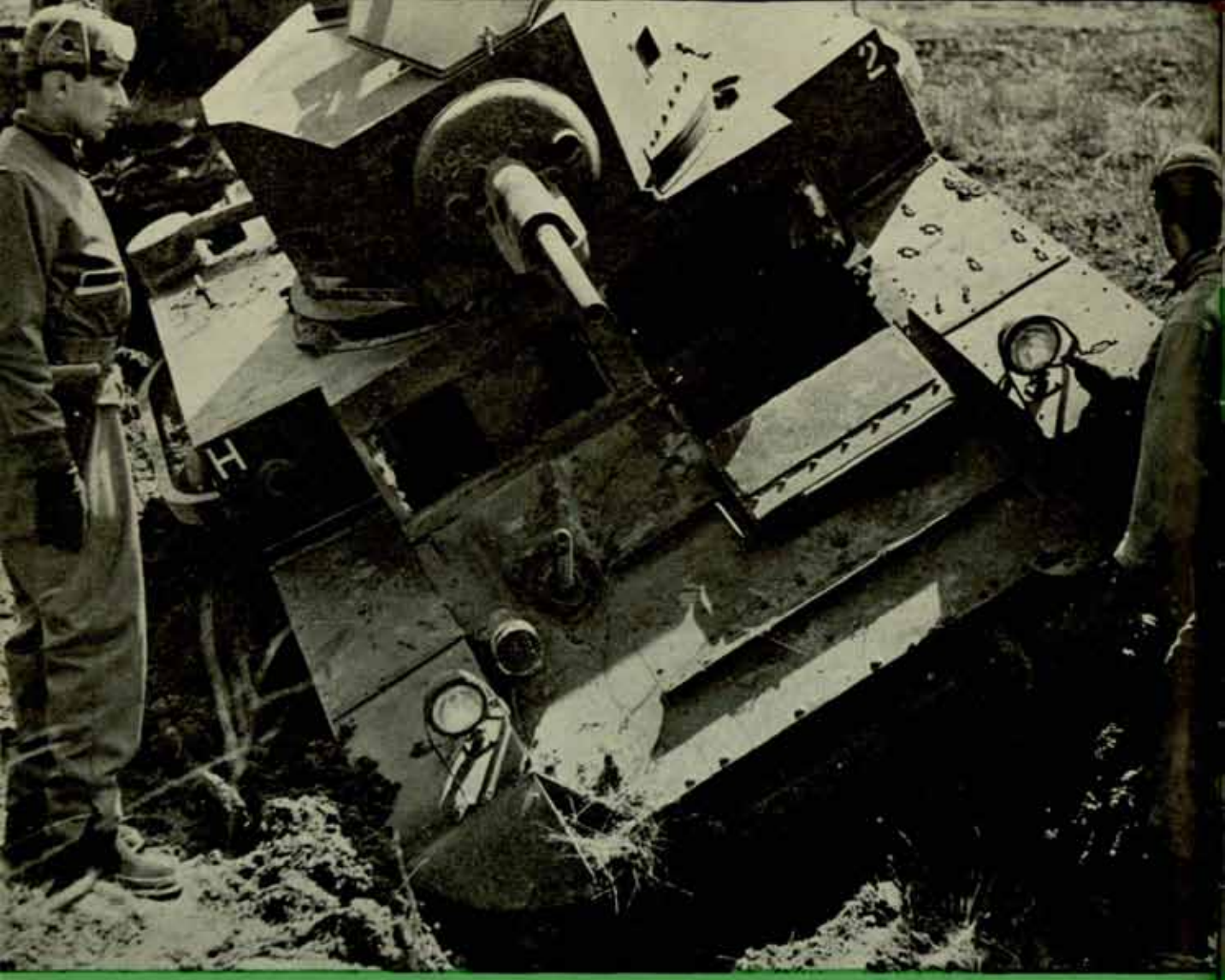
There are a number of answers to your questio but perhaps the most concise is as follows: Curre War Department policy, as indicated in the curre issue of Field Service Regulations FM 100-5 (M 1941) and numerous other documents, directs that a

Antiaircraft Artillery

In Antimechanized Defense

By MAJOR PAUL B. NELSON, COAST ARTILLERY CORPS





"These tanks can be stopped . . ."
Signal Corps Photo

aircraft artillery troops train for and operate as anti-mechanized troops in addition to their normal mission of antiaircraft defense. This is a highly realistic recognition of the ability of our corps to overcome difficult obstacles and obtain decisive results.

This additional rôle for our AA troops cannot be accepted in any sense of airy lightness. Preparation for new tasks demands a degree of readjustment, familiarity with new tactics and technique, and an appreciation of the terrain, staggering to the uninitiated. The implications of this new mission place a new value on soldier psychology and its application. How well are we as officers and non-commissioned officers prepared to train in this new task, and where do we begin?

About the first question you will ask will be "Just at what are we expected to shoot?"

Certainly the question is reasonable, so suppose we try to analyze and answer it. That word "mechanized" in itself is somewhat confusing so we will define it first. A mechanized force is one in which troops fight direct from combat vehicles, usually armored. These mechanized troops are often accompanied by "motorized" troops, i.e., troops who ride in motor vehicles, but who normally have to dismount to fight.

Now that we have defined "mechanized forces" let's find out what these combat vehicles are. They may be roughly divided into three classes: first, the heavily and medium armored, in other words, heavy and medium tanks; second, the lightly armored, in which class we find the light tank or tankettes, gun carriers, tank destroyers (shielded field guns mounted on tank chassis or half track weapon carrier), and a wide variety of armored cars, scout cars, and personnel carriers; and the final group consisting of unarmored vehicles, motorcycles, light trucks and general service vehicles. The use of radio for tactical direction in the above combat vehicles is highly developed, their fire power is extremely high and their shock action is nerve wracking, to say the least. But for all of their power and mobility, mechanized combat vehicles have weak spots, vulner-

ble areas, and a collection of limitations which make he antitank or antimechanized defense commander rub is hands and chortle in satisfaction.

Those tanks can be stopped, they can be destroyed, r they can be turned back by trained gun crews who now how to prepare their gun positions, hold their ire until the critical moment, and then standing their placed shots. Your knowledge of those weak spots at this stage is an open invitation to suicide, nothing else. The important questions before going into action are:

How well are your men trained? Do they take the maximum advantage of the terrain in siting their guns for both antiaircraft and antimechanized defense? Are their guns and prime movers in position where a quick

Your own smoke may conceal the target.
Signal Corps Photo

Two targets in the field of fire.
Signal Corps Photo

ground, blast the charging monsters into torn piles of inanimate junk.

"Fine," you will say, "all we have to do is to pour 37-mm. or larger slugs into the vulnerable spots, and the tanks are all washed up." Then you will ask "Just where and what are these vulnerable areas on these tanks, armored cars, and other mechanized combat vehicles?"

Your enthusiasm is commendable, but the problem is more complicated than just being able to shoot, more than just leisurely picking out a soft spot on a charging tank, then centering your sight and pulling your lanyard until the tank disintegrates in front of your well

get-away can be made after you have delayed a massed assault and forced enemy deployment while he swings up lighter armored forces to search you out and liquidate your position? Is your position well concealed? And did you plant those antitank mines out in front and to the flanks where they would do the most damage to both enemy tanks, trucks, and combat cars? Is your local antitank defense tied into and coördinated with the unit on your right, your left, and to the rear? Will your withdrawal from your advanced position be covered by the fire from adjacent units or units to the rear? Those are all vital questions. Are you prepared to answer them now? Have you trained your men and your officers to conduct this highly complicated defense against ground forces to the same degree that they are presumed to be trained to combat hostile air attacks. If so, you need read no further. If, on the other hand, you are groping for an answer to one of your most immediate problems and questions, namely "How and by what means can I train my men for this mission in the shortest possible time?" perhaps I can set up a few guide posts which will be of assistance in tackling the problem.

First: Read, discuss and argue over the various reports of armored action abroad in this present conflict; dig down into those information bulletins in your regimental headquarters from time to time and see how tank action has been delayed, diverted, and tanks destroyed. Action before Dunkirk, delaying action in Greece, and assault action in North Africa—these sources of information are astoundingly replete with examples of vivid shell torn, clipt versions of action by the survivors of the first two actions indicated, and by the "down unders" in describing their action at Tobruk and in the Lybian desert. It may read like fiction, but if you read it thoroughly you will have a lot to think about and plenty of realism to play with when you start your men off. Remember those anecdotes, those excerpts of battle action. Tell them to your men! They will eat it up and work that much harder in the grueling physical work ahead in training themselves so that they won't be caught short when the critical moment is upon them. Read the current periodicals—plenty of information has been written by news correspondents from eye-witness accounts. Remember that things are happening too fast for all of this information to come down through official channels. Incidents gleaned from the press and from other fleeting sources will enliven your instruction. Keep stark realism before your men. It is a good bet, don't miss it.

The second point in training can well be the problem of antitank marksmanship. Unfortunately we have no text on the subject which would apply in its entirety to antiaircraft troops. There is however an official text, basic Field Manual FM 23-70, covering the marksmanship course for the 37-mm. Gun, Antitank, M3. While this text refers to the infantry antitank gun, it can, with few local modifications, be used as a standard guide in developing trained gunners.

In connection with the use of this text and the preparation of 1,000-inch and other ranges, I make the following recommendations:

Text:

Chapter 1 Sections I-IV, adopt but modify to conform to characteristics of antiaircraft gun to be used.

Sections V-IX are usable with minor variations.

Chapter 2 should be read, and while little of the subject matter of that chapter applies directly to our weapons, there are a number of valuable ideas there in which can be developed and modified to fit our own weapons.

Chapter 3 covers marksmanship and the preparation of antitank ranges; this chapter in practically its entirety can and should be used in marksmanship training, modified, of course, to fit local conditions and available ammunition.

Chapter 4 covers *Technique of Fire*. The antitank ammunition for our 37-mm. AA gun will be similar if not identical to that employed in the infantry antitank gun, hence the characteristic data of ammunition, and discussion of range estimation and firing technique are highly significant.

Chapter 5 of the above field manual covers *Firing at Field Targets*. It provides data for the construction of a full sized antitank range for the new M1 fast moving target, now standardized and soon to be issued to Coast Artillery troops for antitank firing.

Chapter 6, the final chapter of FM 23-70, covers *Advice to Instructors*. It should be read.

Granting that you have now laid out the background for and are actually conducting your preliminary antitank firing, you have made a number of discoveries. In the first place, you will generally fire by single gun. You will fire with battle sight, usually at point blank range with both vertical and lateral deflections set at zero or almost so. Trial and error will soon develop knowledge of the appropriate leads to obtain general hits at an average range of, say 400 yards. You will soon see the advantage of the antitank sight devised for the antitank gun and will probably have a similar sight, perhaps an open sight with solder beaded cross wires forming an open reticule for sighting purposes. It won't take long to make and attach. Of course you may use your antiaircraft sights, but the parallax is something terrific when those targets get in close, between 100 and 200 yards, and when you are trying to shoot off a track or lob a shell into a driver's port, or to blast a turret mounting you want your line of sight to be right down hugging the gun barrel. You are shooting at two- and three-inch areas now, not at the whole tank. Think it over. It may be worth trying.

The next subject of training should be the use of cover and concealment. Teach your men to use natural concealment without disturbing it if possible. The

are volumes of text material on camouflage, field fortifications and the use of camouflage, but for simplicity stick to Engineer Field Manual FM 5-45, Reference Data.

This later source of material data covers a great many other subjects incidentally, which our antitank crews should be familiar with, including obstacles, field fortifications and gun emplacements, stream crossing expedients, tank traps and antitank mines. The information is in brief form, and if additional data is required it can be readily entered on the many blank pages in the rear of the book, or you can carry another volume around with you. Personally, I'll swear by FM 5-35. It is an outstandingly good job of compilation. By no means though, should you slight the more detailed engineer texts on the subject matter indicated above during the training phase, particularly if you have not had extensive engineering training and practical engineering experience.

We now come to that muchly ignored but invaluable bible for all military men, the Field Service Regulations, FM 100-5, 100-10, and 100-15. Study them from cover to cover. Take your troops into the field. Test your own ability to make a reconnaissance as well as that of your officers and your men. Demand written reconnaissance reports and detailed sketches of selected positions. Demand that your NCO's, the officers, and the bright young privates locate suitable gun positions and routes thereto, prepare cover and concealment, and that they justify their installations confident of its excellence. Don't leave it all to your officers. Many of your men will have more practical knowledge of the terrain than their officers; let them work it out together. Go into a given area, give the platoon a situation involving both an air and a tank attack, but delivered at different times, then a coördinated attack. Let each man in the platoon select a position and develop a plan for the organization of that position. Then take the entire platoon or section to each selected position in turn, and let Private X explain why he picked this particular position, what he expected to fire at, how, and when, and how he expected to improve his cover and concealment. You will be surprised at the latent ability you will be able to uncover. Keep the discussion of positions in a serious vein. When individual soldiers really learn the problems and application of reconnaissance, and of selection and occupation of position, you will find that they will take a strong personal interest in the selection of the best possible positions under the adverse conditions of field operations. Encourage improvisation and initiative, and operation with fractional means. Keep yourself and your men terrain conscious. Remember that a ten-foot embankment, a stretch of swampy ground, or a densely wooded area may be worth a thousand shells to you if you take advantage of those natural obstacles. Keep your study of the ground an ever-continuous duty. Ask yourself as you drive or walk across the ground, "Is this ground favorable to armored force action? If so, where could I emplace my guns in such a manner as to carry out my antiaircraft mission and at the same time most seriously oppose the hostile mechanized action?"

We have now covered the sources of training lore, you have already read about the frailities of the present antiaircraft sight in marking vulnerable areas on tanks or armored cars, so suppose we compile a list of a few of these weak spots. They are:

Treads and track suspension—In all tanks except heavies (50-75 tonners) vulnerable to 37-mm. shell.

Driver's ports and turret tops—Vulnerable to rifle and other small-arms fire when open. Fire, if held, may result in elimination of driver or tank commander, otherwise will cause ports and turret top to be closed making tank "deaf, dumb, and blind." Accurate fire at observer and driver slits with small arms makes the driver's job unhealthy.

Tank bellies—Usually very thin, and very vulnerable. Caliber .50 bullets will usually penetrate with ease. Tanks easily bellied on prepared tank obstacles.

Turrets—Often jammed by accurate fire against junction of tank and turret proper.

Heavy tanks (50-75 tons)—These behemoths can be whittled down by 37-mm. or 40-mm. guns if you can keep shooting long enough to land lucky hits. Seventy-five millimeter guns, or more properly 3-inch or larger caliber AA guns are rank poison to these big tanks and usually ring down the curtains. Antitank mines properly placed can also disable these tanks. A stopped tank on the battlefield is useless and is soon turned to scrap iron.

Medium tanks (18-35 tons)—These tanks are susceptible to 37-mm. and 40-mm. gun fire and are readily disabled by antitank mines. Machine guns can harass but not halt these tanks.

Light tanks and armored cars—In most cases can be stopped by .50 caliber machine gun fire from AA machine guns. Sides, bellies, and track suspension mechanism very vulnerable. Thirty-seven millimeter or 40-mm. AA guns are deadly against these combat vehicles. Land mines unusually deadly in effect.

Scout cars, personnel carriers—Same as above.

Unarmored vehicles—Anything you can hit the driver with spells curtains for him, but look out for the rest of the reconnaissance or advance covering force which may be accompanying him. You may be next! Let your outposts pick these fellows off, keep your heavy stuff for the big fellows who will be along in just a few minutes.

Pick up and read the service journals of the Ordnance, Field Artillery, Cavalry, and the Infantry. You will learn a lot about combined operations in a strange field, a field in which you, an antiaircraft artilleryman must now be prepared to function.

How well are you qualified to develop plans for future action?

The rest is up to you.

ENEMY IN ARMOR

By Captain Wofford T. Caldwell, Coast Artillery Corps

EDITOR'S NOTE: Captain Caldwell's intention is to provoke thought on the subject of defense against armored attack. His description of present foreign armored tactics is substantially correct. Although he gives us the benefit of his views of the future trend of ordnance development, the author puts forth ideas that should assist the automatic-weapons platoon commander in working out his problems with current armament. The infantry's tank-destroyer is a close approximation of Captain Caldwell's idea of the self-propelled AA automatic-weapons mount.

All night there have come and gone the sounds of an army on the move; an army passing in one direction; going forward. Hushed voices of soldiers come and go in wisps like streamers of the ground fog that has closed in since midnight. Sounds from invisible action give the scene an impression of unreality. More than an hour of darkness remains, but Lieutenant Daggett's automatic weapons platoon is already completing the last details of emplacement.

Lieutenant Daggett wonders vaguely about this feeling of unreality. Do good soldiers ever get over this feeling that has come to him tonight? He is still keyed up with that nervous energy with which nature strengthens a man in times of emergency. His mental faculties seem unusually keen, and incessant activity leaves no feeling of fatigue. He unconsciously wishes for action to break the tension, yet he consciously dreads such action.

For hours the platoon has been busy getting forward through the maze of army traffic. The men have emplaced the guns in darkness. Daggett has been keenly conscious of all the lessons he has learned during the past months of training. He has taken every possible precaution to make this first occupation of battle position secure. For the first time, the responsibility that is his for the safety of his soldiers is driven home. For the first time, he has the realization that his platoon will be on its own in combat.

The feeling of security that comes from the proximity of numbers is gone. Although his platoon is fairly close to the artillery emplacements it protects, it is

Several weeks ago he had been given two of the new universal, multi-mount antiaircraft-antitank guns on the highly mobile half track carriers

alone. He cannot confer with his battery C.O. He has been given his mission, and his platoon will have to swim or sink on the strength of its training and its own morale. This is why the "Old Man" has always made the platoon leaders work out their own decisions.

The platoon has almost finished emplacing, but to Daggett something seems to be missing. Not enough orders! His gun commanders have emplaced their guns after the simplest directions. Trucks have pulled back to bivouac with no fuss or confusion. Flank spotters are out, armed and ready to give any necessary alarm or to spot fire. Local defense guns are in place. Ammunition is concealed near by. The men are breakfasting now before daylight. What *is* missing? He suddenly realizes that this feeling is caused by the men having gone about their jobs like old veterans. He has not *needed* many orders. A little surge of pride comes, then, in the feeling that the men have been well trained.

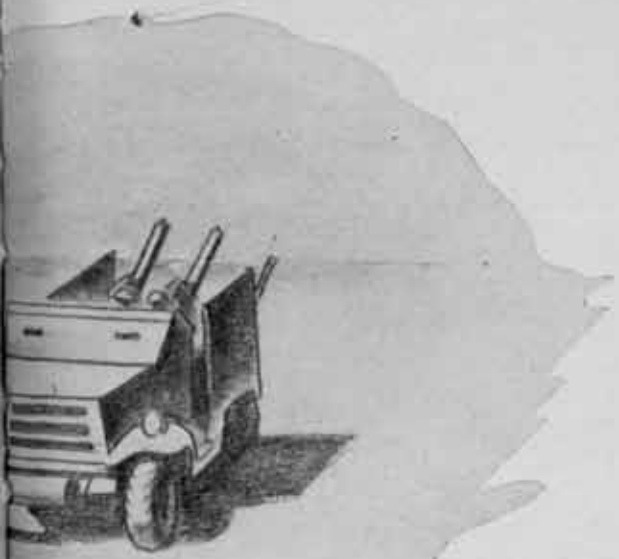
* * * *

Lieutenant Daggett turns over many things in his mind while he sips his second cup of hot black coffee. He recalls what has been passed along about enemy air tactics, about enemy tank tactics, and this blitz warfare in general. He recalls the terrific struggle of the First Armored Army (of which he is now a part) in halting that enemy mechanized drive.

The First Army had swung into place on the friendly left flank for a thrust at the rear of the enemy, whose panzer drive on the east threatened to bring complete victory. From intelligence reports it seemed as if the enemy had moved his attack to the front of the First Army with unbelievable speed, and had thrust their heretofore feared spearheads of mechanized might at the extreme west flank of the army.

Daggett recalled the information that had come back regarding the requirements for emplacing antiaircraft artillery. The mechanized threat had made it necessary for AA of all classes to seek more cover from tank visibility, at the expense of all around fire for aircraft. However, these AA weapons of the Armored Army, with their self-propelled mounts, made it possible to emplace closer to the defending troops. When forced to do so, these guns had been able to engage tanks and armored cars to the last minute and still pull out and avoid capture.

The enemy mechanized tactics had seemed so simple when Daggett had first heard the accounts. Artillery had pounded away at infantry strong points. The air arm had bombed a zone from ten to fifty miles in the rear, their targets being centers of communication, important railways, highways where troop movement might be blocked, airfields, halted troops, convoys and depots. Enemy infantry had made a massed attack to secure the jumping off place for the armored units. Then had come the boiling mass of the tank attack, with dive bombers machine gunning and blasting the centers of resistance. The lighter mechanized troops had then poured into the salient. The whole thing had resolved itself into the "modern charge," going ahead by successive echelons. The first tactical objective had



been to outflank, encircle and exploit, with the vital rears of the army as objectives. The attempt had almost succeeded!

To stop the enemy blitz had demanded a succession of brilliant withdrawals, determined counter attacks, consolidations and mopping up actions by the combat teams of the First Army. Ground had been given in swift moves to avoid the encircling tactics. These minor retreats many times had been counter actions, aimed at the exposed rear of the enemy mechanized units that had broken through. The difference between defeat and success in stopping the enemy drive had been the ability to get combat teams to the critical areas when they were most needed. Strike, retire, reorganize to strike again had been the technique. The enemy had been halted without loss of too much ground. Now the First Army was preparing to return the visit.

* * * *

Lieutenant Daggett thinks back over the changes that have been made in his automatic weapons platoon since it was attached to the First Armored Army. Several weeks ago he had been given two of the new universal, multi-mount antiaircraft-antitank guns on the highly mobile half track carriers. He had liked them from the first. Their mobility would make it possible to get them in and out of many tight places. Adjustment of fire was now done by one man, and that man was stationed on the carrier. The lead setting mechanism was constructed so a low speed, delicate adjustment could be used against terrestrial targets, or high speed, bold adjustments could be used against airplanes. He liked the new open sights on these guns. They were constructed of concentric octagonal rings spaced along a twenty-four inch bar. The rings grew progressively larger toward the muzzle, and such a sight made it possible for the gunners to see the targets at all times.

His entire platoon had been furnished rifles with bayonets, or carbines; and it now had an antitank rifle. The antitank rifle could be used to furnish some protection against a surprise attack by a lone enemy tank or armored car while the 37's were engaging air targets. The rifles with bayonets and the carbines would make the platoon less vulnerable in case of a surprise attack by an infantry force.

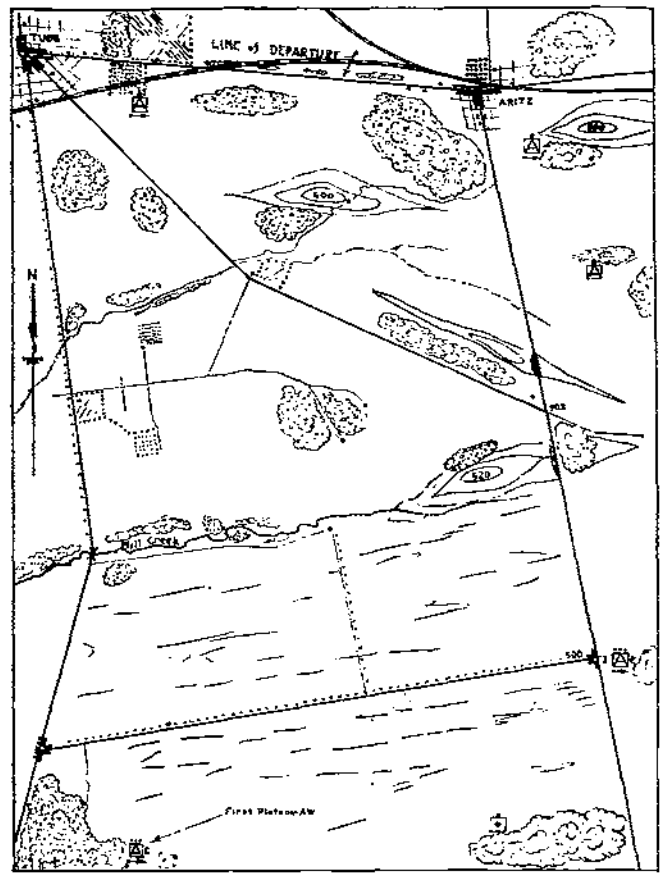
* * * *

The first faint light of dawn is now showing in the east, and Daggett looks about him with an eye critical to his selection of position.

"Yes," he confides to his platoon sergeant, "I believe that we have them well placed. We can see a long ways in most directions; see right down to the horizontal, too."

"Yes, sir!" The sergeant knew the requirements of a good gun position. "The field of fire is obscured by these trees we are using for cover, but our flankers can warn us if anyone comes that way."

"True enough," Daggett agrees. "Besides, our antitank mines are well placed in approaches through the woods, and the second platoon can catch any target coming from the south until it comes into our field of fire."



"Glad we have these new carriers; the old thirty-sevens would have been hard to emplace on this kind of ground," the sergeant says, kicking the toe of his shoe into the moist earth.

"One thing I don't like here is that those enemy planes can come out of the morning sun at us," said Daggett. "By the way, have the spotters been relieved so they can eat?"

"Yes, sir," says the sergeant. "They just came in. Are there any other orders?"

"Not now. Just be sure the gunners remember that we want to hit the first thing that we engage. We don't want to disclose our position unnecessarily. And, too, we're a moving outfit now. When we get the command to move forward, let's be ready to jump!"

It is nearly light now, and the mist has settled until it just covers the ground in spots. It seems as if nature is purposely cloaking the hiding places of friendly guns. In not many hours that clean white mist may give place to a far more deadly kind of mist; a mist that creeps and crawls, seeking a way into your gas mask.

Without warning the whole of the artillery in the area goes into action, hurling shell after shell through the now red-streaked sky. The effect is electrifying. Airplanes can now be seen and the gun crews look for exploding bombs. Away off to the southeast the throbbing beat of airplanes can be heard, and squadron after

squadron can be seen heading toward the enemy lines.

"Somebody's catching hell up there right now," mutters the sergeant. "Those one-fifty-fives can throw steel by the truckload, and those 'angel children' up there in the air aren't headin' for no picnic themselves."

"Yeah, and those one-five-fives will bring some visitors to us, too," chuckles the gunner of number one, as he expertly aims a squirt of tobacco juice at a "tumble bug."

He could not have spoken nearer the truth if he had been at the controls himself, for at that instant a gray streak shoots across the sky toward the artillery positions.

"THAT TARGET!! TRACK!" snaps Daggett, but even before the words are out of his mouth his gunners are tracking the plane. At the same time the fire of the third platoon is heard.

"HOLD YOUR FIRE!"

The plane is gone now, but everyone is alert for the "mate," since cobras are supposed to travel in pairs. No other plane is seen, and the sound fades into the distance to the accompanyment of sporadic fire of other automatic weapons.

"Glad we didn't open fire," Daggett thinks half aloud. "Pretty long shot, and there is no use telling them how many of us there are here. He will bring trouble before long, though, because he knows where our artillery is located."

The sounds of battle can be heard away to the north between the explosions of the artillery . . . sounds that roll back to the ears of the listeners like rumble of distant storm. An antitank platoon is seen moving forward along a road so much used that even the night's fog has been unable to settle the dust.

"Like watching a moving picture of a battle," mutters Daggett. "Helluva lot happening . . . audience just sits . . . watches. Wish something would turn loose around here . . . no action for us. Men don't seem to have anything to say . . . white lipped . . . nervous. Tempted to shoot at a bird . . . break the tension. God, those devils are fighting for the air off yonder. Have to control the air . . . necessary for the attack."

A motorcycle comes lurching across the uneven ground between the platoon and the distant road. The rider looks as if he has been astraddle his cycle for days. Daggett walks to meet him, wondering if this is the order to move forward before firing a single shot.

He glances at the hurried pencil scrawl. "Light armored force reported behind lines, headed south along left flank." Daggett initials the paper and hands

it back to the rider, and watches a moment as he tears off in the direction of the second platoon.

The tension of the men is eased somewhat by the break. Someone points to a battery of tank destroyers as it tears along the road off to the right. They have the same mulitple mounts on half tracks as those of Daggett's platoon.

"Wonder if they are looking for that motorized force, or if they are heading up to stop a counterattack by tanks," says the sergeant

Who the destroyers are looking for the men will never know, for at that moment they are seen by enemy planes. Nine mean looking fighters, flying just over the tree tops, can be seen heading right toward the artillery area.

"TARGET!" But the planes are interested in the destroyer column. They cut off to the side, swing into line and dive. The destroyers are alert, however. The guns swing about and attempt to get on the diving planes. The enemy has the first punch and his dive is practically unopposed. As they come out of their dive and turn to climb for altitude, some turn toward Daggett's platoon.

"COMMENCE FIRING!" His gunners have picked up the first plane that turns toward the platoon. Four streams of "fifty" tracers spurt from the two carriers. The adjusters try desperately to "feel" their tracer streams up to the climbing plane. When the fifty caliber tracers look good, the gunners cut in with the thirty-sevens.

"God dammit, they look good!" mutters Daggett. "Why don't they hit!"

Suddenly the enemy plane seems to falter; it slips to one side slightly but rights itself and levels away. The gunners know that they have crippled him with fifty caliber fire, but the next plane coming at them diverts their attention and they never see the platoon off to the right score the knockout.

An enemy plane has seen the action of Daggett's guns and at this moment is diving in to attack. A stream of machine-gun bullets rip into the ground around number one gun. A light bomb crashes, almost too close to the gun position. A wave of dust and debris pours over the gunners, obscuring for a time their vision.

Daggett runs toward his number one gun. The chief of section is cussing diligently and rubbing dirt out of his eyes. The gun crew is feverishly working to clear a stoppage on one of the fifties. One of the ammunition carriers is lying on the ground with a fractured leg, but none of the rest of the crew has been injured.

Another plane roars past the platoon, but this time off to one side, and no explosive is dropped. The tank destroyer battery is continuing its march, pounding away at the attackers as they proceed.

Amid all the other din of battle, Daggett is aware of the sound of three shots fired in quick succession by his number four spotter who is to the northwest. He whirls about to see three armored cars coming in the direction of the woods where his platoon is concealed.

"Good lord, why can't the whole enemy army drop in on us at once!" Daggett mutters. Here it was, that dreaded moment when a platoon leader is faced with the decision of whom to fight.

"The airplane may miss, even though his aim is unopposed," Daggett can hear his battery commander say, "but if you don't fight him, the man on the ground can close with you. Turn on the ground threat whenever you must to save yourself."

The armored cars are still out of range, and the guns of the platoon are still slashing away at the enemy planes every time one gets in range. Daggett glances at the enemy cars again. "They haven't spotted us yet. Those planes may leave us alone and follow that tank destroyer column before we have to engage the cars."

No such luck. Not only are the enemy planes still attacking the artillery positions, but more planes can be seen approaching. The armored cars are obscured by the edge of the woods now, and Daggett gives his attention to the fight at hand.

Enemy planes are smashing away at artillery emplacements. Friendly planes are coming to the aid of the artillery, but as yet are outnumbered. The confusion of roaring dogfights adds to the difficulties of the automatic weapons in firing at enemy planes.

The armored cars have spotted Daggett's platoon and are rapidly approaching their range. They have spread out now and are seeking cover from which to fire. The scream of a projectile, as it ricochets past the platoon's position, warns Daggett that he must soon change his target.

"Those blitz buggies are getting mighty close," mutters the sergeant, casting an uneasy glance in the direction of the advancing cars.

More shells kick up dirt a hundred yards away. The armored cars are now secure behind a rise of ground, apparently just in range. The position of Daggett's platoon is critical. He cannot fire on the cars because of their protected position, but he cannot continue to engage enemy airplanes because the cars might make his position untenable even from the extreme range.

"Prepare to move!" No enemy plane is in range and Daggett's decision is to attack the enemy cars.

The drivers start their motors, and extra ammunition is placed on the gun platforms. Daggett jumps in beside one of the drivers and gives the command to move.

"Follow me," and his carrier takes to the edge of the woods.

Shells rip into the trees about them every time they are exposed to the vision of the enemy cars. No return can be made yet, for the ridge still protects the enemy. They are well in range now of the enemy machine guns and automatic rifles, and every open space is like running a gauntlet.

"We can get at them from that place yonder," the

sergeant shouts in Daggett's ear, pointing to a bushy area at the edge of the woods.

Daggett points the place out to his driver, and the two guns swing about amid a hail of steel.

"Thank God for that armor around the gunners," mutters Daggett.

The gunners swing onto their targets and the adjusters put in their leads. Daggett indicates one enemy car to each of the guns.

"LOAD! COMMENCE FIRING!"

The duel is terrific but of short duration. The fire power of the two antiaircraft guns is greater than that of the three armored cars, and the enemy has now lost the advantage of cover. With a parting volley of fire, they swing about and retreat. As they swing into the open, however, they present a perfect, although moving, target.

Shell after shell rips the ground about the fleeing cars. One finds its mark; then another. The front wheel assembly of the car is torn off and the car lurches crazily. It turns over, throwing the occupants in all directions.

A shell rips into the gas tank of a second car and it bursts into flames.

Number two guns is out of action now, ammunition gone, and Daggett directs the chief of that section to go out and pick up the enemy prisoners.

* * * *

As his carriers slowly retrace their path back to the platoon, Daggett sees that the enemy planes are now outnumbered and are taking to their heels. How much damage has been done within the artillery area he cannot know. No guns are firing, however, and he wonders vaguely if they have been forced out of action.

A dispatch rider is waiting for him back at the gun position, and Daggett seems to know instinctively that here is the order to move forward.

"Good lord! And here we were *wishing* for action not an hour ago," Daggett mutters. He is tired. That nervous energy has been expended, and all the exertion of the hours past seems to weigh him down.

He looks around as the men prepare to move. Not too much damage. Two casualties, but neither of them fatal. Daggett has a feeling of awe and gratitude. The men have come through a harrowing experience. They are grim, but going about their jobs as if this were but on a maneuver. His soldiers are now . . . *veterans.*

It is a serious business, the conditioning of the soldier and the officer so that each will be equipped to fulfill his mission and duty of the battlefield, regardless of his degree of exhaustion. Unless much of the soldier's work is made automatic through constant practice, unless obedience to orders becomes an automatic instinct, the soldier is not free to exercise his initiative and enterprise on the field of battle.—LIEUTENANT GENERAL BEN LEAR.

ACADEMIC SC

Fate played one of its tragic tricks on France in 1935 when into the office of Vice President of the Supreme War Council at No. 4 *Boulevard des Invalides*, just vacated by General Maxime Weygand, walked a short, greyish officer: Maurice Gustave Gamelin. Weygand's retirement from the control of the French Army at the age of sixty-eight was a military event of more than average importance. Famed as the military brain and *alter ego* of Marshal Foch (who left the advice: "Call Weygand if trouble comes"), Weygand was long regarded as the symbol of France's military supremacy. It was known that the retiring commander-in-chief was not enthusiastic about his successor and would have preferred General Alphonse Georges, but that was often true of commanding officers and their successors. Time had not yet healed the wounds of the bitter wartime quarrels between French generals. Weygand was a Foch man, Gamelin a Joffre man. Joffre's treatment of Foch just before his own retirement in 1916 (Foch was placed on the inactive list on the grounds of ill health) had never been forgiven. Even after both marshals were dead their widows passed each other on the street without speaking. Weygand may have preferred Georges (who had worked with both Pétain and Foch) not because he loved Pétain more but Joffre less.

On his record Gamelin seemed to possess all the formal qualifications for his important office. From a professional standpoint he appeared to be the most accomplished officer in France—or in Europe for that matter. Had he assumed command of the French military establishment at a less critical time, he doubtless would have carried his brightly-burnished professional reputation with him to the security of the grave. Instead, it was his destiny to face one of the few great revolutionary changes in military methods and concepts with the weapons and concepts of an earlier and happier day. As a result, the story of his leadership in 1939-40 is one of disaster for the country he loved.

Gamelin came from a military family. His father, Zephirin Auguste Gamelin, served in the wars of the Second Empire, was wounded at Solferino, and ultimately rose to the rank of Comptroller General of the French Army. Maurice was born within the shadow of the War Ministry at No. 262 *Boulevard St. Germain* in Paris, in 1872. His education was given a strong Catholic bent in College Stanislas where he fell under the influence of Henri Cardinal Baudillart. He demonstrated a taste for philosophy and a talent for memory work which enabled him to graduate first in his class of 449 from St. Cyr in 1893. For three years he served in the 3d Regiment of the *Trailleurs Algériens* and put in an additional three years in the cartographical section of the Army Geographic Service. Here he developed a fondness for painting and an interest in the topographical features of the French frontiers. As captain of a company of *chasseurs à pied* he was detailed to the *École de Guerre* where Foch was making a name for himself as the foremost lecturer on French military problems. Gamelin's record at St. Cyr and his promising showing at the *École de Guerre* brought him to the attention of Joffre, whose star was rising in the French military firmament. In 1906 Joffre, commanding the 6th Division in Paris, made Gamelin his orderly officer. He stayed with Joffre when Joffre rose to the Vice-Presidency of the Supreme War Council in 1911. He was thus prepared to play a conspicuous rôle in the events of 1914.

Employing the tenacious memory he had developed at College Stanislas by memorizing ten lines of prose each night before retiring, Gamelin made himself master of the military literature on Napoleon. It was widely believed that he could repeat verbatim every order the Emperor ever issued. Such erudition was uncommon even in an army which made a fetish of the study of Napoleon. Two years' service with the line from 1912 to 1914 made him available for staff duty when the crisis came. In 1914, Gamelin was a trim, sleek, taciturn, quick-witted major of forty-two who had given considerable study to the problem of countering a German attack from the direction of Belgium. Joffre loved to have sharp-witted young men around him, possibly as a foil for his own ponderous mental processes. He brought Gamelin ("one of my red corpuscles") back to his staff in August, 1914.

The events of August and early September gave Gamelin a chance to utilize his early study on a German attack from the direction of Belgium. Plan XVII, the French program which called for a concentric advance by the French First and Fifth Armies in a brutal and relentless manner (*l'offensive brutale et à l'outrance*) broke down with heavy losses in the face of machine guns and artillery. With the apparently irresistible force of an avalanche the gigantic armies of Kluck (First) and Bulow (Second) rolled through Belgium into northern France. Berthelot was Joffre's chief of staff, but it was Gamelin who on August 25 wrote the famous Instruction No. 2 which admitted that the French plan of offensive war had failed and which an-

By Dr. H. A. DeWeerd

DIER: GAMELIN
And the Fall of France

Great was his faith in the "incomparable" infantry of France (armed with almost the identical weapons of 1918).

nounced the general plan of building up a sufficient force on the French left wing to menace the German right when the time arrived for the counterattack. For more than a week the victorious German armies rolled on driving before them what appeared to be "the beaten French armies." By September 4 it was apparent not only to Gallièni, Military Governor of Paris, but also to Gamelin that Kluck's force would not envelop Paris, and that the time had come to throw Maunoury's French Sixth Army which was concentrating at Meaux against Kluck's flank. Though historians have found it difficult to determine just who was responsible for the famous Marne maneuver, Joffre's *Memoirs* make it clear that Gamelin understood the situation fully and explained it to a group of officers in his presence at the operations room of General Headquarters on September 4. He urged that the counterattack be delivered the next day. Illustrating his points on a huge operations map Gamelin raised his voice (a thing uncommon with him) and firmly declared: "Now it is the time to bottle them up!" Joffre pleaded for greater delay so that the Germans might be more definitely drawn into the trap. But when reports from French army commanders and the BEF gave some hope for an early offensive action, Joffre asked Gamelin to prepare the decisive Instruction No. 6. It called for a general attack by all armies on September 6.

The complicated story of how the German armies blundered into the Marne defeat out of the feeble hands of Moltke into the irresponsible hands of a Lieutenant Colonel von Hentsch who presided over the destiny of the German Empire from the 6th to the 9th of Septem-

ber, has often been told. When the haggard German troops recoiled on September 9 from the menace of the advancing British Expeditionary Force and French Fifth Army, the "miracle" of the Marne raised Joffre to the stature of a hero, and long after Joffre had fallen from power it shaped the career of Gamelin.

Gamelin's first rewards were the rank of lieutenant colonel and the post of Chief of the Bureau of Operations. After the failure of the French offensives in the spring and summer of 1915, Gamelin urged Joffre to create a large mass of reserves to exploit future anticipated successes. The long-hoped-for and repeatedly announced "breakthrough" of the German line never materialized. But there was a mass of forty or more French divisions available when the German attack came at Verdun. The existence of this reserve made the successful but costly defense of Verdun possible, and it enabled Joffre to think in broad terms when the British needed help on the Somme. But the "blood bath" of Verdun and the Allied failure at the Somme brought Joffre into eclipse. He was replaced by the eloquent, mercurial, thrusting Nivelle. As a consequence Gamelin's position on the staff became insecure and he took command of a brigade. He distinguished himself in the stubborn fighting of the Somme, rising to the rank of brigadier general in December, 1916. From 1917 to 1918 he commanded the 9th Division.

In the critical days of 1918 Gamelin made the reputation of a tough, imperturbable, tenacious, fighting commander. The 9th Division was thrown into the breach when the German offensive threatened to drive a wedge between the British and French forces on March 23. For three days his division held up the advance of six German divisions. In the confused fighting he commanded a makeshift force of French and British infantry divisions and seven squadrons of cavalry. He impressed the troops as being a cautious, economical commander who attained his objectives with minimum losses by a meticulous regard for terrain, artillery preparation, and human factors. His philosophical calm inspired confidence. "There is nothing to be gained by getting angry with things," he used to say, "it is a matter of indifference to them." He seemed to agree with Haldane that "things military must be learned not from the generals but from the philosophers." By the time the war ended he also made a distinguished record as a fighting commander. He had also taken a vital part in the staff operations early in the war. At no stage in his well-rounded career had he committed an obvious error in judgment. He was destined for rapid postwar promotion.

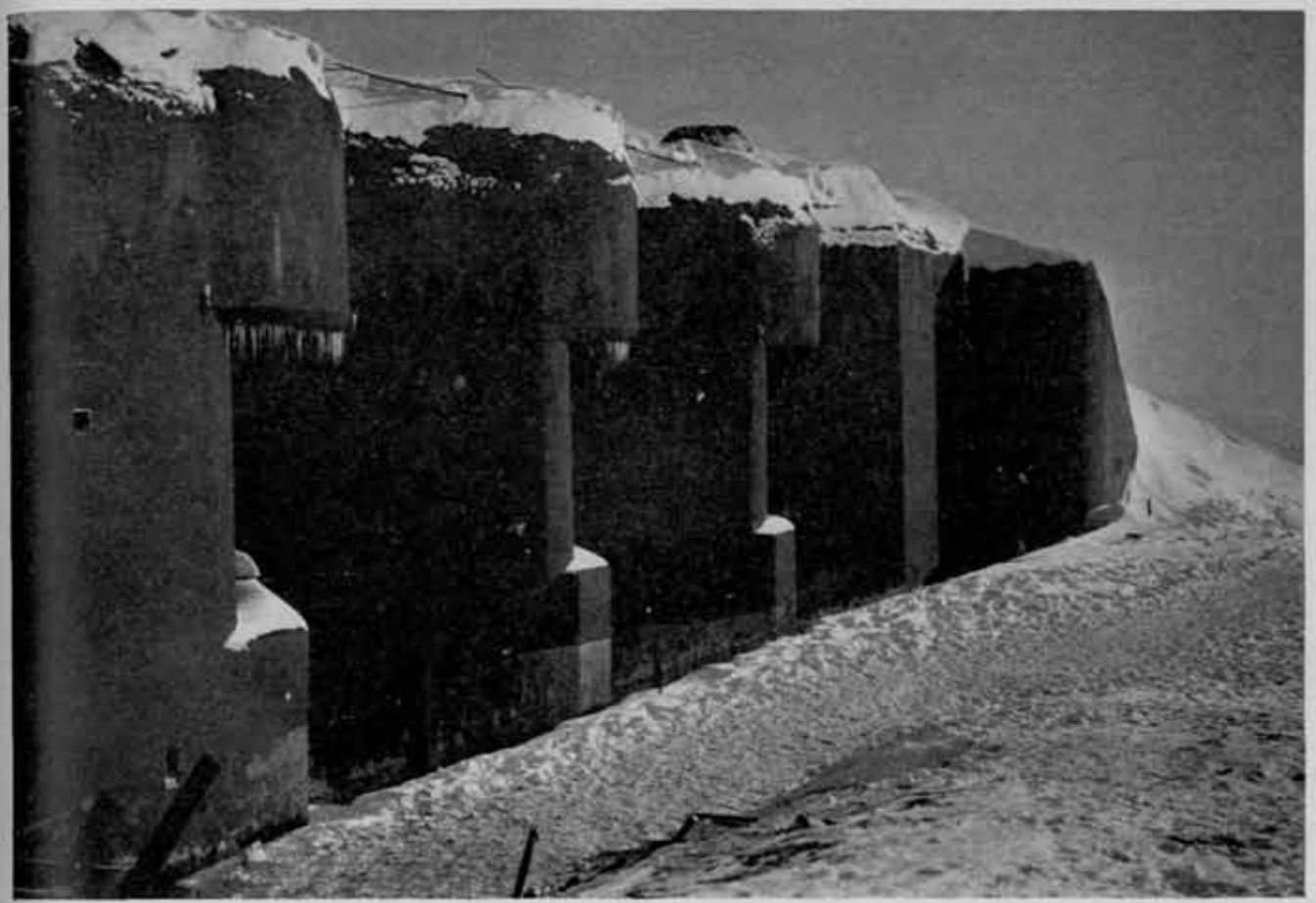
II

When the German armies collapsed in November, 1918, the prestige of the German military system collapsed with it. Brazil, which had previously sought the services of German military missions, now asked for French officers. In 1919 Gamelin was selected to head a French military mission there and stayed in South America from 1919 until 1925. This gave him a background of foreign travel and the international outlook essential for a superior officer. In September of 1925 he was detailed to the French command in Syria where he faced the problem of quelling a revolt of the Druses. One of his first tasks was to relieve a French outpost besieged at Soueida. His manner was so deliberate and his preparations so thorough that one correspondent wrote in a sarcastic vein: "General Gamelin now has more troops than the entire population of Druses, men, women, and children—when he gets reënforcements he may *perhaps* attack." Six months of campaigning and bombardment of Damascus which killed 1,400 civilians brought peace to Syria.

Gamelin came back to France in 1928 as a corps commander. He was appointed deputy chief of staff and in 1931 he became chief of staff. His succession to Weygand as Vice President of the Supreme War Council and commander-in-chief designate in case of war was almost automatic in 1935. He was then regarded as the most scholarly, accomplished, and competent professional soldier on the active list. His mastery of all the topographical features of the French frontiers and its road systems was absolute. His acquaintance with the senior officers of the army was such that he could name and recognize every officer with the rank of colonel or above. His colorless personality and complete indifference to politics made him a popular choice to succeed Weygand.

Simultaneously with Gamelin's assumption of supreme command the German rearmament program began; Italy was already embarked upon a program of imperialist expansion. The situation was one of increasing hazard for France. Gamelin had to deal with rapidly changing ministries, general strikes, Left Front folly, and a foreign policy as torturous as it was pusillanimous. In the comparative madhouse of flux the army was the one solid national element in French society. It alone could have brought national security back to its rightful place as the first objective of the government. But the voices of the soldiers had to be more resolute, their vision clear. If professional advice was repeatedly offered, with clear warnings given as to the danger facing the state, and were repeatedly ignored—there was always the honorable course of resignation.

It cannot be said that Gamelin was unaware of the growing dangers of the military situation. German and Italian military preparations were of such vast and open character that they could be and were described with fair accuracy by the European and American press correspondents. One did not need the services of a military attaché. Even so bookish a college professor as the American ambassador to Berlin could gauge the potential menace of Nazi war preparations. Pikestaff plain, too, were the implications of doctrinal changes in the application of industry and mechanics to war. Field trials in the Spanish Civil War were not for the Fascists alone. As a student Gamelin should have been among



The existence of the Maginot Line gave Gamelin's military thinking the appearance of soundness.

the first to see the menace inherent in the fanatical and demonic character of the Nazi system of thought.

Gamelin did, of course, take steps to meet the dangers of a collision with the rearmed Reich. But the steps taken were dictated by the military experience of 1918. He approved the completion of the Maginot Line and unsuccessfully urged its extension to the sea. When this advice was refused, he did not resign despite the fact that a defensive war was his main military concept. He attempted to offset the French numerical inferiority *vis-a-vis* Germany by extending the period of military service from one year to two. In simple terms this meant that he still looked at military problems as something to be solved by numbers. He did not see new doctrines, individualistic training concepts, the application of machinery to war, new coördination of air and ground forces, as means of gaining equality or even qualitative superiority over an enemy of potentially greater numbers.

Lest the obvious snap-judgment observation be raised that these are the counsels of perfection easy to make in the clear light of afterknowledge, I can only say that my library is full of foreign and American military journals which printed millions of words on just these subjects—*at that time*. There is little or no evidence to show that Gamelin took seriously the significant postwar German military literature such as General Gröner's *Der Feldheer Wider Willen* and other treatises on German strategy. Nor did he give more than passing attention to the prophetic book of Colonel Charles de Gaulle, *Vers L'Armée de Métier*, which advanced the claim of mechanized forces, or Paul Reynaud's *Le Problème Militaire Française*. So great was his faith in the "incomparable" infantry of France (armed with almost the identical weapons of 1918) that Gamelin allowed his country to repeat Ludendorff's error of making trucks to carry the troops rather than masses of tanks and planes to give them a chance for survival after they arrived where he wanted them to fight. Even if he could be excused for overlooking the havoc which enemy aviation could wreak on columns of entrucked infantry after Guadalajara, he still had eight months to think it over after the Polish campaign.

The existence of the Maginot Line gave Gamelin's military thinking the appearance of soundness. He strongly supported the concept of a defensive war and took comfort in General Chauvineau's dictum: "The attack must have three times as many infantry effectives, six times as much artillery, and twelve times as much ammunition, if it hopes to dominate the defense." He did not believe that the German Army had developed new and effective means of breaking through the fortifications in the west. The war which he foresaw promised to be a long-drawn-out struggle of attrition in

which the French armies and fortified positions would contain the German armies until the British blockade accomplished its mission of strangulation and exhaustion.

The military reorganization of 1938 in France pointed toward a preparation for this kind of a conflict. A single Committee of National Defense was set up covering land, sea and air forces, and representing the economic and financial elements of the nation. As chief of staff to Daladier, who attempted to achieve this coördination, Gamelin was in a position to influence the whole range of French preparation for war. His crystal-clear academic discussions with the members of the Committee of National Defense, his orderly reports and minutes enabled him to dominate the organization. He towered over the less well-informed members of the committee like a well-prepared professor over a class of sophomores. Gamelin's chief opposition in the committee came from Admiral Jean Darlan whose halting, fragmentary, salt-water language was an excellent cover for his growing political ambitions.

Gamelin's relations with Georges, who was to serve as commander of the armies in France in event of war, soon became complicated by the top-heavy military organization set up. Gamelin was to be Generalissimo of the Allied forces in France and responsible for land and air operations in all theaters. Prewar calculations envisaged him as a sort of super-Foch with Georges commanding the armies on the German frontier as Pétain had done under Foch in 1918. But because no war developed immediately on the Italian, African, or Syrian fronts and Poland collapsed, both Gamelin and Georges became in effect commanders in France. The separation of the French General Staff into three divisions located at Meaux, La Ferté-sous-Jouarre, and Vincennes did not help matters any. Rivalry between the two men was bound to develop under these circumstances.

If French military preparations for war were open to question in the realm of intellect and doctrine, there is less room for question over the state of material preparation. In the matter of light artillery the French Army was supreme in the period from 1914-1918. But in 1939 the French field artillery, even when modernized, was out of date. The artillery-ammunition situation was even more critical. Shells were scarce and prolonged controversy over the type of fuze desired held up the production of everything heavier than 75-mm. shell. Similar professional squabbles over the type of fuze for antiaircraft shell limited the effectiveness of this arm. It might be well to add, for whatever warning value it may have, that this intensely interesting professional debate over fuzes was in fact about to be settled at the time of the armistice with Germany in June 1940! The experiences in Spain had shown that the French 37-mm. antitank gun did not possess the penetration required. But the 47-mm. gun which was to replace it had virtually no stock of ammunition. French efforts to devise a perfect land mine for antitank protection failed. The improvisations resorted to proved to be just what improvisations always prove to be in modern warfare—totally ineffective.

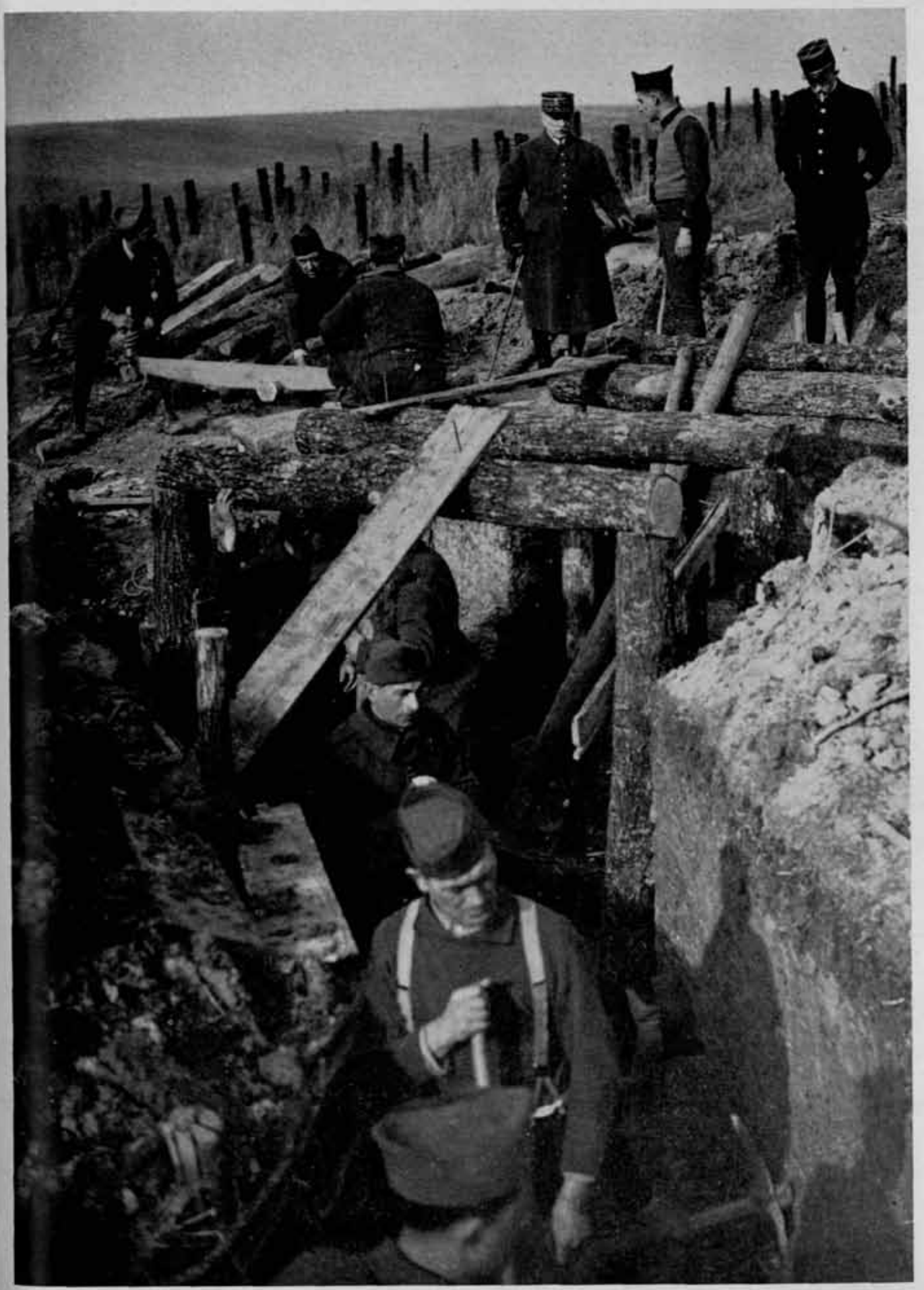
The French tanks were excellent, but there was no effective organization on larger than a divisional basis, and no clear cut doctrine on their employment as such. Trucks were available to haul infantry but they were not available to transport tanks. The individual fighting capacity of the French tank was higher than that of the average German tank of its own weight. But maintenance service, especially refueling, had not been worked out on the scale of continuous service which the situation soon demanded. There was certainly nothing like the preparation which enabled the German panzer divisions to keep rolling day after day from Sedan to Dunkirk. It has been reported that one excellent French tank unit in the scrambled fighting on the Somme was reduced to the "injun-fighting" tactics of covered-wagon days and forced to form an immobile hollow circle for want of fuel in the logistic breakdown that followed the unexpected character of the war. French military aviation, which was the most formidable in Europe in 1935, was allowed to fall to a poor fourth in 1939 well below that of Germany, Italy, and Britain.

I think it was the late Webb Miller who made the satirical observation: "The French Army is perfectly prepared in 1939—for the war of 1914," and it became thoroughly familiar to the cliché-conscious make-up editors before the outbreak of war. But the military "experts" continued to rate the French Army as the "finest in Europe" right up to the crash. The newspapermen were not experts—but they knew better!

III

When Germany occupied the Rhineland in 1936, Gamelin is said to have offered to drive them out if Prime Minister Sarraut would consent to general mobilization. He was not prepared to act against the 30,000 German troops in the area without placing the whole French military machine on a war basis. He was also unwilling to risk the occupation of the Saar as a counter-measure. If the Second Great War did not begin then, it began, according to Liddell Hart, when Italy and Germany gave active assistance to General Franco in July 1936. The formation of the Rome-Berlin Axis on November 1, 1936, ended forever the possibility of dealing with the Reich alone. From this time on Gamelin had to count on a war of two fronts.

Gamelin strongly supported the maintenance of France's alliances even when these were being undermined by diplomatic events over which he had no control. He preferred to fight at the time of Munich rather than see the bastion of Czechoslovakia and her thirty divisions surrendered. He is said to have urged that the maximum concessions given to Hitler safeguard the main line of Czech fortifications, her strategic railways, and armament factories. But the appeasers had their way. Nine months after Munich Gamelin came to the



So the German assault in the west had to be faced with the concepts and weapons of an earlier day.

conclusion that this surrender had tipped the balance against France, since by this time the Siegfried Line had progressed to a point where it made the prospect of military pressure on the Reich unpromising. He regarded the loss of the Czech war material and armament plants as more serious than the loss of her thirty divisions. Until August 23, 1939, there was still room for hope that the vast forces of Russia might be turned against the Axis. But the German-Russian non-aggression pact swept that prospect aside. With its signature the calculations based upon a two-front war against Germany vanished. Poland could no longer be saved.

Like Joffre in 1914, Gamelin gave the impression of utter confidence and serenity in the crisis of 1939. To a public alarmed at the prospect of seeing the French Army bleed itself white on the Siegfried position, he gave assurance that he did not intend to begin the war with a Verdun battle. This gave the impression that he had another less costly and more promising alternative in mind. Isolated from the impending harsh realities of war in his headquarters in Paris, and later in the Keep of Vincennes surrounded by his personal staff of fifteen officers adept at flattery and skilled in the ritual of idol worship, he presided over the mobilization of the French army like an "imperturbable military Buddha."

Under the hot sun of a late summer the mobilization of the French Army was completed without molestation from the enemy. The new British Expeditionary Force took up its position in France in the period of false calm and the two armies marked time while Poland was struck down in a three-weeks' campaign by the amazingly effective coördinate action of the *Luftwaffe* and the German armored forces. The press of the Allied countries treated the uninterrupted mobilization of Franco-British forces in France as if it in itself assured ultimate victory.

Since it was impossible to go to the aid of Poland, many voices were raised in France urging that action should be taken to define Italy's position, and if hostile to strike her down while the Germans were still occupied in the east. Gamelin did not favor opening new fronts. He was content to perch *au balcon* at the head of the Alpine passes and await developments. When Weygand advocated the opening of a front in the Balkans, he opposed this on the grounds that German numerical superiority and interior lines would render this dangerous. He wanted to confine operations to western Europe which would force the Germans to attack the Allied fortified lines in the west.

Because of the German air supremacy Gamelin vetoed the British proposal to bomb German synthetic gasoline plants for fear of reprisals. Thus the air stalemate developed along with the "sitzkrieg" on the ground. The full force of the German air power remained a secret until the attack of May 10, a circumstance that worked in favor of the enemy. Boredom as thick as night fell upon the front. It was not dispelled by Gamelin's super-cautious advance into the no-man's-land between the Maginot and Siegfried lines toward Saarbrucken. One supremely apt picture of the situation in the west reached the press and picture magazines of the world. It showed a French *poilu* slumped in a chair in the midst of a wood behind the front lines, his automatic rifle on the ground in front of him, on his face the unforgettable impression of utter boredom and purposelessness. "Experts" were careful to point out that the apparent shiftless appearance of the French troops, their dog-eared, untidy uniforms, and amateurish looking camps, their carelessly constructed barricades over which ancient Hotchkiss machine guns pointed with faint menace at the empty skies, were all marks of a veteran, competent, cagey, battle-worthy army.

Gamelin was apparently not disturbed or impressed by the rapid collapse of Poland. The social and military weaknesses of the Polish state in his opinion made it impossible to draw useful military lessons from her defeat. A single small pamphlet on German tactics in the Polish campaign was circulated in the French army, but it was not backed by action on the part of the high command. The Norwegian disaster, however, focused criticism on Gamelin since he obviously misjudged the speed and weight of the German stroke in that theater. Daladier, his chief supporter, was replaced by Reynaud as Prime Minister, and Reynaud was not so easily impressed with Gamelin's facile academic explanations of Allied strategy. In fact, Reynaud became so suspicious of Gamelin's leadership early in May that he was preparing to replace him by either Giraud, Weygand, or Huntziger when the German blow fell in the west. There was no time after Norway to apply the lessons of the campaign or to restudy the Polish disaster from the standpoint of new tactics. The German assault in the west had to be faced with the concepts and weapons of 1918.

IV

Gamelin had long considered the possibility of a German attack on Belgium and Holland. Since the repudiation of the French alliance by Belgium in 1936 no liaison existed between the two staffs. In January, 1940, Gamelin warned Belgium that if France were not permitted to send troops into the country for its protection before the Germans struck, the French relief forces could not be expected to advance much beyond their own frontiers.[1] He anticipated that Belgian resistance would hold up the German advance for at least five days, and that disorganization of the German forces after pushing through the Ardennes and Belgian fortified positions would leave them in a condition favorable for the counterattack of thirty Allied divisions earmarked for the movement. When the crisis came, however, he did not adhere to this sound program.

Possibly because he knew that Reynaud had criticized

[1] The farthest advance contemplated at any time before May 10 by Gamelin was to the line Antwerp—Louvain—Namur.

him for want of energy and daring, Gamelin met the German assault in the west with more than his customary swiftness and energy. His order of the day unwittingly provided the most damaging material for a future criticism of his own policies by asserting that "the blow which we have been expecting since September has at last fallen." This informed the world that his sole aim during all the months of military reverses had been to force the Germans to attack in the west. On the morning of May 10 Gamelin felt that he was on the eve of a complete vindication of his military program. With the swift impetuous stroke of a chess player who abandons his carefully prepared game when the opponent makes a long-expected move, Gamelin sent an Allied force of thirty divisions racing northward into Belgium and Holland. They advanced far beyond the confines of the plan announced in January, 1940. At the end of the second day motorized forces of General Giraud reached Breda.

Perhaps Gamelin expected to use the northmost Allied armies as a hammer with which to strike the German armies after they pushed through the Ardennes into Belgium. The Allied divisions moving with great swiftness and precision northward were curiously free from air attacks, which in itself should have aroused the suspicion of Gamelin. It might have told him that the Germans were eager to have him do just what he was attempting. The long Allied columns were ignored by the *Luftwaffe* which concentrated its attack on rear areas, and air fields, and communications. The confusion existing in Belgium and Holland and the penetration of the Belgian and Dutch lines on the second day of assault, should have made it clear to Gamelin that the five-day estimate of the German push through the Ardennes was no longer valid. Either Gamelin was not fully informed of the situation in the north or he was seized with one of his fits of academic indecision. He did not take the heroic step necessary to save the northern force from what was an obvious trap. A terrible face-destroying decision to withdraw the whole northern force, at the end of the first or second day of action, alone could have prevented the disaster of Flanders.

It took Gamelin five days (the time he calculated the Belgian lines would be able to hold the Germans) to grasp the full significance of the developments in the north. By that time the Germans had pushed the Belgian forces back from the Albert Canal line, and Holland had succumbed to a bewildering attack of four dimensions. Swarms of Stukas and highly trained small combat squads cut Corap's ill-fated Ninth Army at Sedan to shreds. The mighty armored forces of ten panzer divisions were ready to pour through the gap. Why reserves were not available to support this poorly trained and indifferently commanded force at the hinge of the Maginot Line has never been revealed. The Germans had always shown a marked tendency to strike at points where Allied armies joined or other natural lines of cleavage. Corap has been cleared of the early charges of gross neglect in failing to destroy the Meuse bridges, but the impression of slackness in the Ninth Army remains. It served no purpose to replace Corap on May 15 with General Giraud, since the confusion of the Ninth Army was so great that Giraud was never able to collect its staff and wandered into the enemy lines.

It was at this tragic hour that the division of the French General Staff into three parts proved fatal. Its ponderous machinery could not keep pace with the lightning character of developments. Gamelin was not in touch with the armies in the north. He was not correctly informed of the situation at Sedan. In a subdued but confident mood he appeared before the Committee of National Defense on the afternoon of May 15 and assured them that the situation was not beyond repair. But when he reached the castle of Vincennes and conferred with his staff, the full force of the impending tragedy broke over him. His quick academic mind told him that all was lost. Like a nervous chess player, who sees a sudden checkmate looming where he thought to win a *coup* himself, Gamelin figuratively swept the pieces off the board in an impatient gesture of surrender. He called Daladier on the phone and admitted that the situation was indescribably grave.

Reynaud, who had been deceived by the confident atmosphere of the French command, was thunderstruck. At first he refused to speak to Gamelin and tried to secure cabinet approval of his dismissal in favor of Weygand. This was not obtained until May 19, and in the meantime Pétain, the aged hero of Verdun, was brought to Paris as Vice-Premier to bolster French morale.

Two decisive acts remained to Gamelin before he was thrust from power. After spending a hectic day in uncertainty (and without consulting Reynaud) he issued his famous order of May 17 which carried the stirring "conquer or die" words of the Marne order of 1914. But the magic did not work this time. There was not the slightest change in the Allied strategic position to warrant it, and in view of the colossal concentration of German armored and infantry strength rolling toward the sea in the Somme area there was not the remotest hope of its fulfillment. The message was utterly meaningless. Even if all the French troops in that area obeyed the order literally and died fighting with their puny weapons against the terrifying team of the dive-bomber and the tank, the situation would not have been materially altered. Morale sagged immediately and irretrievably. France was lost.

The final act of Gamelin in the fearful drama of Flanders also bore the faint remembrance of happier days at the Marne in 1914. Five hours before he was replaced on May 19, he ordered General Billotte commanding the Allied forces in Flanders to launch a counterattack against the Somme gap. Before this could be undertaken Weygand assumed supreme command.

A Spahi horseman on the western front during the winter of 1939-1940.

His first question to Gamelin was: "Where are the French and British forces in the north?" So great was the confusion and breakdown of French intelligence that Gamelin could not give Weygand any clear picture of the situation in Flanders. The order for the counter-attack was postponed and Weygand was forced to undertake personal air reconnaissance in order to judge the situation.

It becomes clear that Gamelin's eleventh-hour order for a counterattack by the northern armies was a leap in the dark. It would be unfair to suggest, as some have done, that he made this move in order to forestall his dismissal, since it would be difficult for Reynaud to remove him while the only possible measure for the relief of the entrapped northern forces was under way. Nor does it seem fair to compare Gamelin's dismissal on May 19 with a hypothetical removal of Joffre after the battle of Charleroi in 1914 and say: "In this case there would have been no victory at the Marne." Joffre at least knew where his own forces were. He developed a plan possible of achievement. Gamelin was acting in the absence of information.

V

One is forced to admire Gamelin's composure in this moment of personal and national disaster. There were no heroics or melodrama. The mask of academic serenity was never lifted to reveal the extent to which he considered himself personally responsible for the fall of France. On May 23 he was found trimming the roses in the backyard of his apartment at No. 55 *Avenue Foch* in Paris. He assured his friends that he could and would defend his military policy and program. When the final collapse came he submitted to arrest and imprisonment at Riom with dignity and silence. Hard at work on the preparation of his memoirs, he has been an example and inspiration to other less confident prisoners. He looks upon his final vindication and exoneration as certain.

It is obviously too early to pass anything like final judgment on Gamelin. Some of the French archives were destroyed in the evacuation of Paris. Full documentary evidence may never be available. The findings of the Riom court should be discounted when they appear because of the political implications involved. The whole matter of Gamelin's responsibility for the French military position on May 19 is bound up with the supreme question of the Weygand-Pétain decision on June 16 that the whole war was lost and that Britain could not possibly prevail against Germany and Italy. Thus the full truth about the first stages of the war in the west may be hidden for years. But because of the immense warning value they contain, certain conclusions can and must be drawn.

Along with many others Gamelin completely misjudged the character of the social and military revolution which was taking place in the Reich during the years of his power. He compromised with the politicians instead of forcing them to provide for the security of the state. He was blind to the tactical innovations which the Germans had prepared in peace and had practiced in Poland and Norway. He staked his whole concept of a defensive war of attrition on the Maginot Line despite the ancient maxim that everything immobile can be destroyed in war. He put the discredited idea of the thin strong line to its final test despite the World War teachings as to the strength of positions in depth. He abandoned his safe and cautious program of a limited advance in Belgium in favor of a bold stroke as

far north as Holland. He took no warning from the notable immunity which the Allied relief columns enjoyed from German air attack. He did not interpret the events of the first two days' fighting in Holland and Belgium as invalidating previous concepts as to time and disposition of forces. He spent five vital days in arriving at a correct estimate of the German plan of attack. It was then too late to withdraw the northern forces. By the time he turned over control to Weygand he had lost touch with the French armies in the field and had no clear grasp of the situation.

The question may well be raised: "How could a professional soldier of Gamelin's attainments perform with such incredible maladroitness in a crisis which he admitted he foresaw since the start of hostilities?" A complete answer (if it were possible) would be of immense importance to professional soldiers everywhere. A partial answer might be that Gamelin was an academic soldier. Viscount Gort said flatly: "He was not a fighter." In the isolation of high office Gamelin retired more and more into the ivory tower of philosophical reflections on past military events and paid insufficient attention to the practical aspects of war. Combat officers visiting his headquarters at Vincennes found no opportunity in the erudite discussions of philosophy and art to comment on their front-line experience. According to André Géraud, Gamelin's ideas "came ready-made—he ceased to examine whether they were still valid. He felt that he had foreseen everything, calculated everything, arranged everything, and that he had nothing more to do." When the crisis of May smashed his little academic world to bits, he was incapable of elasticity of mind or resolute action. "He was a cold light."

Lord Tweedsmuir writing about another soldier summed up with amazing exactness the tragedy of Gamelin. He said:

> He was first and foremost a highly competent professional soldier. Now, a soldier's professionalism differs from that of other crafts. He acquires a body of knowledge which may be varied and enlarged by new conditions, such as new weapons and new modes of transport, but which in essence is a closed technique. . . . A powerful mind might work brilliantly inside its limits with little impulse to alter fundamentals. Change and expansion were consequently in the nature of a revolution, and were brought about either by a great genius, or slowly and grudgingly by some cataclysmic pressure. Hence the more competent and better trained the soldier was, the more averse he would be to alter his traditional creed until its failure had been proven with utter finality.

Because of the utter finality with which the career of Gamelin set the seal of failure on his methods and concepts, it may well mark the end of one military epoch and the beginning of another. Certainly any soldier after Gamelin who permits himself to enjoy the luxury of complacency and the comforts to be found in the maintenance of old concepts, who does not subject himself and his thinking to repeated and vigorous examination, whose mind is closed to the almost limitless application of science to the "new face of war," courts similar disaster for himself and for his country.

No Reason to be Irritated

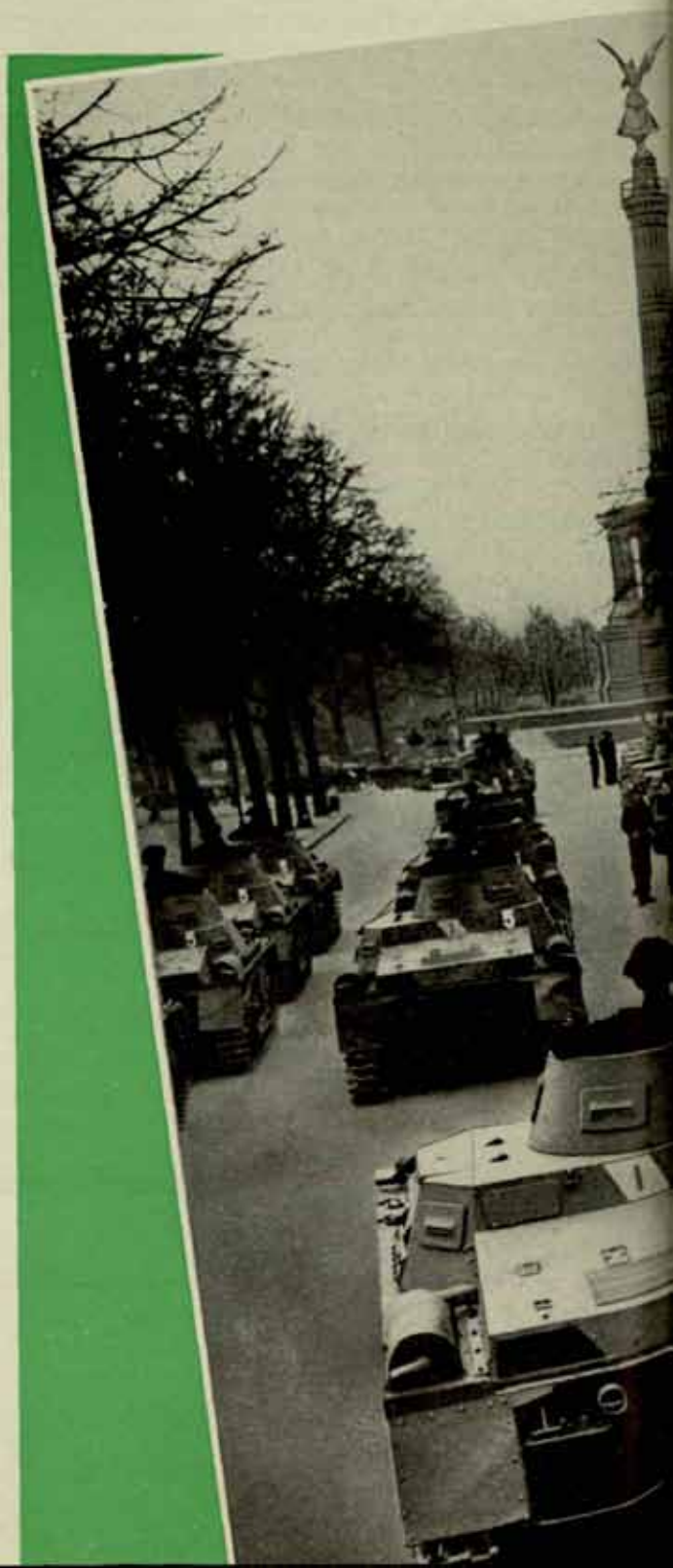
It is also sometimes true that a commander will find that one of his staff is so able and expert that his advice almost always offers a suitable basis for decision. To some commanders this may be an irritating state of affairs—to have as an assistant a staff officer or noncom who is always right. Other commanders, the true leaders, thank God that they are lucky enough to have such assistance. There need be nothing at all embarrassing in such a situation. An able leader will in fact learn, and learn gladly, from an expert subordinate. Actually, of course, the decision itself is always his, and even if there are few major differences of opinion on his part there will always be occasional minor ones on which the commander's decision will be his own.—Major Edward L. Munson, Jr., in *Leadership For American Army Leaders.*

The German i

"A wartime expedient, successful against the Germans in 1918 when their infantry was greatly reduced in numbers and surprised by this new device, the tank cannot yield good results against an infantry forewarned and adequately armed." So wrote an observer of the civil war in Spain, three years ago. About the same time another writer declared: "The tank, as well as the artillery, is only an auxiliary arm, intended to assist the infantry. . . ."

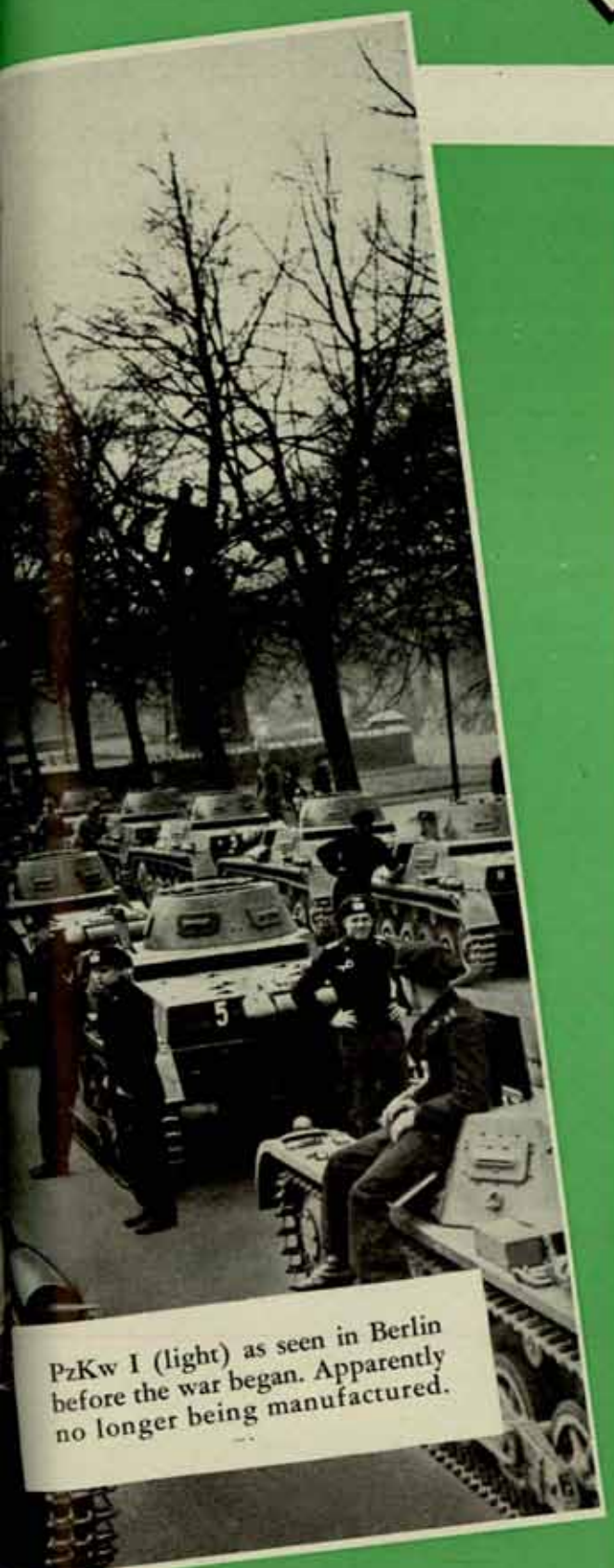
These statements, made so shortly before the cables were telling the story of the panzer onslaught against the Low Countries and France, the story that the great French Army, without equipment to deal with such an attack, was being slashed to ribbons by a new and terrible instrument, greatly minimized the power of this instrument. And since the Battles of Flanders and France, the pendulum of mechanized emphasis has swung violently, and perhaps too far. For now there is too great an insistance that tanks, plus planes, are in themselves the key to victory.

The observers of the war in Spain were perhaps sound enough in their judgment of a specific matter—that is, of the combat value of lightly-armored tanks, employed in more or less piecemeal fashion, and with little in the way of coördinated support from other arms. But as broad generalizations, their findings were far from accurate. To make sweeping conclusions affirming universal truth on the basis of slender evidence is an all too common tendency, not least in military writing. It has now come to be just as easy to overgeneralize the decisive importance of the tank. It is as absurd to argue that the tank arm—or, for that matter, the air arm—is the "decisive weapon" as it is to insist on the eternal supremacy of the foot soldier or the cavalryman. War is a supremely complex, collective effort. Many kinds of men, and even more varied techniques, are required for victory on the battlefield. However, one thought seems patent enough: The machine technology is as surely molding the methods of warfare as it is transforming all other institutions of our times. And the army that adapts itself most completely to machines—machines which can move fire-power at maximum speed and with a maximum of protection—that army clearly



By Captain Carl T. Schmidt

mored Force



PzKw I (light) as seen in Berlin before the war began. Apparently no longer being manufactured.

has a margin of superiority over opponents who do not make the utmost practicable use of modern means of war.

The tank has amply demonstrated its powers on the plains of Poland, in the rolling countryside of Flanders, France and Russia, on the deserts of North Africa, and even through the rugged mountains of the Balkans. Yet it is not the tank alone. It is the tank working and fighting against the enemy with equally mobile infantry, artillery, engineers, signalers, aviation, and essential services—a force of all arms, that has hopelessly outmoded the slow-moving combat units of 1918 pattern.

If the Germans were not the first to recognize the tactical and strategic possibilities of the tank in large, independent units, they were at least the first to exploit these possibilities to a major degree.

Tanks were first developed as a weapon with which to dispute the supremacy of the machine gun. Thus the infantry, immobilized by hostile automatic guns, was to have at least a degree of maneuverability restored to it. The tanks of the World War moved ponderously across No Man's Land, destroying enemy machine guns by their crushing weight as well as by their fire, and acting as a protective shield for the advancing infantrymen. This World War concept of the tank dominated the military minds of the victorious powers in the postwar years. Especially was this true in the French Army. It was held that the tank existed only to serve the infantry. Both arms were to work closely together. The tank should move no farther than the immediate objective of the infantry; it was to withdraw once it had aided the foot soldiers to reach their objective. To be sure, this viewpoint did not go unchallenged. There were some who pointed to the strategic possibilities of a speedy, far-moving armored force. Their argument did not prevail.

When the Germans began to rearm, they rejected the theory that tanks must be tied closely to the foot infantry. They decided that the speed of the modern tank could best be exploited, particularly after a successful breakthrough or envelopment, by using it in large numbers and by supporting it with highly mobile infantry, artillery, engineers, and aviation. Once the main hostile defenses had been overcome, such a force would be capable of striking rapidly through the entire depth of a hostile position. The supporting elements

would be mobile enough to consolidate the gains made by the tanks, as well as to assist the penetration. A further advantage was seen in the organization of a mixed armored force under single command. General Guderian—the best-known tank soldier of Nazi Germany—put it as follows: ". . . There are important strategic and tactical objections to the organization of separate low-speed tank units for the infantry. The tank units that are designed for strategic purposes may also be used tactically either as entire units or divided. On the other hand, it would be impracticable to combine the division tank battalions for strategic employment. Aside from the fact that their equipment is not suitable for missions of this kind, the combined force would lack the requisite headquarters and could not produce them at will. The greater the speed of an arm on the march and in combat the more important that it and its commanders be trained in units that are organized in peace the same as they would be in war. In this respect, we have a valuable lesson in the misfortunes suffered by the German cavalry in 1914 as a result of untrained staffs, poor communications, inadequate equipment, and faulty march technique on the part of large units; all of this can be attributed to its pre-war organization."[1] The Germans felt that the experiences with tanks after 1918—as in the Spanish Civil War—confirmed their decision to establish self-contained armored divisions.

Organization of the Armored Division

The organization of the German armored division is quite flexible. Changes in the details of its structure and equipment appear to have been frequent. Units are recast to suit the expected requirements of specific tasks; the availability of matériel and the formation of new divisions also make for variations. Nevertheless, it is possible to detect a general pattern of organization:

Division Headquarters

Armored Brigade

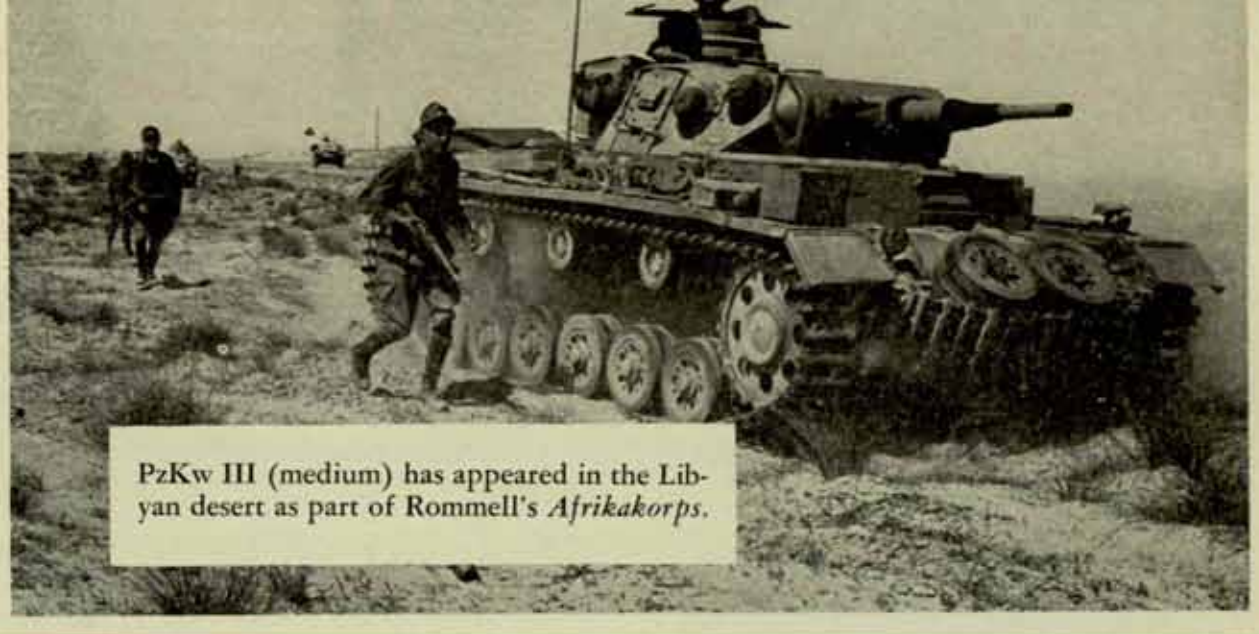
1 or 2 tank regiments plus staff, reconnaissance, communications, and maintenance elements (200 to 450 tanks).

Motorized Infantry Brigade

1 or 2 motorized infantry regiments, plus staff, assault

[1]General Heinz Guderian, "Armored Forces," The Coast Artillery Journal, November-December, 1937.

PzKw II (light) as used during the attack on the Netherlands.



PzKw III (medium) has appeared in the Libyan desert as part of Rommell's *Afrikakorps*.

artillery, reconnaissance and communications elements.

Artillery Regiment
Several battalions of motorized artillery – 75-mm., 105-mm., 120-mm., 150-mm., possibly on self-propelled armored mounts.

Motorized Antitank Regiment or Battalion
47-mm., 50-mm., 75-mm., antitank guns, possibly on self-propelled armored mounts.

Motorized Reconnaissance Regiment or Battalion
Light tanks, armored cars, motorcycles.

Motorized Antiaircraft-Antitank Regiment or Battalion
15-mm., 20-mm., 37-mm., 88-mm., AA-AT guns, possibly on self-propelled, armored mounts.

Engineer Battalion
Bridge and ferry equipment.

Communications Battalion
Telephone and radio equipment.

Supply, Maintenance, and Medical Services
Motorized equipment.

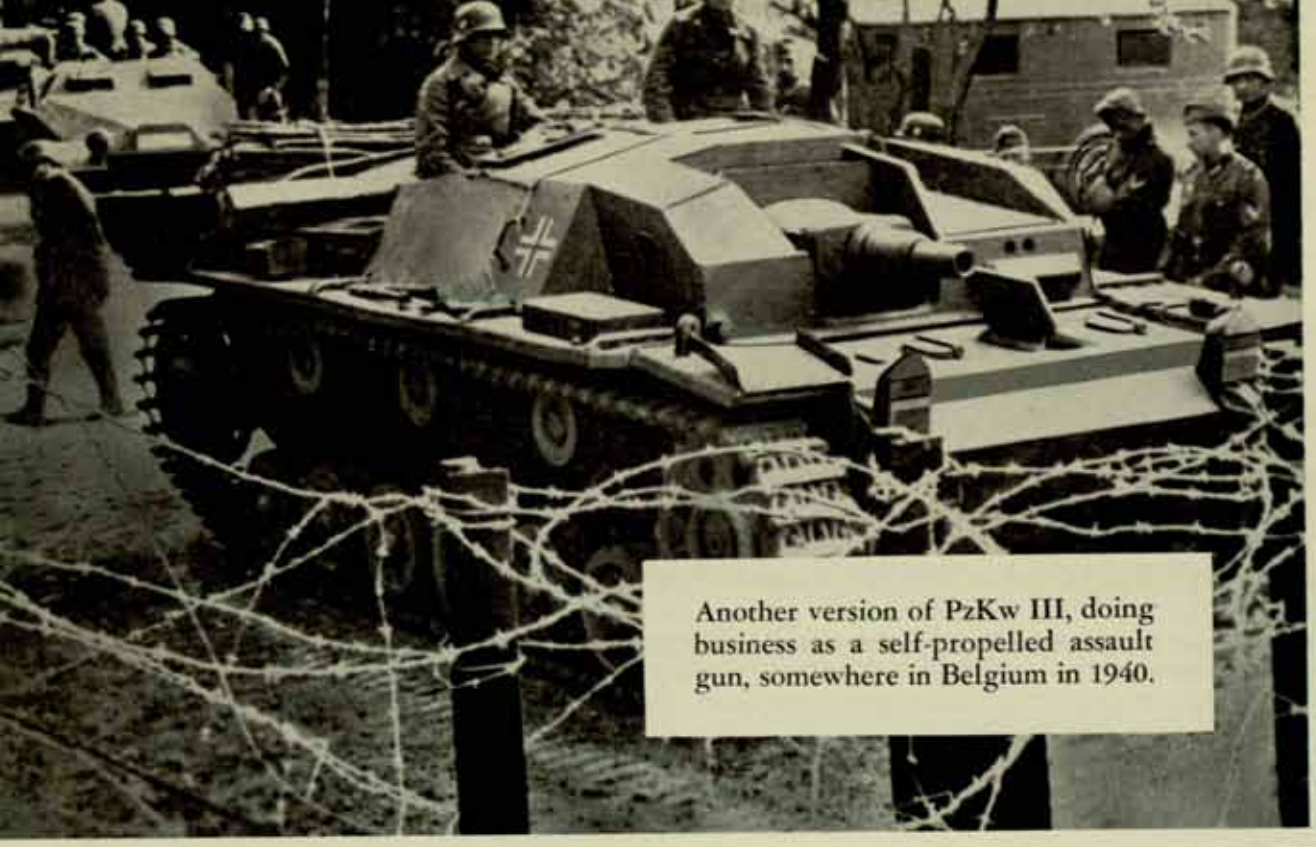
Attached Aviation
Reconnaissance and bombardment units, AA units.

The division has been designed to make the most of the speed, shock action, and protected fire power that modern technology makes possible. Its core is the tank brigade. All other elements—motorized infantry, artillery, reconnaissance, communications, engineer, antiaircraft, and antitank elements, attached aviation—are intended to assist the tanks' maneuver, to protect them, to hold ground that they have won, to exploit their successes. The tendency during the past year appears to have been to strengthen the antiaircraft and antitank defenses of the division, to provide more close-support artillery on armored mounts, to shift from light to medium and heavy tanks. Obviously, this is a hard-hitting, highly mobile force, capable of considerable independent action.

The tank brigade may consist of two identical regiments, each equipped with light and medium tanks, or of one medium and one heavy tank regiment. However, in certain divisions the brigade has only one regiment. The tank regiment consists of two tank battalions (each containing three light or medium and one medium or heavy tank company), and one antitank battalion. It also includes engineer, communications, and maintenance elements, and probably has antiaircraft weapons. There are about 200 tanks in the regiment. Apparently each tank is intended to have two complete crews—one in reserve transported in personnel carriers—but it is not certain that this standard has been maintained in practice.

A "normal" division, consisting of the maximum number of units shown above, probably has a strength of 12,000 officers and men, and employs 3,000-3,500 vehicles—tanks, armored cars, automobiles, trucks, and motorcycles. A small division, with but one tank regiment and a corresponding reduction in the support elements, has been employed in North Africa. It is possible that difficulties of supply and maintenance in a region of poor communications have been responsible for this smaller-scale organization. A "heavy" armored division is also reported to be in existence. It is equipped with heavy tanks and is especially strong in artillery and antitank weapons. Light tanks are eliminated except for reconnaissance and liaison purposes.

It is said that the armored division may be employed as a unit, or in certain situations, as two separate forces. That is, the tank brigade may be used wherever supporting tanks are needed, and the support elements as a small motorized infantry division. However, this would not seem to be an efficient way of undertaking missions suitable to other organizations.



Another version of PzKw III, doing business as a self-propelled assault gun, somewhere in Belgium in 1940.

An armored corps consists of several armored divisions and motorized infantry divisions, plus aviation. Panzer armies, probably composed of two or more corps, have made their appearance in the Russian campaign.

German Tanks

What are German tanks like? This, too, is a question that at present can be answered none too definitely. To be sure, certain types have been captured and closely studied. But others are known only vaguely.

In general, the quality of the vehicles appears to be good. But they are probably no better than tanks of other powers. It is said that their armorplate is not of the best (it is probably homogeneous), that joints crack rather easily, that the tracks do not stand up too well. On the other hand, German tanks have been carefully designed to make them tactically effective. Despite the relative inferiority of the steel, their armor is hard to penetrate, for the plates are set at such angles that many projectiles glance off. Moreover, there has apparently been a tendency to rely primarily on the tank's speed rather than on its armor for protection from antitank fire. Observation and communications equipment is believed to be excellent. Some models have power-operated turrets, periscopes, and smoke-screen equipment. In the newer production self-sealing fuel tanks have been installed, as well as fireproof walls between the crew and engine compartments. Collective antigas protection is a feature of certain types. All in all, the German tanks have proved themselves to be efficient fighting vehicles.

But the great strength of the German tank arm lies in its numbers. The emphasis has been on producing large quantities of vehicles just good enough to do their job rather than on making smaller numbers of technically more perfect tanks. For example, homogeneous armorplate is cheaper and easier to make in quantity than the more resistant face-hardened plate. This has entailed a good deal of improvisation, too. For example, when it was discovered that certain tanks were very vulnerable to antitank fire, their surfaces were reinforced simply by riveting extra plates over the spots subject to heavy fire. Thus it was not necessary to withdraw these vehicles wholly from service. In the meantime, no doubt, improved models were being designed and manufactured.

At least five types of German-built tanks are known to have been in service since the outbreak of the war. Two other models have been reported. In addition, tanks of French and Czech, and possibly also Polish, manufacture are used. Not only did the Germans capture large numbers of vehicles, but—perhaps more important—they are also availing themselves of French and Czech production facilities.

Essential characteristics of these tanks are shown below. The Germans appear to classify their tanks, not by weight, but in terms of their weapons. Thus a "light" tank is one equipped only with machine guns.

(1) *PzKw I.* Light tank
Weight: 5.7 tons
Crew: Two
Maximum armor: 18-mm. (0.7 inch)

Armament: 2 light machine guns
Maximum road speed: 32 m.p.h.
Radius of action: 95 miles

(2) *PzKw II.* Light tank
Weight: 9 tons
Crew: Three
Maximum armor: 20-mm. (0.8 inch)[2]
Armament: 1 heavy machine gun
1 light machine gun
Maximum road speed: 24 m.p.h.
Radius of action: 125 miles

(3) *PzKw III.* Medium tank
Weight: 18 tons
Crew: Five
Maximum armor: 30-40-mm. (1.2-1.6 inches)[3]
Armament: 1 37-mm. or .50-mm. gun
2 light machine guns
Maximum road speed: 28 m.p.h.
Radius of action: ?

(4) *PzKw IV.* Heavy medium tank
Weight: 22 tons
Crew: Five
Maximum armor: 40-60-mm.[4] (1.6-2.4 inches)
Armament: 1 75-mm. gun
2 light machine guns
Maximum road speed: 23 m.p.h.
Radius of action: ?

(5) *PzKw V.* Heavy tank
Weight: 32 tons
Crew: Seven or eight
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 75-mm. gun, 4 machine guns; or
1 75-mm. gun, 1 37-mm. gun, 3 machine guns
Maximum road speed: 31 m.p.h.
Radius of action: 12 hours

(6) *PzKw VI.* Heavy tank
Weight: 35 tons (?)
Crew: ?
Maximum armor: 75-mm. (3 inches)
Armament: 1 75-mm. gun or 1 105-mm. gun
2 20-mm. machine guns
4 light machine guns
Maximum road speed: 25 m.p.h.
Radius of action: 16 hours

(7) *PzKw VII.* Super-heavy tank
Weight: 90 tons (?)
Crew: 18 (?)
Maximum armor: 90-mm. (3.6 inches)
Armament: 1 105-mm. gun
2 47-mm. guns
4 machine guns

[2]Additional 20-mm. plates may be welded on vulnerable surfaces.
[3]Additional 20-30-mm. plates may be welded on vulnerable surfaces.
[4]Including additional 20-30-mm. plates.

PzKw IV (heavy medium) as seen during the Battle of France.

PzKw V-VI (heavy) being landed at Oslo, Norway, during the Norwegian campaign.

Maximum road speed: 18 m.p.h.
Radius of action: 16 hours

The PzKw I and II (PzKw = *Panzerkampfwagen* = tank), too lightly armored for modern antitank weapons, appear now to be limited to close reconnaissance, security, and liaison missions. In fact, PzKw I seems no longer to be in production. Many of these light tanks, also some mediums, have been converted into antitank and assault artillery weapon-carriers. For major combat purposes, chief reliance is now placed on the medium and heavy tanks, that is on types III, IV, and V. These are very effective vehicles. It is doubtful that the heaviest types (VI and VII) have been issued to units in any quantity. In fact, it is not certain that more than a few of the PzKw VII have been produced.

Experiments are said to have been made in transporting light tanks by airplane. That this is at least feasible was demonstrated by the Russians in 1936. But there are technical difficulties involved, and it is not clear that the advantages would be great unless somewhat heavier and better-armed tanks could be transported in sizable numbers. No real evidence had appeared up to November 15 of this year, that plane-transported tanks have been employed in combat. It is also believed that the Germans have several types of amphibian tanks, vehicles useful for reconnaissance and for establishing bridgeheads. Here again, there is no indication that these tanks have been used in great numbers. The Czech and French tanks most likely to be in use by the Germans have the following characteristics:

(1) *TNHP*. Light medium tank. Ex-Czech
Weight: 12.5 tons (?)
Crew: Five
Maximum armor: 50-mm. (2 inches)
Armament: 1 27-mm. gun
2 light machine guns
Maximum road speed: 26 m.p.h.
Radius of action: 125 miles

(2) *CKD V8 H*. Medium. Ex-Czech
Weight: 16.5 tons
Crew: Three or four
Maximum armor: 25-30-mm. (1-1.2 inches)
Armament: 1 47-mm. gun
2 light machine guns
Maximum speed: 27 m.p.h.
Radius of action: 96 miles

(3) *Hotchkiss H* 39. Light-medium tank. Ex-French
Weight: 12 tons
Crew: Two or three
Maximum armor: 40-mm. (1.6 inches)
Armament: 1 37-mm. gun
1 light machine gun
Maximum road speed: 26 m.p.h.
Radius of action: 130 miles

(4) *Renault* 1937-38. Light-medium tank. Ex-French
Weight: 12.5 tons
Crew: Two or three

Maximum armor: 60-mm. (2.4 inches)
Armament: 1 37-mm. gun
1 light machine gun
Maximum road speed: 15 m.p.h.
Radius of action: ?

(5) *Somua* S35. Medium tank. Ex-French
Weight: 18 tons
Crew: Three
Maximum armor: 40-mm. (1.6 inches)
Armament: 1 47-mm. gun
1 light machine gun
Maximum road speed: 29 m.p.h.
Radius of action: 140 miles

(6) *Char B.* Heavy tank. Ex-French
Weight: 31 tons
Crew: Four
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 75-mm. gun
1 47-mm. gun
2 light machine guns
Maximum road speed: 17 m.p.h.
Radius of action: 150 miles

It may be that other types of French and Czech tanks are employed by the German Army. Furthermore, French and Czech manufacturers have been producing for the Germans; the quantity of their output, however, is not known. A number of Polish tanks, mostly lightweight, also fell into German hands. These vehicles, if used at all, have most likely been converted into gun mounts. It is reported that the French Char B, too, has been modified into an artillery carrier.

The Armored Division in Combat

In the German conception, armored units must exploit to the utmost the speed inherent in tanks. To this end, it is essential to win surprise, to drive forward relentlessly in mass, to give the enemy no time for counter measures. Stubborn centers of resistance are enveloped or by-passed, to be reduced by troops coming up from the rear. Once the armored attack is launched, it must not be slowed down by foot infantry. For that would sacrifice the tank's speed to a dubious security. The armored force is above all an arm of slashing offensive.

But the tank, too, has its limitations. It cannot long hold ground without support. Terrain obstacles—natu-

PzKw IV (heavy medium) shown early this year. This tank is supposed to be an improved version.

The Hotchkiss 1939, ex-French (light medium), is now in German hands.

ral and artificial—must be removed or beaten down by supporting troops. It is therefore necessary that these troops be able to move as fast as the tanks. Furthermore, an initial penetration must be hammered at by all arms, maintaining continuous pressure until the enemy's resistance disintegrates and a complete breakthrough is made. It is then, when rear areas are open to maneuver, that the strategic possibilities of the armored force can be realized fully.

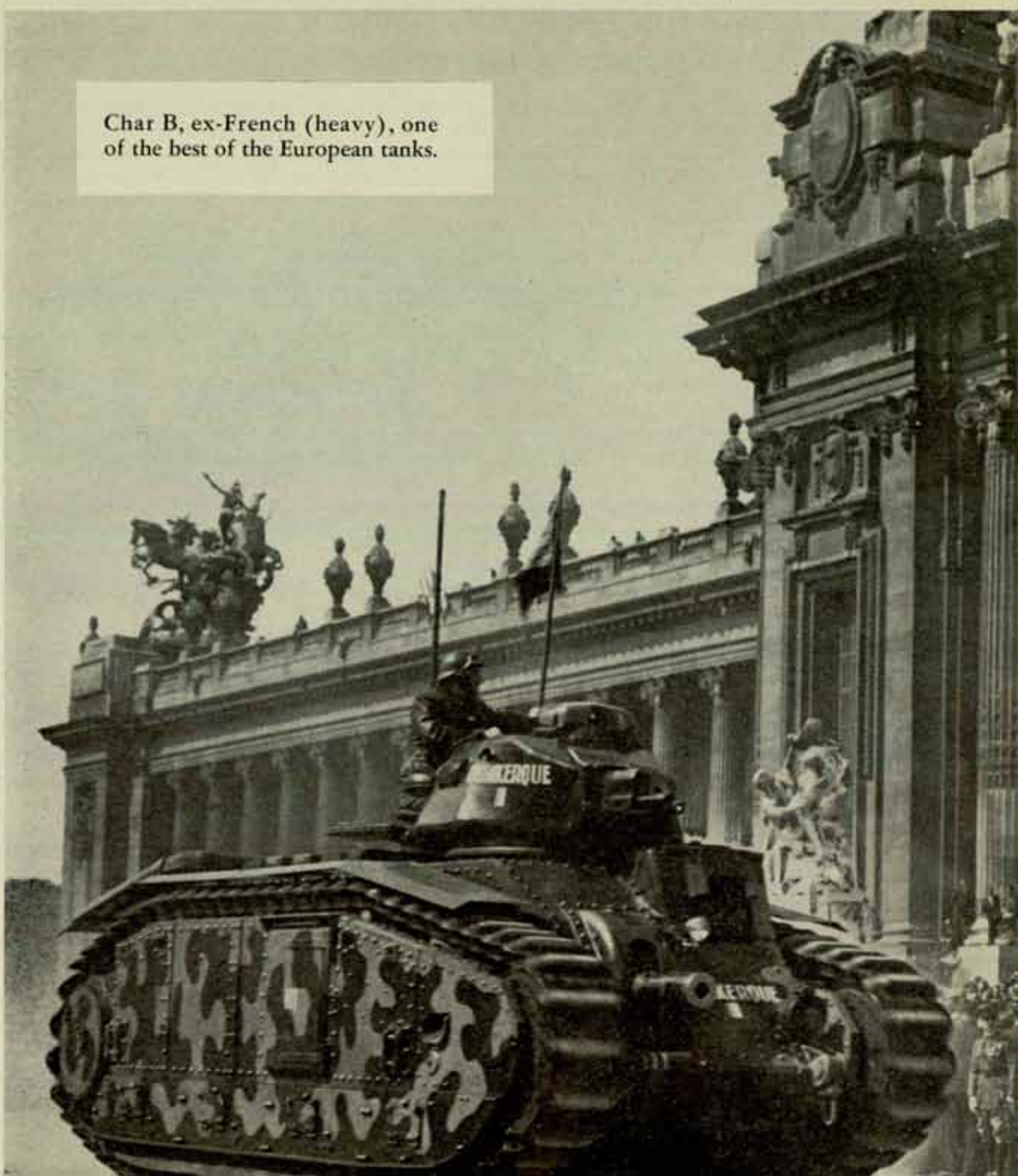
Obviously, there can be no hard-and-fast application of these principles to specific situations. As always, the ground and the enemy's dispositions must determine the precise mode of attack. The following is a summary of the doctrine on tank warfare as it appears in German commentaries.

Terrain influences greatly the nature and direction of the tank attack. It is better that tank units advance over favorable ground than that their movements be coördinated with other arms over difficult terrain. At the least, obstacles will slow down the tanks and may rob the attack of surprise. Careful reconnaissance by every available means—including, perhaps, personal air reconnaissance by the tank commander—is therefore essential. Only rarely will the situation justify an attack immediately from the approach march. If obstacles are discovered, means must be found for going around them, or removing or destroying them. This is a task for the support elements. Thus, mines will be removed by the engineers; a river barrier is surmounted by establishment of a bridgehead by the infantry and engineers. Yet these preparations must be held to a necessary minimum. Obviously, too, concealment is important. Tank movements, even at this stage, should be swift. So far as practical, they take place at night. Under certain wind conditions, it may be necessary to blanket the noise of tanks by the sound of artillery fire or low-flying aircraft. Radios are generally not used until the attack begins.

In most cases, a tank attack is decisive only when it is a concentration of force. Against an organized opposition, certainly, the tank brigade will be employed in mass. A brigade of two regiments may have a front of 1-2½ miles, and a depth of 2-3 miles. The tanks are deployed in two or three waves, with intervals of 50-150 yards between vehicles. Once within enemy observation all movements prior to opening fire must be at top speed.

Ideally, the leading wave pushes through the main line of resistance to destroy the enemy antitank and artillery weapons. No effort is made to mop up. But

hostile tanks may be encountered. If this is the case, every force must be concentrated on their destruction, for they are the most dangerous foe. Once the enemy's tanks and antitank guns are eliminated, the leading echelon attacks reserves, supply and communications depots, headquarters, and other installations. The objective is to isolate the hostile centers of resistance and make it impossible to send up ammunition and reinforcements. Subsequent tank echelons, which may be accompanied by mobile infantry, attack enemy defensive positions, especially the infantry heavy weapons, break passages through wire for the infantry, and go on to assist the leading wave in destroying forces in the rear. Tank units must press forward to their individual objectives rapidly. (Again, it is emphasized that the tank's best protection is its speed rather than its armor.) In some cases, however, important terrain features must be held until the infantry arrives.



Char B, ex-French (heavy), one of the best of the European tanks.

A main task of the motorized infantry is to give fire support to tank units, to mop up and hold ground overrun by the tanks, and to protect the vehicles when they reassemble. But the infantry must also be ready to break open a route for tanks by finding a soft spot in the hostile position, and by attacking hostile antitank weapons and other defenses that endanger the tanks. In fact, at times—as when the terrain is unfavorable or the situation is obscure—the infantry must attack before the tanks can advance. This has marked disadvantages: The full momentum of the attack may be lost; friendly infantry may be hard for the tanks to locate; coördination between the various arms may be difficult. On the other hand, it is possible that the enemy's scheme of defense will be clarified, that some at least of his antitank guns will be destroyed, and that ground favorable for the tank advance will be captured.

The armored force artillery, itself highly mobile, has as its prime mission the destruction or neutralization of hostile artillery and antitank weapons, observation posts, and tank obstacles. Woods, villages, and other areas unsuited for tank movement should be neutralized. At times, the tank attack may be preceded by a short, intense artillery preparation. During the tank advance artillery must pay especial attention to the flanks of the penetration, covering them with high explosive and smoke projectiles. Self-propelled artillery may actually accompany the tank echelon in order to engage enemy tanks. Antitank and antiaircraft units protect the tanks, particularly when they are most vulnerable to air and ground attack, that is, when they are in assembly areas. Mechanized antitank weapons may also give close support to the tank attack.

Engineers are of great importance in expediting tank movements. They bridge rivers, remove mines laid by friendly as well as hostile troops, and in other ways prepare routes of advance. (General Guderian has stated that in Poland and France the engineers of his command built 208 bridges with a total length of 5,925 meters; 135 of these bridges had a carrying capacity of 16 tons or more.) During the attack, engineer units may have to keep up with the tanks in order to remove mines promptly, make crossings over trenches, blast barriers, and help stalled vehicles to move on. They may also be used with infantry to reduce prepared positions.

At least a local air superiority is a prerequisite to successful employment of armored formations. Short of this, it is unlikely that the essential surprise can be obtained. The supporting air force must be under command of the armored force leader. Air reconnaissance plays an important rôle before and during the attack. Supplemented by fast ground reconnaissance, it helps locate feasible routes for the tanks, enemy concentrations and movements, antitank and artillery emplacements. Bombardment aviation acts as flying artillery. It attacks hostile centers of resistance, antitank obstacles, reserves, and obstacles. Air-borne troops may be landed in the enemy's rear, to seize and hold vital points and then to organize areas of support for the tank breakthrough. Such attacks may also divert the enemy's attention from the armored onslaught.

When tanks break down or are knocked out by enemy weapons and mines, they must be recovered by the maintenance echelon. So far as possible these tanks must be repaired and put back into action promptly. The ultimate decision may well turn on the number of tanks that can be salvaged. Therefore maintenance crews are kept well forward during the attack. Similarly, relief crews are provided whenever feasible. Tank units are reorganized in covered positions. Ammunition, fuel, food, other supplies, and reinforcements are brought up—sometimes by air. Damaged equipment is repaired or replaced. Much of the efficient combat operation of the armored division depends upon its supply and maintenance units.

As soon as the hostile main defenses are pierced, the armored force may attempt a deep incursion into the rear areas. Advanced elements make no effort to occupy or consolidate their gains. They push on rapidly, with little regard for their flanks and communications, prepared to live off the country. The objective is to cut across roads and other routes, to destroy or disrupt reserves and supply installations, to spread general alarm, thus wrecking the enemy's rear organization. The armored force is a powerful means for rapidly exploiting a penetration. German doctrine therefore insists that a faltering enemy must be completely broken up and annihilated by unremitting pursuit.

This, then, is the German panzer division, its organization and the doctrine of its employment. It contains no mysteries. Obviously, hard work has gone into its construction and its successful leadership in battle calls for a high order of ability. These qualities are a monopoly of no army.

A *History of the Coast Artillery Corps*

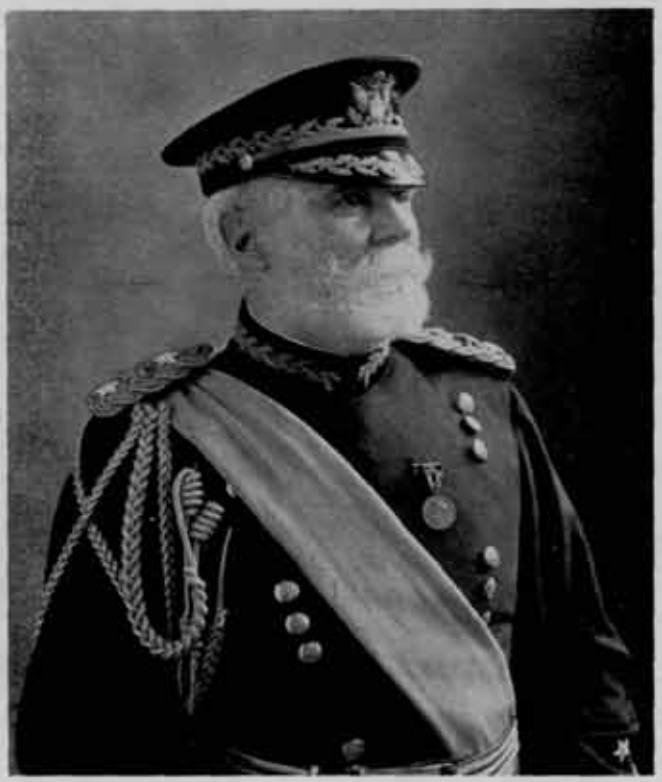
By Lieutenant Colonel A.C.M.Azoy

PART II

The first years of the turn of the century brought to Army gunners more than new field service uniforms of a wholly unfamiliar fabric called khaki: Monroe's school was reopened, the Artillery Board was revamped as a "Board of Artillery" composed of the school department heads, and for the first time a fire command functioned as a unit in target practice. A school for submarine mine instruction was opened at Fort Totten, N. Y., and courses for enlisted specialists were added to the Artillery School curricula. And in 1905 was born the Oozlefinch, that legendary bird that has ever since acted in the capacity of guardian angel to the men who shoot the big guns.

The actual origin of the Oozlefinch is steeped in mystery, the first recorded mention of its existence being credited to one Captain H. M. Merriam who, in the fastness of the Fort Monroe Officers' Club, would make dark references to the bird and its oddly logical habit of flying backwards in order to keep the dust out of its eyes. Further than this the captain would not say, and it is probable that nothing more would ever have been heard of this wonder fowl had not the wife of Colonel E. R. Tilton one day seen a plaster presentment of a nightmarish bird in a gift shop, and promptly purchased it in the certainty that it could be nothing else than an Oozlefinch. She brought it back to the Club and although Captain Merriam refused to commit himself, he did admit that the exhibit might as easily be an Oozlefinch as anything else. The statue was thereupon installed with due ceremony in the club, in the custody of the famed Keeney Chapman who probably concocted better juleps for more people, including that Prince of Wales who afterwards became Edward VII, than any club steward in history.

New regulations for artillery appeared in 1906, incorporating directions for using plotting boards and wind component indicators and making allowances for drifts; a paragraph furthered professional zeal with the significantly-worded authorization ". . . to make such experiments as may be desirable in the interests of the Coast Artillery gun service." Thus at last was there



MAJOR GENERAL ARTHUR MURRAY
First Chief of Coast Artillery.
Signal Corps photo

given the first slight public acknowledgment of a situation that had been privately admitted in Army circles for some years past—that the increasing importance of artillery for coastal defense merited its official recognition as a specially individualized organization.

This pleasing fancy at long last became a fact via General Orders 24, issued by the War Department on February 2, 1907: "Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the artillery of the United States Army shall consist of the Chief of Artillery, the coast artillery and the field artillery. . . . That the Chief of Artillery shall cease to exercise supervision over the field artillery and shall be designated as the Chief of Coast Artillery. . . . That the Chief of Coast Artillery shall be an additional member of the General Staff Corps. . . . That the coast artillery is the artillery charged with the care and use of fixed and movable elements of land and coast fortifications, including the submarine mine and torpedo defenses. . . . That the coast artillery shall constitute a corps." The act further provided that the chief appointed to this new corps should have the rank, pay and allowances of a brigadier general (later, a major general); that the commissioned personnel should consist of fourteen colonels, fourteen lieutenant colonels, forty-two majors, and two hundred and ten each of captains, first lieutenants and second lieutenants, all to be permanently assigned to the Coast Artillery Corps by the president "according to special aptitude and qualifications and agreeably to individual preference, so far as may be practicable and for the good of the service." To this total of 700 officers were added 19,321 noncommissioned officers and privates, all to be divided into one hundred and seventy companies and fourteen bands.

Inasmuch as assignment to the Coast Artillery meant almost certain instant promotion for every assignee, most artillery officers lost no time in assuring one and all that it would be quite definitely agreeable to their individual preferences if they were ordered to wear the queer new insignia of crossed cannon and up-ended shells, and the infant corps was soon a flourishing adult under its first chief, General Arthur Murray!

The Board of Artillery became the Coast Artillery Board; the Artillery School at Monroe became the Coast Artillery School with new buildings, a personnel entirely exempt from post duties, and the return of the mine school from Fort Totten. This submarine interest received generous emphasis from the Corps of Engineers which through the Quartermaster Corps, delivered to the Coast Artillery its first mine planter.

This vessel was the converted 90-foot steam tug *General Alexander* of little seaworthiness and no mine-laying equipment whatsoever. In the absence of mine and anchor davits it was the precarious practice of the crew to plant their charges by the simple expedient of putting a plank across the bulwarks; a mine was then balanced on the outer end, and the crew hung on to the other whence they leaped to what they hoped was safety when the officer in charge prayerfully gave the command, "Let go!" Better times came for the mine laying service in 1909 when four new planters, the *Generals Schofield, Ord, Frank* and *Mills* were planned and built by the Coast Artillery especially for their intended purpose.

The Military Academy at West Point at once made a place for Coast Artillery in its curriculum, and Superintendent Hugh Scott gave the new course an enthusiastic backing that was considerably more than academic. Learning that Congress looked with disfavor upon his predecessor's estimate of $150,000 for the installation of a Coast Artillery battery in Execution Hollow at the Point, the canny Scott surprised the legislative solons by stating that he too considered the estimate exorbitant. He explained that the battery would be used merely for instruction purposes as the chances for a seacoast battle up the Hudson were negligible, and recommended that the needed equipment consist of actual guns and two fire control stations, served with merely simulated magazines and ammunition hoists. This plan was at once adopted, provided that Scott could secure the necessary armament. Scott went directly to the Chief of Ordnance and from him borrowed the guns he wanted, on the verbal promise to get them back in twenty-four hours if needed. The guns are still at the Point.

The only cloud to darken the brightness of the Coast Artillery's early days was the tragedy of the Fort

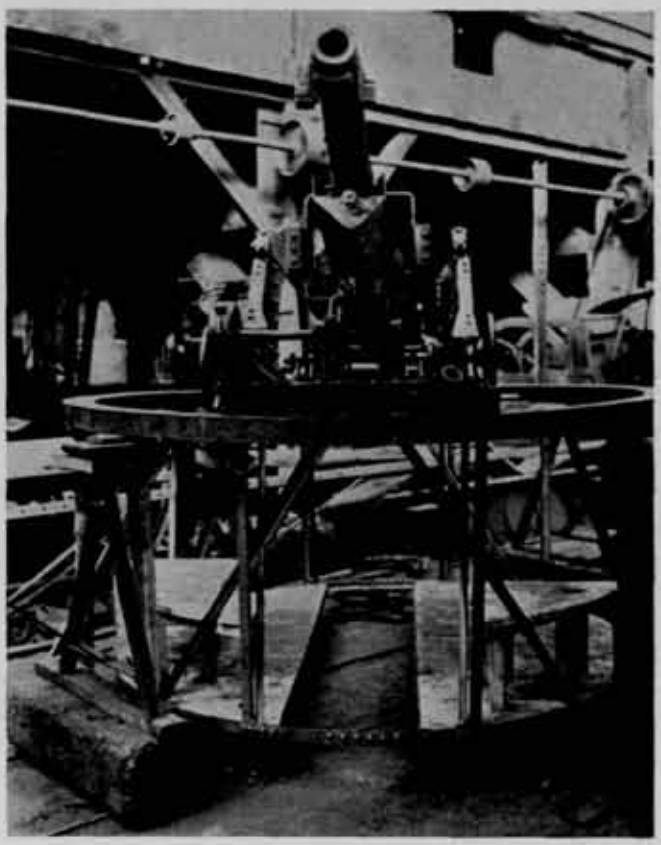
Monroe target practice of the summer of 1910. The fact that the law of averages in handling high explosives made such a catastrophe well-nigh inevitable in Coast Artillery history in no way lessened the national horror that resulted when No. 1 gun of Battery De Russy (12-inch disappearing rifles) exploded, due to a premature ignition of the powder charge before the gun had been tripped into battery. The breech block was hurled across Mill Creek, a quarter mile behind the emplacement, and when the rescuers ploughed through the acrid smoke that hugged the gun platform they found eleven enlisted men of the gun crew dead; six enlisted men and two officers were injured. Among the latter was 2d Lieutenant (now Brigadier General) G. L. Van Deusen who had been timekeeper on the ill-fated gun; he was blown off the parapet, but although suffering from a broken leg and gas burns he declined any assistance until all the other injured men had been attended. The cause of the accident was finally determined to be a defect in the safety device which should have prevented the primer from being fired by a pull on the lanyard until the breech block was finally closed. It was the first time such a mishap occurred; there has never been a second time.

The succeeding years found the Coast Artillery Corps continuing in a tradition of self-improvement in its own field of endeavor against the emergencies of a future that became a sternly real present in 1917.

In June of that year the War Department formed the First Expeditionary Brigade of Coast Artillery, for service with heavy mobile guns. This outfit, recruited by drafts upon many Coast Artillery garrisons, went promptly overseas and in September arrived at Mailly-le-Camp (Aube), France, where was established the Headquarters of the American Railway Artillery Reserve.

By the start of '18 the Coast Artillery had undertaken to supply all the Army and some of the Corps Artillery personnel for the A.E.F. Their matériel included the French 155 G.P.F. guns, British 8-inch and 9.2-inch howitzers, 12-inch railway guns, and some American 5-inch and 6-inch coast defense rifles oddly set on provisional wheeled mounts; the wheels of these implausible carriages were of cast iron some five feet in diameter, traversing was accomplished by swinging the trail, the recoil was absorbed by two inclined wooden tracks up which the wheels rolled, and the accuracy of the pieces was such that a shell might fall anywhere within half a mile of where it was aimed. In addition, the CAC took over the trench mortar battalions and the newly invented arm charged with the responsibility of attempting to shoot down enemy airplanes, called antiaircraft artillery.

As a result of all this, February, 1918 saw the Corps assigned to support the operations of the French 4th Army in Champagne, and in the final hectic days of the following October and November the Coast Artillery



Improvised AA carriage, M1917.

Signal Corps photo

was active in support of the 1st and 2d American Armies near Verdun.

Back home in the states where a heavy artillery training center was established at Fort Eustis, in Panama, in the Philippines and in Puerto Rico and in Hawaii the Corps was equally busy re-activating old posts, establishing new ones, training National Guard and National Army components and Reserve Officers, sending more and more men overseas and finally absorbing the complete manning of the mine planters. Heretofore these vessels had been under the command of CAC officers, with enlisted men for the mine laying details and civilian seamen for deck, navigation and engineer officers and crew. The inevitable friction which this arrangement engendered was eliminated when it was decided to supply Army personnel for all the ships' companies. A new grade of Warrant Officer, Mine Planter Service, was established to include all deck and engineer officers with the titles of Master, Chief Engineer, First Mate, Assistant Engineer, and Second Mate, and a special school for their training was opened at Fort Monroe under the direction of Coast Artillery Captain H. F. Grimm, who was a graduate of Annapolis.

It was during this same period that the Corps got itself a marching song, now all but forgotten, although in those days it assumed the status of an official anthem. It began at Fort Sheridan when the Coast Artillerymen stationed there grew weary of hearing their brothers in

the Field howling about how their caissons went rolling along (keep 'em rolling), and decided they were going to have a song too. Fortunately one of the CAC company commanders was Captain Meade Wildrick, youngest member of the famed Coast Artillery family of that name (Meade and brother George once offered the only example in Army history of two brothers commanding battalions in the same regiment at the same time, when each was assigned to the 62nd); he was a lyricist of considerable ability and wrote these words to fit the tune of "One Keg of Beer for the Four of Us":

Enlisted in the Army,
Turned down the Field;
Almost joined the Cavalry,
Glad I didn't yield;
Assigned to the Coast,
I'm as happy as can be,
For now I'm a member
of the Coast Artillery!
Roarious!, Roarious!,
We made the Coast Artillery
Glorious
Load her up with shell
And we'll give the Kaiser hell!
As we drive the bloody Germans
Out of France!

After a month at Sheridan the CAC detachment was sent to Monroe and there made itself conspicuous by the raucous singing of the above verse and chorus. The song soon spread through the camp and thence to other Coast Artillery establishments; Colonel Fred Greene of the Coast Artillery Board took a fatherly interest in the carol and gave it the final accolade of some additional verses from his own gifted pen.

To make the Coast Artillery's part in the war complete, the fabled Oozlefinch projected his astral body from Monroe overseas in the guise of the distinctive insignia of the Railway Artillery Reserve. This spiritual motivation was accomplished over a period of months, through the medium of an exchange of communications between the Commanding General of the R.A.R. and the Chief of Coast Artillery that should be filed well to the front among the historic archives of the war. These letters began with a note to Major General F. W. Coe, Chief of Coast Artillery, from Major General William Chamberlaine:

HEADQUARTERS RAILWAY ARTILLERY RESERVE

France, 24 October, 1918.

General:

1. I have the honor to send you herewith, a design of the distinctive mark painted upon all transportation belonging to the Railway Artillery Reserve, A.E.F.

2. This design, which is the combined effort of all the genius contained at the present time in the Railway Artillery Reserve, is intended to represent the Oozlefinch, a rare bird which you will recall was incarcerated in a cage at the Fort Monroe Club. This bird is a sui generis, and the only one in captivity; hence, after much reflection, I have concluded to adopt it as the emblem of the Railway Reserve, A.E.F., being symbolic of the only Railway Artillery Reserve known to exist in our service. You will note from examination of the accompanying drawing, that the Oozlefinch is very proud of himself. He wears a trench helmet, perhaps uselessly, but with effect. He has not many feathers, but in order to give a couquettish appearance, he has his left foot cocked up in the air. On this foot you will notice a wristwatch, which indicates 7:30. This is the hour for all hands in the Railway Artillery Reserve to begin work. On his right leg, he wears a plaque identité, which all chic soldiers are now supposed to wear in France. You will further notice that he is perched upon a section of the rail, symbolic of the Railway Artillery Reserve, being surrounded by epis, which permit him to fire in any direction. The design is placed upon a white polygon, surrounded by red, suggestive of the Coast Artillery Corps, and having many sides, is supposed to be an illusion to the capabilities of the Coast Artillery Corps officers, who, in France, perform any duty but that pertaining to the Artillery Corps.

3. The motto of this design is "Abandonné en France, sans ami," which you will readily interpret, "Abandoned in France without friends."

4. I ask you to accept again the continuance of my highest esteem and beg to remain.

Very sincerely,
WILLIAM CHAMBERLAINE.

To this, the Chief replied as follows:

Office of the
CHIEF OF COAST ARTILLERY
Washington, D. C.

November 19th, 1918.

From: Chief of Coast Artillery.
To: Commanding General, R.A.R., A.E.F.
Subject: Distinctive mark for Railway Artillery.

1. The "Pochoir" of the Railway Artillery Reserve which you so kindly forwarded, at present adorns the wall of my office where I can gaze upon it with all the admiration and perfect understanding that it has awakened in me.

2. Feeling that such a work of art and genius should be embodied in the archives of the great war, I turned it over for a day to the Military Intelligence Bureau who, wishing to show their undying appreciation and gratitude for such an unprecedented honor, submitted the following information, which, is to my mind both interesting and instructive:

"The OOZLEFINCH, a rare and almost extinct bird having but one feather, which it displays with great pride and gusto. This bird lives entirely on 'hopes,' which it forages from promises, rumors, mimeographs and unconfirmed orders.

"While ordinarily of happy disposition it has been

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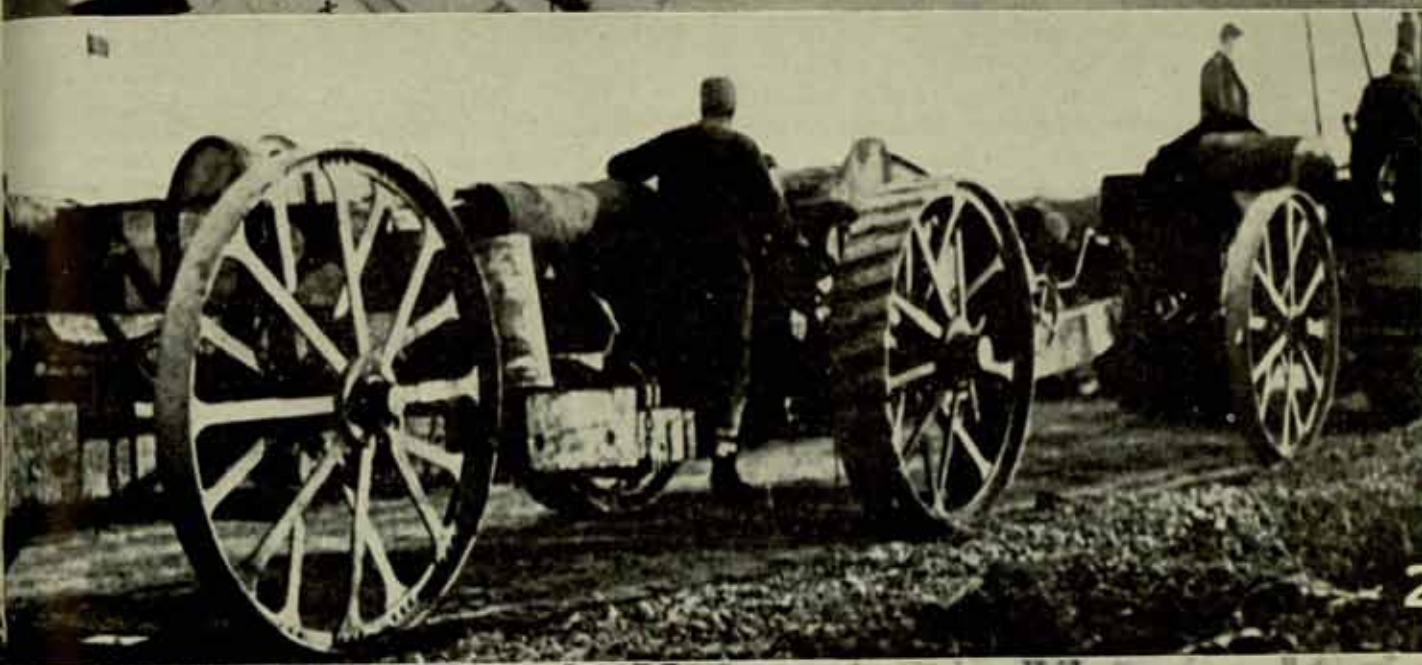
1—Fort Monroe, 1904. 2—". . . Coast Defense rifles oddly set on provisional wheeled mounts." 3—Ingenuity plus—an AA machine-gun mount in France. (Photos by Signal Corps.)



noted that lately the OOZLEFINCH has been plunged at times to the depths of despair, despondency and desolation, which is doubtless caused by the fact that it is unable to ascertain if the hour of 7:30, symbolic of the time at which all hands in the R.A.R. commence work, is A.M. or P.M.

"The chief enjoyment of the OOZLEFINCH is to sneak off to an Artillery park and there to listen to an M.T.S. calling to its mate, repeating to himself all the while 'gazook—gazoo'—which when translated means, 'I DIDN'T KILL A SINGLE BOCHE 'CAUSE OUR POWDER DIDN'T COME.'"

3. As I have remarked several times since its arrival the "Pochoir" is not only interesting and instructive but inspiring as can well be shown by an "Ode to the OOZLEFINCH," written by an Ordnance Officer after a short glance at the wonderful bird, and anything that can inspire an Ordnance Officer is indeed a thing to be marveled at and its glory should be sung in every publication from the "Coast Artillery Journal" to the "Police Gazette."

The correspondence was happily concluded on January 6, 1919, when the R.A.R. commander forwarded to Washington his victorious summary of the affair to date:

HEADQUARTERS RAILWAY ARTILLERY RESERVE,
American Expeditionary Forces, France.
6 January, 1919.

From: The Commanding General.
To: The Chief of Coast Artillery, Washington, D. C.
Subject: Distinctive Insignia for Railway Artillery, American E.F.

1. The Railway Artillery Reserve is highly gratified to know that its "pochoir," the Oozlefinch, properly placed upon the wall of the Headquarters of its parent Coast Artillery Corps, is receiving its due measure of respect and admiration.

2. It is thought, perhaps, that the merits of this rare, noble and almost extinct bird are not fully appreciated, and that this failure is the result of a lack of sympathetic understanding on the part of your Military Intelligence Bureau.

3. It is true that upon his arrival on the scene of action "over here," he had little else but "hopes" upon which to live, and further, that these "hopes" were only born and kept alive by his own foraging from promises, rumors, mimeographs and unconfirmed orders,—the latter being given at times "By direction." However, being a wise bird, and knowing that "hope deferred maketh the heart sick," he bestirred himself and foraged, not only from "promises, rumors," etc., but from other and more tangible sources, with the result that as time passed and his development proceeded, he subsisted on a substantial fare of big guns and plenty of ammunition.—"hopes" serving but to spur him on to added activities.

4. In fleeting moments of the past, shadows of despair may have clouded the countenance of the Oozlefinch, customarily so contented, yet expressive of punctilious pride and martial bearing; but this mental desolation, if in truth it really existed other than in the minds of the uninitiated, did not reflect any indecision as to whether 7:30 is a.m. or p.m. Only one who views the struggle at long-range from beyond the seas could fail to know that in the land of France, the military day contains but one 7:30.

5. In his early development it is said that he did derive satisfaction from repeating to himself the refrain: "Gazook-Gazoo." However, in his later days, it was noticed that this expression was entirely eliminated from his vocabulary. The fact that his foraging produced results in powder, as well as in other necessities, and that evidence was not lacking to prove that more than a "Single Boche" succumbed to his marksmanship, would indicate that possibly your translation of the above refrain is not made with a reasonable degree of accuracy. In this connection it might be interesting to record the fact that, among other Boche casualties which are to be credited to the Oozlefinch, he proudly plumes himself on having brought down one Boche aeroplane and having captured the occupants thereof.

6. The Oozlefinch of the Railway Artillery Reserve was born in time of strife and tribulation; but over this handicap he proved his mastery. After ten active months on the battlefield, he sent his last token to the Hun at 10:57, 11 November, 1918, and now that his part in this great war is over, he will fly back to his home with the Coast Artillery Corps and there reflect with satisfaction upon the fact that he deposited within the enemy lines 5,568,000 pounds of cold and convincing steel.

WILLIAM CHAMBERLAINE.

With the war over, the renaissance of the Coast Artillery began despite the inauspicious example of a garrison at Portland, Maine, which in 1921 managed to miss its appointment to be a guard of honor when General Pershing visited the city, and in consequence for thirty glum days thereafter met an imaginary general at the railroad station and paraded to the City Hall.

Submarine mining got a decided boost through the acquisition of streamlined Diesel-powered planters: major caliber armament on barbette mounts were added to many coast defenses, and antiaircraft artillery—the step-child which once no other arm cared to adopt—suddenly developed into one of the most important responsibilities of the entire Army, in both its fixed and mobile aspects.

In addition, tractor-drawn heavy artillery and railway artillery regiments were assigned to the Corps, further emphasizing the versatility expected of it in its mission which is unique among our combat forces, a mission which has been aptly defined as one of deterring an enemy from coming in where he may be attacked—but to attack him if he does come too close.

And on April 28, 1941, there was announced by the War Department the birth of the newest member of the Coast Artillery family, the Barrage Balloon, as an adjunct to antiaircraft defense. The first balloon ascension was on June 26, '41 and the Coast Artillery Corps can now think of itself in terms of action that are all-inclusive—defenders of the land, defenders of the sea, and defenders of that most favored of all elements by the Oozlefinch, the air.

Standing Operating Procedure for G-4

By Brigadier General LeRoy Lutes, U.S. Army

EDITOR'S NOTE: *This Standing Operating Procedure was compiled at Third Army Headquarters to aid officers new in G-4 work. It is based upon actual experience in meeting maneuver conditions of an army of considerable size, in peace time. It forms the basis for any field service G-4 activities of an Army. In actual combat additional officers will be needed for liaison and for relief shifts.*

This organization is based on 24 hour operation during field service, 1941.

ORGANIZATION OF THE G-4 SECTION OF THE THIRD ARMY

Assistant Chief of Staff G-4.
Four liaison officers.
Four enlisted men.

Administration Sub-section.
Executive Officer.
Three commissioned assistants.
Fifteen enlisted men.

Supply Sub-section.
Officer in charge.
Three commissioned assistants.
Five enlisted men.

Transportation Sub-section.
Officer in charge.
Two commissioned assistants.
Five enlisted men.

Construction and Utility Sub-section.
Officer in charge.
Two commissioned assistants.
Four enlisted men.

Evacuation and Miscellaneous Matters Sub-section.
Officer in charge.
Two commissioned assistants.
Four enlisted men.

STANDING PROCEDURE

1. *a.* A standing procedure cannot be prescribed to fit all situations at all times and under all circumstances. The operations of the G-4 Section must be kept flexible. Each officer must be alert to meet each situation as it arises in the quickest, most efficient, and effective manner. The following procedure is published as a guide only. The examples of operations herein may not develop but since they are based on past experiences it is desired that they be kept in mind. Every effort must be made by each officer in the G-4 Section to anticipate any difficulties that may develop in the field in connection with the Army Administrative and Supply Plan.

b. The G-4 Section is charged with the supervision of the execution of the supply plan as well as the preparation of the plan.

c. Supervision of the supply and other services of the Army requires the closest liaison between the officers in the G-4 Section and the Special Staff of the Army as well as with the general and special staffs of Corps and Divisions.

d. It is imperative that the officers of each sub-section keep informed on the tactical plan of operations of the Army; the changes in the supply plans; and the general actions being taken by other sub-sections of the G-4 Section.

2. *The Administration Sub-section.*

The Executive will:

a. Keep informed of the location of G-4, the location of the Army Commander, the location of the forward echelon Headquarters Third Army, and will inform all other sub-sections of the G-4 Section accordingly.

b. Supervise and coördinate all office administration within the G-4 section.

c. Keep informed of the location and activities of each officer in the G-4 Section at all times. He will require that a roster be maintained of officers on duty during each 24-hour cycle.

d. In the absence of the G-4—decide and act upon questions of importance requiring prompt decision and action in the G-4 Section. In this case he will advise G-4 at the earliest possible moment of the decisions and actions taken.

e. Receive representatives from the units of the Third Army and assist them in placing their questions and requests before the proper authorities.

f. Maintain liaison with the Army Air Officer regarding conditions at air fields occupied by

The supply plan in operation. Signal Corps photo

Third Army troops and keep G-4 informed thereon.

g. Insure that the necessary situation and operations maps are kept posted in the G-4 Section.

h. Insure that the data for the Administrative Orders are properly assembled, each day from the sub-sections of G-4 and the administrative order is published on time.

i. Insure that each officer in the G-4 Section is familiar with:

(1) The Third Army plan of Administration and Supply.

(2) Field Manual 101-5 (Staff Officers' Field Manual).

(3) Field Manual 100-10 (Field Service Regulations).

(4) All current Maneuver Instructions.

j. Will be responsible for seeing that an officer to handle fund accounts is included in the Administrative Sub-section.

(1) This officer so designated will maintain the G-4 fund blotter.

(2) He will direct the Army Finance Officer to subauthorize or reserve funds to implement operations and activities of the staff and all subordinate units in the Army.

(3) He will secure the approval of G-4 personally on requests for funds in excess of $500.00.

(4) He will secure the personal approval of G-4 for the emergency purchase of any military equipment. G-4 will approve such requests in the name of the Army Commander only.

(5) Other fiscal instructions are too numerous to outline in this memorandum and will be covered in direct instruction by G-4 to the officer in charge.

3. *Supply Sub-section.*

a. The officer in charge must keep thoroughly informed on the status of supply throughout the Army. He receives decisions from G-4 regarding plan of *supply*, locations of *depots, dumps*, etc.

b. Daily reports will be obtained from all supply services stating sufficient data to show:

(1) Amounts of supplies on hand (i.e., number of Type A rations, number of Type B rations, number of Type C rations, units of fire, etc.)

(2) Location of above supplies.

(3) Hour.

(4) Whether supplies are in depots, rail cars, or trucks.

(5) Any changes of location of service troops.

c. Receives recommendations from G-4's of the field units for railheads and truckheads. It is believed better to let this recommendation come from the field units rather than to arbitrarily dictate the location of a railhead or truckhead. The G-4's or other supply officers in the field have a better opportunity to recon-

noiter for railheads and truckheads and select those that have the necessary truck standings, truck turn-arounds, team tracks and facilities for unloading and distributing supplies. However, when these recommendations are received these locations must be checked against the tactical situation and if the locations are not suitable for tactical reasons and time does not permit obtaining further recommendations from the field, the officer in charge of the Supply Sub-section will arbitrarily fix the location of the railhead or truckhead. Experience has shown that these locations should have the approval of the Corps G-4 before they are passed on by the Army G-4 for the very obvious reason that the corps commander has a tactical plan requiring the coördination of supply features within the corps in order to support such plan. Therefore all recommendations from divisions will be forwarded to the Army G-4 through the Corps G-4. Once a railhead has been fixed no division or corps officer will be authorized to change the location of a railhead without the concurrence of G-4 of the Corps and the approval of G-4 of the Army.

d. Having received and passed on recommendations for railheads or truckheads the supply sub-section operations map will be posted to show such railheads and truckheads as well as all depots, all supply installations and service troops. All other sub-sections of G-4 will then be notified of these locations.

e. When the truckheads and railheads have been approved by the officer in charge of the Supply Sub-section, G-4, he will immediately notify the Quartermaster and other supply officers concerned. The Quartermaster will be charged with informing the regulating officer of these locations and will require the regulating officer to obtain accurate reports of the arrival of supplies at regulating stations (the hour and date of their delivery). In order to expedite communication between the G-4 Sub-section and the Quartermaster Office, arrangements will be made with the Army Quartermaster to permit the transportation officer and the supply officer in the Army Quartermaster Office to communicate direct with the officer in charge of the Supply Sub-section, G-4 and *vice versa*. There must be close liaison between these officers.

f. A situation map will also be kept posted with sufficient data for the Army G-3 Section to show the general tactical situation.

g. Close liaison will be maintained as follows:

(1) With the Transportation Sub-section G-4 to keep informed on the rail and motor transportation available for supply purposes.

(2) With the Supply Sub-section, Army Quartermaster Office, as indicated above in order to keep informed on all supply problems.

(3) With the Regulating Officer, Quartermaster Office in order that the G-4 Section may be kept informed every hour regarding the status of the distribution of Quartermaster supplies from Regulating Stations to railheads. The Regulating Officer to be required to keep records to show the location of every car load of supplies and the establishment of a check system to show the time and place of final delivery of each car load of supplies.

(4) With the G-4 or Executive Officer, G-4 Section in order to keep informed regarding rapid changes of the tactical situation.

(5) Liaison officer will be sent daily to visit the G-4 of each corps to make inquiry as to whether supplies are satisfactory and whether the G-4 Section of the Army can assist in any way.

(6) Whenever a special tactical situation develops requiring a special operation such as an attack by armored division or an armored corps; a movement of a heavy ponton bridge unit away from its railhead; dispersion of an antitank group, etc., a liaison officer will be sent to the special unit involved in the attack or movement to ascertain if all arrangements are made satisfactorily for gasoline supply, ration supply, and ammunition supply. This liaison is imperative and must be carried out under any circumstances.

(7) If G-4 has gone forward to the forward echelon, close liaison must be maintained between the officer in charge of the Supply Sub-section and G-4, forward echelon. If telephone communication and radio cannot be relied upon, there must be daily liaison by liaison officers.

(8) Liaison officers must be sent frequently to railheads for spot check to determine whether supplies arrive on time, whether supplies are ample and in good condition and whether the railhead company operates satisfactorily; whether it is able to move promptly when the unit it serves moves; whether troops arriving at the railhead unduly expose the railhead to air attack; whether troops can receive and break down rations under cover of darkness using the minimum amount of light (i.e., flashlights, matches, etc.); whether condi-

tions at the railheads require the assistance of the Army such as relaying supplies from railhead to advance truckheads, etc.

h. The officer in charge will be prepared to recommend to G-4 a method of supply to meet the situations presented by changes in the tactical plan. These recommendations obviously will be based on the foregoing data gathered and kept in the Supply Sub-section, i.e., quantities and locations of supplies.

i. On hearing of any failure in supply distribution the officer in charge will:

(1) Ascertain from the Army Quartermaster the cause if known, and the means taken to remedy the failure in the shortest possible time.

(2) If it is apparent that the means taken are not sufficient the officer in charge will report the situation to the Assistant Chief of Staff G-4, or the Executive Officer, G-4, if time permits, together with suggested action. If time does not permit, he will issue instructions to correct the situation without delay. Example:

If Class I supplies do not arrive at a railhead or truckhead on time:

Direct the Quartermaster to have a check made by the Regulating Officer (if supplies are being distributed by rail).

Direct Quartermaster to check depot distribution if made from a depot.

Direct Quartermaster to have Army Motor Transport Officer check through if supplies were to be delivered by *Army* trucks from either depot or rail sidings.

Insure these checks are made promptly. If these "Check Ups" do not show that supplies can be promptly delivered to designated point on time order reserve supplies to be sent by Army motors or by commercial vans at once—first obtaining use of roads from G-3 Section and informing the Army Provost Marshal of action taken. *Then follow up matter through a liaison officer.*

j. Insure that sufficient daily records are kept throughout the Army supply system to show:

When, where and how supplies were delivered to truck or railheads of Divisions, Corps, and Army Troops.

k. (1) Obtain from Transportation Sub-section G-4 daily report showing:

Roads available for supply.

Provost regulations affecting traffic control.

(2) Obtain from Road & Utility Sub-section G-4, daily report showing conditions of roads—particularly conditions at critical points that may block supply such as road blocks; submerged roads or impassible mud holes; defective bridges, etc. These should be posted on a map in the office.

(3) Next check with Quartermaster to insure that Quartermaster has above information and that it has been passed on to Depot Commanders, Motor Transport Officers in charge of supply convoys, etc. A liaison officer will be directed to visit depots and convoy commanders sufficiently to insure that truck drivers are being properly instructed in routings.

(4) If through liaison officers, through depot commanders or other sources, the officer in charge of the Supply Sub-section learns that supplies in motor vehicles are not getting through to destination due to road conditions, he will immediately call on the Army Engineer for assistance and will keep in touch with the Engineer work being performed until the road is clear. Also, he will inform the officer in charge of the Transportation Sub-section G-4, and all others concerned such as the Supply Section Quartermaster of action being taken.

l. (1) Close liaison will be maintained with the Army Quartermaster, Gasoline Officer and the Regulating Officer regarding:

(a) Status of gasoline and oil supply.
(b) Location of gasoline and oil railheads.
(c) Location of reserve gasoline.
(d) Movements of full tank cars.
(e) Movements of empty tank cars.

(2) Sufficient data will be kept so that G-4 or the Army Commander can be informed on this subject at any time. Also, in order that prompt action can be ordered to meet new or immediate requirements in gasoline. Sufficient study of the gasoline can situation and trucks for gasoline supply must be maintained in connection with the foregoing.

(3) Organizations will be checked to see that they *anticipate* gasoline requirements to meet the tactical situation.

4. *Transportation Sub-section.*

a. The officer in charge will keep the Army Quartermaster informed of the general tactical and supply situation insofar as it affects transportation requirements.

b. The officer in charge will keep thoroughly informed on the status of motor transportation in the Army. To this end he will cause the Transportation Section to keep the necessary statistics showing motor vehicles authorized and on hand in the Army.

G-4 came through. Signal Corps photo

c. He will insure that the Army Quartermaster has organized the Army Motor Transport Service in the manner best suited to efficiently carry out the Army Supply Plan.

d. He will insure that the Army Quartermaster maintains a blotter or record of the *location* and *disposition* of all transportation of the Army Motor Transport Service at all times. The *number of vehicles remaining in the Army pool will be known at all times.*

e. The use of motor vehicles from the Army pool or from any Army supply service for movement of troops will not be allowed except on approval of the G-4 Section. The Transportation Section, G-4, will not approve such action *except on authority of the Chief of Staff.*

f. The Transportation Sub-section, G-4, will fully coöperate with the Troop Movement Sub-section, G-3, in planning troop movements and will furnish such statistics as may be called for. To this end *statistics must be kept to enable the G-4 Section to readily determine number of men required to be transported by rail and by motor when long movements are ordered.*

g. The officer in charge of the Transportation Sub-section will maintain close liaison with the Provost Marshal and obtain the Provost's recommendations on traffic control. An approved circulation map will be maintained in the Transportation Sub-section at all times. He will insure that the Engineer publishes this information to the troops.

h. The roads available for supply and the latest Provost regulations affecting traffic will be reported daily (and as frequently as necessary throughout the 24-hour cycle) to the Supply Sub-section, G-4.

i. Any unusual traffic blocks or road conditions affecting traffic will be reported to the Assistant Chief of Staff G-4, the Executive and *all other sub-sections.*

j. Close liaison will be maintained with the Construction and Utility Sub-section. Requests for necessary road repairs will be made promptly to that sub-section or if necessary directly to the Army Engineer (reporting such action to

the Construction and Utility Sub-section and to the Provost Marshal).

k. Frequent visits will be made to the Corps and Army Troops to obtain first-hand information on the status of their motor transportation.

l. Close liaison will be maintained with the Army Quartermaster on matters pertaining to the delivery of motor parts, the location of motor maintenance units, the number of vehicles under repair and the efficiency of the motor maintenance service. Changes required will be recommended to G-4. When the tactical situation advances rapidly this sub-section chief will arrange plans and recommendations for advancing motor maintenance units and depots.

m. A *map* will be kept posted in the Transportation Sub-section showing the location of all *motor maintenance units* and motor maintenance depots. Unless the situation map and operations maps of the Supply Sub-section are readily available for reference, the Transportation Sub-section will maintain its own map showing *all* supply installations in order that transportation requirements may be more intelligently studied.

n. The Transportation Sub-section will cause troop movement tables submitted by subordinate units, to be checked for general accuracy of requirements for transportation and funds, and where sizable movements are involved, will recommend to the Administrative Subsection the amount of funds required for such movements.

5. *Construction and Utilities Sub-section.*

a. This sub-section is charged with the supervision of—

(1) Construction matters including road maintenance.
(2) Leases and rentals.
(3) Laundry service.
(4) Shoe repair service.
(5) Bathing facilities.
(6) Storage and movement of troop baggage.
(7) Water supply.

b. Close liaison will be maintained with the Army Engineer to ascertain condition of roads, repairs required, funds necessary for such repairs to include the purchase of materials required.

c. The officer in charge will inform the Administrative Sub-section of funds needed by the Army Engineer and will recommend methods of subauthorizing or reserving those funds. Close liaison will be maintained with the Transportation Sub-section, G-4, to obtain prompt reports of any road repairs that are required and to see that such reports are relayed to the Army Engineer. *Vice versa* when reports are received from the Army Engineer of road conditions which adversely affect transportation and supply, the Transportation and Supply Sub-sections will be promptly informed in detail.

d. It will be the primary duty of the officer in charge of this sub-section to assist the Army Engineer in every way possible in the performance of his duties. Where labor and funds are required in an emergency it will be the duty of the officer in charge of this sub-section to make tireless efforts to contact all parties concerned and coördinate these arrangements. At the same time he will keep the Provost Marshal informed of the actions taken.

e. Liaison will be maintained with the Army Quartermaster regarding matters pertaining to laundry service and shoe repair. The Army Quartermaster will be required to submit plans for these services. These plans will be checked by the officer in charge of the Construction and Utilities Sub-section to see that they are workable; that they will fit into the traffic scheme; that they have been or will be coördinated with the Provost Marshal insofar as traffic is concerned and coördinated with other sub-sections or staff sections as may be necessary.

f. This sub-section will devise a plan for handling baggage of troops and will coördinate this plan with the Army Quartermaster and the Transportation Sub-section, G-4. Also this plan will be carefully coördinated with the commanders of troops concerned.

g. Every effort will be made to make all of the foregoing plans simple, clear, and workable.

h. Liaison will be maintained with the Army Engineer with regard to matters of water supply. Plans for water supply will be carefully checked and their publicity insured. It is imperative that troops be informed of locations of water points. This sub-section will obtain from *each Corps and separate division, brigade, and from Army troops copies of all administrative orders published* and will check such orders to see that water points are announced in conformity with the Army Engineer's plan. Officer in charge of this sub-section will consult the Army Engineer frequently to determine his requirements for funds and equipment needed in water supply operations.

i. The location of all *water supply points* will be kept posted on a suitable *map* in this sub-section.

j. If any bathing units are made available to the Army it will be the duty of the officer in charge of this sub-section to arrange a plan for the use of such bathing units. In the absence of such

units it is the duty of this sub-section to check plans and orders published by subordinate units pertaining to bathing, and if possible to assist commanders in making bathing arrangements. To this end the officer in charge will be prepared to make recommendations to the Administrative Sub-section (if necessary) for funds to cover rental or purchase of improvised bathing equipment such as pumps, hose, etc.

k. Liaison will be maintained with the Special Staff Sections and G-1 regarding leases and rentals required. These requirements will then be coördinated with the Army Quartermaster and the Fourth Corps Area Rents Board.

6. *Evacuation and Miscellaneous Sub-section.*

a. This sub-section is charged with the supervision of evacuation of sick personnel; sick animals; wrecked motor transportation en route to heavy motor maintenance units; salvage and such other miscellaneous matters as may be directed by G-4 or Executive G-4.

b. Close liaison will be maintained with the Surgeon and Veterinarian in coördinating their operations and assisting them in planning.

c. A *map* will be maintained by this sub-section showing the locations of all *evacuation hospitals and collecting stations.*

d. Plans for rationing the actual sick and the simulated casualties will be prepared by the Surgeon with the assistance of the officer in charge of the Evacuation and Miscellaneous Sub-section G-4.

e. Liaison will be maintained with the Regulating Officer on matters pertaining to evacuation of the sick out of the service area into the zone of the interior on the Fourth Corps Area hospital train.

f. This sub-section will receive report from the Surgeon of the number of sick in civilian hospitals and will recommend to the Administrative Sub-section the amounts of funds required for payment of the hospitalization of these men.

g. Plans for the return of discharged sick from evacuation hospitals to their proper units will be carefully prepared by the Surgeon and coördinated by the officer in charge of this subsection. Probably these men will have to be returned to their units in empty ambulances that have discharged sick from such units or in transportation furnished from the Army Motor Transport Service. In either case these movements must be coördinated with the Army Provost Marshal daily.

h. Liaison will be maintained with the Army Quartermaster and all other special staff sections concerned in salvage. A plan for the collection of salvage will be prepared by each special staff officer concerned and coördinated by the officer in charge of the Evacuation and Miscellaneous Sub-section. This plan must be simple and definite as to method of evacuating salvage materials and with reference to storage and location of such materials. The officer in charge of this sub-section will insure that the various agencies concerned have salvage officers appointed and that arrangements are made for such salvage officers to remain in the Army area at the close of maneuvers until salvage materials are disposed of.

i. A *map* will be maintained in this sub-section to show the location of all salvage dumps.

j. The movement of salvage throughout the Army area will be coördinated with the Provost Marshal's Office.

k. This sub-section will prepare a plan for the messing of prisoners of war and for their return to their proper units. This plan will be coordinated with the Supply Sub-section and the Army Quartermaster insofar as it pertains to rations and with the unit commanders insofar as it pertains to accountability of rations and with the Army Provost Marshal insofar as it pertains to the movements of prisoners. The locations of prisoners' of war cages will be recommended by the officer in charge of this sub-section to G-4 who in turn will make such recommendations as may be necessary to G-1.

G-4 Planning Calendar

FEBRUARY (Six months before maneuvers)

1. Prepare flash estimates of funds to be required and forward to GHQ. Estimates to be broken down to show cost of troop movements to and from concentration areas, cost of operations in the maneuver area. Also, to show funds required for gasoline and oil, rail transportation of personnel and freight, etc.

2. Initiate detailed estimates. Call on subordinate commanders and special staff officers to compile their detailed requirements.

3. Ascertain the size of the maneuver area and its boundaries. Ascertain who is to be responsible for acquisition of lands for the field exercises and maneuvers.

4. If the Army Commander is to be responsible for acquisition of lands, set up boards of officers for this purpose and prepare instructions and forms to be used.

MARCH (Five months before maneuvers)

1. Inform the Corps area commanders concerned regarding the maneuvers to include the organizations to participate. Estimated strength of personnel, motor vehicles, and animals will be submitted with the foregoing report in order that supplies can be procured and accumulated.

2. Request the Corps Area commanders to state the amount of funds for above purposes, that can be profitably obligated by them prior to June 30, 1941. Inform

them that additional funds will be furnished at the beginning of the next fiscal year.

3. Direct the Special Staff to prepare estimates of funds that will be required for procurement of supplies prior to June 30, 1941 (sacks, lumber, nails, wire, motor parts, etc.).

4. Inform GHQ of the amount of funds that must be furnished for immediate obligation to initiate preparation for the maneuver. These funds should be furnished as an advance partial subauthorization.

5. Complete all detailed final estimates of cost and forward to GHQ.

6. On receipt of funds from GHQ, subauthorize sufficient amounts to Corps Area commanders and to subordinate Corps and Division commanders to enable them to implement preparations for the maneuvers. Reserve funds for the Special Staff for similar purposes.

7. Recommend that the Quartermaster, Engineer, Surgeon, and Headquarters Commandant make a preliminary reconnaissance of the maneuver area to obtain general information regarding facilities in the proposed Army Service Area in Louisiana.

8. Maintain contact with G-3 regarding the general plan of concentration. When G-3 has received GHQ approval of the Army Commander's plan, obtain specific information regarding the concentration areas of the various Army Corps.

9. Maintain contact with the Corps Area commanders concerned regarding progress of acquisition of lands for the concentration of the Army.

10. Obtain decisions regarding responsibility for handling claims. Publish instructions on this subject to all troops. These instructions will include information regarding boards of officers, inspection of private grounds before and after use, legal forms to be used, etc.

APRIL (Four months before maneuvers)

1. Contact the Army Corps commanders regarding such help as they may need in their supply problems for their separate Corps field exercises to be held prior to the Army maneuvers.

2. Based on the approved concentration plan and results of preliminary reconnaissance made in March, recommend that the General Staff make a more detailed reconnaissance with view to the selection of camp sites and arrangements for facilities for Army troops, including service units.

3. Initiate action to acquire such warehouses, sites for supply dumps, and other facilities as the Special Staff services may require.

4. Select the limits of the service area to be used by the VIII Army Corps in northern Louisiana for the Corps *versus* Corps maneuvers. Request a staff reconnaissance of this area (coördinate with G-3 and the Chief of Staff).

5. Obtain a decision from the Army Commander regarding the amount of reconnaissance to be authorized Corps and Division commanders prior to their concentrations. Upon this decision will depend the amount of Engineer work and supply arrangements to be made by Army Corps and Divisions prior to their concentrations.

6. Require the Engineer to initiate plans for preparing and strengthening bridges, roads, truck turnarounds, truck standings, water points, etc. Announce these plans to the troops concerned.

7. Consider tentative dates for movements of Engineer, Signal and other service troops that will be required in the Army and Corps concentration areas prior to the general concentration. Publish warning orders.

8. Publish basic decisions on uniforms, equipment, and impedimenta that will be taken to field exercises and maneuvers. Troop commanders require this information for advanced planning including computation of transportation requirements. Inform all concerned of the general approved concentration areas.

9. Obtain revised break-down cost estimates from Corps, Division, and Army troop commanders. Breakdown to be in phases, separate movements, etc., based upon foregoing announced concentration areas.

10. Make final check of plans for supply of the separate Corps field exercises (these plans are separate from those for the Army *vs.* Army maneuvers).

MAY (Three months before maneuvers)

1. Consult the Headquarters Commandant regarding his requirements for funds and his arrangements for housing umpires, staffs, etc., for the Corps *versus* Corps exercise. Instruct him in methods of procurement and in accounting for his funds.

2. Have the Quartermaster initiate estimates of gasoline consumption (all octanes required) for the maneuvers and the completion of contracts for gasoline and oil. Decide upon a plan of distribution of gasoline and the equipment required therefor (tank cars, tank trucks, cans, etc.).

3. Consider the final selection of depots and dumps in the Army service area for the Army *versus* Army maneuvers.

4. Based on the foregoing, have the Engineer and Provost Marshal initiate a traffic study for the later preparation of circulation maps and traffic control plans.

5. Initiate practical preparations for the Army and Corps service areas, with particular emphasis on Signal communications, Engineer work, and Quartermaster preparations.

6. Have a complete study made regarding the motor transportation to be required for the maneuvers and the motor vehicles expected to be available.

7. Request G-1 to order additional officers to G-4 Section and to the Special Staff sections, effective in June, for temporary duty with the Army Staff until completion of the maneuvers on or about September 30.

8. Check the final coördination of all plans regarding acquisition of land, utilities and buildings, and the method of handling damage claims. Particularly check with Corps Area commanders to insure that there are

no misunderstandings regarding the method of renting property and utilities. On reaching a full understanding, insure that the troops are informed of these methods.

JUNE (Two months before maneuvers)

1. Inspect progress of activities in the Army service area, i.e., arrangements for water, truck standings, communications, traffic control, etc., to insure that all activities are progressing to a point where there is no doubt that they will be completed in time for the maneuvers.

2. Open an Advanced Echelon of the Special Staff sections in the Army service area. This may be a small echelon, only, at this time, to receive a limited amount of supplies and to make the preliminary arrangements for depots and offices. If additional Engineer, Quartermaster, and Signal troops are needed in the maneuver area at this time, initiate action for such movements.

3. Obtain decisions regarding rest camps. If no base camps are to be authorized, insure that instructions are published to troops regarding preparation of mobile shower bath units.

4. Require Special Staff to select depot commanders and staffs. Coördinate with G-1.

5. Have the quartermaster check the different types of cooking stoves to be used and arrange for the different fuels required.

6. Have the Army Quartermaster initiate a plan of organization for the Army motor transport service. Decide upon the general method of operation, maintenance, and location of the vehicles in this service.

7. Check the progress of the plans being prepared by the Special Staff.

JULY (One month before maneuvers)

1. Based on all the foregoing, publish the final administrative instructions for both Corps *versus* Corps and Army *versus* Army maneuvers to include:

   a. General Supply Plan. General Administrative instructions.
   b. Any change in equipment and impedimenta to be taken.
   c. Initial locations of depots, railheads, truckheads, water, wood, gas, and oil, etc.
   d. Final instructions on operation Army Motor Transport Service.
   e. Plan for motor maintenance, including allocation of motor maintenance establishments.
   f. Annexes: Plans Quartermaster, Surgeon, Ordnance, Signal, Engineer, Chemical, Finance, Air-Antiair Supply, Provost to include traffic control.

2. On receipt of the final allotment of funds from GHQ, subauthorize suitable amounts to subordinate commanders, based upon their estimates of cost. Reserve sufficient amount in the Army master fund account for general use and unforeseen emergencies. Subauthorize funds for *rail* transportation to Corps Area commanders concerned.

3. Arrange for necessary subauthorization of funds to station commanders to cover motor movements of troops to and from maneuver area. This will require concurrence of Corps Area commanders. It will cause funds to be anchored at the home stations of troops concerned. All obligations by units incurred en route to and from maneuvers will pass to their home stations for settlement.

4. Check organization of depots and completion of stockages.

5. Arrange for liaison with the Corps Areas. Arrange to have Corps Area representatives at Army Headquarters, to include regulating officers for rail traffic.

6. Insure that all additional personnel required at depots and in key positions of the various service elements have been arranged for by the Special Staff officers concerned, through G-1.

7. Insure that the Corps Area have made final arrangements for rail movements for personnel, animals, and freight.

8. Check final arrangements for simulation of ammunition supply.

9. Visit the zone of the interior depots and insure that all arrangements have been made by the depot commanders for the procurement of supplies and delivery of supplies to the Army area. Subauthorize the necessary funds to the depot commander to hire additional personnel if required. Insure that he has arranged for cold storage of perishables and that he understands thoroughly the cycle of deliveries required.

10. Have Army Engineer conduct an inspection of all roads and bridges accompanied by representatives of the State in order that an agreement may be reached as to the condition of these roads and bridges prior to beginning of maneuvers. Arrange for similar inspection on conclusion of maneuvers in order to determine amount of damage caused by troops and vehicles.

AUGUST & SEPTEMBER (Maneuver Period)

1. Supervise the general field operations of all G-4 activities (see Standing Operating Procedure and all maneuver plans and instructions). Close supervision is essential to the success of this plan.

2. Plans for movements to home stations and closing of maneuvers:

   a. Announce assembly areas for units prior to movement to home stations. Prescribe *zones* for motor movements.
   b. Publish orders pertaining to movements; supplies en route to home stations; funds for movements: prescribe method of control of movements, etc.
   c. Announce the necesary attachments of smaller units to larger units for control purposes.
   d. Arrange with Corps Area commanders for rail movements; freight cars and passenger cars required; local arrangements to be made with regulating officers.
   e. Arrange for conferences with G-4's and G-3's re-

garding these movements. Have representatives of the railroads and Corps Areas present.

f. Require salvage officers to be appointed and check plan for disposition of salvage.

g. Check the plans for repairs and disposition of motor vehicles left in the area.

h. Insure that Damage and Claims Board is formed, properly instructed and put in operation.

i. Check the plan for disposal of sick in both military and civilian hospitals. Evacuation arrangements through regulating officers. Provide funds therefor.

j. Check plan for collection of signal supplies, particularly wire.

k. Check plan for collection of ordnance supplies, particularly brass shells, etc.

l. Check plan for the collection of surplus Quartermaster, Engineer, Medical, and other surplus supplies remaining in the area.

m. Insure that arrangements are made for the collection of utilities constructed for the Army in the maneuver area, such as latrine boxes, shower equipment, etc.

n. Insure that plans have been made for the shipment or other disposal of all the foregoing supplies are adequately arranged for.

o. Arrange with the Surgeon and Engineer for inspection of maneuver grounds and bivouac areas.

p. Arrange for liaison officers to be present on the departure of all large bodies of troops from the area.

q. Prepare letters of thanks to civilian agencies concerned who coöperated in the maneuvers.

OCTOBER (AFTER MANEUVERS)

1. Have all records and reports of the maneuver classified and filed with such summaries and recommandations as are considered desirable.

2. Initiate clean-up of all financial accounts pertaining to maneuvers.

We found, without doubt, that an armored unit, in favorable terrain and proper weather, *if adequately supported by air* and *ground* troops, is the hardest hitting and fastest striking force of today, *but we learned* by *experience*—right down to the private soldier—that tanks cannot bunch up on roads and expose themselves to aerial bombardment, cannot allow themselves to become canalized through narrow defiles, cannot deploy through wet and soggy ground, cannot control much effective fire power while in motion, and, most of all, cannot face the business end of a 37-mm. or 75-mm. artillery cannon and expect to get through. We learned not to wait for the onslaught of a tank attack, but that the proper and most forceful action to take was to attack the column with highly mobile artillery gun fire.—LIEUTENANT GENERAL BEN LEAR.

Increase in the CAC'S Navy

By Warrant Officer Henry L. Jones, USAMPS

It is rather generally known throughout the Coast Artillery Corps that eight, and possibly sixteen, new mine planters will be constructed in the very near future. In fact, the first of these new vessels was launched November 4, with another due for launching very shortly. Keels for the next two will be laid immediately. The Marine Design and Construction Division of the Office of the Quartermaster General has designed the planters, basing their designs on requirements of mine-carrying capacity and mine-planting gear outlined by the Submarine Mine Depot.

In the design of these new mine planters, every consideration has been given to the development of a vessel best suited for the type of duty which will be required by the Coast Artillery. After much careful and exhaustive study covering lines, plans, general layout and equipment with special emphasis on the point that these vessels must be primarily of a substantial and sturdy working type, a design has been evolved which, while having beautiful lines, is of a decidedly competent character for the work to which these vessels will be assigned. All equipment to be installed in these vessels will be of the most modern type.

The new vessels will, it is believed, be excellent sea boats, because of their high flaring *Normandy* type bows and the smooth flow of their lines. The main deckhouse has been reduced in size to the minimum needed thereby allowing a much larger and increased deck area for the stowage of mines, anchors and cables. When the new vessel is fully loaded she can carry normally two full and complete groups of mines, and should the need arise, the main hold has been so arranged that another full and complete group can be stowed.

On the forecastle head a large vertical reel will be installed for handling large communication cables. As a departure from usual practice, this reel is removable, and when not required may be stored ashore. This "King" or Cable Reel will have a capacity of fifty tons of cable when fully loaded and will be steam operated. With the exception of the King reel and the hoisting engine for the foremast cargo boom, all of the deck machinery will be electrically operated.

On the stern of the vessel, which has been increased in deck area by approximately five feet in breadth and eighteen feet in length over the *Baird* type, a large electric docking winch is installed. On the main mast is a three-ton boom normally carried snugged into the main mast but available as desired for the lifting of figure eights from ship to shore or vice versa. The vangs, topping lifts and hoists for this boom all work from a winch placed on the boat deck aft. A docking telegraph, engine room telegraphs and Sperry steering control are also mounted on the boat deck aft, which will increase the ease of operation when special conditions make it desirable to control the ship from this aft station.

The pilot house has been made large and roomy and will be equipped with equipment such as gyro compass repeaters, Iron Mike steering, R. C. A. direction finder and a fathometer. A large searchlight of an approved type, electrically controlled from the wheelhouse, will be mounted on the mast. The vessels will also be equipped with units of guided radio talkback equipment. The peloruses mounted in each bridge wing will also have gyro repeaters mounted within them. At present it is contemplated installing two dual-purpose searchlights on top of the Pilot House, which will have built-in shutters, enabling them to be used either as searchlights or as signalling lamps. These vessels will be equipped with an automatic telephone system. Auxiliary sound powered telephones will also be installed.

The mine and anchor davits are of a new and improved design capable of handling a heavier load than heretofore and will each be equipped with an electric hoist capable of lifting two tons at thirteen feet a minute and of lowering the same weight at a speed of not less than fourteen feet a minute. These will be push-button operated with the buttons mounted upon the davit pedestals. In case of electrical failure these hoists are arranged for manual operation.

A blower ventilating system is contemplated for all living spaces and also for the cargo and machinery spaces. The old type steam heaters for hot water have been eliminated and hot water may be obtained from a central plant by turning a tap in the various compartments.

Another difference in design from the older types, and a welcome one to most of the engineers in the Mine Planting Service, is the relocation of the steering engine in the lazarette, with a door cut from the engine space for easy access.

The ship's galley will be a mess sergeant's dream. It is a well designed, complete electrical kitchen comprising in part an electric range, electric fry kettle, electric griddle, dough mixer, a potato peeler and an electric ice box for the galley proper. All of the fittings are of stainless steel.

The main refrigerator or cooling room is well arranged with separate compartments, accessible from outside of the room, for ice cubes, butter, eggs, fruits, and a special compartment for meat storage.

The engine and power plant space is also a departure from former mine planter construction. The entire machinery space and boiler room are in one compartment making it possible for the Watch Engineer to observe all that goes on in his department from his post at the throttle controls on the upper gratings. The vessels will

A new mine planter for the Coast Artillery Corps.

be equipped with two 600 H.P. units of the latest type Skinner Unaflow Marine Engines. The boilers will be marine type watertube designed for 210 pounds gauge pressure and 100 degrees Fahrenheit super heat. This type of power plant has proven not only economical in operation but also efficient in fast handling. Many of the new and larger type steam ferry boats and tugs of late design are so equipped. The vessels are twin screw and are a departure from the older types in that they are of welded construction throughout.

The general statistical data on the new vessels is as follows:

Length over all	188′ 2″
Beam	37′
Mean Draft (full load)	11′ 6″
Speed per hour	13.5

The vessel launched in November was named the *General Henry Knox*, for the Revolutionary War's most famous artillerist. Knox was born in Boston in 1750. In 1768 he had joined the Ancient and Honorable Company of Artillery. In 1772 he became a lieutenant in the newly-organized Boston Grenadier Corps. He studied military literature and tactics over a long period. Knox was responsible for the construction of the field works at Bunker Hill; Washington was pleased with his work. Largely as a result of thus coming to the notice of the Commander-in-Chief, Knox was commissioned a colonel of the colonial artillery.

During the course of the long war, Knox was responsible for bringing the captured British guns from Fort Ticonderoga and for emplacing them on Dorchester Heights, at Boston, to the complete surprise of Howe. He laid out the fortifications in Connecticut and Rhode Island, cheered the army through its darkest days with his unfailing good humor, and directed the famous crossing of the Delaware. After Trenton he became a Brigadier General, as befitted an officer who was both Chief of Artillery and a tactical commander. Space does not permit detailing more of his services in the Revolution, but he was present at nearly every important engagement, organized facilities for the manufacture and supply of munitions, and pleaded the army's cause before Congress. After the war he became Secretary of War for a period, resigning because of the press of civilian affairs. He was active in politics in his later life, and died in 1806.

The second vessel to be launched, the *General Henry J. Hunt*, will be named after the famous Civil War artillerist. Henry Jackson Hunt was born in Michigan. Graduating nineteenth in his class at the Military Academy, he was appointed second lieutenant of artillery in July, 1839. He was brevetted captain in August, 1847, for meritorious conduct and gallantry in the Battles of Contreras and Churubusco, and brevetted major in September of the same year for the same virtues in the battle of Chapultepec. In 1862 he was made brigadier general of volunteers; in July of 1863 he was brevetted colonel for gallantry and meritorious conduct at Gettysburg; in March of 1865 he was brevetted brigadier general for gallantry and meritorious conduct during the siege of Petersburg. General Hunt was promoted to major general of volunteers in July of 1864, and major general in March, 1865. He died in February, 1889.

The next three mine planters will be named the *Colonel George Armistead*, the *General Samuel M. Mills*, and the *Major Samuel Ringgold*. All three officers were artillerists. Colonel Armistead was cited for gallant conduct in the defense of Fort McHenry. General Mills was Chief of Artillery June, 1905-September, 1906, when he retired at his own request after 40 years' service. Major Ringgold was cited for meritorious conduct and activity and efficiency in the war against the Florida Indians. He died of wounds received at the battle of Palo Alto, Texas.

Forts Miles and Winslow

Two new Coast Artillery forts, both on the Eastern seaboard, will soon add their firepower to the armament that protects our shores. Forts Miles and Winslow will be models of military might.

Fort Miles includes a large area at Cape Henlopen, at the entrance to Delaware Bay. Artillerymen who have served at Forts Dupont, Mott, and Saulsbury will realize the advantage to be gained by projecting our coast defenses outward to the entrance of the bay. Even the largest battleships with the heaviest guns will be forced to run by this new fort before they can get within range of the Philadelphia-Wilmington industrial center, which to the Coast Artilleryman is assurance that these cities, so vital to our effort in a war of production, are safe.

Delaware Bay is an important shipping area as well as a highway to one of America's most important industrial and commercial districts. Even the bridges across the Delaware at Philadelphia are of strategic

Brigadier General Eben E. Winslow.
Signal Corps photo

value. The importance of a tight defense to the entrance of the bay is obvious.

Fort Winslow is near Kiptopeke, on the Cape Charles Peninsula, in Virginia. Forts Story and Monroe are proof that the entrance to Chesapeake Bay has long been considered of strategical importance. The new fort will remove the last vestige of the possibility that a strong and fortunate enemy might force his way through the Capes. Additional firepower and an enlarged field of fire will bolster the Harbor Defenses of Chesapeake Bay when Fort Winslow is completed in the near future. Washington, Baltimore, the naval installations near Yorktown, the Newport News shipyards, and other objectives will be denied to any possible enemy.

The industrial East, the heart of American production, is protected by the harbor defenses strung from Portland to Chesapeake Bay. Any serious threat of invasion must first crash through the Coast Artillery's defenses to establish a base in one of our deep-water ports. The two new forts will be added insurance against such an attempt ever being tried.

General Nelson Appleton Miles, for whom Fort Miles was named, entered the army in 1861 as a lieutenant of volunteer infantry, at the age of twenty-two. He was made a brigadier general of volunteers for his gallant leadership at the Wilderness and Spotsylvania, and by the end of the war was in temporary command of an army corps of 26,000 men. In 1895 General Miles succeeded General John McA. Schofield as command-

Lieutenant General Nelson A. Miles.
Signal Corps photo

ing general of the United States Army. In 1900 he was promoted to the rank of Lieutenant General. He retired from active service in 1903.

General Miles commanded Fort Monroe during the period Jefferson Davis was imprisoned there. Aside from the general's services in the Civil War, he saw service against the Indians of varied tribes during the period 1869 to 1886. He captured the Nez Percés under Chief Joseph in 1877, defeated Geronimo's Apaches in 1886, and was present at many other engagements in the Indian Wars. He commanded the troops at Chicago during the railway riots in 1894, and was in nominal command of military operations during the war with Spain, although his only personal activity in the war was to lead the forces that went to Puerto Rico.

General Miles died in Washington, D. C., on May 15, 1925.

General Eben Eveleth Winslow was born in Washington, D. C., in 1866. He was a grandson of Admiral John A. Winslow, who commanded the *Kearsarge* in its famous battle with the *Alabama*. An 1889 graduate of West Point, General Winslow was assigned to the Corps of Engineers. He was made a colonel May 15, 1917, and in August of the same year was promoted to Brigadier General. He was awarded the Distinguished Service Medal for his services in the World War.

General Winslow was a recognized authority on seacoast fortifications. From November, 1906 to August, 1907, he was commandant of the Engineer School, during which period his lectures on seacoast fortifications were given prominence widespread throughout the military world. From 1908 to 1911 he was commanding officer of Fort De Russy, and built the fortifications at Forts de Dussy and Ruger, and at Pearl Harbor.

He retired November 1, 1922, and died June 28, 1928.

Attaching a maneuvering spider to balloon cable. This device is used to haul the balloon to earth in the event the winch fails to operate.

The 61st CA (AA) in Forward Area Tactics

By Major Burgo D. Gill, Coast Artillery Corps

During the past few months we have been reading much about the use of antiaircraft artillery against mechanized ground targets. There has been a lot of theory and a lot of antimechanized range training in many units, but few organizations have had the opportunity actually to try out forward area tactics, a large and important element in our mission, in large-scale field maneuvers.

In the recent Second-Third Army maneuvers, the 61st Coast Artillery (AA) found itself not only providing antiaircraft protection to forward elements, but acting as a forward element itself. In fact, the 61st was so far forward that it solved part of its problem by reorganizing Battery A as a provisional infantry company. Not only did the regiment have to provide its own infantry, as well as the usual antiaircraft and antimechanized defenses, but it acted as an advance guard, had to initite a local offensive, was called upon to lay down concentrations just like any field artillery unit, provide antiparachute defense, prepare demolition fires, act as part of the Second Army AADF (Army Area Defense Force) as rear area and lines of communication troops and to supply scouts and "spies" in the vast areas of no man's land. It even used its trucks, machine guns, and automatic riflemen as an improvised scout car-tank unit to charge and roll up the flank of an enemy infantry battalion.

In other words, the 61st CA(AA) was used, and used itself in every way possible. Some of these improvisations were instigated by the regiment itself, while the others were ordered by higher authority. The time has long past when a Coast Artilleryman can sit down and argue about his primary mission, and that "nothing should interfere with it."

Perhaps this is a digression, but in the past we have been taught to look at "the big picture." (Thank goodness that expression seems to have been forgotten in some of our service schools.) In a large scale maneuver, or war, this big picture is ever present, but when units are widely scattered, and the nebulous front is forever seething back and forth, the war or battle in reality consists of countless small pictures. Consequently, those engaged under one commander fighting a "small picture" must use all weapons and troops in the best way possible to win. One will quickly be a casualty, captured, or defeated who is not extremely nimble and prepared to use his troops and weapons in every possible manner.

Before describing the various phases of the maneuvers, it might be well to point out that the 61st CA (AA) was released by the War Department for the maneuvers a little less than two weeks prior to its departure. In the old days, this would have been considered rather short notice, but as far as the 61st was concerned, it was more than ample.

The 61st CA(AA) under command of Major Hamil-

Disarming prisoners. Signal Corps photo

ton P. Ellis was a part of the 40th CA Brigade (AA) commanded by Colonel C. E. Hocker. This was all the antiaircraft that the Second Army had; two complete mobile AA regiments (the 61st and the 210th) plus a mobile 37-mm. battalion, the 103rd CA(AA). Perhaps it was due to the multiplicity of jobs, and the small amount of AA present in the Second Army that the 61st CA was constantly on the jump. The Third Army was quite superior in AA strength. Just how the Third Army used its AA, I don't know. But I am firmly convinced that the Second Army's AA, whether it would have been more or less, would have been used quite in the same fashion and would have found the same conditions that the 61st CA encountered.

The Brigade arrived in the maneuver area August 30 and four maneuvers were held. While the complete campaign of each will not be fully outlined, enough will be described to show the various situations that this regiment encountered. Right here, it might be well to point out that the 61st's AW battalion had been armed completely with .50 cal. AA machine guns.

1st Problem—Army Phase
(2-6 September)

TROOPS INVOLVED

Reds	*Blues*
Prov. Army Corps	*VII Army Corps, 27th,*
5th and 6th Infantry	*33d, 35th Divisions.*
Divisions. 61st CA(AA)	*107th Cavalry (HM).*
attached	
2nd Cavalry Division.	
40th CA Brigade (minus	
61st CA(AA)).	
108th Observation Squad-	
ron.	

RED'S MISSION: The Provisional Corps less the 5th Division was to advance to the Ouachita River to intercept and destroy the Blue Army Corps at Prescott, Arkansas. The 61st CA(AA)'s mission was to furnish protection of the various bridges and bridgeheads along the Ouachita River. Initially, the 61st was in bivouac at McGehee, Arkansas, and was divided to protect the 5th and 6th Divisions, and found itself scattered over a wide front at Calion, Morobay, Bearden, Thorton, and Warren, Arkansas.

Nothing startling was encountered tactically in this first field problem except for the fact that the entire 61st CA(AA) found itself in the front lines. However, it did capture a Blue scout car and 6 motorcycle patrols from the 107th Cavalry (HM) that had successfully (so far) passed through Red infantry units.

While there was a so-called rest period between this and the next problem, actually the fighting still continued. Scattered on this wide front, the regiment was ordered to Minden, Louisiana, for its attachment to the 1st Armored Division which was then detraining to reinforce the Reds.

The march forward had to take place through territory recently occupied by the retreating Blues and whose units had not yet been mopped up. No escort troops were furnished.

The formation of the march column was a splendid example of coördination. The regiment had to form its own advance, rear, and flank guards. This was done by using jeeps and automatic riflemen, mounting the regiment's .30 cal. AA machine guns on command cars (.30 cal. machine guns are issued only for training purposes, but thank goodness we "forgot" to leave them in storage on the Post) plus trucks carrying the .50 cal. AA machine guns.

The Supply Train had to follow a couple of hours afterwards, and had an adventurous interlude avoiding blown out bridges and fighting its way successfully through Blue patrols.

The 61st CA(AA) then went into bivouac near Minden to await orders from the 1st Armored Division.

2nd Problem—Army Phase
(6-9 September)

TROOPS INVOLVED

The same, except that now the Reds are reinforced by the 1st Armored Division.

RED'S MISSION: To destroy the Blue VII Army Corps.

The Blue VII Corps was facing north. The Red Provisional Corps was to attack south against it, the 2nd Cavalry division was to attack the Blue's right (east) flank, while the 1st Armored Division was to attack the left (west) flank, and the Blue's rear from the Southwest.

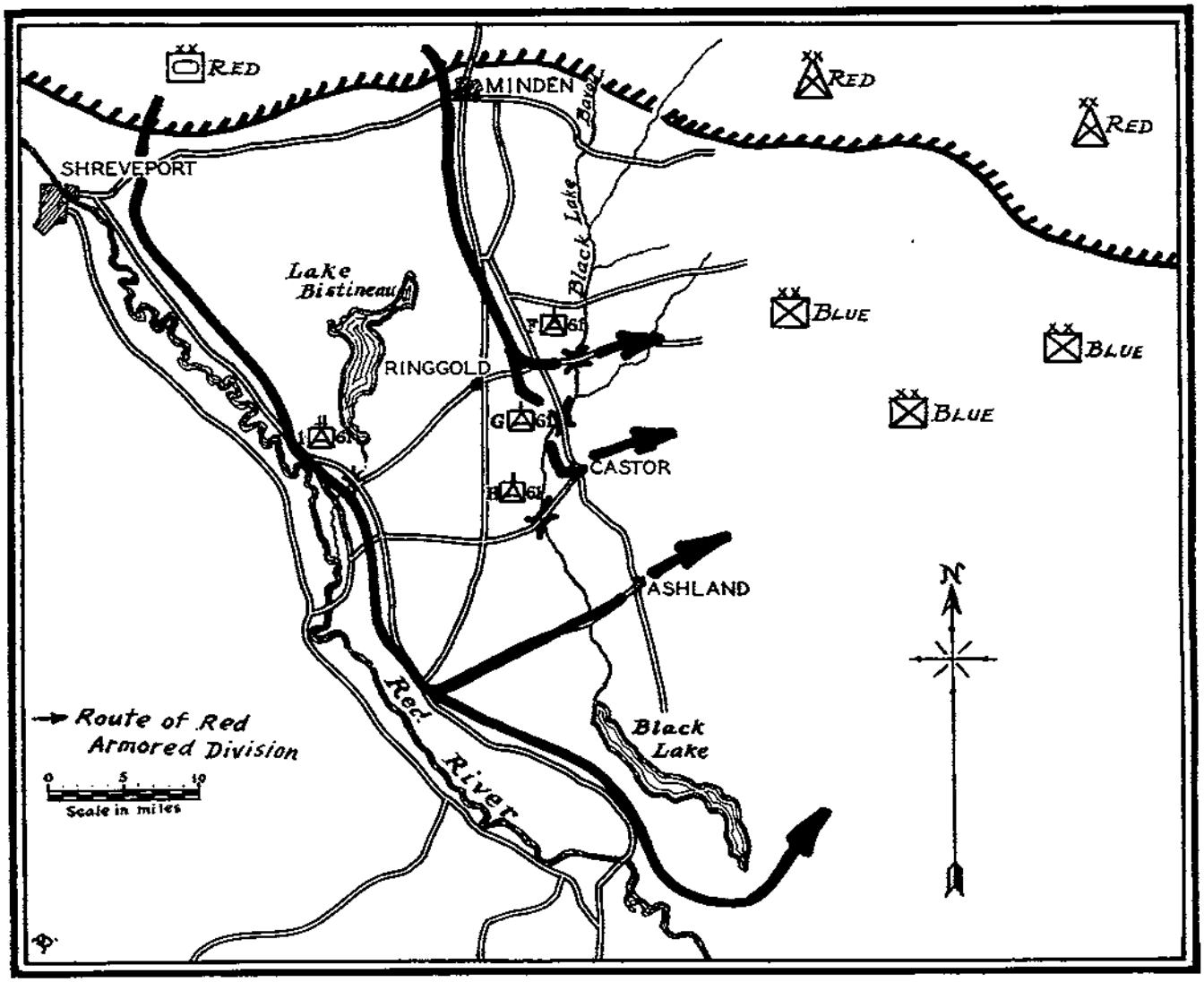
At first, it did not dawn upon the 61st CA(AA) just what new tactical situation it was encountering when it was assigned a mission to assist the 1st Armored Division in its attack.

(It was at this point that I reported to the 61st's C.O. along with some other casuals and was given the job of Regimental Executive.)

In order for the 1st Armored Division to make a wide, encircling march to the West, then to the South, and thence to its attack positions, it was necessary for numerous bridges to be made secure. This was in territory full of swamps and bayous, between the Red River and over Black Lake Bayou. This area while devoid of large units was suspected of containing Blue patrols.

The 61st CA(AA) was assigned the mission of protecting four important bridges. (See sketch.) The regiment would move out directly behind the 1st Armored Division's advance guard after midnight, 7-8 September, and would be in position before daylight the following morning.

It began to dawn upon the regiment that it would be in an extremely precarious position facing an enemy corps out in a no-man's land with a front of approximately forty miles and a depth of about fifteen. All movements were to be kept secret, and positions camouflaged.



In order to accomplish secrecy and to afford the regiment some protection, Battery A (Searchlights) was notified to be ready to act as motorized infantry.

The Blues seemed to be lacking in aggressiveness, or were unaware of the threat. However, the most exposed bridge to be protected (by Battery H, commanded by First Lieutenant Isaac W. Cundiff) was threatened by the Blues. Before Battery H could take up its defensive positions, a small raiding force of Blue engineers who attempted to destroy the bridge had to be fought off. Red scout cars also took part in this action. The bridge was saved.

A great deal of the success of the 1st Armored Division's attack depended upon the bridges. Besides, this force would not move forward to its attack position for another twenty-four hours. The 61st CA(AA) again realized the seriousness of the situation (and its own as well) because reports were constantly being called for by the 1st Armored Division. Their artillery officer, Colonel Francis A. Doniat, FA, even made an aerial reconnaissance of the area and dropped down in a nearby field to collect the latest information from the Regimental C.P.

The Blues made several aerial attacks against the bridges, but all were successfully beaten off, and the umpires declared the bridges still intact.

3rd Problem—GHQ Phase
(12-19 September)

TROOPS INVOLVED

Reds (Second Army)	*Blues* (Third Army)
5 Infantry Divisions.	*10 Infantry Divisions.*
1 Cavalry Division.	*3 Anti-Tank Groups.*
1 Armored Corps.	*Air Task Force.*
Air Task Force.	*GHQ Tank Battalions.*
40th CA Brigade (AA)	*AA Units.*
	Parachute troops. (Note: Neither side knew to whom the Parachute troops would be assigned, but the Blues got them.)

RED'S MISSION: The Reds were to invade Blue territory crossing the Red River between Shreveport and Alexandria, Louisiana. The 61st CA(AA) had to

protect the bridges and ponton bridges over the Red River.

Initially, the 61st CA(AA) was split up into three provisional battalions as follows:

Captain Wangeman's (to the south)—at Boyce—HQ 2nd Bn, G & H.

Captain Dice's (middle)—At Clarence—Regt. HQ, D, E, F, and the 103rd's C Btry.

Captain Totten's (to the north)—at Coushatta—1st Bn Hq, and C. One Battery from the 210th AW Bn was attached.

Battery A was attached to the 210th CA(AA) protecting Shreveport and Barksdale Field, while one gun battery (Battery B) was attached to the 103rd CA Battalion protecting the airport at Monroe.

Instead of depending on searchlights and sound locators, the detectors were assigned to the gun batteries and proved extremely useful.

During this problem, the 61st CA(AA) as a part of the 40th CA Brigade (AA) was made a part of the SAADF (Second Army Area Defense Force.) As such, it was a part of lines of communication troops and under the command of an infantry commander and his brigade. This situation was changed in the next problem as will be noted.

As soon as the "war" started, the 61st began to see action. In the south, one of Wangeman's batteries, H, crossed and recrossed the Red River five times in one day as the Blues and the Reds fought in this vicinity. Battery H got into a skirmish itself and Lieutenant Cundiff (he always managed to get into the thick of a fight) wound up with a captured light machine gun in return for a few rifles lost.

The Red's initial attack failed, and as the Red forces retreated northward along the Red River, Wangeman's provisional battalion withdrew as the Boyce bridge was destroyed, and defended other ponton bridges as they were constructed.

At one of the bridges (I'm sorry I failed to note its name) the Blues almost captured one of the pontons by means of a quick thrust with scout cars through Red patrols. However, the 61st's AA MG's on the opposite bank defended this bridge successfully and were credited with destroying eight scout cars. This bridge remained intact for further use that day until the local main body was ready to cross.

While this action to the south was going on, the center (Dice's) provisional battalion was also seeing action. Dice was protecting the Clarence bridge, an important concrete and steel structure just east of Natchitoches which was then Second Army Headquarters. Approximately 150 parachutists landed a couple of miles away and began their sabotage work of bridge destruction. Only one small bridge was destroyed, (and quickly repaired) but the Clarence bridge remained in-

Protection for the original bridge would have prevented all this. Signal Corps photo

tact, and the 61st captured about twenty-six parachutists in their area.

The night before the parachute attack, the 61st's Regimental C.P. was located in some woods east of Clarence. Major Ellis felt uncomfortable in this spot, and acting on a hunch ordered the C.P. moved about ten miles away to the west of Natchitoches. If we had remained in the old area, those parachutists would have been on our necks.

During the last day of this phase occurred the famous "battle of Natchitoches." (Pronounced Nakotosh with the "tosh" part soft-pedaled.)

Late in the afternoon, a Blue infantry regimental combat team was discovered on the outskirts of Natchitoches in an attempt to capture Second Army Headquarters. The Blue commander of that outfit is certainly to be commended for the manner in which he kept his outfit hidden in the face of Red scouts and other forces. But, while his success in hiding a large unit may seem a surprise to many, it must be remembered that this country is full of bayous, swamps, poor roads, and forested areas. The country for the maneuver was large. That anything can happen in open warfare is something that can never be forgotten, or overlooked.

Hearing the sound of firing, we rode to the sound of guns. The local Red forces were unable to dislodge the Blues. Instantly, the 40th CA Brigade's guns went into action. By now, the 103rd CA Battalion had arrived on the scene to protect Natchitoches and its 37-mm. guns were used to ring the Blues, and guard all roads against tank or motorized infantry Blue reinforcements.

The guns of the 61st CA(AA) were ordered to concentrate on the cornfields hiding the Blues. Two batteries of the second battalion with their mounted machine guns were ordered forward from Clarence to take part in the attack on the Blues. It was a charge of a platoon of machine guns under Lieutenant Werner that decided the fate of a Blue Battalion. It charged the flank of the Blues with its improvised scout-car tanks, and the umpires ruled that that Blue battalion was destroyed.

This left the local Reds superior in infantry strength, and the AA units were ordered back to their own primary mission.

In the opening paragraphs, the use of AA guns for demolition purposes was mentioned. After the battle of Natchitoches, next morning, when the Reds were still retreating, it appeared that the batteries at Clarence would have to be withdrawn. No engineers were on the spot, and that Clarence bridge could not be left intact.

Battery D under First Lieutenant Dervey had set up close to the bridge. I gave him orders to damage that bridge as much as possible before retreating. Plans and "number of rounds" calculations were made. However, Battery D was soon ordered to another area, and the problem ended.

Preparing a demolition charge under a bridge during the Battle of Louisiana.

Signal Corps photo

4th Problem—GHQ Phase
(23-28 September)

TROOPS INVOLVED—the same, except that the 1st Armored Division was given to the Blues.

RED'S MISSION: To defend Shreveport. The 61st CA(AA) still had the mission of defending the bridges along the Red River until they were destroyed, or captured, and then to withdraw to its final defensive positions protecting the Shreveport installations.

The AA should feel highly complimented. The SAADF was now given to the command of the Brigade commander, Colonel Hocker. In being given command of the inner defenses of Shreveport, he was informed that he could "have any troops he desired." However, this article is about the 61st, and that is another story.

Still, the 61st played a large part in addition to defending the bridges. Ten officers and a number of soldiers and trucks with emergency rations along with others from adjoining units were sent out as scouts and spies in "neutral territory, in no-man's land, and along the Border" to report on enemy movements. This was essentially a sacrifice mission. These patrols were to get their information back to Shreveport (Major Ellis acting as the coördinator) by any means possible. Some officers saw nothing, and had a boring time. Others were soon captured. Many sent vital information back or returned with it. One remained secreted for several days in enemy territory where his presence was strongly suspected, and he was constantly being searched for. However, some Red sympathizers housed and fed him,

and a telephone operator (this officer was young and attractive) got his messages through.

While the tactics used by the 61st CA(AA) in its delaying actions protecting exposed bridges was old stuff by now, still it is new to the AA as a whole. The regiment was finally ordered back to its final positions at Shreveport. The mission consisted of protecting airports, bridges, and Second Army Headquarters by mounting machine guns on roof tops.

However, two more experiences were still awaiting us. While the various gun batteries were bivouacked in scattered localities, for once the three headquarters organizations of the regiment were bivouacked together. There was a sudden call from the SAADF (meaning the 40th CA Brigade (AA)) to send some improvised infantry to protect the municipal airport on the north side of Shreveport. Within fifteen minutes, 175 officers and men in trucks, jeeps, and command cars carrying machine guns, automatic rifles, and rifles were tearing down the road. Much to the disgust of all concerned, the threat from the north had been averted, and recall was sounded.

Again a gun battery of the 61st was called upon to act as field artillery when it was ordered to prepare firing data to put down concentrations against a threatened attack on an airport and some cross roads.

Thus, the maneuvers come to an end leaving the regiment with the feeling (slightly cocky, which feeling I hope all field commanders want in their units) that it could do most anything, and that nothing would surprise it—unless it was a comfortable change of position in good weather, over good roads, at leisure, and in the day time.

Conclusion

What are the conclusions drawn by the personnel of the 61st CA(AA), and the tactical lessons that they have learned? Before answering, it must be remembered that this regiment since its expansion on a full mobilization basis less than two years ago has taken part in other large maneuvers. While the other maneuvers haven't been quite on such a large scale, or over such extensive territory, still the regiment has been learning all the while.

Many of the experiences that the 61st has undergone in this last maneuver have never been encountered previously, but the type of field training that it has been fortunate to have has impressed this regiment with the idea that it must be prepared for all occasions.

The principle tactical lessons learned are as follows:

(1) Regardless of whether or not a unit is supposedly located in a "safe" area, such as miles behind the front lines, it must always think of its defense from every dimension. Vertically from air bombardment and air troops, within from saboteurs and "fifth columnists," and from ground attack from all directions.

(2) Every trooper has his special job. The AA's primary mission is to attack enemy aviation. But, just as eating and sleeping is the normal habit of every human being, so it must be habitual for any soldier, or unit, to act in every conceivable manner possible. The 61st acted as AA, FA, AT, Infantry, and as a scout car unit.

(3) Units should be self-contained. The 61st CA (AA) made it "Standing Operating Procedure" to protect itself on the march, in bivouac, and in positions.

(4) Battery A, searchlights, proved to be too cumbersome for a "highly" mobile AA regiment. The idea is arising among some officers that the searchlights should be made part of another organization. They have their vital uses acting in conjunction with balloon barrages, interceptor commands, and with AA guns. But *not* with front-line troops.

(5) The AA is definitely a front line unit. In fact, the idea of having an AA battalion made an integral part of the new Motorized Division, or an Armored Division is an excellent idea.

(6) The present fire power of the mobile AA regiment is not sufficient. Especially is this true when in march formation. Command cars and jeeps should carry weapons. Better yet, eliminate the command cars and replace them with the armored, weaponed, and radio-equipped half track, scout cars.

(7) The 61st CA(AA) had to improvise security and scout car detachments for reconnaissance, etc. Organize a platoon of this nature for each of the battalion and regimental headquarters batteries.

(8) A great number of intelligence, liaison, and officer patrols and messengers had to be organized in a regimental headquarters section. Personnel and scout cars, or armed jeeps were so grouped by the Operations section of the 61st CA(AA) for this purpose. This should be provided for beforehand, and not left to makeshift in the field.

(9) Lastly, axiomatic in all wars, keep an open mind, be prepared to act quickly, never let yourself be surprised, and be bold.

Protective Concealment For Fixed Coast Defenses

By Major Peter Rodyenko, Corps of Engineers

Most of the existing seacoast fortifications were planned and executed at a time when aerial bombing of the present type was not expected. They were designed strictly from an artilleryman's point of view with no thought of concealment. Any planned defensive measures were restricted to protection against shelling from war vessels.

Aerial bombing as presently practiced necessitates effective protective concealment for fixed coast defenses. Such protection should be effective against aerial photography as well as against visual observation through a bombsight.

Seacoast fortifications along the Atlantic Seaboard are usually found in the following types of terrain:

Sand-dunes—no prominent elevations—little and low growing vegetation.

Swampland—no prominent elevations—low growing vegetation, sparse trees.

Rocky coast, low ridges and hills—maximum height of vegetation about twenty feet.

Cliffs or bluffs—with either no vegetation, or tall trees thickly wooded, sparsely wooded.

The vegetation found around such sites consists, among other items, mainly of the following:

Trees	*Bushes*
Birch, several species	Witch Hazel
Aspen	Hazelnut
Scrub Pine	Wild Cherry
Pitch Pine	Beech Plum
Jack Pine	Viburnum
Ailanthus	Sassafras
Willow, Several species	Sumach
Oaks, several species	
Wild Cherry	
Spruce	
Fir	

Vines

Grapes, wild, several species
Quinquefolium
Honeysuckle, various species
Poison Ivy
Brambles—beach (sand) grass

The methods and techniques used for protective concealment can be divided into classes for existing fortifications, fortifications under construction, or fortifications being planned.

To provide protective concealment for existing fortifications, well known from maps and aerial photographs that have been taken by various parties during the carefree days of peace is an acknowledgedly difficult task if such provisions are to be effective. Like most "modernization" or "remodeling" jobs, much more effort, ingenuity, and detailed study is required than in the case of a planned fortification. Another handicap is the traditional lack of appreciation of the value of protective concealment by artillerymen who haven't personally experienced an effective and memorable bombing.

In some cases, expedients like garnished nets or wire netting, as used in the field, have been applied but even the protagonists of such methods must admit that they require constant maintenance and camouflage discipline to insure a measure of effectiveness. These techniques while valuable for small and temporary installations in the field are by no means desirable for larger establishments except as a last resort.

If fortifications are in the process of construction and not too far advanced, the protective concealment features may be made part of the design and plans. The ideal conditions, of course, prevail if the engineer officer has an opportunity to plan his protective concealment features simultaneously with preparing the design and plans.

In the following lines a description is given of a procedure which, if followed, should facilitate matters to a large extent. The methods and techniques of protective concealment, given to some extent in detail, are applicable also to cases in which already existing fortifications have to be provided with protective concealmeant.

The armament of most fortifications consists of antiaircraft, rapid-fire, and long range guns on fixed or open barbette mounts. The latter mount consists of a motor driven platform enabling a 360° field of fire. In casemated guns the traverse is limited. In addition to the actual batteries, the following establishments may be found at fortifications: magazines, power plants, plotting rooms, and searchlight houses, most of which have a height of maximum twenty feet above the ground. Barracks, administration buildings, officers' quarters have a height of from two to three stories, while control towers and gravity water tanks reach up to one hundred feet.

In existing fortifications many adverse conditions in-

sofar as protective concealment is concerned may be found, viz:

Railway tracks that lead to the guns and stop there thus betraying gun positions to an observer or reader of aerial photographs.

Circular platforms of barbette guns that are conspicuous because of their geometrical shape and reflectivity.

Fixed guns conspicuous because of the construction of the fixed mounts.

Magazines, power plants, plotting rooms, barracks and administration buildings that have been laid out in a typical military manner.

Water tanks and control towers at considerable heights above the ground that will register shadows on aerial photographs and, in addition, may be used as auxiliary aiming points by hostile naval gunners and points of orientation by hostile bombers.

Roads leading to definite places of activity and stopping there, as do railway tracks.

POSSIBLE METHODS OF PROTECTIVE CONCEALMENT: An individual diagnosis and estimate of the situation must be made in the case of each fortification that is to be provided with protective concealment. In this article only methods and techniques are given. It must further be stated that methods, effective under certain conditions are not cure-alls and might not only be ineffective in another place but actually create a conspicuous target if not applied expertly and after thorough study of local conditions.

1. A general protective concealment plan has to be devised depending on the size and location of the fortification and also on certain establishments that must be, of necessity, located in definite places where normally they could be identified as military establishments. As examples: a fortification located close to a real estate development should be given the character of an extension of such a typical development. Another fortification might be treated so as to resemble a summer resort or a fishermen's village.
2. Casemates: To construct the casemates in the conventional manner, to be camouflaged after completion of the structural job, is very poor practice which will hardly ever bring satisfactory results. Protective concealment features must be made a part of the plans and correlated with them on final study.

The batteries and accessory establishments, when completed should blend into the terrain so as not

This model might be shown to all executives on the project

to be recognized or spotted on aerial photographs. They should resemble sand dunes, low hills, ridges, or groves and should be, according to the locality, planted to resemble natural woods or groves, or planted with sand-grass in regular rows to prevent undue drifting of sand, as is the practice on the Eastern seacoast.

3. Railroad tracks as used at present are dead giveaways. It is believed that the mission of the cars, used for the transportation of heavy projectiles and other matériel, could be fulfilled by caterpillar tractors. Concrete roads should be substituted for railroad tracks wherever possible, or, at least, grass should be made to grow between the iron rails. To cut down the reflectivity, the rails may be treated with acid to obtain a mottled and non-reflective surface.
4. The circular platforms of barbette guns present an unmistakable target and have to be concealed by means of permanent structures based on the 10° angle theory. They must be covered with flat-tops of solid construction moving on tracks so as to enable the gun to commence firing without undue delay; the complete structure has to blend in with the terrain. This is, considering the size of the job, a relatively simple task and, in technique, is similar to the one used by the German Army for fortification on the islands of Funen and Oesel in the Baltic Sea. Although these islands are very small the guns still have not been spotted by the British. These guns may also be concealed by permanent structures representing residences, hot-dog stands, road houses, or other installations with easily removable wall panels as was done by the Germans in the Siegfried Line with considerable success.
5. Magazines, power plants, plotting rooms, administration buildings, barracks and similar edifices should be laid out in such a manner as to fit into the general scheme. They should show different types of exterior elevations, to resemble residences, or other buildings as the original scheme may require, and may be bomb-proofed. Dummy buildings may be added if required for the sake of realism.
6. Control towers should be made to appear like church steeples or other tall structures normal to the locality. In another scheme they may be made to resemble amusement park features, like roller-coasters, parachute jumps, or the like.
7. Roads must be relocated so as to fit into the general scheme, and dummy roads have to be added if necessary.
8. Fences: Frenquently, commercial styles of fences are used which betray the establishment by their regular pattern and the shadows they cast. Provisions must be made to avoid or to conceal the purpose of such fences by irregularity of outline, by interspersing occasional groups of trees with barbed wire instead of the fence and by using various kinds of fencing that may be reinforced by wire netting. Uniformity must be avoided.
9. Color and paint must be handled very carefully to prevent the creation of targets. Colors must fit and blend in with the general scheme, the terrain or both. The scheme of painting guns in disruptive patterns is not only of doubtful value but frequently dangerous unless combined with other techniques.

The ideal condition, however, exists if the engineer officer is enabled to incorporate protective concealment features at the time when he is preparing the plans for a fortification after he has received from the respective coast defense commander the specific instructions regarding the mission field of fire and other strictly technical data.

PROCEDURE: The procedure should be as follows:

1. *SELECTION OF SITE*: Detailed ground and aerial study of site regarding:
   - Topographical features.
   - Typical existing geological formations.
   - Typical existing native vegetation.
   - Typical and existing roads, fences, buildings and other evidence of human activity showing local characteristics.
2. *PROTECTIVE CONCEALMENT*:
   - Against aerial photographic observation.
   - Against aerial visual observation.
   - Realism—preservation of existing conditions without noticeable changes.
   - Practicability and simplicity of maintenance.
   - Time element and cost.
3. *AERIAL PHOTOGRAPHS*: Aerial vertical photographs should be taken of the area containing the selected site from an altitude of approximately 5,000 feet, for the purposes of study.

   It is the opinion of this writer that the work could be facilitated and expedited if the following aerial photographs would be taken for similar projects:

   - Obliques—altitude about 3,500 feet from the four points of the compass, at points representing about four minutes' flying time (for bombers) from the proposed site, in black and white, also Kodakchrome.
   - Verticals—overlapping, from an altitude of 5,000 feet covering an area of about five miles, with the proposed site in the center.
   - Verticals—pin point, altitude 1,200 feet, of an area of about one mile centered on proposed site.
   - Ground—still pictures, black and white, also Kodachrome transparencies taken in such a manner as to represent a panorama from each point of the compass.

PLANS: After the plans of the actual casemates and other works have been completed, the contours of the selected protective concealment should be superimposed on the plans, as well as dummy roads, dummy farm houses, dummy fences and the planting plan showing actual vegetation and also additional planting. The aerial photographs prove to be a great help not only in selecting appropriate concealment features but also in preparing the actual plans.

MODEL: From the plans and aerial photographs a scale model should be made in as realistic and simple a manner as possible.

This model might be shown to all executives on the project so that they, before starting work may become familiar with the general idea.

Construction of Casemates: As this paper deals only with protective concealment features, no details regarding casemate construction shall be given here. However, this writer believes that a change should be made in future projects in the very smooth front and canopy of the casemate, by roughening up the concrete surface, embedding stones and rocks into the finishing coat and scratching it up in such a manner as to encourage the growth of lichens, moss and hardy succulent plants like stonecrop, echeverria, "hen and chicken," and others. Construction schedules should be synchronized with planting schedules, as the latter depend on seasons.

PLANTING: The pernicious practice of letting bulldozers loose on the site must be avoided. Whatever natural vegetation is found in the vicinity and on the site must be preserve and, in addition, a nursery should be set up, under expert supervision, preferably several months or one year before the construction work starts. Planting should be synchronized with the construction work.

Existing plant material may be augmented by purchases from real estate owners or near-by nurseries. In many cases, owners will be pleased to have their lots cleared of vegetation found there and will make no charge so that the sole cost will be that of transplanting and subsequent maintenance in the nursery.

It may not appear logical to the layman, but it is more difficult to obtain irregularity than regularity and neatness. When using ordinary nursery labor, to overcome this psychological trait to "make things neat" is one of the main problems in protective concealment planting and requires constant watchfulness.

Most seacoast fortifications are subject to strong salt winds that occasionally reach gale force. It has been suggested that pinus Thurbergii—a Japanese pine—be used on sandy beaches as well as Oriental plane, as these two trees apparently are able to withstand even severe gales without being uprooted.

CONCLUSIONS

Protective concealment should be planned beforehand and made part of the plans of a project.

Effective protective concealment is difficult to obtain if applied as an afterthought upon completion of the structural project.

Experimentation by means of a model is much more reliable than by coloring aerial photographs.

Protective concealment is a task for specially trained engineers and technicians assisted by artists.

Color, tone and texture as seen by the human eye are of primary importance, but protective concealment against aerial photography should also be provided.

Training based on the highest degree of discipline is not only for the purpose of winning victories; it is also for the purpose of preventing the *needless waste* of the *lives* of *our young men*.—LIEUTENANT GENERAL BEN LEAR.

Simplified Method of Reducing Trial Shot Data for AAA

By Captain Oswald H. Milmore, Coast Artillery Corps

SUMMARY. This paper relates to the two operations involved in the reduction of antiaircraft artillery trial shot data, viz., (a) the calculation of the range deviation of the center of burst from the trial shot point, and (b) the determination of the altitude correction to be applied for subsequent firing. For operation (a) a simplified and accurate method of calculation is presented which requires fewer operations than the usual methods involving the use of the Lewis chart or the Crichlow slide rule. With respect to (b) there is described a simple slide rule which obviates the use of a graphical trial shot chart and which is easier to construct than such a chart. While the improvements in these several operations presented in this paper are intended to be employed jointly, either proposal can be applied without the other.

OBJECTS. In trial shot problems it is desirable that the proper altitude correction to be applied in subsequent firings be calculated as rapidly as possible after the trial shots have been fired; that the calculations be simple and require the least possible number of mathematical operations; and that the operations present the least possible opportunity for error. The proposals presented herein have for their object the achievement of these desiderata.

According to the proposed method the range deviation is obtained by multiplying the averaged lateral deviations observed from the O_1 and O_2 stations (without reducing them to angles in the horizontal plane) by constants which are simple to calculate before the firing, and by adding the resulting products algebraically. The altitude correction in per cent is determined by a simple slide rule which requires only one setting to yield the answer.

CALCULATION OF RANGE DEVIATIONS. The instant method is based on the mathematical relationship that it is possible to calculate two characterization constants for each trial shot problem prior to firing, and that these constants, when multiplied by the lateral deviations observed at the O_1 and O_2 stations, respectively, yield additive quantities which express the range deviation.

These constants are readily calculated from the data usually available when orientation data are calculated. Thus, when such data are calculated with the Crichlow slide rule, the following elements of data are, inter alia, made available: horizontal range and angular height from O_1 and O_2 (R_1, ε_1, R_2, and ε_2, respectivey) and the target angle (T). The characterization constants referred above are calculated by the following formulae:

$$C_1 = \frac{\mp R_1 \cot T}{1000 \cos \varepsilon_1} \qquad (1)$$

$$C_2 = \frac{\pm R_2}{1000 \cos \varepsilon_2 \sin T} \qquad (2)$$

In these formulae the upper signs must be used when the O_2 station is on the right and the lower signs when this station is on the left of the O_1 station. It should be noted further that the sign of the constant C_1 depends also on the magnitude of the angle T.

These constants having been determined prior to firing, the range deviation of the center of burst, ΔR, may be calculated by the following equation:

$$\Delta R = C_1 \Delta A_1 + C_2 \Delta A_2 \qquad (3)$$

wherein ΔA_1 is the average of the lateral deviations observed from the O_1 position, and ΔA_2 is the average of the lateral deviations observed from the O_2 position, all deviations being measured in the slant planes. These deviations are reckoned as positive if observed to the right, and as negative if observed to the left.

It is evident that these multiplications can be effected very rapidly and that they present little opportunity for error. Moreover, this method of calculation possesses great inherrent accuracy—greatly in excess of that which involves the solution of an oblique triangle with the Crichlow slide rule. If the orientation data are initially calculated with such a slide rule any errors made in such initial calculations affect the final result, so that but little would be gained in accuracy. The instant method, however, affords an opportunity for employing more precise methods of calculating the orientation data because the Crichlow slide rule is no longer needed after the trial shots have been fired.

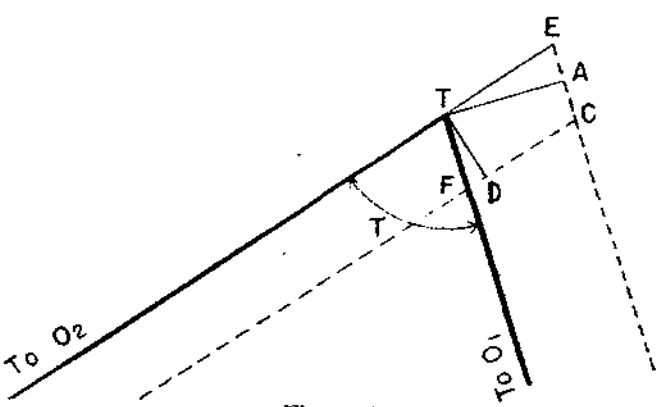


Figure 1

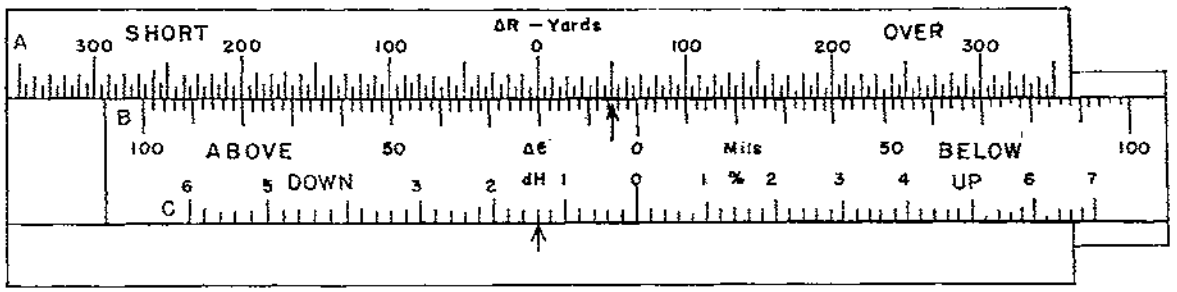


Figure 2

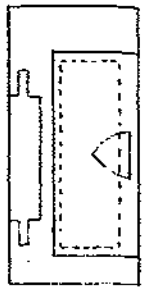


Figure 3

It is customary to calculate orientation data for a particular trial shot point at various azimuths from the battery position, so as to be able to fire in any direction which may be found convenient. Orientation data for each azimuth is then calculated and tabulated. When such a tabulation is made, it is recommended that the constants C_1 and C_2 be likewise calculated and tabulated.

The formulae presented above derive from the following considerations: In figure 1 of the accompanying sketch, point T represents the projection of the trial shot point in the horizontal plane and point C the projection of the center of burst, the O_2 station being on the left of the O_1 station. Directions from these stations to point T are shown by heavy lines and directions from these stations to point C are shown in dotted lines. These dotted lines may, with negligible error, be assumed to be parallel to the heavy lines in the vicinity of the point T. From T perpendiculars to the dotted lines intercept the latter at A and D, respectively. Then R, the range deviation, is given by the distance AC.

$$AC = AE - CE$$

$$AE = TA \cot T = \frac{R_1 \cot T \, \Delta A_1}{1000 \cos \varepsilon_1}$$

$$CE = TF = \frac{TD}{\sin T} = \frac{R_2 \, \Delta A_2}{1000 \cos \varepsilon_2 \sin T}$$

Hence

$$\Delta R = C_1 \, \Delta A_1 + C_2 \, \Delta A_2$$

wherein C_1 and C_2 have the values defined by formulae (1) and (2) and take the appropriate signs. Since the O_2 station is on the left the lower signs in formulae (1) and (2) are employed, making C_1 positive and C_2 negative.

Illustrative Problem. Assume the following situation:

Azimuth of base line, 321 mils.; length, 6,444 yds; O_2 on left.

	From O_1	From O_2
Azimuth of T. S. P.	1,401 mils.	2,720 mils.
Horizontal range	4,740 yds.	5,843 yds.
Angular height	608 mils.	513 mils.

The target angle T is, therefore, 1,319 mils.

By formulae (1) and (2), the values of the constants are:

$$C_1 = +1.62 \quad C_2 = -6.93.$$

Assume that a trial shot problem has been fired and that the averages of the deviations observed in the inclined planes were:

O_1 Station	O_2 Station
A − 5 R − 6	L − 6

The range deviation is then found by equation (3):

$$\Delta R = (+1.62)(+6) + (-6.93)(-6) =$$
$$9.7 + 41.6 = \text{OVER } 51.3 \text{ yds.}$$

DETERMINATION OF ALTITUDE CORRECTIONS. Trial shot corrections are, in accordance with the currently prescribed method, determined graphically by plotting the center of burst on a trial shot chart, moving the center of burst to the line of position by a correction in quadrant elevation equal and opposite to the observed vertical deviation, and then moving the center of burst to the trial shot point by a change in altitude. Since the correction in quadrant elevation affects horizontal range the proper altitude correction depends both upon the vertical deviation, $\Delta \varepsilon_1$, and upon the range deviation, ΔR.

The effect of a change in quadrant elevation on range is assumed to be linear. Hence we may write:

$$\text{Effect on } R = K \, d\Phi \qquad (4)$$

wherein K may be readily determined from the portion of the firing tables giving the effect on horizontal range due to a 10-mil increase in angle of elevation.

Similarly, the value of dH%, the percentage altitude correction required to move the center of burst along the line of position to the trial shot point may be expressed by the equation:

$$dH\% = 100 \left(\frac{R}{R + \Delta R'} - 1 \right) \qquad (5)$$

wherein R is the horizontal range to the trial shot point, and $\Delta R'$ is equal to the sum of ΔR and the effect on R due to a change in quadrant elevation, as given by equation (4).

These equations being linear, it is possible to construct a slide rule to solve for dH% in terms of ΔR and $\Delta \varepsilon_1$. Such a rule is illustrated in the sketch, wherein figure 2 is a plan view of the rule and figure 3 is an end view. The body of the rule, carrying the fixed scale, is applicable to all trial shot points, but the scales on the slide are constructed for a particular trial shot point, trial shot point No. 1 (AA Shrapnel, Mk. I) having been used in the construction of the scales shown in the drawing.

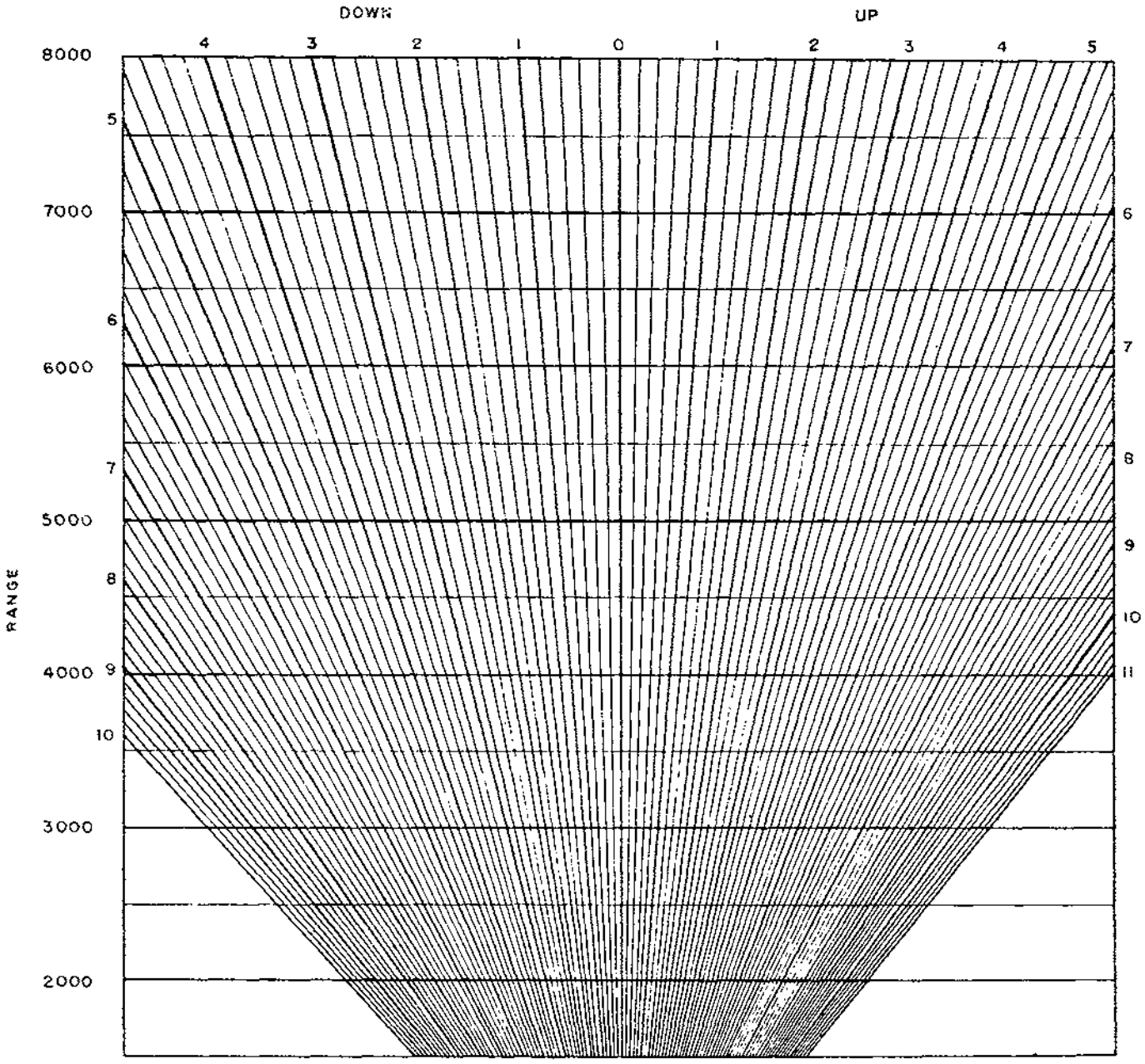


Figure 4

Although it is necessary to provide a separate slide for each trial shot point the rule itself is less bulky than a trial shot chart would be because, as is evident from figure 3, the body of the rule has a compartment, provided with a slide cover, for housing two additional slides. Each slide being graduated on both sides, a total of six trial shot points can be provided for. Moreover, it takes considerably less time to graduate the slide scales than to construct a trial shot chart because the upper scale on the slides depends only upon the value of the constant K in equation (4) and the lower scale depends only upon R, the range to the trial shot point.

The scale A, fixed to the body, is an equicrescent scale drawn to any convenient scale, e.g., 1 inch = 80 yds., and graduated in terms of Δ R. Scale B, on the slide, is also an equicrescent scale, graduated in terms of $\Delta \varepsilon_1$. This scale is plotted with relation to scale A in accordance with the constant K in equation (4). Thus, in the scale illustrated, the effect on horizontal range due to a 10-mil increase in angle of elevation is $-$ 33.4 yds. The graduations are, therefore, spaced so that ABOVE 10 mils on the B scale falls opposite SHORT 33.4 yds. on the A scale when the origins of these scales are in correspondence.

The C scale, at the bottom of the slide, is non-uniform and graduated in terms of per cent altitude corrections. It is plotted with relation to scale A in accordance with equation (5). Thus, in the scale illustrated, R = 4,740 yds.; taking a value of Δ R′ of OVER 147 yds., equation (5) yields a correction of dH% of DOWN 3.0%; this value is plotted beneath SHORT 147 yds. on the A scale when the origins of these scales are in correspondence.

To simplify the calculations necessary to plot the C

scale it is desirable to select an even value of dH% and calculate the corresponding value of $\Delta R'$. For this purpose equation (5) may be rewritten in the form:

$$\Delta R' = -R\left(1 - \frac{100}{100 + dH\%}\right) \qquad (5a)$$

The calculations incident to graduating scale C may be obviated entirely by means of a ray chart in which values of R are plotted as ordinates and the values of dH% as abscissae. Such a chart is shown as figure 4. To graduate a scale C it is only necessary to place the edge of the scale along a horizontal line having an ordinate corresponding to the range to the trial shot point and to mark on the scale the indicia shown on the ray chart.

Illustrative Problem. The altitude correction for the trial shot problem considered above in the calculation of range deviations is determined by moving the slide until ABOVE 5 mils on scale B is in coincidence with OVER 51 on scale A. This setting is illustrated in figure 2. The per cent altitude correction is read on scale C opposite the reading index, whereon a correction of DOWN 1.4% is indicated.

The Spirit of '41 at Fort Hancock

By Colonel Ralph W. Wilson, Coast Artillery Corps

"You know, if you looked around here casually this afternoon, you'd never know that this place is full of of sudden destruction. You'd think it's some sort of industrial plant, scattered over several thousand acres of sandy beach and scattered woods, with some kind of power plant or something here by the hillside. You'd see a railway spur running down this way, a few nondescript houses, roads winding off through the sand dunes, until you happened to discover this wicked looking twelve-inch rifle here, concealed in a clump of bushes. Even then it would be hard to realize that in a matter of minutes this whole place can become a blazing inferno.

"It's all very quiet and peaceful here, with the breeze coming in off the ocean and nothing around us but marsh-grass and foliage beginning to turn brilliant with the approach of fall. But when the siren blows to announce an alert, the scene changes magically. The great guns might be some kind of giant industrial machines . . . from the entrance to the casemate twenty yards away comes the hum of electric generators. There is no indication that all over the Hook are scores of guns; hundreds, perhaps, and of all calibers.

"But, listen now—do you hear what I hear? There's the siren! It's an alert!"

These were the words of Burgess Meredith, the famous radio, stage and screen star, as he stood beside one of the 12-inch guns of Battery Mills at Fort Hancock Sunday Afternoon, October 19, during a Columbia Broadcasting System program, *The Spirit of '41*, just after John Charles Daly had announced, "Today The Spirit of '41 brings America another first-hand picture of defense—the Coast Artillery of the United States Army."

This program was favorably received, as evidenced by the many letters from all over the United States. The program was one of the CBS broadcasts of "defense in action" and was broadcast without commercial advertising over a national hook-up. The theme of the story was our seacoast defenses and the people who man them. The 7th Coast Artillery (HD), commanded by Colonel Ralph W. Wilson, the 52d Coast Artillery (Ry), commanded by Lieutenant Colonel Joseph C. Haw, and the 245th Coast Artillery (HD), commanded by Colonel Charles S. Gleim, were cited as the three regiments at the lower entrance to New York Harbor upon which America's greatest city must depend for protection. Under the direction of Brigadier General Philip S. Gage, U.S.A., commanding the Harbor Defenses of Sandy Hook, Major Allen M. Murphy, C.A.C., and Second Lieutenant Albert J. Stiftel, C.A.C., planned the technical details of the program. Captain Wyllis Cooper wrote the script, Brewster Morgan was the producer and Guy Della Cioppa the director. All three of these men are well known in the radio world.

Fort Hancock, on this quiet, peaceful Sunday afternoon was the ideal setting for such a broadcast. The breeze as Burgess Meredith said, was coming in gently from the blue Atlantic Ocean and the Shrewsbury River flowed lazily past the battery. The large holly trees for which Fort Hancock is famous were especially green and beautiful, and—but let's have an artist tell about it.

Burgess Meredith said: "Fort Hancock is situated at the very tip of the Hook and on a clear day you can see the towers of Manhattan seventeen miles away. Eight miles across the lower bay lies Coney Island. The Narrows, in a direct line from the tip of the Hook, are but ten miles from the guns here. The place from which I am speaking is Battery Mills, named after Major General Albert L. Mills. Inside the steel and concrete casemate, as the structure is called, are stored thousands of rounds of 12-inch ammunition for the guns. I suppose there's enough powder here to blow Sandy Hook right out of the ocean. Inside there in the casemate, too, are the plotting rooms where the highly skilled officers and enlisted men sit, figuring firing data for the guns from the information supplied them from observation posts scattered all over the reservation. The heavy-duty railway tracks for the railway guns run right down here to the casemate entrance, so they can bring those guns up in a hurry, to back up the fixed guns whenever they're needed. Everything is well protected from aerial observation; I suppose you could fly right over the battery without ever knowing what it is.

"Let me tell you something of the outfit that handles these twelve-inch guns. It's the 245th Coast Artillery from Brooklyn, New York, a regiment that was organized on March 11, 1776—four months before the Declaration of Independence was signed. It served in the Revolutionary War as the King's County Militia; in the War of 1812, it was called the 64th New York . . . it was Infantry then . . . in the War between the States it fought at Gettysburg . . . from the World War I its regimental colors bear battle streamers for Lorraine, St. Mihiel and the Meuse-Argonne. The regiment is filled up to strength and I'll bet you couldn't tell the old men from the new ones, but they all have one thing in common—they're Dodger fans to a man. But here comes firing data from the plotting room. Listen now! You'll hear the gun crew loading the gun. There goes the

EDITOR'S NOTE: It is unusual for the JOURNAL to publish an article about a radio broadcast, but this was an unusual broadcast. Concerning the emplacement of the railway guns, Coast Artillerymen will remember that radio, too, is permitted artistic license.

breech shut—and now it's locked. Listen! Up comes the muzzle . . . slowly . . . slowly . . . slower . . . and it's stopped . . . the gun commander stands beside me with his hand up . . . listen to the firing bell . . . FIRE—and the first shell is on the way! There goes No. 1 gun and here comes the corrections for our gun—they've already sponged out old No. 2. But, wait! Here comes John Charles Daly with information from the H Station that there are more enemy ships out there steaming up toward the Narrows. Some of the other batteries are already going into action against them, but we need more fire power down here—but the 52d is coming with two 8-inch railway guns to back us up."

Then the spectators were treated to the sight of a locomotive, whistle blowing and bell ringing, bringing up the railway guns. Never did the members of the 52d display more speed and accuracy. The spectators realized that dramatic action was imminent. Daly explained all details of emplacing these guns and described the routine of firing—and then the railway guns went into action, the sounds of the shots echoing across the nation (ex-caliber, naturally, but the radio engineers, I am told, handled the sound effect, till the shots sounded like the real thing). The enemy fleet was sunk without a trace and action ended.

Mr. Meredith then came to the microphone and said: "These people here at Fort Hancock never know when they're going to be routed out by that Call to Arms siren. When it comes, they'll drop whatever they're doing and hasten to their posts. Let me impress upon you, ladies and gentlemen, that more than seventy-five per cent of the men in these regiments are selectees, many of whom never even saw a picture of a Coast Artillery gun up to a few months ago. And here they are in outfits that are the most technical of all Army establishments, performing like veterans, operating the most complicated machinery and technical equipment imaginable. . . . firing great guns and dropping their shells smack into the middle of targets they can't even see, from positions twelve to twenty miles away. The officers and men at Fort Hancock have given us a great show—a thrilling picture of the great guns in action, and we are grateful to them. But here is the Commanding Officer at Fort Hancock and here's Colonel Gleim and Colonel Haw. Gentlemen, how did this demonstration impress you?"

And they all replied with information that left no doubt in the minds of the radio audience that New York is safe as long as Fort Hancock stands intact, as long as the 7th Coast Artillery can maintain the mine planting record that it made in 1941, as long as the 245th can continue its record and as long as both these regiments can depend upon the 52d to back them up.

This broadcast was as dramatic as it was thrilling. Throughout the program, the band of the 52d Coast Artillery played stirring music, lending color to the occasion. The usual Army program is dull and prosaic, as amateurs try to run the show, and I wonder how many people really listen? But this one was put over by trained professionals and was designed to present the Coast Artillery Corps as being the true savior of the great cities and harbors of our country. And I believe it did.

We cannot be a nation of many leaders and a Babel of voices and face the enemy whose course of action is directed against the welfare and future security of our nation.—LIEUTENANT GENERAL BEN LEAR.

AAAIS System of the 203d CA (AA)

By Colonel Ray E. Watson, Coast Artillery Corps

Believing that the standard AAAIS system was not entirely satisfactory due to administrative traffic over field telephone lines, Lieutenant Robert G. Lowry, 203d CA(AA), developed a new warning system which was tested in regimental and brigade maneuvers and problems. Lieutenant Lowry's system, found satisfactory in the unit problems, was again adopted by the 203d for the final phase of the Third Army maneuvers beginning September 3, 1941.

For this phase, the 203d CA(AA) had attached to it the 69th CA(AA) and Battery D of the 197th CA (AA), and was charged with the defense of the airport at Lake Charles, Third Army Headquarters, three bridges north of Lake Charles, Army establishments in Lake Charles, and the Calcasieu River bridge just west of Lake Charles.

Twenty-one searchlights were used with both searchlight batteries under control of one commander. Sections of these two batteries were organized into five platoons. Nine out-posts were established approximately six miles outside the triangular defended area. An additional outpost was placed on top the ten-story Charleston Hotel in Lake Charles with a direct phone line to the AAAIS switchboard. The outposts were assigned to the searchlight platoon that operated in the same sector.

Telephone lines from the five searchlight platoons, to which were connected the outpost lines, were run into a *totally separate* central switchboard in Lake Charles, the center of the defended area. Each of the gun batteries ran a line from its battery position to the nearest searchlight line between the platoon command posts and the AAAIS center, tapping in with a "Y" splice. These lines did not go into the battery switchboards, but to a telephone set at the battery positions. (See attached diagram.)

Two methods of relaying the information in to the AAAIS center were used. The three platoons of Battery A, 69th CA(AA) used vocal relays at their platoon command posts. The two platoons of Battery A, 203rd CA(AA) ran their lines into the platoon boards, BD 71's, and an open circuit was maintained by leaving the switch down.

The latter was found to be the better method, for often the outpost telephone carried through to the AAAIS center, alerting the gun batteries instantaneously, and requiring that the message be repeated only by the AAAIS center in order to make certain that all batteries were alerted. The repetition of the message by the former method (relay by platoon command post), not only cost precious moments, but sometimes resulted in information not wholly correct in detail, reaching the AAAIS center.

Batteries of the automatic weapons battalion were not included in the net, but were alerted by telephone calls through the two First Battalion administrative lines laid from the First Battalion switchboard to the AAAIS switchboard. These lines were not maintained on an "open" status. This method, however, was found to be too slow.

A regular check call was made of the outposts each hour during daylight and each half hour during darkness, and results of the check reported to the Regimental S-2. The platoon switchboard operators were charged with checking the outpost and gun batteries tapped into their line. In addition, officers were detailed to visit the outpost positions from time to time and a record of these visits was maintained at each outpost.

No extra detail was required to maintain this set-up, as the AAAIS center was also used as the searchlight OP during darkness. Recorders were obtained from Headquarters First Battalion, 203rd CA(AA) and stationed at the AAAIS center. Battery A switchboard operators were utilized to assist in the operation of the AAAIS switchboard.

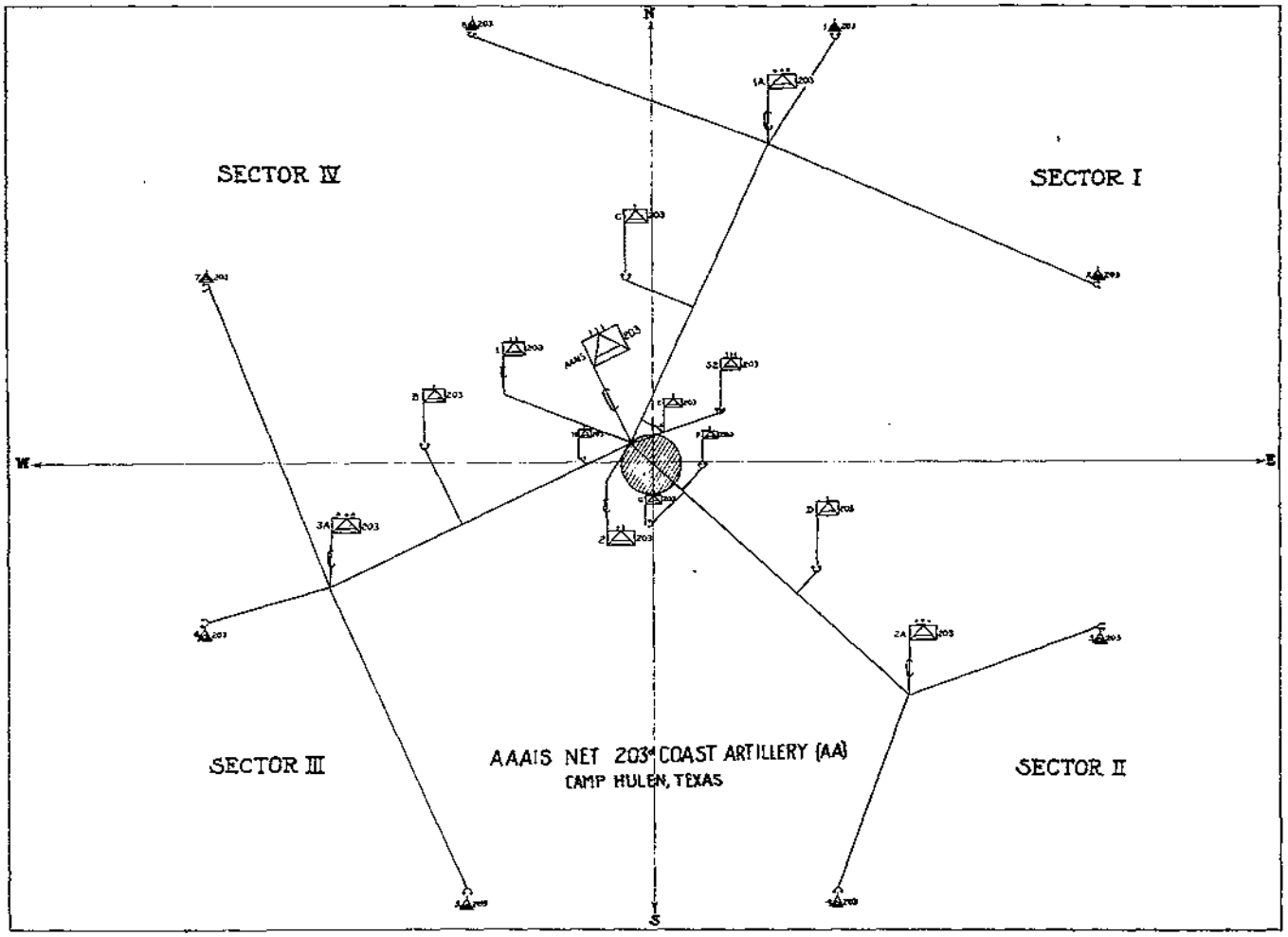
Practically no extra communication wire had to be laid, and the entire net was found to be well within the TBA allowance of one searchlight battery.

Improvement over the standard net, as used previously by the 203rd, was instantly apparent. Since the lines to the outpost were used only for AAAIS information, except for searchlight administrative calls, there was no administrative traffic once the plan was understood by all concerned. More important, the flow of information was speeded up to a matter of seconds instead of minutes between the initial flash and the alerting of the last gun battery.

Planes entering the view of the outposts were traced until they left the area, with almost none lost on the way. Control of the searchlights was excellent. Additional use of outposts, that were located near roads was made so that enemy troops entering the area were speedily detected, reported in, and located. A lieutenant in charge of an armored car was greatly chagrined at being captured by the Coast Artillery when speedy work by a platoon commander of Battery A, 69th CA (AA) caught him and his crew.

A system of four sectors was used to give the direction of incoming targets to the gun batteries, numbered clockwise from the north. It is understood this same system was adopted in the Lake Charles defense during the later phases of the Army vs. Army maneuvers by the 69th CA and the 197th CA.

Several minor modifications were made by the 203rd while defending the Beaumont, Texas airport during later phases of the Army vs. Army maneuvers, which further increased the efficiency of the system.



During this phase the 203rd, less the Second Battalion, with Battery D 105th Separate Battalion CA (AA), and Battery D 106th Separate Battalion CA (AA) (both 37-mm. batteries), attached, were stationed at Beaumont, Texas, defending the Air Base there.

Eight outposts were established, approximately seven miles from the airport, two in each of the four sectors, numbered beginning at the north. A line was run to this board by each of the two searchlight platoons. This time the two 37-mm. batteries also tapped into these platoon lines in addition to the three gun batteries. A line was run to the AAAIS center from First Battalion Headquarters, and this was connected by the use of a jack on the switchboard to a telephone used for all administrative messages, making it impossible to impede the flow of AAAIS information when a flash was coming in, or a plane was being traced.

A net control line was run from a telephone at the desk of the Regimental S-2 to the AAAIS switchboard. A radio was set up at regimental headquarters and AWS messages were received from the Third Army Intercepter Command at Alexandria, Louisiana. A map giving direction and location of enemy planes was maintained by the Regimental S-2, who gave the alert to the AAAIS board if the planes came within five minutes flying time of the defended area, which could be passed on to the outposts and the firing batteries.

In addition a line was run into the operations room at the airport. This line was kept open at all times, with an operator on the telephone constantly. The First Battalion Reconnaissance officer was detailed as liaison officer, and was stationed at the airport. In this manner the air corps forces were notified instantly when enemy planes were in the area, and elements of the antiaircraft defense received speedy information concerning friendly aviation.

The system worked well. A surprise raid at 3:00 in the morning, at a time when all aircraft were supposed to be grounded, was discovered four minutes before the first group of two planes reached the airport.

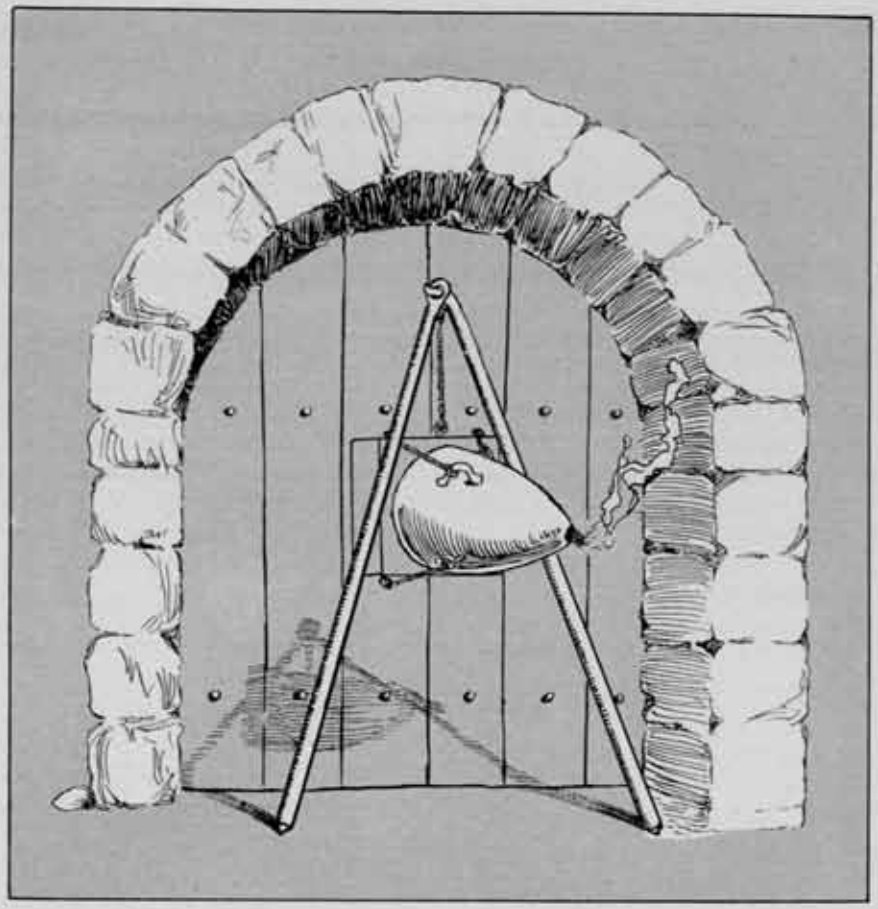
By use of this system friendly aviation was able to intercept a flight of enemy planes which approached no nearer than ten miles to the airport.

Use of EE telephones by all the outposts on the latter phase almost eliminated the necessity of repetition of the flash messages by the searchlight platoon switchboard operator, and usually the outpost messages could be heard by the telephone operators at the battery positions. Seldom was it necessary for the AAAIS center to call for a repeat.

A schematic diagram of a regimental set-up, based on the system used at Beaumont, Texas, which proved more satisfactory in our experience than the original set-up at Lake Charles, Louisiana, appears above.

The Story of Artillery Through the Ages

By W. A. WINDAS



Chapter 17: EARLY MINES

Soldiers of the Fifteenth Century soon learned that gunpowder could be used in other ways than to propel shot from guns. It had a very destructive blast effect as well as incendiary qualities.

The first of these two lessons was learned the hard way. Carelessly handled cannon blew up, and some artilleryman whose name is lost to history, was sufficiently far away from the burst gun to profit by the lesson and conceived the idea of the bomb.

Naval fighters soon found that a small boat, filled with explosives and a long-cut fuse, was just the right medicine for surprise attacks upon anchored enemy warships. The first of these boats was named the *Infernal*.

It was often imperative to capture a castle or fortress without a prolonged siege. If a large assault party were at hand this would be possible, given a chance for a surprise attack—and some means of knocking down the gate.

To accomplish this, the artillerymen of the day designed a special bomb, called the "Petard."

It was usually employed as shown by the illustration. It consisted of a conical metal case, containing about sixty pounds of black powder. To the open end of this was fixed a heavy block of oak, about 18 inches square. The bipod was used to hoist the petard to the desired height (usually opposite the gate-lock) and the petard was placed block-first against the gate.

The idea was for a few men, under cover of night, to steal up to the gate, place the petard, light the fuse in the pointed end, and dive into the moat—quickly. According to a manual of the time, "The fracture in the gate will equal the size of the Petard block," so apparently they did not always hope actually to demolish the gate by this method. Either the lock would be broken, or a man could crawl through the blown-hole, and unlock the gate from inside. The waiting assault-party would do the rest. Many castles were captured in this way.

Sometimes the fuse burned too fast, for the saying, "Hoist by his own petard" became a simile for a man caught in his own snare; an expression which long outlived the device.

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.

Short round feed adjusting device. An analysis of the causes of stoppages reported in target practice reports of antiaircraft machine gun practices indicated that short rounds caused about twenty per cent of all stoppages with the caliber .50 machine gun and over fifty per cent of the stoppages with the caliber .30 machine gun.

The Ordnance Department designed and built a device to prevent malfunctions due to short rounds in the Browning Machine Gun, Caliber .50, M2. The device is attached to the standard gun by mounting it in place of the forward cartridge stop in the feedway. The device operates in the following manner: A spring-driven follower is held against the cartridge case immediately ahead of the forward edge of the metallic belt link. Since this link bears on the shoulder of the cartridge case and the follower of the short round device bears against the cartridge case and blocks the forward motion of the belt link, a short round is held fast in the proper position to be gripped by the extractor. The device is simple in construction and easily applied to the gun in place of the present forward cartridge stop.

Approximately 4,800 rounds were fired from the guns under test. A number of short rounds were inserted at intervals in each belt in order to determine whether or not short rounds would produce stoppages in guns equipped with the short round adjusting device. Short rounds used ranged from a maximum of eleven-sixteenths of an inch shorter to a minimum of one-quarter of an inch shorter than standard length, the average being nine-sixteenths of an inch short. All short rounds were successfully fired; no stoppages occurred due to their presence in the belts. It was further established by test that a round shorter than standard by one-eighth of an inch will produce a stoppage in a gun not equipped with the short round device. In addition to avoiding stoppages due to short rounds, it is believed that these devices will assist in properly centering the round in the feed mechanism. The devices functioned in a satisfactory manner in every respect and are considered sufficiently rugged for normal service use.

The Board recommended that:

a. Short round devices similar to those tested at Fort Monroe be manufactured in sufficient quantity to equip all Coast Artillery caliber .50 machine guns now available.

b. Similar devices be incorporated in the design of all future Coast Artillery caliber .50 machine guns.

c. The Chief of Ordnance be requested to comment on the feasibility of equipping all Coast Artillery caliber .30 machine guns with similar short round devices.

Motor transport for harbor defenses. During the month of October, the Board prepared a study of the tactical motor transport requirements for the harbor defenses of the continental United States. For the purpose of the study, the harbor defense units were broken down into their component parts and each part analyzed as to its transportation requirements.

The study indicates that the following types of tactical motor vehicles are necessary for the harbor defense units of the continental United States:

Ambulance, field
Car, light 5-passenger sedan
Truck, ¼-ton, 4x4, command and reconnaissance
Truck, ½-ton, 4x4, command and reconnaissance
Truck, ½-ton, 4x4, pick-up

Truck, 1½-ton, 4x4, cargo
Truck, 2½-ton, 6x6, (4dt), cargo.

A proposed basis of issue of the above-mentioned types of motor vehicles, based on type units of harbor defenses, was recommended.

The recommended change in allowances called for a considerable increase in the number of vehicles for most harbor defenses. No motorcycles are listed in the proposed table as it is believed that the truck, ¼-ton, 4x4, command and reconnaissance, will accomplish the work formerly done by the motorcycles in the harbor defenses.

Power-driven wire thrower. The only wire-laying equipment authorized for issue to Coast Artillery organizations at present is the Reel Unit RL-31. This is a hand-operated unit which may be mounted in a truck or on the tailboard thereof. The maximum speed at which wire may be laid or recovered with this unit is about six miles per hour. The recovery operation entails considerable manual exertion on the part of the operators. The Reel Unit RL-26 is a standard article issued to other services. This is a power-driven wire-laying and recovering device which is carried in a truck. Wire cannot be laid or recovered, using this equipment, much more rapidly than with the Reel Unit RL-31, but the manual labor required is very much less. The Coast Artillery Board tested the Reel Unit RL-26 under Project No. 943, and concluded that its advantages over a simple, hand-operated unit were not sufficient to warrant its issue to Coast Artillery organizations.

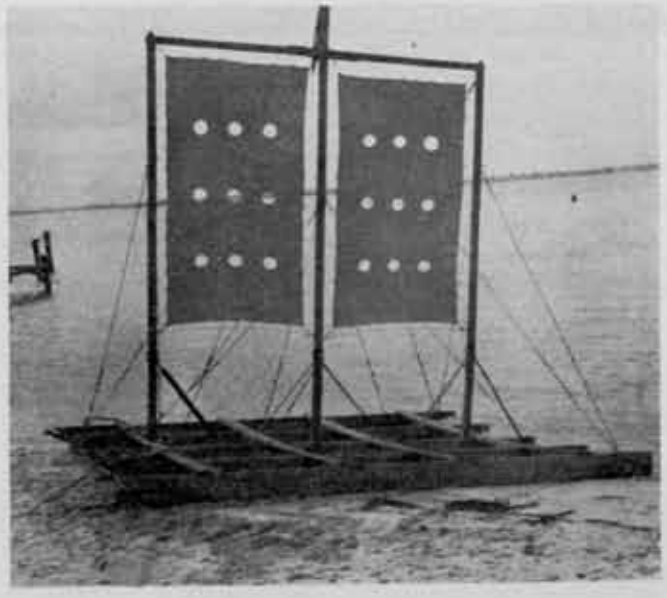
In 1936, Staff Sergeant C. L. Luebbe, then of Headquarters Battery, 62d Coast Artillery (AA), designed and constructed a power-driven wire thrower. This equipment was demonstrated to the Signal Corps Board in 1937. As a result of this demonstration, the Signal Corps and the Coast Artillery recommended that a project be set up for the development of a wire thrower by the Signal Corps Laboratories, and drew up a set of military characteristics.

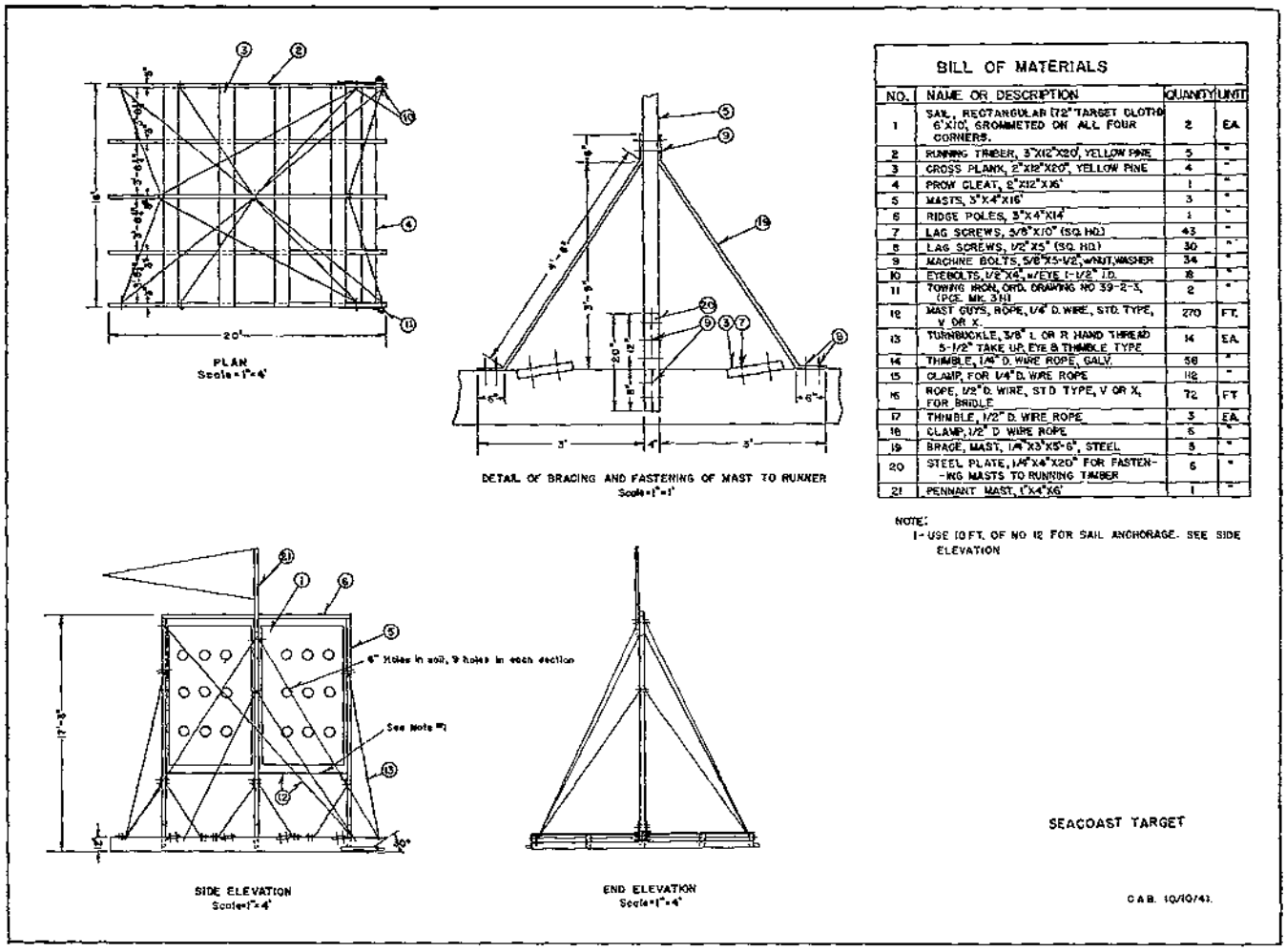
The Wire Thrower RL-37-T2 is a machine for projecting insulated field wire (one twisted pair) from a vehicle traveling at speeds up to thirty miles per hour. The unit is also used to recover wire at any speed up to ten miles per hour. Field wire (W-110 or W-110-B) may be thrown to any distance up to seventy-five feet on either side of the wire-laying vehicle, to a height of forty feet above the ground, and with any amount of slack desired. Field wire may be recovered from the rear or from either side of the wire-laying vehicle.

Close coördination of the speed of the wire-laying vehicle and the speed of the driving-gasoline engine is essential for satisfactory operation of the wire thrower. The driver of the vehicle and the operator of the wire thrower wear head and chest sets which are connected through field telephones. By the use of these telephone facilities, the operator is able to control the speed at which the vehicle is driven in such a way as to insure uniform slack of the degree desired in the throwing operation, and optimum conditions for picking up wire in the recovery operation.

The first tests from a moving vehicle were conducted with the truck running in the sand along a stretch of open beach. As a result of these tests, certain modifications were found desirable and were made by mechanics of the Coast Artillery Board. Following these modifications, an extensive series of tests was conducted along a concrete road having a wide right-of-way which varied in character from open ground to heavy undergrowth interspersed with trees. Operations were conducted in this area because a wide variety of conditions could be imposed, depending on just where the wire was thrown. Following these operations under more or less favorable conditions, the equipment was tested over more difficult terrain which was more nearly typical of the conditions under which mobile antiaircraft organizations are required to establish telephone communication. The worst conditions were encountered when the truck traveled over a road consisting of two ruts which were obscured at times by underbrush, with no clear space at the sides and with low branches overhanging the road to such an extent that the truck had to brush them aside. In this area the maximum speed that could be attained by the truck was about ten miles per hour.

In all the tests, the Wire Thrower RL-37-T2 functioned satisfactorily. The highest average speed at which one reel of wire (approximately 4,800 feet) was thrown was a little over twenty-five miles per hour. During several of the tests, speeds in excess of thirty miles per hour were attained at times. The lowest speed at which satisfactory control over the trajectory and slack of the wire could be maintained was about five miles per hour, although wire can be laid at any speed down to a dead stop. The maximum average speed for picking up one reel of wire was 7.5 miles





BILL OF MATERIALS

NO.	NAME OR DESCRIPTION	QUANTY	UNIT
1	SAIL, RECTANGULAR (72" TARGET CLOTH) 6'X10', GROMMETED ON ALL FOUR CORNERS.	2	EA.
2	RUNNING TIMBER, 3"X12"X20', YELLOW PINE	5	"
3	CROSS PLANK, 2"X12"X20", YELLOW PINE	4	"
4	PROW CLEAT, 2"X12"X16"	1	"
5	MASTS, 3"X4"X16'	3	"
6	RIDGE POLES, 3"X4"X14'	1	"
7	LAG SCREWS, 3/8"X10" (SQ. HD.)	43	"
8	LAG SCREWS, 1/2"X5" (SQ. HD.)	30	"
9	MACHINE BOLTS, 5/8"X5-1/2", w/NUT, WASHER	34	"
10	EYEBOLTS, 1/2"X4", w/EYE 1-1/2" I.D.	18	"
11	TOWING IRON, ORD. DRAWING NO 39-2-3, (PCE. MK. 3H)	2	"
12	MAST GUYS, ROPE, 1/4" D. WIRE, STD. TYPE, V OR X.	270	FT.
13	TURNBUCKLE, 3/8" L. OR R. HAND THREAD 5-1/2" TAKE UP, EYE & THIMBLE TYPE	14	EA.
14	THIMBLE, 1/4" D. WIRE ROPE, GALV.	58	"
15	CLAMP, FOR 1/4" D. WIRE ROPE	116	"
16	ROPE, 1/2" D. WIRE, STD TYPE, V OR X, FOR BRIDLE	72	FT
17	THIMBLE, 1/2" D. WIRE ROPE	3	EA.
18	CLAMP, 1/2" D WIRE ROPE	6	"
19	BRACE, MAST, 1/4"X3"X5'-6", STEEL	3	"
20	STEEL PLATE, 1/4"X4"X20" FOR FASTENING MASTS TO RUNNING TIMBER	6	"
21	PENNANT MAST, 1"X4"X6'	1	"

NOTE:
1- USE 10 FT. OF NO 12 FOR SAIL ANCHORAGE. SEE SIDE ELEVATION

per hour. Toward the end of this particular run the truck was traveling twelve miles per hour. Wire could be picked up satisfactorily at any minimum speed at which the truck could operate. In the most difficult type of terrain, an average speed of eight miles per hour was attained in laying, and two miles per hour in recovering the wire. These runs were made in a heavy rain, with the tarpaulin cover in place over the bows on the truck. Wire was thrown with slack varying from two per cent to about fifty per cent. The time required to change reels on the wire thrower averaged about two and one-half minutes. In static tests, the wire was thrown to distances of about seventy-five feet and heights of about forty feet. When the truck was traveling at thirty miles per hour, these distances were reduced approximately twenty-five per cent.

It is the opinion of the Board that the Wire Thrower RL-37 can be used to advantage by certain mobile and semi-mobile Coast Artillery organizations down to and including the battery. Since some lines required to be laid by an organization inevitably will be much longer than others, it is believed that the Reel Unit RL-31 can be employed most profitably in laying the shorter lines, and the Wire Thrower RL-37 in laying the longer lines. Simultaneous use of these two types of equipment will result in establishing telephone communications in the shortest possible time.

In determining possible application of the Wire Thrower RL-37, consideration was given to the program for the development of additional radio communication facilities for Coast Artillery units. Notwithstanding the greatly extended use of radio which is contemplated, it is believed that primary dependence will be placed on wire communication except for the link between searchlights and forward observation posts of the AAAIS. It is the opinion of the Board that radio will be used primarily in the initial occupation of positions to establish communication between command posts as quickly as possible, for communication between units on the march, and to supplement wire communication when wire lines fail or when secrecy considerations are not of paramount importance.

The Board recommended that the Wire Thrower RL-37, with certain minor modifications, be adopted as a standard article and issued to certain units of antiaircraft, railway and tractor-drawn artillery.

Seacoast target. For the past several months the Board has been experimenting with a type of seacoast target first developed in the Hawaiian Department. The first target built at Fort Monroe was not entirely sea-

worthy. The raft was satisfactory but the superstructure was modified several times by employing larger uprights and by increasing the number of metal braces. The modified target stood up satisfactorily under various weather conditions. Orange-yellow target cloth was more visible than the standard red target cloth.

The modified target compared with the standard pyramidal target has the following advantages and disadvantages:

a. Advantages.

(1) Greater visibility at long ranges and for low heights of site.

(2) Permits better observation with CRF.

b. Disadvantages.

(1) Somewhat slower.

(2) Costlier

(3) Target only in one plane.

(4) Harder to handle.

There is a need in the service for a target that will give increased visibility at long ranges from low heights of site. The modified target fulfills this need. It also permits better tracking when using the CRF. It can be tracked to 20,000 yards in clear air from a height of site of approximately eighty feet.

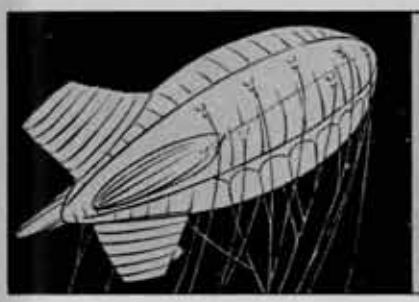
The photograph shows a general view of the target. The detailed drawings and bill of materials are shown on the drawing.

The Board concluded that the subject target is particularly suitable for the following purposes:

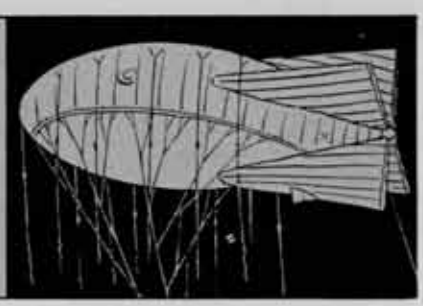
a. For use when firing Case II from low heights of site.

b. For use with the SCRF.

c. For long range tracking.



Barrage Balloon Board



The Barrage Balloon Board will welcome constructive proposals from anyone whether or not a member of the service, pertaining to subject matter that may properly be studied by the Board. Communications should be addressed to the President, Barrage Balloon Board, Camp Davis, N. C.

LIEUTENANT COLONEL PORTER P. LOWRY, *President*

LIEUTENANT COLONEL JOHN J. JOHNSON
MAJOR SELBY M. SKINNER
LIEUTENANT NATHAN M. FRISCH
MAJOR SAMUEL T. MOORE, A.C.
CAPTAIN OSWALD H. MILMORE
LIEUTENANT FRANK A. BIRDSONG

Since the last issue of The JOURNAL, the Barrage Balloon Board has developed certain maintenance, inspection, and operation forms for barrage balloons and winches, conducted tests of matériel, compiled considerable data relative to balloons in service, and made recommendations for the improvement of and application of safety features to equipment. Among projects completed during the period are those covering:

A study of the aluminization of balloon fabric as a preventative for superheating.

A suitable means for warning civilians and other inexperienced persons to keep fires away from grounded break-away, hydrogen-inflated balloons.

A study to determine whether or not an additional ply of fabric should be applied to balloon bellies as a protection against wear.

A study to determine a simple safety means for cutting of the flow of hydrogen when fire occurs during inflation operations.

Other projects under consideration are classified information, and are not for general circulation.

The United States Coast Artillery Association

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.

The Coast Artillery Journal

COLONEL W. S. PHILLIPS, Editor
CAPTAIN 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 the Chief of Coast Artillery or any other 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.

News and Comment

Election of Officers

The terms of office of the Vice President of the United States Coast Artillery Association and of four members of the Executive Council expire December 31 of this year.

Supplies of ballot forms have been mailed to the commanding officers of all Coast Artillery units. It is known that many members of the Association are not assigned to tactical units, therefore a ballot is included in The JOURNAL for the convenience of such members. Unfortunately, postal regulations do not permit us to include a detachable ballot, so it will be necessary to clip the ballot from your copy of the magazine. Ballot forms will be mailed to members of the Association if requested.

The officers of the United States Coast Artillery Association urge all members to vote. Although the Nominating Committee has selected one candidate for each vacancy, members should feel free to write in the name of their own choice if that choice does not coincide with the selection of the Nominating Committee. Short biographies of the nominees follow:

Brigadier General Donald B. Robinson was born in Missouri in 1891, and moved to St. Paul, Minnesota, in 1903. He was a private in Company H, 1st Minnesota Infantry, and attended Renssalaer Polytechnic Institute and the University of Wisconsin. Serving in the Signal Corps during World War I, General Robinson rose to the rank of Captain, and was attached to the Peace Commission in Paris, returning to the States in June, 1919. He commanded the 206th Infantry at the time it was converted to Coast Artillery in the spring of 1940. In August, 1940, General Robinson was promoted to Brigadier General. He is a graduate of the Command and General Staff School.

Colonel Charles W. Bundy is a native New Englander, born in Massachusetts in 1890. He is a graduate of Middlebury College, Vermont, of the Army War College, of the Advanced Course at the Coast Artillery School, of the Naval War College, and is a Distinguished Graduate of the Command and General Staff School. He began his military career in the Maine National Guard and was appointed to the Regular Army in 1916. Now on duty in Washington in the War Plans Division, General Staff, Colonel Bundy's previous assignment was G-4 in Puerto Rico.

Colonel Gordon de L. Carrington entered the military service from civil life in 1916, at which time he was residing in California. He has graduated from the Battery Officers' Course at the Coast Artillery School.

the Command and General Staff School, and the Army War College, and has been a member of the faculty of the Coast Artillery School and the Army War College. In 1921-22 he was a member of the Coast Artillery rifle team. Colonel Carrington is now detailed to the General Staff Corps, serving as G-1 at General Headquarters.

Colonel Ralph C. Tobin is another former infantryman, brought to the CAC by the conversion of his National Guard regiment. He was a private in the Machine Gun Company of the 7th Infantry, New York National Guard, in 1916. After seeing service during the Border troubles, he went to France early in 1918, and was commissioned Second Lieutenant, Infantry, in October, 1918. He advanced through the grades to Colonel in the New York National Guard, and in 1931 graduated from the G-2 course at the Command and General Staff School. He has been awarded the Silver Star and the Legion of Honor, and the New York State Conspicuous Service Cross. His regiment was converted to Coast Artillery February 10, 1941.

Colonel Henry I. Ellerbe commands the 534th Coast Artillery. He is a lawyer, resident in Bennettsville, South Carolina. He is a graduate of Wofford College and Washington and Lee Law School. He attended the first Officers' Training Camp at Fort Oglethorpe, Georgia, and was commissioned 2d Lieutenant at Fort Monroe, August 15, 1917. He is a graduate of the Reserve Field Officers' Course at Fort Monroe, the Command and General Staff School, and the G-2 course at the Army War College.

* * *

A Reserve Officer at a CARTC

Here are portions of a letter written by a Reserve lieutenant on duty at Camp Wallace to a friend in the antiaircraft regiment with which he formerly served. His letter gives some idea of what goes on in a Coast Artillery Replacement Training Center.

Dear Mac,

Life here at Wallace starts at 6:00 a.m. and ends at 5:00 p.m., with an hour out for lunch. At least, those are the hours for the official part of our lives . . . on normal days. When I was with the ___th I thought I was a pretty good hand on the 3-inch guns. Here I find that my 3-inch gunnery comes in very handy, but we also have to know everything in all the Field Manuals, from *Advanced Tactics* to *First Aid*. This place is really a Coast Artillery Preparatory School, and the regiment in the field is the finishing school.

Most important job here is to see that the round pegs get in the round holes. Half the battle is won in training if the soldier you have to train has an aptitude for the job and has, as far as possible, been following the lines in civilian life that most nearly correspond with his military assignment. We certainly get some problems to handle. What would you train an undertaker to do in an AA regiment—or a masseur—or a hat stylist? We have one boy from Reno who is a bingo card puncher by profession—they left that one out of AR 615-26.

INSTRUCTIONS AND INFORMATION

1. The list below is the slate prepared by a nominating committee to replace those members whose term of office expires on December 31, 1941.

2. Please record your vote by marking an "X" in the appropriate square or indicate your choice by writing in the name of your candidate. Ballots received with signatures but with no individual votes recorded will be considered proxies.

3. Each candidate was considered in connection with the geographic location of his residence and also the component of which he is a member. It is considered advisable to have at least five members of the Council resident in Washington in order to facilitate the transaction of business.

4. No member is to be deprived of a voice in the nomination and selection of the new members of the Council. If you do not approve of the Committee's choice, enter your personal choice in the space provided.

5. Ballots received after January 6, 1942, cannot be counted.

6. If you are on active duty please hand your ballot to the adjutant to be forwarded together with all the other ballots collected by your regiment, post, camp or station. Those members to whom the foregoing instructions are not applicable should mail their ballots to the Secretary, U. S. Coast Artillery Association, 1115-17th Street, N.W., Washington, D. C.

BALLOT

UNITED STATES COAST ARTILLERY ASSOCIATION

For Vice President (1942-1943)

☐ Brig. Gen. Donald B. Robinson, 101st CA Brig., Minn. N. G.

☐ _____

For Members of the Executive Council (1942-1943)

REGULAR ARMY (Vote for two)

☐ Colonel Charles W. Bundy, CAC

☐ Colonel Gordon de L. Carrington, CAC

☐ _____

☐ _____

NATIONAL GUARD (Vote for one)

☐ Colonel Ralph C. Tobin, 207th CA, N.Y.N.G.

☐ _____

RESERVE (Vote for one)

☐ Colonel Henry I. Ellerbe, 534th CA

☐ _____

_____

Signature

_____

Rank and Organization

_____

Address

If ever there was a little melting pot within a big one, this it it! The trainees come by train or bus in groups of one to 350 everywhere from Fort Lewis, Washington, to Key West Barracks, Florida—tired, bewildered, interested and slightly irked at being jerked from their homes and so ruthlessly placed in their new environment. I will never forget the expression on the faces of a new group of trainees when they were forced to go without hot water for showers because the steam fitters were on a sit-down strike. It gave them a new insight into the problems of rapid expansion of our national defenses.

During their thirteen weeks stay here they get exposed to every phase of Coast Artillery antiaircraft environment. A program of shooting is carried on by the Coast Artillerymen and then they're shot at by the M.D.'s. You never find in a training schedule time off for tetanus, toxoid or blood typing and inoculations and vaccinations of various sorts that are required to be on the dog tags.

The men show their greatest interest in the small arms and automatic firing.

Each officer here is allotted a room in an officer's barracks, a condition which is greatly appreciated by the officers. As to Replacement Center night life, there is none for the officers except at the post theatre. Most of us find diversion in near-by cities. However, an extensive program is carried on by the Morale Division in connection with the U.S.O for the enlisted men.

At the completion of a period of from twelve to fourteen weeks intensive Coast Artillery training the men are shipped out to whatever regiment or army unit needs replacements. The contrast in their appearance and conduct when they arrive and when they depart is highly gratifying but at the same time disappointing. We gain a hollow victory by making a man useful in a new profession and then having to turn him over to somebody else. That feeling usually leaves in a week or two, however, for almost before the smoke of a departing train full of men has blown away, we've got another bunch on our hands and promptly plunge into the task of changing them from civilians into soldiers.

Sincerely,

R. H. R.

Antiaircraft Successes

The majority of people in this country, including many members of the Services, have but a sketchy idea of the successes so far achieved by the AA gunners who, with Fighter Command, Balloon Command and the Searchlight Regiments of the R.A., form the Air Defense of Great Britain.

Naturally the gunners cannot hope to achieve the meteoric successes of our fighter pilots, for it is a hard task for guns on the ground to burst their shell on a target that may be moving at nearly 400 m.p.h. six miles up in the sky. But it may be news—and very encouraging news—to many to learn that one AA Brigade recently destroyed its 200th enemy aircraft.

In a congratulatory message Lieutenant General Sir Frederick Pile, G.O.C.-in-C., Anti Aircraft Command, says: "It is a matter for high congratulations to you all. . . . I doubt in the history of the world if any other Brigade has yet attained that figure"; and he goes on to speak of the continual practice and even drudgery that is necessary for the "first class team work that brings down Huns."

This particular Brigade, situated in Kent, comprises three heavy AA and three light AA Regiments, and at the time of the Battle of Britain—when naturally most of its successes were obtained—its personnel consisted almost exclusively of Territorial soldiers.

It is worth note that the "bag" of 200 includes only those aircraft known for certain to have been destroyed. Claims in respect of these are subject to a scrutiny equally as strict as that exercised over the claims of fighter pilots, and indeed the final authority in this respect is Fighter Command, which is in supreme control of the A.D.G.B. (Air Defense Great Britain). Many other enemy aircraft are known to have been damaged by the guns, and it is most probable that a large proportion of these never reached their bases. It is perhaps more difficult for the AA defenses to substantiate their claims than it is for the fighter pilots: for many aircraft are able to limp on for a considerable distance after they have been fatally hit, and the gunners are more often than not denied the fighter pilot's full satisfaction in being able to see his victim actually crashing to earth. In at least one case it has been possible to prove that an aircraft shot down by the guns crashed as far as 40 miles away. And the sea is very close to Kent and seldom yields up its secrets.—*The Gunner*, London.

It's Better Camouflage

It's farewell to the shiny Army truck. In fact, it's all right even to allow some dust to stay on the surface. The new system was developed for better camouflage.

Lustreless paint now used on Army vehicles makes it difficult to see a truck from the air or from distances on land. Trucks no longer carry white stencil numbers because these can be photographed from the air. Blue drab stencil enamel, now used, will not show on air films. And the numbers are illegible to the normal eye at distances exceeding 75 feet.

Under the system developed by the Quartermaster Corps, relatively rough olive drab paint is used on truck bodies and a minimum of light is reflected from its surface. It has been found that a certain amount of dust increases the camouflage value of the paint.

Height-Finders

Ten months ahead of schedule, the Eastman Kodak Company delivered its first stereoscopic height-finder September 24. The company received the contract for the instruments less than a year ago.

The Curve Still Rises

In The JOURNAL's never-ending battle to increase circulation, the discouragements of the task seem as nothing when balanced against the goodwill and hearty coöperation of boosters throughout the Corps. Many friends of The JOURNAL are doing their best to help us attain our goal—every officer and every battery a subscriber. When group orders are received at the office, we know that one more conscientious Association member has been at work. After all, the larger our circulation, the more we can pay for articles; the more we pay for articles, the better the material we can present to our readers.

At Camp Wallace, subscriptions have been entered for every battery on the post. It is merely human for us to be pleased with General Maynard's confidence in the instructional value of The JOURNAL. From far-off Puerto Rico has come an order for twelve individual subscriptions, from the 51st Coast Artillery. And from the 240th Coast Artillery at Fort Williams, Maine, we have received the names of nineteen officers who wish to subscribe. That is a good start toward a 100% regiment.

Lieutenant Colonel T. E. Jeffords, commanding officer of Fort Tilden, forwarded ten subscriptions and a statement that he believed the post was now in the 100% group. Colonel E. H. Underwood gave us a pleasant morning with an order for twenty-four subscriptions from Fort Randolph, Canal Zone. Lieutenant Colonel W. M. Chapin, of the 73d Coast Artillery, added nineteen subscribers to the rolls.

Lieutenant Colonel M. A. Dawson, of the 11th Coast Artillery, sent us the names of fifteen officers at Fort H. G. Wright who intend to keep abreast of what's going on; and Major V. P. Lupinacci, commanding officer of the 3d Coast Artillery Replacement Training Battalion, at Fort Eustis, added five more subscribers to our list.

The largest single order from the personnel of a single regiment came from the 242d Coast Artillery. Colonel Russell Y. Moore, through Captain Mudge, his adjutant, sent in a list of thirty-three subscriptions.

The 369th Coast Artillery, at Camp Edwards, ran a close second with twenty-seven subscriptions, sent in by Colonel Chauncey M. Hooper.

Lieutenant Colonel E. R. Barrows came through with thirteen new subscribers from the elements of the 5th Coast Artillery at Forts Hamilton and Wadsworth.

With thanks to those who have come through for The JOURNAL, as well as for those who are working now to swell our subscription lists, we are awaiting the first of December to see what our office circulation chart will look like.

40-mm. Bofors Automatic Field Gun

Fast firing, rugged, capable of being aimed in any direction from straight up to 5 degrees below horizontal, the new 40-mm. Bofors automatic field gun is the Army's new defensive weapon against low-flying aircraft.

The rate of fire is 120 to 140 rounds per minute, but usually the bursts are only four or five rounds, after which corrections in aim, if necessary, are made. Reflection sights make it possible to track the enemy aircraft and continue point blank fire. Tracers make instant corrections possible.

Leaving the funnel-mouthed gun at 2,850 feet per second, the projectile can be fired in a virtually straight trajectory up to 3,280 yards. It has a maximum range of 11,000 yards, horizontal.

Correction

In the Camp Stewart News Letter which appeared in the September-October issue, Battery A of the 212th Coast Artillery was not included in the listing of the organization of the Provisional Searchlight Battalion. This battery is definitely included in the battalion—The JOURNAL regrets the omission.

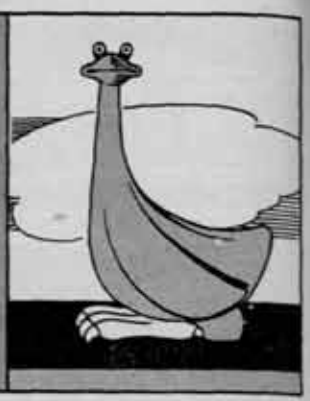
Reserve Transfers

The Adjutant General has announced that Coast Artillery Reserve officers above the grade of second lieutenant will not be transferred to other arms and services, Air Corps excepted, or detailed in arms other than the Air Corps, or in any service except with the approval of the Chief of Coast Artillery.

Emphasis on Tanks

It is evident from a glance at the Table of Contents for this issue that The JOURNAL is attempting to bring its readers all the latest information on mechanized and antimechanized tactics. Now that the Coast Artillery Corps has added another mission to its collection, it is believed that informative articles concerning mechanized warfare are especially important. The JOURNAL will attempt to keep its readers informed; additional articles will appear from time to time.

Coast Artillery Activities



OFFICE OF CHIEF OF COAST ARTILLERY

Chief of Coast Artillery
MAJOR GENERAL JOSEPH A. GREEN

Executive
LIEUTENANT COLONEL H. N. HERRICK

Chiefs of Sections

Personnel
LIEUTENANT COLONEL F. E. EMERY, JR.

Matériel
LIEUTENANT COLONEL D. W. HICKEY, JR.

Planning
COLONEL C. E. COTTER

Organization and Training
LIEUTENANT COLONEL G. W. RICKER

Fiscal
LIEUTENANT COLONEL L. L. DAVIS

Coast Artillery Journal
COLONEL W. S. PHILLIPS

Intelligence
LIEUTENANT COLONEL J. D. MOSS

☆ ☆

Most of the information which is of interest to the readers of the JOURNAL is classified and cannot therefore be published. The following notes have been released for publication.

COMMUNICATION

One of the items recently standardized for use by the Coast Artillery is the Radio Set SCR-543. This is a medium powered radio telephone transmitter and receiver, designed for use by mobile antiaircraft units. This set will operate from a vehicle as well as from the ground. The Chief of Coast Artillery is making every effort to expedite delivery of this and other radio equipment in order to place them in the hands of troops as soon as possible.

TABLE OF BASIC ALLOWANCES

A new Table of Basic Allowances has been published as of October 1, 1941. This revision is preliminary to a greater one which will probably be published as a result of letters received from the field.

ENGINEER AND SIGNAL CORPS GENERAL CATALOGUES

Several requests have been received for information as to what Coast Artillery units are included in distribution lists for Engineer and Signal Corps General Catalogues. Current distribution policies covering these publications are as follows:

The Engineer Catalogue will be distributed through Corps Area Engineers, to supply officers of all antiaircraft regiments.

The Signal Corps Catalogue will be distributed through Corps Areas to supply officers of all Coast Artillery organizations.

Units not on current distribution lists, which may require copies of these publications should submit requests therefore, through the appropriate channels, to Corps Areas.

Hawaiian Coast Artillery Command

MAJOR GENERAL HENRY T. BURGIN, *Commanding*

By Major D. D. Martin

All units in the Hawaiian Coast Artillery Command have started an intensive program of bayonet exercises designed not only for proficiency in the use of that weapon but also for the purpose of raising the physical condition of all men to a high level. The recent article in the COAST ARTILLERY JOURNAL was used as a guide in the construction of the courses but there was no restriction on the ingenuity of the officers in charge. As a result each regiment and harbor defense has a bayonet course that promotes interest as well as agility.

The new antiaircraft units have had their first taste of target practices and they liked it. In general a Coast Artillery recruit does not become a real soldier until he has taken an active part in target practice. All organizations completed their annual primary practices in September prior to the advent of the rainy season. The seacoast headquarters batteries with caretaking assignment to rapid fire batteries have been given sufficient ammunition to permit them to conduct annual target practices.

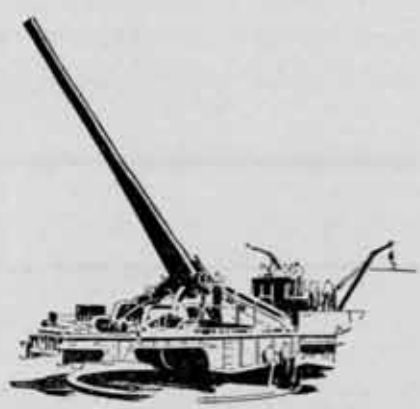
On September 25 a regimental review was held at Fort Ruger at which Soldiers' Medals were presented to Corporal Moorefield and Private Conway by the Hawaiian Coast Artillery Commander, Major General Henry T. Burgin. Corporal Moorefield and Private Conway were decorated for their heroic action in the rescue of a drowning man at Fort DeRussy, T. H., on December 5, 1940. On that day, Moorefield and Conway were working near the beach when they heard cries for assistance. Though dressed in dungaree uniform and wearing heavy issue shoes they immediately plunged into the surf and went to the aid of the victim. Although greatly handicapped by their heavy clothing they succeeded in bringing him to shore and by the application of artificial respiration saved his life.

Old friends will be interested in the alterations now nearing completion at the Pavilion Club. The large increase in membership taxed the capacity of the club until it was necessary to restrict the number of members or enlarge the building. The new dance floor will be almost twice the size of the old one.

The South Sector baseball season ended with the 11th Group from Hickam Field in the top position. The team of the Harbor Defenses of Honolulu which was picked for the cellar by the experts, turned out a spirited nine that was first among the Coast Artillery teams with Shafter, Malakole and Kamehameha finishing in the order named. Corporal W. O. Andrews of the Honolulu team was chosen the most valuable player of the league.

The following additions have been made to the Hawaiian C.A.C. staff since the last issue of the JOURNAL: Major Perry McCoy Smith, Assistant S-3, Captain Herbert W. Mansfield, Assistant Communications and Engineer Officer and First Lieutenant Robert E. Nelson, Assistant S-2.

Another word or two about the housing situation in Hawaii. It is most difficult to rent a house of any description for immediate occupation. In general all available places are leased to the new occupant months before the old tenant vacates. To quote Sol Pluvius of the *Honolulu Advertiser*, "It is getting so bad you can't even find a place you can't afford."



Corregidor

BRIGADIER GENERAL GEORGE F. MOORE, *U. S. Army,*
Commanding Philippine Coast Artillery Command

By Lieutenant Burton R. Brown

Change of command designation, tragedies, near tragedies, celebrations, and distinguished visitors have been as much a part of Corregidor during August and September as the rain. Orders from Headquarters, United States Forces in the Far East, have created the Philippine Coast Artillery Command with Brigadier General George F. Moore as Commanding General. The Harbor Defenses of Manila and Subic Bays are a part of this command and Fort Mills remains as Headquarters.

The Harbor Boat *San Pedro* that has made thousands of trips from Fort Mills to Manila and to Fort Wint for the past quarter of a century will sail no more. On the morning of August 14, on a return trip from Fort Wint to Fort Mills she was hit by two excessively large swells, rolled over on her side, swamped, and sank, all within a few minutes. She now lies about ten miles south of Fort Wint in fifty fathoms of water. Prompt and efficient work on the part of the crew resulted in saving the lives of all except one sailor. Among the persons aboard at the time of accident were three officers: Captain J. C. Hultquist, Lieutenant J. H. O'Toole, and Lieutenant F. W. Bovee. The latter two suffered slight injuries when they were hit by the mast and rigging and carried down with the ship to some appreciable depth. Luckily they managed to break away and swim over to the lifeboat. For twelve hours after that, twenty-seven men kept afloat in a life boat, (the only one broken loose before the *San Pedro* sank), which was built for twelve. By slow stages, they reached the Bataan shore. Meanwhile, the assistance of the Air Corps, the Navy, and our own harbor boats was enlisted in the search for the missing boat. The survivors were finally sighted on the beach by a destroyer on the morning of the fifteenth, and a small boat was sent ashore for them. All survivors have now completely recovered and have rejoined the busy round of work at Corregidor.

A month after this near-tragedy part of the post engaged in a celebration when Colonel P. D. Bunker's regiment celebrated its twenty-third anniversary. It was especially gratifying to Colonel Bunker since this is the third time he has commanded this regiment and is justly proud of it. Lieutenant Colonel Valentine P. Foster, who was with this organization at its inception and served with it all during World War I in France reviewed the history of the regiment from his own personal experiences with it. General Moore, who in one of his previous tours at Corregidor, had also served in the regiment, complimented the regiment on its past and present achievement. On this same occasion the newly authorized regimental band made its first public appearance.

On September 3d, Lieutenant General Douglas MacArthur, Commanding General of the United States Forces in the Far East, accompanied by Brigadier General Richard K. Sutherland, his Chief of Staff, made a thorough inspection of Fort Mills, its armament, installations and activities. General MacArthur having at one time been Commanding General of the Philippine Department is quite familiar with Corregidor, but much has happened since that time. His remarks upon his departure that he had often seen as much activity but seldom had seen "so much activity so intelligently applied" and that he had seen "much to praise and little to criticize" was partial compensation for the vast amount of work that officers and men have been doing in the recent past.

Although much more outdoor training has been accomplished this rainy season than in past years, an appreciable amount of time was spent on indoor instruction. This, in most cases, took the form of Gunners' Instructions. Enviable records were made by batteries commanded by Captain J. McM. Gulick and Lieutenant S. A. Madison. However, with the slackening of the rain, training has moved almost completely outdoors and the sharp crack of small arms and beach defense weapons is heard again almost incessantly all over the post. Pistol and rifle, antiaircraft machine gun, and beach defense firing is being conducted by all regiments. It is still too early to comment on the record of all organizations, but observation of the first firings speak well of the preparedness of Corregidor for any eventuality in these lines. General Moore, just completing a quarterly inspection of all phases of the training and installations in the Harbor Defenses, noticed a vast improvement in all cases over that displayed in his last inspection.

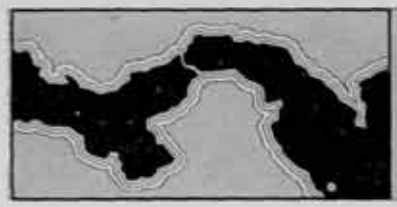
Frequent "conditioning marches" under full pack are made by all units. During these marches the organizations engage in gas defense and extended order problems. The improved physical condition of the personnel is very noticeable. Meanwhile several officers and noncommissioned officers are detailed for a short time with the Philippine Army to assist in their training. During this same rainy season, Mine Command of Lieutenant Colonel Kohn's regiment has worked day and night, in

typhoon weather and calm to finish their project. Considering that they worked in the open sea during the worst season of the year, they completed their job in record time.

The problem of things to do when not training must be faced here. Since Corregidor is rather isolated, the matter of recreational facilities is quite an important item. As usual, athletics of all types are engaged in enthusiastically but with the increase in personnel during the past year, the present facilities of some buildings are somewhat strained. With this fact in mind, construction of a new Middleside Ciné and additional bowling alleys at Topside is proceeding rapidly and will be adequate to care for the additional needs.

The rainy season drove most athletics indoors so the most popular sports for the past two months have been bowling and basketball. The Harbor Defense Staff officers' tenpin team took the Officers' League Championship for the second consecutive year. Captain E. Somerville ended the season with a high average of 171. The Battery League is still in the process of playing its final games so the outcome is still in doubt. Inter-battery basketball, however, has been completed and performance in that league promises the best regimental teams in years. Captain G. H. Crawford's battery won the contest in his regiment against heavy competition while Lieutenant H. H. Hauck's battery experienced little difficulty in winning his regimental title and thereby cinched the Athletic Supremacy award for the battery. Lieutenant Farris' battery ended the season at the top in his regiment. Meanwhile, with the coming of sunny days, a wave of enthusiasm for softball has arisen. Several officers' teams are in the process of formation and there are plans afoot for a post officers' team to play officers teams from other posts.

In the face of world conditions, it is interesting to note that no recruiting problems are present in the Scout regiments. Even though vacancies may not exist for several years, the personnel adjutant of one regiment receives from five to ten applications every day. Many Filipinos apply years in advance for their sons. The Scouts soldiers average service is between fifteen and twenty years and they seldom fail to reënlist.



Panama Coast Artillery Command

MAJOR GENERAL WILLIAM E. SHEDD, *Commanding*

By Captain Franklin B. Reybold

The Panama Coast Artillery Command continues to move along at an extremely fast pace with the organization of additional batteries, construction of new positions, improvement of road and water transportation, and general improvements of housing facilities. Training continues along its customary lines as each organization endeavors to develop a high state of efficiency in fire control in order to meet any emergency.

In our last article we mentioned the reorganization of the Command. It will soon be necessary to expand the present organization into a more extensive tactical unit. With the expected arrival of additional armament, the problem of additional personnel and positions becomes prominent. The plan will no doubt call for enlisted cadres from each regiment within the Command at present to be transferred into the new outfits to form the nucleus for each additional battery. As each transport arrives bringing fresh troops to Panama they will in turn be assigned to the new outfits upon completion of their training at the Recruit Training Center at Fort Amador. To house these additional troops and to make efficacious use of the new armament it becomes necessary to provide additonal jungle positions.

The construction of the new positions will differ slightly from the original plans of 1940. Having lived at these older positions for over one year, the troops have found that certain improvements would increase local comfort and lead to greater satisfaction throughout. Therefore, new plans for larger buildings and more convenient facilities have been drawn up. The new ideas will probably include such improvements as the extension of mess halls from sixty to seventy feet in length for a one hundred man outfit, the extension of a twenty man barracks from fifty feet to sixty feet in length and from twenty to twenty-four feet in width, the construction of concrete sidewalks joining all buildings, the use of tile or combination roofs instead of corrugated tin, and the installation af additional mess equipment for the smaller messes. With these improvements each outfit will be quite well cared for. It is also planned to improve the old positions as funds become available.

Construction of serviceable roads for both dry and rainy weather is indeed of primary importance in order that supplies and troops may easily reach all outlying positions, some many miles distant from their base. Hundreds of miles of roads have been completed however within the past year, and, practically every position, regardless of the strength of its manning detail may now be reached by automobile, boat or mule pack.

Much difficulty has been encountered in the maintenance of water lanes on Gatun Lake. General Oldfield of the Atlantic Brigade and staff have made certain recommendations pertaining to the improvement of the present system of water lanes by additional dredging and the opening of new channels. Upon the completion of this work Gatun Lake will be literally honeycombed with an excellent system of well marked channels for the use of small launches. With the arrival

PCAN's audience ready and waiting.

Three minutes to air time. Panama's famous station PCAN.

of the large water barges these channels will simplify the distribution of water to outying positions.

Training within the Command is, as usual, being pushed along in an effort to attain a high state of efficiency of the individual soldier and within each unit. Several exercises have been held by the antiaircraft artillery and the Interceptor Command of the Caribbean Defense. Bombers simulating an enemy air force have been sent against the Canal in day (and night) attacks. Missions of this nature give the unit commanders ample opportunity to test the alertness and the efficiency of their outfit under actual wartime conditions.

The training of the individual to take part in the active defense of a position is not started until he has a very thorough knowledge of the fundamentals of Coast Artillery gunnery. This knowledge is acquired only via the gunners pamphlet and competent instructors plus personal experience. All batteries are, at present, deeply absorbed in the preparation of newcomers for their exams and are emphasizing in particular the identification of aircraft.

In our last article we mentioned the completion of antiaircraft target practices at Rio Hato. Since then all seacoast batteries have completed their annual practices. On the whole, all batteries were quite well satisfied with the results of their efforts. Plans are now under way to fire all class A and B seacoast armament next year. The annual mine practices of each mine battery was carried out, and, from all reports, the outfits firing proved quite competent to do their part in the close-in defense of the Panama Canal. As new DB boats arrive, they are being put to immediate use by the mine commands.

Much has been said about the training and the firing of antiaircraft gun batteries and seacoast batteries. However, little, if anything has been brought into the discussion concerning searchlights. Due to the very unfavorable weather conditions during the rainy season, little opportunity for extensive training of searchlight crews has to date been available. Nevertheless, the constant training of sound locator crews and light crews is imperative. Working in conjunction with commanding officers of Bombardment and Pursuit Groups of the Air Corps, many missions have been attempted. Feeling the necessity for more intimate contact on the part of light Commanders with the air conditions as they are normally found in Panama the Command has conceived the idea of sending several light commanders up with the tracking planes each night. Thereby each crew is enabled to receive first-hand information regarding the success of its drill for the evening. In addition the light commander himself can determine from actual experience certain failings of the lights so far as tracking is concerned and also can experience the effect of the tracking light on the plane crew. Such information should prove to be invaluable in time of war.

In each issue of The JOURNAL we have mentioned the athletic activities of the Command. Perhaps, since this is the final issue of the year 1941, we should once again mention them and this time review all of our activities during the entire year. Much emphasis has been placed upon morale and the participation of all men in some form of athletics. Feeling that the efficiency of an outfit depends greatly upon the morale of the enlisted personnel each and every man has been encouraged to turn out for some activity. In order to provide sufficient variety for some twenty thousand men, every conceivable form of amusement was required. Six Coast Artillery teams participated in practically every athletic event on the Isthmus. Some were more fortunate than others in that they were close on the heels of very first place team. From baseball, through softball, bowling, track, tenis, golf, basket ball and now to boxing the Coast Artillery teams have faired excep tionaly well. Difficulty in training and transportation of players from outlying stations made the rounding out of top teams exceedingly difficult. However, bowling and swimming championships were copped by Randolph and Sherman respectively when these two teams topped all entries in the Department. Boxing now under way, appears to be well in the hands of the several Coast Artillery teams and from all appearances we may have some Department champions. Radio stations, hobby clubs, stamp clubs, dramatic societies, musical shows, amateur shows, the Panama Coast Artillery News, Post dances, and many other local battery activities have aided in the entertainment of all men. The morale is high, the efficiency higher, and the Command prepared to meet any emergency.

Nineteen forty-one was a momentous year in the life of the Panama Coast Artillery, and 1942 will no doubt prove to be more so. Nineteen forty-one saw the completion of the second year of the life of this tremendous Command; saw the infant outfit grow to huge proportions. Nineteen forty-two will see this same huge Command, so vital to the defenses of the Panama Canal become a coördinated, highly trained team.

Tent Camp, Fort Buchanan

Puerto Rico Coast Artillery Command

COLONEL C. THOMAS-STAHLE, *Commanding*

War, invasion and military activity were the main topics of conversation in Puerto Rico during the latter part of September. Newspapers carried headlines, men talked of them on street corners and even the women interrupted their back-fence gossip to discuss the impending problem. The island was no longer an objective of the winter tourist, but the supposed point of invasion of a foreign power.

Following weeks of the usual "intensive diplomatic activity," the main body of the United States Fleet was ordered to the Pacific to protect American interest in the Orient, leaving only light patrol units in the Atlantic. All aviation with the exception of a single observation squadron had been temporarily withdrawn from the island; but various units would return if required.

Meanwhile, a vast enemy fleet of war craft and troop transports was reported as having left an unnamed European port, sailing towards Puerto Rico. The fleet was first located at sea 2,300 miles northeast of the island, sailing southwest.

This was the hypothetical picture when Department maneuvers started on September 25, and the problem facing the forces in Puerto Rico was to prepare for possible invasion and to drive off the invading troops before they could secure control on the island.

Units of the Coast Artillery were alerted for action immediately and at 6:00 A.M. on September 28th they began their movements into battle positions. The anti-aircraft troops were soon at their respective positions and remained there for the duration of the maneuvers.

The Harbor Defense units were also ordered into their positions. The position on the north coast of the island was immediately manned and the units defending the south and west coasts left their home stations.

Occupation of the positions on the south and west coasts involved long marches. The column proceeding to the West coast crossed Guajataca Pass, where the

View from *El Morro*

road narrows and winds through a deep canyon, and proceeded without mishap to its positions. The column proceeding to the south coast was obliged to cross the Central Cordillera, the mountain range running from east to west through the center of the island. Here narrow roads, hairpin turns and ten per cent grades hampered the progress of the movement—particularly that of the heavy column. After three long and tedious days on the road both columns reached their battle positions, laid many miles of field wire, and were ready for action on the afternoon of September 30th.

All positions were manned continuously. OP's reported the activities of enemy ships and aircraft and light enemy craft harassing the coasts were engaged repeatedly. Most of the positions occupied were located in palm groves close to the beaches. Here natural concealment provided by the palms practically eliminated the need for additional camouflage measures. One position was entirely exposed, and dummy positions were constructed. Guns and other matériel were covered with palm fronds, which were changed frequently to prevent detection when the fronds dried and turned brown in the sun.

The enemy's main effort was delivered against the south central coast of the island in the form of a landing supported by aviation and fire from naval units. A beachhead was established but the invaders were routed by combined air, infantry, and artillery action before much penetration was accomplished.

Following the defeat of the invading force the movement to home stations was carried out without mishap, the last unit returning October 6th.

Throughout the exercises, morale was excellent—despite the strain of constant observation and the fact that long periods of inactivity were experienced between actions. Valuable knowledge as to the performance and capabilities of both men and matériel was gained by all units which participated in the maneuvers.

During the past two months there has been a large turnover in officers in the various units of Coast Artillery on the island. This is due to the fact that many officers have completed their tour of foreign service and have returned to assignments within the continental limits of the United States.

Parade Ground and Golf Course, Post of San Juan

First Coast Artillery District

MAJOR GENERAL THOMAS A. TERRY, *Commanding*

By Lieutenant Carl M. Allen, Jr.

During the past two months, the components of the First Coast Artillery District have engaged in an extensive program of realistic training. During the Interceptor Command Exercise which was held by the Air Corps in October, the Harbor Defenses and antiaircraft regiments of this district gave support to the defending units of the Air Corps. The 369th Coast Artillery (AA), recently transferred from Fort Ontario, New York to Camp Edwards, Massachusetts, moved to Boston to aid in the antiaircraft defenses of Boston. Other harbor defenses maintained a constant alert at observation posts, and searchlight and antiaircraft artillery were ready to engage any "enemy" aircraft that might appear.

Target practices have been fired in all of the Harbor Defenses on various types of armament with unusual success. Many of these batteries have attained the rating of "Excellent," and Battery A of the 9th Coast Artillery in the Harbor Defenses of Boston during its submarine mine practice fired a perfect score of 150 points.

Two units of this District, the 68th Coast Artillery (AA) and the 102nd Separate Battalion Coast Artillery (AA) from the 36th Coast Artillery Brigade (AA) at Camp Edwards, Massachusetts, are participating in the Carolina maneuvers with the VI Army Corps.

Construction at Fort Rodman, Massachusetts, has been completed and the post now has a complete road system and several new temporary buildings. All batteries of this command have conducted marches which have included overnight bivouacs.

In the realm of sports, the baseball team of the Harbor Defenses of Narragansett Bay won the First Corps Area championship over the team from the Harbor Defenses of Portsmouth at Fenway Park in Boston. However, in the play-off between the champions of the First and Second Corps Areas, the champions from Narragansett Bay bowed to the nine from Fort Niagara, N. Y.

To date, the 242nd Coast Artillery (HD) at Fort Terry, New York, boasts an undefeated football team.

At Fort Adams, the new post chapel was dedicated, and the Service Club was reopened after being renovated by the government and refurnished through the generosity of leading civilians of Newport.

At the end of a recent inspection trip of the entire District, the Commanding General stated that he was well satisfied with the improvement which has been made within the past year. Although much is still lacking, it is evident that all units are making use of every opportunity for improvement.

Three hundred and thirty Coast Artillerymen of the Defenses of Portland Harbor put into practice their open-order Infantry drill training when they were called upon to aid in the search for Pamela Hollingsworth, five-year-old girl who was lost in the White Mountains of New Hampshire the first of October.

The men, of the 8th and 240th regiments maintained lines through "almost impossible" territory. The soldiers covered themselves with glory and mud by prodding through every foot of the areas assigned to them. In some localities swamps four feet deep were encountered. Undaunted, the soldiers went right through instead of skirting them, refusing to break their lines.

A cold rain fell half the week the soldiers were searching, and the temperature dropped to twenty degrees. The men had very little sleep, for although their schedules had been planned, they always hunted longer than they were required to, and often when they returned to camp some new clue had been brought forth, and they went back into the thick underbrush.

At night the soldiers shortened their lines from ten feet between men to three feet, and continued their hunt with miners' lights attached to their heads. Battery K of the 240th provided a searchlight beacon which was flashed straight up into the air ten minutes every half hour, to assist the parties in getting back to camp.

A dramatic interlude was provided to the hunt when 100 men, ordered back to camp after four days and nights in the mountains, requested permission from the Commanding General, Brigadier General Robert C. Garrett, to remain in the hunt. They remained, with the relieving party swelling the ranks of searchers.

The radio crew manned a field radio which bounced through the wooded roads and fields of the mountains on a jeep to maintain communications between searching parties and headquarters. Once the going was so rough the radio fell apart; but the crew put it back together again and continued its tour. Antennas were hung by tying a heavy article to the end of a wire and throwing it over a selected branch or limb. During one twenty-one-hour period during which the crew remained at work, stations were established twelve times.

High praise was given to the batteries for their speed in getting under way for the search. The Commanding General issued the order at 2:45. It was entirely unexpected. Yet at 4:05, one hundred men had eaten a hot meal, dressed in denim uniforms and rolled heavy packs, had a day's rations with them, and were in trucks on their way to New Hampshire. Searchlight, medical detachment, and supply trucks followed in short order.

Second Coast Artillery District

Brigadier General Forrest E. Williford, *Commanding*

By Lieutenant Charles F. Heasty

The Second Coast Artillery District has announced the winners of the first competitive ratings in the District. The 62d Coast Artillery (AA), commanded by Colonel Rodney H. Smith, was selected as the outstanding unit of the Second Coast Artillery District for the period ending July 31, 1941.

Also in the 62d, First Sergeant Jim Carini, Headquarters Battery, received commendation as the outstanding First Sergeant and winner of the competitive rating award. Private James M. Daniels was adjudged the best Private and winner of the competitive rating award. Other winners were as follows:

Lieutenant—First Lieutenant A. C. Williams, Battery A, 245th CA (HD).

Master Sergeant—Michael McGuiness, Headquarters Battery, 245th CA (HD).

Technical Sergeant—Clyde P. Gilder, Headquarters Battery, 5th CA (HD).

Staff Sergeant—Walter L. Wood, Headquarters Battery, 21st CA (HD).

Sergeant—Coy B. Nettles, Battery E, 7th CA (HD).

Corporal—Albert W. Breedon, Battery A, 245th CA (HD).

Private First Class—Harold H. McCabe, Battery B, 21st CA (HD).

On Tuesday, September 16, 1941, the entire 62d Coast Artillery (AA) was reviewed by General Williford, at which time the General presented a new streamer to be attached to the regimental standard. The 62d has twenty-three battle streamers for service since the War of 1812.

During September, Battery D, 5th Coast Artillery (HD) was moved to Fort Tilden preparatory to its service practice. Also Battery B, 5th Coast Artillery (HD) moved to Fort Hancock for the same purpose. Battery D, commanded by Captain W. N. Schindel, fired 6" Battery Ferguson, and Battery B, commanded by Captain E. A. Nunn, fired 12" Battery Bloomfield. Both practices were completed early in October.

The first perfect score in more than four years of mine planting was achieved this month as Battery A, 7th Coast Artillery (HD), commanded by Captain Spurgeon E. Welsh, completed a stringent four months training program by registering a total of 150 out of a possible 150 points. This accomplishment marked the end of the mine laying program witnessed by Brigadier General Philip S. Gage, Harbor Defense Commander, and visiting officer umpires from Fort Hamilton, District Headquarters. A few days previous, laying of two test phase mine groups also proved flawless. In both cases close coördination and coöperation of all divisions of the mine battery made it possible to score direct hits on a towed target.

A hypothetical attack by warships, airplanes, submarines, landing parties and sabotage was used on Monday, August 11, to test the communications and liaison system of the fort. From the moment the enemy fleet was sighted, wires buzzed with orders from the staff to commands in the sector and with vital information about the attackers from both military and civilian sources. Although certain means of communication were disrupted from time to time by enemy action, defense coördination was efficiently maintained throughout the problem by re-routing messages through other channels. Contact with the Service Air Arm was kept unbroken during the maneuver. Later a critique on the problem was held by the Commanding General.

The 245th Coast Artillery (HD) regiment, Brooklyn National Guard unit, celebrated its first anniversary at Fort Hancock on Tuesday, September 16, with a review, field day, baseball game and party. Colonel Charles S. Gleim, commanding, expressed to the men his appreciation for a job well done. "You are true members of this regiment," he said, "to all of you I want to say you've done a man's job. You have upheld the tradition of the 245th."

During the month two contingents of Fort Hancock men, about 1,700 soldiers in all, visited West Point for two-day maneuvers. The first group, which made the trip on September 10, was composed of eight batteries from the 245th CA, four from the 7th CA, and a medical detachment, all under the command of Captain Kenneth J. Woodbury. The second group was commanded by Captain Perry H. Eubank and was made up of men from the 52d CA and one battalion from the 245th. Routine in both cases was the same; the trip to and from Bear Mountain was made by boat and the remaining few miles covered by foot. After encamping for the night the men went sightseeing on the military reservation, cooked their individual lunch over individual fires, engaged in an infantry problem, again spent the night in their tents, and made the return trip.

The entire post of Fort Hancock kept battle stations in an all day alert Friday, September 26. Huge guns, many camouflaged by trees, others mounted on railroad cars, were manned early in the day and "operated" under actual firing conditions. It was the second tactical inspection of the harbor defense in a week. A few days previously a similar inspection was conducted at Fort Tilden.

Third Coast Artillery District

BRIGADIER GENERAL ROLLIN L. TILTON,
Commanding Third Coast Artillery District, Harbor Defenses of Chesapeake Bay, and Fort Monroe

By Major Franklin W. Reese

Two National Guard regiments in the Third Coast Artillery District completed a full year of service in the Army of the United States last month. They are the 244th Coast Artillery, stationed at Camp Pendleton, commanded by Colonel Malcolm W. Force, and the 246th Coast Artillery, stationed at Fort Story, commanded by Lieutenant Colonel Richard T. Arrington, who recently succeeded Colonel Alonzo Wood. Appropriate ceremonies marked the anniversary celebrations, and both regiments were highly praised on their year's work by Brigadier General Rollin L. Tilton.

Upon completing its first year of Federal service, with the citation as best National Guard regiment in the District, the 244th Coast Artillery was transformed temporarily by intensive training into a field artillery outfit in September and journeyed to the Carolina maneuver area to take part in the First Army war games.

All of the regiment's 155-mm. guns were sent to the maneuver area on flatcars and moved throughout the maneuvers by tractor. From its 350-tent base camp in Gravelton, North Carolina, the 244th participated in different problems every week, gaining valuable experience in blackout convoys, infantry work, rapid emplacement and removal of guns, camouflage, communications by radio and telephone, and supply in the field.

General Tilton accompanied by twenty-one officers of the Harbor Defenses journeyed to the First Coast Artillery District where they acted as umpires for that District's CPX.

Since our last news letter, training of all troops of the District has reached an increased tempo. A few examples of the type of training follow:

The 57th Coast Artillery at Camp Pendleton participated in the maneuvers of the First Army in the Carolina area. Highlight of recent training for two of the regiments of this command, the 74th at Camp Pendleton and the 71st at Fort Story, was their participation in interceptor command exercises in Norfolk and New York respectively.

The 74th took part in the most comprehensive Coast Artillery maneuvers held since the beginning of the national defense program in this area. In a mass coordination of antiaircraft defenses, units from the four East coast sectors, extending from Massachusetts to North Carolina, the regiment took part in an active air defense problem. Included in the exercises were bomber and pursuit squadrons of the First Air Force and 40,000 civilian observers, as well as a provisional brigade of Coast Artillery antiaircraft units.

While the civilian population of this sector was being alerted to bombardments, the 74th was actively engaged in warding off attacks on the Naval base, the shipyards, and other important industrial centers. The 74th observation posts, located approximately fifteen miles outside the city, worked in conjunction with civilian observers and relayed information of approaching planes to the command post from which antiaircraft activity was directed.

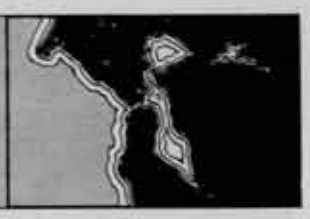
Officers and men of the 71st Coast Artillery (AA) are an example of the difference between garrison and field soldiers. This statement was made by General Joseph A. Green, Chief of the Coast Artillery, after an inspection of the "Rollin' 71st" during the exercises in New York with the First Interceptor Command in October.

Having 108 days in the field, the men of the 71st have become hardened to the elements. General Green talked to several enlisted men and complimented Lieutenant Colonel E. W. Timberlake, the commanding officer, on their condition and interest in their work. An inspection of gun and searchlight positions was made by General Green. He was pleased that wooden guns had been construtced to augment the real weapons. In this respect, he said that it was apparent that the 71st was using all means possible to carry on training regardless of deficiencies in real equipment.

The training of Harbor Defense regiments, while not so spectacular as that of the mobile antiaircraft units, has been equally as intensive and is as well advanced. The Second Coast Artillery at Fort Monroe has been occupied with target practices and the fulfillment of troop requirements for the Coast Artillery School and Coast Artillery Board. Testing and experimenting with new equipment have provided valuable training for both officers and men. The tactical training of the regiment has been kept to its high state of efficiency through the medium of weekly command post exercises.

The primary assignment of the Second Battalion of the 246th Coast Artillery, which is at Fort Monroe, is to furnish the Coast Artillery Board with troops to test the efficiency or practicability of new equipment and matériel. Batteries F and H serve as training troops for the enlisted men attending the Officers' Candidate Course, and for officers attending the various refresher courses of the Coast Artillery School.

Ninth Coast Artillery District



MAJOR GENERAL WALTER K. WILSON, *Commanding*

On September 25th, Major General Walter K. Wilson returned to duty as Commanding General of the Ninth Coast Artillery District. On July 26th, having just assumed command of this District, General Wilson was seriously injured in an automobile accident. He was confined to the hospital for two months.

The most important event occurring in this District in recent weeks was the joint Army and Navy tactical exercise held in the Harbor Defenses of San Francisco during the period from October 19th to 25th. It was a "free" maneuver, and the most extensive exercise of its kind attempted on the Pacific Coast.

In addition to the Harbor Defense Troops, consisting of the 6th Coast Artillery, and 2nd Battalion, 18th Coast Artillery, the Army side had the following: 30th Infantry, 1st Battalion, 147th Field Artillery, 1st Platoon, Company A, 113th Engineers, Company A, 7th Medical Battalion, one medium bombardment squadron from the 4th Bombardment Command, and the 115th Observation Squadron. The Navy used from its patrol force two Eagle boats, four patrol boats, five mine sweepers, one net and boom defense boat, and Naval observation and bombing planes. In addition to these units the Navy furnished the BLACK fleet consisting of a destroyer division of three destroyers, (representing two cruisers and one airplane carrier), a submarine, and two coast guard airplanes. The BLACK troops were the 56th Coast Artillery from Fort Cronkhite.

The last day of the maneuver the BLACK force, using three naval bombers, sowed a series of twenty-four mines across the channel of San Francisco Bay, while observation stations attempted to check and count the splashes for later mine sweeping operations. The "mines" consisted of cans filled with water, weighing 100 pounds each, and were dropped at low altitudes from the bombers. The test was observed by a number of the "gold braid" from both the Army and the Navy.

Another maneuver, now history but still vivid to the personnel of the Harbor Defenses of Puget Sound and the Columbia, was the 4th Army Maneuver held in Western Washington in August. The RED invading army made the forts of these two harbor defenses the object of land attacks and air bombardment. Fort Worden put up a three-day resistance by every available man in the harbor defenses along defensive positions on the western edge of the reservation and on the western outskirts of Port Townsend, but were finally driven back to the base of Artillery Hill and Fort Worden was declared captured after all armament had been theoretically put out of commission. Fort Casey and Fort Flagler were bombed from the air and all their armament declared out of commission. The garrisons of both forts, however, resisted to the end. The Fort Flagler garrison showed its alertness by capturing, during the very last night of the maneuver, a RED patrol that tried to capture the Portage Canal. Fort Stevens on the Columbia was also stormed by RED forces operating from the south and was declared captured, but only after stiff resistance.

While these maneuvers have absorbed much of the time of some of the harbor defenses of this District, normal training and other activities have not been neglected.

The Harbor Defenses of Puget Sound has completed most of its seacoast service target practice. Battery B of the 14th Coast Artillery, stationed at Fort Casey, firing 12-inch mortars in September attained the coveted "Excellent" rating. For the benefit of the personnel of Puget Sound the harbor boat *Colonel Charles L. Willard*, recently returned from dry dock, has been used to make week-end trips to Seattle and Tacoma, and has made two excursion trips to San Juan Islands.

The Harbor Defenses of the Columbia are now commanded by Colonel Clifton M. Irwin; the former commander, Colonel Kelly B. Lemmon, was transferred to Harrisburg, Penn.

Fort Rosecrans at San Diego boasts a new regimental band which, two weeks after it was organized, was in the van of the Admission Day parade in San Diego. The Harbor Defenses of San Diego also boast of their interest in the field of education. Schools are being held for all officers of the post with lectures of a variety of subjects, including such as "Overseas Expeditions and Beach Landings," "Sea Frontier Defense" and "Cryptography and Codes." At the present time there are 185 soldiers from Rosecrans enrolled in the San Diego Adult Educational Classes, with classes ranging from shorthand and typing to foreign languages and navigation. Rosecrans also reports the arrival of 45 enlisted men and 2 officers of Company A, 524th Military Police Battalion, and the first jeeps seen on the post.

Fort MacArthur recently welcomed Company A (less one platoon) of the 524th Military Police Battalion. This unit is now on duty in the Los Angeles area, under the direction of the Commanding Officer of the Harbor Defenses of Los Angeles.

During the month of October Major General Wilson visited all of the Harbor defenses of the Ninth District. At the conclusion of his inspections he announced he was highly pleased with the efficiency of the command and the excellent spirit manifested by the soldiers in each post.

Fort Eustis

BRIGADIER GENERAL HAROLD F. NICHOLS, *Commanding*

Marked by highly successful antiaircraft service firing with 3-inch and automatic weapons, the second training period at this Replacement Training Center reached a satisfactory completion. Two new firing points, located on the reservation, were added during the program, permitting the seacoast armament here its first firing with service ammunition at moving targets.

The new firing points are located at historic old Mulberry Island. There selectees were busy daily at practice with 3-inch antiaircraft, 155-mm., 8-inch railway guns and automatic antiaircraft weapons.

The program was further highlighted by the official inspections of Major General Joseph A. Green, Chief of Coast Artillery and Major General Henry C. Pratt, Commanding General of the Third Corps Area. Both generals made tours of inspection and were given reviews in which 14,000 men passed under their official glance.

Inactivated as a mixed battalion of 155-mm. and 8-inch railway gun batteries, the 9th Battalion has been reactivated as a negro battalion with searchlight, machine gun, 37-mm. and 3-inch antiaircraft gun batteries. The conversion gives Eustis its second negro training battalion.

Keeping pace with the quicker second-period training tempo has been the activity in athletics and recreation and the expansion of morale facilities here in the past three months. Summer sports campaigns and league races ran on into the mild late fall and terminated in enthusiastic championship playoffs and series between battalions and detachments. The softball title series between the 4th Battalion and the Quartermaster Detachment champions of the two big leagues here, climaxed the season and divided the Fort during the "Little World Series," which the Fourth Battalion won.

The general physical appearance of the post has been smartly improved with the continued construction of buildings and the further development of streets and sidewalks. The new post headquarters has been opened, a three building court located in an old oak grove on Dozier Avenue.

The spires of six new post Chapels spike the Fort Eustis skyline now and services will be held in the churches throughout the winter. New Battalion and Detachment Recreation Buildings have been added to the physical improvements of the camp in anticipation of the cold and confining days and nights of unpredictable Virginia winter.

The negro battalions now have a new service club and hostess, and activity and entertainment there will be fashioned after that of the white service club.

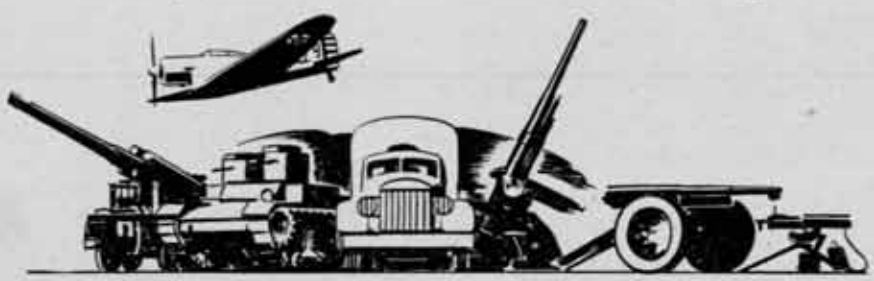
Eustis made the news during the program just closing with the story of a 4th Battalion battery that went 100 per cent for the sale of defense stamps. Selectees lined up on pay day to purchase defense stamps in a "double-barrel" defense effort.

The post went "all-out" in the annual Red Cross enrollment membership drive.

An interesting and informative off-duty lecture series was also inaugurated during the program, offering broader cultural opportunity for the hundreds of men who registered. The lectures were sponsored by the post through the coöperation of faculty members of the College of William and Mary, and members of the staff of the Williamsburg Restoration, the Mariner's Museum, and the Colonial National Park Service.

Lectures were given in arts, science, current events, history, the historical background of Yorktown, Jamestown and Williamsburg and in other phases of Virginia antiquities.

In another school program there was held a series of remedial classes and lectures offering instruction in several basic subjects and in mechanics, electricity, radio, blue-print reading and military chemistry. Hundreds of men have availed themselves of these vocational and educational opportunities.



Camp Wallace

BRIGADIER GENERAL JOHN B. MAYNARD, *Commanding*

By Captain Robert J. Harris

After November's trainee turnover, with trains bringing new selectees and bearing "graduates" to dozens of destinations, the strength of the command hit new peaks. Training slipped into high gear. New selectees received a "freshman handbook" entitled *So This is Camp Wallace,* which saved the suffering cadremen the chore of answering thousands of questions. The uncertainty of a new camp is gone; the organization of this post is settled and functioning. Two new training groups, the Sixth and Seventh, have been added.

Field of fire o.k.

Practice bivouac in Texas.

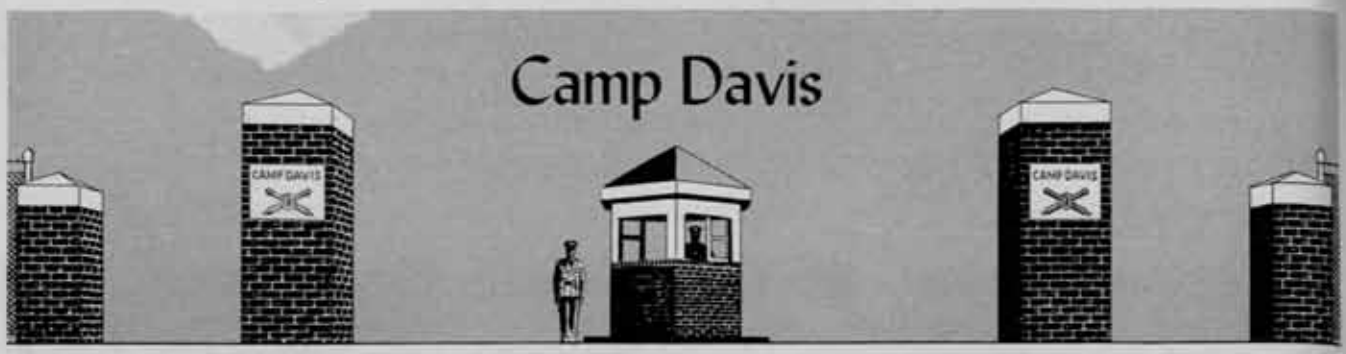
New buildings have been completed, including an officers' club, three chapels, a motion picture theater in the 33d (colored) battalion area, a Red Cross recreational building, a dental clinic, and others. The shell roads around the parade ground have been surfaced with asphalt, and a WPA landscaping program is under way.

By Christmas, it is expected USO centers will be completed and open in Galveston. Both Galveston and Houston are offering greatly expanded recreational programs for soldier visitors. General Maynard acted as Grand Marshal in the Houston Armistice Day parade, and a contingent of Camp Wallace troops marched in the demonstration.

Selectee Robert O. Maze, a sergeant here, was commissioned in the Signal Corps as a second lieutenant. He is an electrical engineer in civil life.

The selectees of the second training period have been hard on sleeve targets. At Fort Crockett, they have been puncturing the cloth repeatedly. They haven't been doing badly in small-arms firing, either. The percentage of men qualifying is given below, by battalions:

Battalion	*Percentage of Men Qualifying*
26th	42.4
27th	44.65
28th	48.9
29th	42.8
30th	37.7
31st	41.6
32d	37.1



MAJOR GENERAL FREDERIC H. SMITH, *Commanding*

By Captain E. Jeff Barnette

Camp Davis, military city of 20,000 born of the national emergency, has passed an important milestone in its training program. Six antiaircraft regiments, one harbor defense regiment and the Barrage Balloon Training Center and School have completed their basic training schedule and are now engrossed in advanced work. For the regiments this means long sessions with the antiaircraft and seacoast guns, and for the barrage balloon units it means intensification of instruction in the tactical uses of the balloons as defense weapons against hostile aircraft. The staccato crackle of rifle and pistol fire has virtually died away at the two small-arms ranges, one four miles east of camp at Sears Landing and the other just south of the reservation.

Considerable fanfare accompanied the movement of the 54th Coast Artillery 155-mm. (Gun) regiment, from Camp Davis to Fort Fisher, forty miles south of camp on the Atlantic ocean. The entire regiment, equipped with twenty-four 155's, practiced with the big guns during October and the early part of November. It was seventy-six years ago that a great Union armada steamed alongside Fort Fisher and reduced the Confederate stronghold to a shambles. Until the 54th moved in for target practice, there had been no further gunfire on the historic site. Fort Fisher is now a fort in name only, the crumbling ramparts having been obliterated by the sand and the sea. Where the Confederate soldiers fought and died so valiantly, there is a modern tent camp and firing point. The 54th opened its practice session at Fort Fisher by spending several days tracking a towed target. The 155's fired "settling" shots on November 1 and the gun batteries followed up with sub-caliber firing of 37-mm. guns. Finally, record fire was held, with the shells whistling seven miles out over the water at the target.

Winch operator tests tension of a barrage balloon cable. The instrument he is using is known as a tentiometer.

The antiaircraft regiments, namely, the 93d, 94th, 95th, 96th, 99th and 100th, have begun 3-inch target practice at Sears Landing, on the Atlantic. Water-borne and theoretical targets have been employed thus far, although airplane sleeve targets will be used later. Officers expressed themselves as pleased with the work of the trainees, who have been in the Army only a few months. Machine guns (.30 caliber) and 37-mm. practice has also been held by the AA regiments.

Camp Davis was one of the first antiaircraft centers in the country to receive the new 90-mm. AA guns. Thirty-two of the late model weapons have been delivered to the camp, eight each to the 93d, 94th, 95th and 96th regiments. Their delivery begins a program in which the 3-inchers will be supplanted by the 90's.

Perhaps the busiest unit in camp at this particular time is the Barrage Balloon Training Center, under command of Colonel Robert Arthur. Four new battalions, the 302d, 303d, 304th, and 305th CA Barrage Balloon Battalions, are being organized. Until now, the 301st was the only battalion. It is necessary to bring the battalions up to strength from the nucleii now available. In addition to the task of enlargement, the barrage balloon organizations must prepare to move their new base at Camp Tyson, Tennessee.

Top—An idea of the size of a barrage balloon. In the background is one of the balloons in flight. *Bottom*—The Fort Fisher tent camp as it now appears. Fort Fisher was famous in Civil War Days.

Camp Hulen

BRIGADIER GENERAL HARVEY C. ALLEN, *Commanding*

By Major Glenn Newman

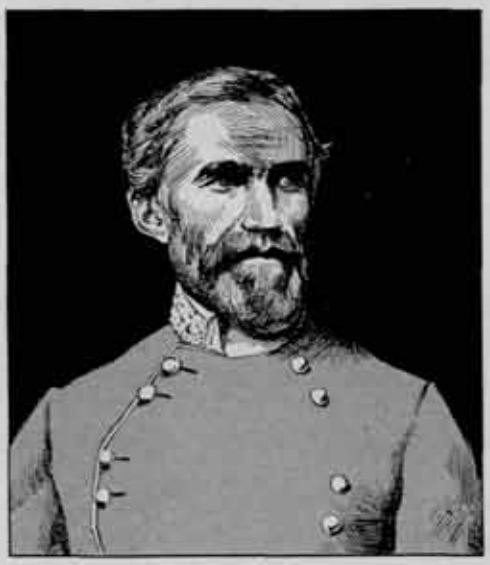
On September 30th the troops started rolling in from the Louisiana Maneuver Area and what a welcome and pleasing sight was the new Camp Hulen. Where there had formerly been a gopher hole there was now a chapel, a dayroom, or a warehouse. Given a fair chance and plenty of summer rain the grass had started on a period of conquest and most of the bare and ugly spots caused by the feverish activity of the early construction days were now covered by a carpet of green. When the troops left for maneuvers most of the roads of the camp were of simple shell construction and very dusty. They have now been hard-surfaced and are a pleasure to use.

In the 211th Coast Artillery, it's considered good camouflage when the First Sergeant can't find you.

One of the most pressing needs of Camp Hulen has been a suitable rifle and pistol range. The Well Point Rifle and Pistol Range has now been completed and is ready for use. It is located on the shore of Matagorda Bay about twelve miles by road from Camp and provides eighty rifle targets and twenty-five pistol targets. The range still lacks a good access road but it is believed that this deficiency will be corrected shortly.

Cloud conditions in this general area make searchlight training very difficult and for this reason a provisional battalion of searchlight batteries was formed last spring and sent to Midland, Texas, where conditions are more favorable to this class of training. This trip was so successful that another provisional battalion is now being formed and will shortly leave for that area. The friendliness and hospitality of the Midland people has made this a very popular detail.

The ability of our antiaircraft troop to "double in brass" was aptly illustrated by the exploits of Battery E, 197th CA (AA), commanded by Captain Anselm Hendrickson. During the recent Louisiana Maneuvers this unit was attached to the 1st Cavalry Division for antiaircraft defense and during one day bagged seventeen tanks, fourteen armored cars, five motorcycles, one Chemical Warfare supply truck and all the attendant personnel. On another occasion this same unit established a trap which bagged an entire enemy supply train consisting of forty trucks carrying gas and oil for the enemy mechanized forces. There was an enemy tank attack taking place at this time and inasmuch as many of the tanks ran out of gas and were forced to surrender it is very probable that this action on the part of Battery E was a decisive factor in the defeat of the enemy. This unit received a written commendation from Major General Innis P. Swift, commanding the 1st Cavalry Division.



Fort Bragg

BRIGADIER GENERAL CLAUDE M. THIELE
Commanding 34th Coast Artillery Brigade (AA)

By Lieutenant William D. Workman, Jr.

Stepping out of the Corps phase of the First Army maneuvers, the 34th Coast Artillery Brigade (AA) devoted the month of October to preparation for and participation in the Third Interceptor Command exercises held October 20-26 in North and South Carolina.

An advance detachment from brigade headquarters battery and the three regiments (67th, 76th and 77th Coast Artillery) already had reached the base camp area for the I Army Corps maneuvers when word was received detaching the brigade from those exercises and dispatching it to work with the Third Interceptor Command in a test of the civilian Aircraft Warning Service and the Interceptor Command.

With realism introduced by pyrotechnics and smoke bombs, troops of the 77th Coast Artillery (AA) stage a defense against paratroops. The demonstration was put on at the Charleston, South Carolina airport during the 34th CA Brigade's participation in the Third Interceptor Command exercises. ***(Charleston Evening Post Photo.)***

Brigade headquarters for the problem was established in Charleston, South Carolina, where the 76th and 77th regiments were disposed in the antiaircraft protection of the Charleston Navy Yard, the Municipal Airport, the Army Ordnance Depot, the oil refineries and other vital defense installations. The third regiment of the brigade, the 67th, took up positions in Wilmington, North Carolina, where it provided AA protection for the shipbuilding facilities of that port.

The problem, designed to test the working efficiency of the triangular "combat team" of civilian observers, interceptor planes and antiaircraft artillery, began with a number of rough edges, but with the gaining of much experience in the opening days of activity, the coördination of the three participating elements became smoother and the coöperative effectiveness of all improved.

Biggest single problem for the artillerymen was the laying of wire and the maintenance of communication. Rivers, inlets, swamps and marshes all combined to impose difficulties on wire laying and all communications sections were forced to exercise remarkable ingenuity and energy to overcome natural obstacles. Both the 67th (at Wilmington) and the 76th (at Charleston) adopted a somewhat radical procedure and laid field wire as submarine cable across two large rivers. In the Charleston situation, wide marshes added to the difficulty of the operation.

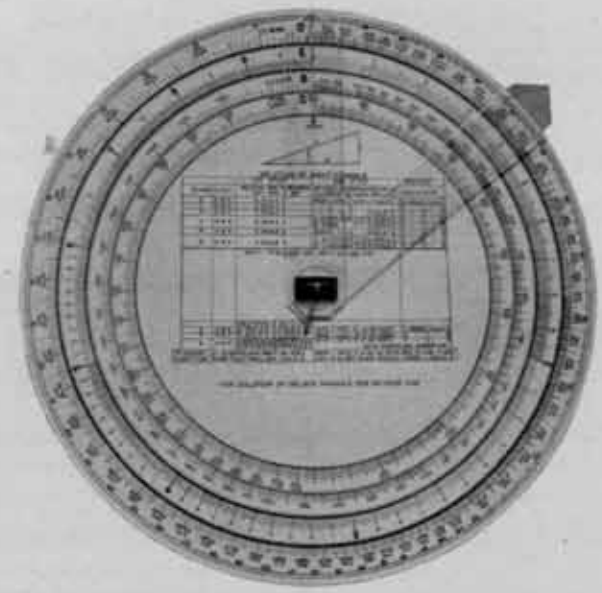
Installations were set up on a semi-permanent basis, with gun batteries and searchlight crews bivouacking, for the most part, adjacent to their equipment. Commercial telephone lines were included in the brigade and regimental wire nets and functioned well. One entire day was devoted to a test of the AAAIS using radio alone. With a limited number of observation posts, the system functioned well and flash messages flowed into headquarters with a minimum of delay.

Twice during the course of the problem, once at Charleston and once at Wilmington, impressive demonstrations were staged for the public. Ostensibly set up as a defense of an airport against enemy bombing and paratroop attack, the demonstrations included display of all antiaircraft weapons and searchlight apparatus. The shows also included a mock combat between paratroops and antiparatroops, all armed with rifles and firing blank ammunition. The setting off of pyrotechnics and smoke bombs added realism to the scenes and proved effective in conveying a warlike atmosphere to the visiting thousands of spectators. Also included in the demonstrations were close order drills, calisthenics by massed units, and pattern forming by the searchlights, all of which were equipped with frames bearing colored cellophane.

Visitors from many branches of the service and from high headquarters and schools were on hand to witness the Charleston demonstration, at which the commanding general of the Third Interceptor Command, Brigadier General Walter H. Frank, joined the commanding general of the Thirty-fourth Brigade, Brigadier General Claude M. Thiele, for the show.

The exercise proved of immeasurable value to the antiaircraft artillerymen, for whom it was the first problem involving work with the air corps and the Aircraft Warning Service.

Still operating apart from the First Army, the brigade moved out of Fort Bragg early in November to join the 4th Army Corps' Red forces opposing the First Army. In the early stages of the problem, the regiments, and still smaller units, were dispatched to widely separated points to cover rear area installations of the 4th Corps and to protect Red air bases.



The Coast Artillery School

BRIGADIER GENERAL FRANK S. CLARK, *Commandant*

The Emergency tempo of the School continues. Since our last letter, six Refresher Courses, comprising Groups XXIX through XXXIV, have begun work and three Courses, comprising Groups XXIV through XXVI, have graduated. Graduates number 294, about one-third being in seacoast artillery and two-thirds in antiaircraft artillery. The later subject will be pursued by all but one of the entering groups.

Meanwhile, there has been an entering and a graduating group in each of the Submarine Mine and Stereoscopic Height Finder Courses. Graduates in the latter group number six; those in the former, twenty.

Among recent graduates of the School are a group of twelve Latin-American officers, representing Brazil, Cuba, Mexico, and Uruguay.

The Brazilian delegation consisted of Captain Abda Araguaryno dos Reis, who pursued the antiaircraft course, and Captains Manoel Campos Assumpcao, Aquinaldo Olivera de Almeida, and Nelson Baeta de Faria, who took the course in seacoast artillery.

Cuba was represented by Lieutenant Francisco Llerena y Sabio, who has completed the antiaircraft course, and will remain for the course in seacoast artillery.

The group from the Mexican Army consisted of Captains Miguel Salas Cacho, Luis G. Bolado Chavuez, and Salvador Bravo de la Torre, Lieutenants Carlos Fabre Banos and Ignacio Salinas Ramos. Captains Bolado and Bravo took the course in seacoast artillery; Captain Cacho, and Lieutenants Banos and Ramos, the course in antiaircraft artillery.

Uruguay's two representatives, Major Modesto Rebollo and Captain Enrique O. Magnini, were the first to graduate. They pursued the course in antiaircraft artillery, and left immediately for a short tour of duty at Fort Sheridan, Illinois.

All officers who have graduated will undergo a similar period of field training with units of the U. S. Army.

In the Enlisted Division, 325 have graduated in the various technical courses offered by the School. Of these, 156 were members of the Regular Army and 169 from the National Guard.

Several officers of the Coast Artillery School recently spent a day observing the installation and progress of the air defense exercise in the filter station at Norfolk, where the regional headquarters also was temporarily located.

The exercise was part of a test of comprehensive plans for protecting our eastern seaboard against air attack, and lasted a week.

The first Field Officers' Course is scheduled to begin on November 17th. Courses are well along toward completion, and will deal mainly with tactics.

The first course will cover antiaircraft artillery; a second course, beginning about January 1, 1942, will deal with seacoast artillery. Thereafter the instruction will alternate in a ratio of one seacoast course to two antiaircraft courses. A classroom has been set up in the Beach area.

The end of thirteen weeks of intensive instruction saw 168 graduate from the first Officer Candidate Course at the Coast Artillery School on October 3d. Commissions as Second Lieutenants in the Army of the United States, and Certificates of Capacity, were awarded by Major General Joseph A. Green, Chief of Coast Artillery.

This course was the first of its kind to be held at the School during the current emergency, and was formed to augment the number of officers in the Coast Artillery Corps. It was made up chiefly of qualified enlisted men from the Regular Army and National Guard.

There were but five Selectees among the candidates,

since regulations required that those chosen for the course have at least six months of service. A second course which started immediately after the close of the first does, however, number many Selective Service men among the students.

The graduation exercises began with an invocation by Chaplain George F. Baum. This was followed by administration of the oath of office, a ceremony conducted by Major Herbert T. Benz, Summary Court. Brigadier General Frank S. Clark, U. S. Army, then introduced General Green, who stressed to the graduates the importance of leadership in the task of creating an efficient army. General Green enlarged upon the theme to show that responsibility and leadership fare along together.

General Green then awarded commissions to 160 graduates and Certificates of Capacity to eight others.

The exercises concluded with a benediction by Chaplain Baum, and the playing of the National Anthem.

Brigadier General Frank S. Clark, U. S. Army, Commandant of the Coast Artillery School, attended the fall maneuvers in Louisiana as an observer. Upon his return, General Clark gave his observations in an informal talk to the Staff and Faculty of the School.

Three members of the armed forces of Venezuela, all members of a special purchasing commission to the United States, were recently visitors at the Coast Artillery School.

The visiting officers were Colonel Manuel Moran, Chief of Staff of the Venezuelan Army, and President of the Special Purchasing Commission; Lieutenant Colonel Eleazar Nino, Chief of the Remount Service and Veterinary Corps; and Captain de Fragata Antonio Picardi, Chief of Staff of the Venezuelan Navy.

These officers, who are on a three-months' tour of military establishments to study the American defense program, inspected the School facilities and saw the various types of antiaircraft weapons fired at towed targets.

Following the inspection, the guests were honored with a reception at the home of Brigadier General and Mrs. Frank S. Clark.

A storehouse in the Student Officers' Camp has been converted to use as an office, laboratory, and projection room for the Visual Aid Section, Department of Training Publications. Modifications include a fireproof room for the storage of training films.

Bids have been accepted and a contract awarded for the construction of three classroom buildings, two mess halls, five barracks, and one supply and administration building, in the area between Camp No. 3 and Battery Bumford. These buildings will augment those now used by the Officers' Candidate Course, and will permit the output of this course to be doubled. Beginning in January, classes will be conducted on a staggered basis, one hundred students entering each three weeks for a 12-week course.

To begin by bluster, but afterwards to take fright at the enemy's numbers, shows supreme lack of intelligence—Sun Tzu.

COAST ARTILLERY ORDERS

(Covering period September 1 through October 31, 1941)

Colonel Malcolm P. Andruss to duty in connection with recruiting, Los Angeles, California.

Colonel Clair W. Baird to commond Pine Camp, New York.

Colonel Robert McC. Carswell to 54th, Camp Davis.

Colonel Bird S. DuBois to Philippine Department, sailing San Francisco, November 20.

Colonel Henry W. T. Eglin to Army Group, Washington, D. C.

Colonel Fred M. Green to retire October 31.

Colonel Samuel F. Hawkins to retire January 31, 1942, upon his own application.

Colonel Kelley B. Lemmon to duty in connection with recruiting, Harrisburg, Pennsylvania.

Colonel John H. Lindt, to H.D. of Puget Sound, Fort Worden.

Colonel Charles B. Meyer to Fourth Corps Area Service Command, Fort Screven.

Colonel Louis L. Pendleton to retire October 31 upon his own application.

Colonel Otto H. Schrader to retire December 31 upon his own application.

Colonel Evan C. Seaman to AATC, Camp Stewart.

Colonel Barthold Vogel to AATC, Camp Hulen.

Colonel Oscar C. Warner to AATC, Camp Davis.

Lieutenant Colonel Nyal L. Adams to 34th CA Brigade, Fort Bragg.

Lieutenant Colonel Arnold D. Amoroso to H.D. of Charleston, Fort Moultrie.

Lieutenant Colonel Delbert Ausmus to CARTC, Camp Wallace.

Lieutenant Colonel Maitland Bottoms to H.D. of Pensacola, Fort Barrancas.

Lieutenant Colonel George W. Brent to Puerto Rican Department, sailing New York, October 15.

Lieutenant Colonel Geoffrey C. Bunting to Puerto Rican Department, sailing New York, November 19.

Lieutenant Colonel Robert M. Carswell to BBTC, Camp Davis.

Lieutenant Colonel Evans R. Crowell to 34th CA Brigade, Fort Bragg.

Lieutenant Colonel Bernard C. Dailey to retire December 31 upon his own application.

Lieutenant Colonel Cyril A. W. Dawson to retire September 30 with grade of Colonel.

Lieutenant Colonel Charles R. Finley to H.D. of Portland, Fort Williams.

Lieutenant Colonel Barrington L. Flanigen to 34th CA Brigade, Fort Bragg.

Lieutenant Colonel Valentine P. Foster to CARTC, Fort Eustis.

Lieutenant Colonel Donald B. Greenwood to H. D. of Long Island Sound, Fort H. G. Wright.

Lieutenant Colonel Linton Y. Hartman to retire December 31 upon his own application.

Lieutenant Colonel Lauriston B. Herr to Puerto Rican Department, sailing New York, November 19.

Lieutenant Colonel James L. Hogan to retire October 5 upon his own application.

Lieutenant Colonel Lewis H. Hudgins to retire January 31, 1942 upon his own application.

Lieutenant Colonel Rodney C. Jones to retire December 31 upon his own application.

Lieutenant Colonel Peter K. Kelly to Hawaiian Department, sailing San Francisco, October 11.

Lieutenant Colonel Joseph D. McCain to Ninth Coast Artillery District, Fort Winfield Scott.

Lieutenant Colonel Watson L. McMorris to Kansas State College, Manhattan, Kansas.

Lieutenant Colonel John B. Martin to retire February 28, 1942 upon his own application.

Lieutenant Colonel Reinold Melberg to CARTC, Camp Callan.

Lieutenant Colonel John G. Murphy to Hq., Fourth Army, Presidio of San Francisco.

Lieutenant Colonel George R. Owens to Hawaiian Department, sailing San Francisco, October 25.

Lieutenant Colonel Harry E. Pendleton to H. D. of Portsmouth, Camp Langdon.

Lieutenant Colonel Cæsar R. Roberts to CARTC, Camp Wallace.

Lieutenant Colonel Lloyd E. Rolfe to General Staff with troops, Seventh Infantry Division, Ford Ord.

Lieutenant Colonel Dorsey J. Rutherford to CARTC, Fort Eustis.

Lieutenant Colonel Joseph C. Stephens to Hq. Second Corps Area, Governors Island, New York.

Lieutenant Colonel Edmund H. Stillman to Hq. Ninth Corps Area, Presidio of San Francisco.

Lieutenant Colonel Francis R. Sweeney to instructor, Command and General Staff School.

Lieutenant Colonel Edward H. Taliaferro, Jr., CARTC, Camp Callan.

Lieutenant Colonel Harold W. Smith to retire October 31 upon his own application.

Lieutenant Colonel Eugene M. Vigneron to Puerto Rican Department, sailing New York, November 19.

Major Lawrence W. Adams to instructor, Coast Artillery School.

Major Wayne L. Barker to Office of the Chief Signal Officer.

Major Russell E. Bates to Hawaiian Department, sailing San Francisco, October 11.

Major Daniel G. Bell to Hawaiian Department, sailing San Francisco, November 24.

Major Rowland K. Bennett to instructor, Coast Artillery School.

Major Howard E. C. Breitung to H.D. of San Diego, Fort Rosecrans.

Major Walter H. Carlisle to Hq. Second Corps Area, Governors Island, N. Y.

Major James B. Carroll to Hawaiian Department, sailing San Francisco, December 16.

Major Joseph F. Cole to 75th, Fort Richardson.

Major Charles F. Collier, Jr., to Office of the Chief of Staff.

Major Clair M. Conzelman to H.D. of Long Island Sound, Fort H. G. Wright.

Major Ben E. Cordell to Hawaiian Department, sailing San Francisco, November 24.

Major Richard A. Devereux to instructor, Coast Artillery School.

Major Parmer W. Edwards to General Staff with troops, Caribbean Defense Command.

Major Girvelle L. Field to H.D. of Los Angeles, Fort MacArthur.

Major Lester D. Flory to Second Coast Artillery District, Fort Hamilton.

Major Andrew A. Gamble to 34th CA Brigade, Fort Bragg.

Major James R. Goodall to retire January 31, 1942 upon his own application.

Major Ashley B. Haight to duty with Signal Corps.

Major Joseph E. Harriman to Naval War College, Newport, Rhode Island.

Major Paul A. Harris to IGD, Puerto Rican Department, sailing Brooklyn, October 14.

Major John J. Holst to H.D. of Long Island Sound, Fort H. G. Wright.

Major William H. Kendall to BBTC, Camp Davis.

Major Donald G. Kimball to instructor, Coast Artillery School.

Major Lewis S. Kirkpatrick to H.D. of the Delaware, Fort Du Pont.

Major Robert H. Krueger to Hawaiian Department, sailing San Francisco, December 15.

Major Donald D. Lamson to retire December 31 upon his own application.

Major Donald McLean to Hawaiian Department, sailing San Francisco, October 11.

Major Harry D. Nichols to instructor, Coast Artillery School.

Major John E. Reierson to Hawaiian Department, sailing San Francisco, October 25.

Major William B. Short to Hq. Ninth Corps Area, Presidio of San Francisco.

Major Peter W. Shunk to H.D. of the Columbia, Fort Stevens.

Major Norman B. Simmonds to H.D. of Boston, Fort Banks.

Major James W. Smith (PS) to Hq. Ninth Corps Area, Presidio of San Francisco.

Major James W. Smith (PS) to retire November 30 upon his own application.

Major Henry E. Strickland to Philippine Department, sailing San Francisco, November 30.

Major Lloyd F. Vann to 75th, Fort Richardson.

Major Forrest B. Volkel to Office of the Chief of Staff.

Major Francis O. Wood to Hawaiian Department, sailing San Francisco, November 24.

Captain Aaron A. Abston to H.D. of Long Island Sound, Fort H. G. Wright.

Captain Stuart C. Allingham to Hawaiian Department, sailing San Francisco, November 24.

Captain Godfrey R. Ames to H.D. of Portland, Fort Williams.

Captain Robert A. Anderson to Panama Canal Department, sailing New Orleans, October 15.

Captain Ollie L. Ashcraft to Panama Canal Department, sailing New York, November 19.

Captain Charles P. Austin to Office of the Chief Signal Officer.

Captain Lawrence C. Baker to Hawaiian Department, sailing San Francisco, October 11.

Captain Lawrence C. Baldwin to H.D. of San Francisco, Fort Winfield Scott.

Captain John F. Ballentine to Panama Canal Department, sailing New York, October 21.

Captain Troy A. Barker to Hawaiian Department, sailing San Francisco, October 25.

Captain Richard W. Barnes to Hawaiian

Department, sailing San Francisco, October 25.

Captain Richard O. Batdorf to instructor, Coast Artillery School.

Captain Herman A. Bernhardt to Hawaiian Department, sailing San Francisco, October 11.

Captain Chester G. Bouwkamp to Panama Canal Department, sailing New York, October 21.

Captain Cecil U. Bradley to BBTC, Camp Davis.

Captain Spencer A. Brown to Panama Canal Department, sailing New York, November 17.

Captain Jerome S. Byrne to H.D. of Galveston, Fort Crockett.

Captain James M. Carson to Hawaiian Department, sailing San Francisco, October 11.

Captain Ira W. Cory to H.D. of Long Island Sound, Fort H. G. Wright.

Captain Ethan A. Chapman to BBTC, Camp Davis.

Captain Joseph Conigliaro to H.D. of Narragansett Bay, Fort Adams.

Captain Lee M. Coreless to Philippine Department, sailing San Francisco, November 20.

Captain Dabney R. Corum to H.D. of Narragansett Bay, Fort Adams.

Captain Alfred J. D'Arezzo to H.D. of Puget Sound, Fort Worden.

Captain Charles D. Davis to Panama Canal Department, sailing New York, October 21.

Captain Fred Dixon to University of Cincinnati, Cincinnati, Ohio.

Captain James G. Dyer to Bolling Field, District of Columbia.

Captain Max L. Eaton to 75th, Fort Richardson.

Captain Frank W. Ebey to AATC, Fort Bliss.

Captain Seneca W. Foot to Hawaiian Department, sailing San Francisco, November 24.

Captain Alfred C. Gay to Hawaiian Department, sailing San Francisco, October 25.

Captain Frederick J. Gerlich to H.D. of the Columbia, Fort Stevens.

Captain Walter G. Grant to Office of the Chief of the Morale Branch.

Captain James D. Guilfoyle to Hawaiian Department, sailing San Francisco, October 11.

Captain John N. Howell to Puerto Rican Department, sailing New York, November 19.

Captain John McM. Gulick to H.D. of Portland, Fort Williams.

Captain Lawrence McI. Guyer to Hawaiian Department, sailing San Francisco, October 11.

Captain William H. Harris to General Staff with troops, Panama Canal Department.

Captain Herman H. Hauck to H.D. of Puget Sound, Fort Worden.

Captain Frank R. Hickerson, CA-Res to active duty, CARTC, Camp Wallace.

Captain James R. Holmes to H.D. of San Francisco, Fort Winfield Scott.

Captain Darwin S. Holton to Panama Canal Department, sailing New York, October 21.

Captain John N. Howell to Philippine Department, sailing San Francisco, November 20.

Captain Richard G. Ivey to AATC, Camp Hulen.

Captain George Kappes to AATC, Camp Hulen.

Captain Gustave E. Kidde to instructor, Command and General Staff School.

Captain Gerson L. Kushner to H.D. of Narragansett Bay, Fort Adams.

Captain Wilson M. McGowan to Hawaiian Department, sailing San Francisco, October 25.

Captain Samuel McF. McReynolds to Philippine Department, sailing San Francisco, November 1.

Captain Alfred A. Maybach to Fourth Armored Division, Pine Camp, New York.

Captain Donald T. Michael to instructor, Coast Artillery School.

Captain Frederick A. Miller to AATC, Fort Bliss.

Captain Herbert F. Mitchell, Jr., to instructor, Coast Artillery School.

Captain John B. Morgan to instructor, Coast Artillery School.

Captain William R. Nodder to instructor, Coast Artillery School.

Captain Milton J. Perry to Hawaiian Department, sailing San Francisco, October 11.

Captain Edward A. Rew to Panama Canal Department, sailing New York, October 15.

Captain John R. Richards, Jr., to Hawaiian Department, sailing San Francisco, October 11.

Captain Anton J. Richetta to Scott Field.

Captain James H. Riopelle to Hawaiian Department, sailing San Francisco, October 11.

Captain Edgar S. Rosenstock to H.D. of Narragansett Bay, Fort Adams.

Captain David B. Routh to Hawaiian Department, sailing San Francisco, October 25.

Captain Adam F. Schuch to Hawaiian Department, sailing San Francisco, September 20.

Captain Earle M. Shiley to H.D. of Portsmouth, Camp Langdon.

Captain James W. Schwanke to Hawaiian Department, sailing San Francisco, September 20.

Captain William W. Scripps to Hawaiian Department, sailing San Francisco, October 11.

Captain Maurice M. Simons to H.D. of Boston, Fort Banks.

Captain Robert J. Spicer to instructor, Coast Artillery School.

Captain Leslie M. Stewart to instructor, Coast Artillery School.

Captain Vernon R. Stolle orders to Office of the Chief of Morale Branch revoked.

Captain Alden P. Taber to First Air Support Command, Mitchel Field.

Captain Maxwell C. Taggart to Hawaiian Department, sailing San Francisco, October 11.

Captain Wilford E. H. Voehl to BBTC, Camp Davis.

Captain Edwin H. Whitaker, Jr., to Hawaiian Department, sailing San Francisco, October 25.

Captain Pennock H. Wollaston to Hawaiian Department, sailing San Francisco, October 11.

Captain John D. Wood to AATC, Camp Hulen.

First Lieutenant Arch A. Austin to Hawaiian Department, sailing San Francisco, November 24.

First Lieutenant John R. Bailey, Jr. to H.D. of Long Island Sound, Fort H. G. Wright.

First Lieutenant A. E. Griffith Bates to instructor, Coast Artillery School.

First Lieutenant John B. Boutwell to BBTC, Camp Davis.

First Lieutenant Josephus A. Bowman to BBTC, Camp Davis.

First Lieutenant John S. Bownam to CARTC, Camp Callan.

First Lieutenant Robert L. Brewer to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant John W. Comer to BBTC, Camp Davis.

First Lieutenant Hal H. Doolittle to Ellington Field.

First Lieutenant Belmont S. Evans, Jr., to AATC Camp Haan.

First Lieutenant Milo S. Gardner to 75th, Fort Richardson.

First Lieutenant Roy C. Garrett to 29th Engineer Battalion, Portland, Oregon.

First Lieutenant Joseph S. Genovese to Office of the Chief of Staff.

First Lieutenant James R. Gifford to AATC, Fort Bliss.

First Lieutenant Edwin R. Granberry to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant William S. Greer to Puerto Rican Department, sailing New York, October 25.

First Lieutenant Helmer M. Grotte to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant Glenn O. Hall to Office of the Under Secretary of War.

First Lieutenant Peter J. Hanna to Panama Canal Department, sailing New York, November 17.

First Lieutenant John W. Harmon to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant Gordon L. Harrington to 242d, Fort H. G. Wright.

First Lieutenant Franklin W. Harris to Maxwell Field.

First Lieutenant Dallas F. Haynes to AATC, Camp Haan.

First Lieutenant John O. Herstad to 34th CA Brigade, Fort Bragg.

First Lieutenant Floyd W. Hines to Office of the Chief of Staff.

First Lieutenant Homer G. Hornung to 505th Signal Operations Co., Mitchell Field.

First Lieutenant Hjalmar Hulin to Seventh Corps Area Service Command, Fort Snelling.

First Lieutenant William J. A. Hussey to BBTC, Camp Davis.

First Lieutenant Walter A. Johnson to Panama Canal Department, sailing New York, October 21.

First Lieutenant Thomas W. Jones, Jr., to BBTC, Camp Davis.

First Lieutenant George G. Kaplan to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant Thomas C. Keeling, Jr. to Office of the Under Secretary of War.

First Lieutenant Lee M. Kirby to 54th, Camp Davis.

First Lieutenant Robert A. Klockau to Office of the Chief of Coast Artillery.

First Lieutenant Don L. Langford to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant Myron D. Lockwood to instructor, Coast Artillery School.

First Lieutenant Robert R. Lutz to Puerto Rican Department, sailing New York, November 19.

First Lieutenant Leon F. McCrary to Hawaiian Department, sailing San Francisco, October 25.

First Lieutenant Robert N. Mackin, III to AATC, Camp Stewart.

First Lieutenant Antonio H. Manguso to Panama Canal Department, sailing New York, November 17.

First Lieutenant Oliver K. Marshall to 62d, Fort Totten.

First Lieutenant Charles L. P. Medinnis to H. D. of Los Angeles, Fort MacArthur.

First Lieutenant John P. Mial to BBTC, Camp Davis.

First Lieutenant Nathaniel Miljus to Office of the Chief Signal Officer.

First Lieutenant Ralph E. Miner to H. D. of Narragansett Bay, Fort Adams.

First Lieutenant Emory R. Minnich to CARTC, Fort Eustis.

First Lieutenant Frank C. Mintz to Hawaiian Department, sailing San Francisco, September 20.

First Lieutenant Victor J. Monke, CA-Res., to active duty, Army Medical Center, Washington, D. C.

First Lieutenant John P. Muhlheizler to 30th Engineer Battalion, Fort Belvoir.

First Lieutenant Walter L. Nelson to Panama Canal Department, sailing New York, October 21.

First Lieutenant Herbert R. Odom to H. D. of Galveston, Fort Crockett.

First Lieutenant Orin F. Parker to 752d Tank Battalion, Fort Lewis.

First Lieutenant William R. Parr to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant William L. Phillips to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant Robert B. Porter to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant Alfred L. Raney to Hawaiian Department, sailing San Francisco, September 20.

First Lieutenant Donald E. Rialson to Wright Field, Ohio.

First Lieutenant Andrew R. Sable to Puerto Rican Department, sailing New York, October 15.

First Lieutenant Charles C. Sorensen to instructor, Coast Artillery School.

First Lieutenant William O. Stone to BB TC, Camp Davis.

First Lieutenant Albert L. Tait to 301st BBTC, Camp Davis.

First Lieutenant William A. Thie to Hawaiian Department sailing San Francisco, September 20.

First Lieutenant Robert M. Thurston to Office of the Chief of Staff.

First Lieutenant Harold E. Tillman to Maxwell Field.

First Lieutenant James D. Tillman, III to Hawaiian Department, sailing San Francisco, October 10.

First Lieutenant Elton E. Tucker to BBTC, Camp Davis.

First Lieutenant Joel T. Walker to Hawaiian Department, sailing San Francisco, October 11.

First Lieutenant Albert J. Weinnig to AA TC, Fort Bliss.

First Lieutenant Clarence White to Hawaiian Department, sailing San Francisco.

First Lieutenant Kenneth L. Yarnall to AATC, Fort Bliss.

Second Lieutenant John E. Aber to Instructor, Coast Artillery School.

Second Lieutenant John E. Anderson, Jr., CA-Res., to active duty, Cruft Laboratory, Harvard University.

Second Lieutenant Augustine S. Apra to Philippine Department, sailing San Francisco, November 1.

Second Lieutenant Harry B. Baskette to Hawaiian Department, sailing San Francisco, September 20.

Second Lieutenant William R. Beard to Puerto Rican Department, sailing Charleston, October 17.

Second Lieutenant Hugh W. Benson to 54th Camp Davis.

Second Lieutenant Billy D. Brundidge to Hawaiian Department, sailing San Francisco, September 20.

Second Lieutenant Perry K. Bryant to Hawaiian Department, sailing San Francisco, October 10.

Second Lieutenant Abraham L. Bullard, Jr. to Hawaiian Department, sailing San Francisco, September 20.

Second Lieutenant Francis T. Burgess to instructor, Coast Artillery School.

Second Lieutenant Edward K. Butler, Jr. to Puerto Rican Department, sailing New York, November 20.

Second Lieutenant William G. Caffey, Jr. to Hawaiian Department, sailing San Francisco, October 10.

Second Lieutenant Horace M. Cardwell to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Marion K. Coley to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Albert L. Cox, Jr. to 121st Observation Squadron, Washington, D. C.

Second Lieutenant Sam F. Crabtree to Hawaiian Department, sailing San Francisco, October 10.

Second Lieutenant Sam T. Crews, Jr. to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant James R. Dawson to University of Washington.

Second Lieutenant Royal G. Dean to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant John D. Dietrich to Puerto Rican Department, sailing New York, October 4.

Second Lieutenant Michael J. DiSalva to Panama Canal Department, sailing New York, November 17.

Second Lieutenant John A. Ellard, Jr. to Philippine Department, sailing San Francisco, October 18.

Second Lieutenant Paul H. Evans, Jr. to Puerto Rican Department, sailing Charleston, October 17.

Second Lieutenant Samuel R. Evans to BBTC, Camp Davis.

Second Lieutenant Robert A. Fisher to Panama Canal Department sailing New York, November 20.

Second Lieutenant Robert F. Freeman to Puerto Rican Department, sailing San Francisco, October 17.

Second Lieutenant Thomas A. Gandy, Jr. to Puerto Rican Department, sailing Charleston, October 17.

Second Lieutenant Burt C. Gay to Philippine Department, sailing San Francisco, October 4.

Second Lieutenant Roy W. Gillette, Jr. to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Richard M. Gillispie, to Hawaiian Department, sailing San Francisco, September 20.

Second Lieutenant Walter F. Going, Jr. to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Matthew C. Harrison to Puerto Rican Department, sailing New York, December 15.

Second Lieutenant William H. Hidell, Jr. to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Harry E. House to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Dwight Hughes, III, to BBTC, Camp Davis.

Second Lieutenant James E. Huntsman to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Jay R. Johnson to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Lewis C. Kennemer to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant James B. King to Hawaiian Department, sailing San Francisco, October 10.

Second Lieutenant Mark C. B. Klunk to Hawaiian Department, sailing San Francisco, November 1.

Second Lieutenant Henry K. Krauskopf to Panama Canal Department, sailing New York, November 17.

Second Lieutenant William F. LaHatte to AATC, Camp Hulen.

Second Lieutenant Eugene L. Lancaster, Jr. to instructor, Coast Artillery School.

Second Lieutenant Gerard A. LaRocca to AATC, Camp Hulen.

Second Lieutenant Charles R. Long, CA-Res., to active duty, instructor, Coast Artillery School.

Second Lieutenant Thomas L. McCaleb, Jr. to Hawaiian Department, sailing San Francisco, September 20.

Second Lieutenant Alvie Lonzo McDuff, CA-Res., to active duty, Office of the Chief of Staff.

Second Lieutenant Raymond E. McDyer to 369th, Camp Edwards.

Second Lieutenant Donald I. McMillan to H. D. of San Diego, Fort Rosecrans.

Second Lieutenant Malcolm E. McPherson to Hawaiian Department, sailing San Francisco, November 24.

Second Lieutenant John B. Manley, Jr. to instructor, Coast Artillery School.

Second Lieutenant James S. Maxwell to Hawaiian Department, sailing San Francisco, September 20.

Second Lieutenant Thomas B. Mechling to BBTC, Camp Davis.

Second Lieutenant Carl H. Merrill to Hawaiian Department, sailing San Francisco, November 24.

Second Lieutenant LeMoyne F. Nichels to H. D. of San Francisco, Fort Winfield Scott.

Second Lieutenant Harry J. Moody to Hawaiian Department, sailing San Francisco, December 16.

Second Lieutenant Burton A. Neuburger to Hq., Sixth Corps Area, Chicago, Illinois.

Second Lieutenant William A. Orth, Jr. to BBTC, Camp Davis.

Second Lieutenant Wesley Perkins to 39th CA Brigade, Fort Bliss.

Second Lieutenant Clayton H. Preble to Philippine Department, sailing San Francisco, October 4.

Second Lieutenant Harry D. Radin to Hawaiian Department, sailing San Francisco, November 26.

Second Lieutenant Robert S. Reilly, to 54th, Camp Davis.

Second Lieutenant Frederick B. Rosmond to Hawaiian Department, sailing San Francisco, October 24.

Second Lieutenant William F. Roton to instructor, Coast Artillery School.

Second Lieutenant Richard A. Shagrin to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant James F. Smythe to Panama Canal Department, sailing New York, November 17.

Second Lieutenant Harry E. Stark to 123d Observation Squadron, Fort Lewis.

Second Lieutenant James W. Stigers to Puerto Rican Department, sailing New York, December 15.

Second Lieutenant Ben G. Suitt, Jr. to Hawaiian Department, sailing San Francisco, October 10.

Second Lieutenant Roger B. Toy to Hawaiian Department, sailing San Francisco, November 24.

Second Lieutenant Joseph H. Ward to instructor, Coast Artillery School.

Second Lieutenant Wade A. Watson, Jr. to Hawaiian Department, sailing San Francisco, October 11.

Second Lieutenant Noyes Weltmer, Jr. to Hawaiian Department, sailing San Francisco, September 20.

Second Lieutenant Rollen J. Windrow to Hawaiian Department, sailing San Francisco, September 20.

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

Today's War

Democracy Must Sustain the Shock

IMPACT OF WAR. By Pendleton Herring. New York: Farrar & Rinehart, Inc., 1941. 284 Pages; Bibliography; $2.50.

Casting aside the ethical aspects of war, yet describing it as a phenomenon of social behavior which is not without its salutary elements, the author analyzes the fundamental issues involved when our democracy must employ its military strength as an instrument of national policy. Conceding war to be inevitably the last resort when pursuit of this policy is menaced, it becomes evident that the essential consideration must be the creation and maintenance of an effective military system. In order to ascertain the effectiveness of our military establishment, Professor Herring subjects the past military policy of our country to searching and detailed criticism. This criticism is, however, constructive and impartial. It submits the testimony of contemporaries who advocated alternative courses of action to those actually taken, while presenting a defense of these courses as carried out.

The author next directs his scrutiny to our existing military system. Blame for deficiencies disclosed in both past and present military machinery is traced to public distrust of all things warlike. The idea that war, *per se*, is inimical to democratic traditions appears to have generated a vicious cycle. Public apathy toward the development of the profession of arms in peacetime has limited the means at the disposal of the military to prepare, while the opportunity existed, for the eventualities which history records as inevitable. Confronted by crisis, the public is at a loss to understand why its attitude of indifference to the art of war has resulted in lack of planning and professional attainment on the part of its army.

Castigation of both civil and military for their respective responsibilities in this situation, is applied by the author with Solomon-like impartiality.

A survey of the military organization of our country with special reference to the rôle of the War Department and the rôle of the President as Commander-in-Chief of the armed forces is given considerable attention. Policies of administration which proved effective in past wars are pointed out. The necessity for unity of control and delegation of authority to those qualified to execute pre-determined plans is emphasized in a discussion of the functioning of the War Industries Board during World War I.

From the foregoing survey of the structural organization for war during our country's crises, Professor Herring turns to the implications of the present conflict, and stresses the importance of reconciling certain popular democratic concepts with the imperatives of successful military procedure. That the military must be subordinate to the civil has always been axiomatic in our democracy. But, when "democracy's continuance is largely a matter of the speed with which a free people, through their political institutions, can adjust their economic order to the competition of totalitarian states," axioms which do not apply to the problem at hand must be temporarily set aside. The enemy must be defeated at his own game. His only rule is that supremacy is to the strongest. To be strong in a military sense we must have discipline and centralized control; regimentation for a definite end. However, says Herring: "The acceptance of discipline and control is not contradictory to the tenets of representative government." It is certainly the will of the majority to resist a menace to our national policies. The crux of the matter lies in the means by which this will manifests itself. Our own industrial system has achieved its high development through the voluntary acceptance of regimentation by the workers. Moreover, once the goal of mass production was reached by methods of controlled administration, the redounding benefits were reaped by the workers in higher living standards.

This situation has its analogy in the present emergency, but on a national scale. To forge a war machine which will insure the perpetuation of our democracy is the vital problem which now must be faced. In achieving this end "democracy, as the highest form of social life, holds the highest expectations of each man's capacity to coöperate with his fellows."

This book, by a professor of Government at Harvard, will stimulate constructive, patriotic thought in the minds of both the civil and the military. Its interpretation is impartial and well-documented from the thoughts of both civil and military leaders. Its criticism is constructive rather than antagonistic, and should inspire all who read it to higher purpose in supporting and strengthening our ultimate instrument of national policy. The skillful use of metaphor and simile combine to produce a most pleasing presentation while almost every expression is pregnant with meaning. It is felt that "The Impact of War" is one of the best works in its field.

Bear By the Tail

HITLER CANNOT CONQUER RUSSIA. By Maurice Hindus. New York: Doubleday, Doran & Company, 1941. 299 Pages; $2.00.

The burden of Mr. Hindus' story is that even though Germany may defeat the Russian armies and occupy all of European Russia, partisan warfare and the psychology of the Russian will make the holding infinitely more bothersome than the penetrating. The Russian's pride, his heritage of suffering and deprivation, his love of the soil, his training in partisan warfare, and his absolute hatred of autocracy (in the small things), will combine to make an enormous army of occupation a necessity. The Russian's training and aptitude for sabotage, slow-downs, and purposeful awkwardness will complicate the problem for the conquerer.

Mr. Hindus is a recognized authority on Russia, and his characterizations of the Communists are especially interesting. He neither glosses over nor apologizes for the Communistic mistakes. From the book, we begin to get the first faint glimmerings of why Russians act as they do, and why their actions are logical outgrowths of the conditions of the past. Even though we may not agree with all his conclusions, we must study the facts he presents. When he says, "Again I must emphasize that Russia and Russians must be interpreted not in terms of Western democratic refinements, but in those of their own stern realities," we realize what the book is about.

The author insists that even during the late Russo-German pact, both countries knew the war was inevitable, and that both were preparing for it. The surprise of the western world that Russia has resisted so well is not shared by the author. He feels that a people who have sacrificed so much for progress must have gone forward at least in some degree.

The Aerial Threat

BOMBS AND BOMBING. By Willy Ley. New York: Modern Age Books, Inc., 1941. 121 Pages; $1.25.

Mr. Ley, in a book written for civilians, puts forth the argument that aerial bombardment, while serious, is not nearly the threat that many civilians fear—if proper precautions are taken. Writing in a straightforward, almost conversational tone, the author discusses the different aerial weapons, including gas, and tells in what ways these weapons are threats, and how to combat them.

The author is Science Editor of the newspaper *PM*, and his *War Rockets of the Past* appeared in the May-June, 1941, issue of the JOURNAL. He knows how to explain things, and does a good job of it in this book. The volume is not written for soldiers, and will contain little that is new to the reasonably well-informed officer, but it is a grand little fear-chaser for the civilian whose only knowledge of modern war comes from the more sensational newspapers.

The Mighty Fell

SCUM OF THE EARTH: By Arthur Koestler. New York: The Macmillan Company, 1941. 288 Pages; $2.50.

Arthur Koestler was working on *Darkness at Noon*, a Book-of-the-Month Club selection, when World War II began. From Monaco, where he was working, he went to France. As an alien, he was interned and sent to various concentration camps. Later he joined the Foreign Legion under an assumed name, but never left the country until he escaped to England.

The book is another portrayal of the disunity, disorganization, and inefficiency of France. The disappointment at France's downfall might have been lessened in this country if we had known what Koerber knew. The author's experiences in the camps for aliens were particularly dismal. Misery in the German camps is assumed to be deliberate; in the French camps it was due mainly to the same inefficiency and disunity that lost the war for this once-proud nation.

On the Spot

BATTLES OF A BYSTANDER. By Franz Spencer. New York: Liveright Publishing Company, 1941. 260 Pages; $2.50.

It is refreshing to read a book by a refugee who doesn't thrust forward his ideas for saving what is left of the world, and for the defense of the United States. This book is different. It recounts scattered incidents in the life of the author—and what a life!

Spencer was an Austrian Czech in 1914, and was drafted into the Austrian army. With luck, he was able to stay away from the front; after all, the Czechs had little love for the Austrians, their conquerors. He was in Germany during the 1918 revolution, and managed to be in most of the countries of Europe when world-shaking events happened. Germany during the inflation, Russia during the dark days after the revolution, other places and other times—it all makes good reading.

Spencer has the knack of picking out a significant incident, telling it well, and letting the reader draw his own conclusions both as to causes and effects. This happy style gives the reader a good insight into European history between the two World Wars without boredom. Incidentally, the flavor of some of the incidents makes this book reading for adults only.

One of the "Few"

TALLY-HO!: YANKEE IN A SPITFIRE. By Arthur G. Donahue. New York: The Macmillan Company, 1941. 190 Pages; $2.50.

This is another of the long series of books written by, or about, the clean youngsters who pilot planes for Britain. This one happens to be written by a young man from Minnesota, which brings it a bit closer home, and is therefore written in language that means more to the American reader than some of the other books of its type.

Donahue is no outstanding pilot—merely another flier who does his job to the best of his ability and takes things as they come. He does not strain for modesty (which straining often gives the opposite effect) nor does he waste effort on literary quality. He writes in a straightforward manner of what he saw and did, with a very light gloss of what he felt.

The book lacks most of the irritating qualities of many of its contemporaries on the same subject. There is no attempt to put over the nobility of the fliers or of England's cause, and there is little of the self-justification which ruins some otherwise good books. It is almost straight reporting, with the appeal that this type of writing has to the American.

A Calm Appraisal

WAR IN THE AIR: SEPTEMBER 1939-MAY 1941. By David Garnett. New York: Doubleday, Doran & Company, 1941. 292 Pages (including Appendix); Illustrated; $3.50.

To one who is familiar with David Garnett's unconventional fiction, *War in the Air* comes as a distinct, but pleasant, shock. The author of *Lady Into Fox* is versatile; he can write clearly and concisely of military things, in military language. He is a flier and a patriot who writes of air power and airmen in a constructively critical vein; he tells England's story with none of the emotional tricks that have ruined so many otherwise good books coming out the British Isles.

The reviewer turns down the corners of pages that contain some noteworthy statement, for reference when preparing the review. The average book gets two or three dog-ears under this system; *War in the Air* had twenty-eight. There is more meat in this volume than in any three ordinary books of the present war.

War in the Air is the story of British air power—its past, its present, its mistakes and its victories. General Gamelin's fear of reprisals, the British slowness in getting into aircraft production, the inferiority of the French planes and fliers, and general lack of coöperation among the Allies accounted for much of the phoniness of the so-called phony war.

The author cites instances where lack of facility in identification of aircraft almost resulted in tragedies, and where poor liaison between the RAF and the other services had far-reaching effects. He explains the tactics and strategy of the British bombing effort, and pulls no punches in criticizing failures in command.

He mentions puzzling incidents like a German flier's orders *not* to bomb the Firth of Forth Bridge, and the British failure to bomb ships in a German harbor because they didn't want to drop bombs on the buildings in the city. The war in Norway is analyzed (perhaps rationalized also) in an interesting manner.

There is little of the flag-waving and crude propaganda that characterize many works on the subject of British air power; *War in the Air* is a reasoned, factual account of the RAF's part in the war, with many lessons for any nation that permits its military establishment to grow weak for the sake of politics. This is a book for the military or civilian student of warfare, not for the person whose interest in flying and the RAF stems from emotional reasons.

Artillery of the Air

BOMBER COMMAND: THE AIR MINISTRY ACCOUNT OF THE BOMBER COMMAND'S OFFENSIVE AGAINST THE AXIS. New York: Doubleday, Doran and Company, Inc., 1941. 128 Pages; Illustrated; Paper Cover; $1.00.

Those who enjoyed *The Battle of Britain* with its of-

ficial Air Ministry account of the Fighter Command will find this present volume even more interesting, and more attractively presented. The Bomber Command of the RAF (not to be confused with the Coastal Command) has not until lately come into its fair share of the laurels of the war in the air. The leaflet raids, the raids on the German fleet, and the more recent methodic raids on German industry were not as spectacular as the work of the Fighter Command—but planes were lost, men died, and untold difficulties were overcome. The successes of the Bomber Command today are built on the experiences of the past years of the war.

* * *

Britons Against the Sea

FISHERMEN AT WAR. By Leo Walmsley. New York: Doubleday, Doran and Company, 1941. 302 Pages; Illustrated; $2.50.

Those doughty salts who operate the smaller craft in the Battle of the Atlantic have come into a share of credit and praise. The newspapers, especially, have carried many stories written by American correspondents about these men who sweep mines, fight submarines and the Luftwaffe, and bring in the fish that help to fill England's larder.

This book is a bit different—it is written by a man who knows these fisher-folk, who has lived with them for years. He knows them ashore as well as afloat; he knows what lies behind their steadfast devotion to duty. After all, fishing for a living regardless of the weather is a dangerous life—the possibility of enemy action is only one more danger to these hardened people.

The stoic outlook of these fishermen and the life that creates that outlook, the misery and the danger they face, and the value of the work they do is vividly limned by Mr. Wamsley. The author's repeated strayings into the field of philosophy and into tirades against the Nazis, although understandable considering his loyalties and his background, are repetitious and not rigidly relevant to the story he tells. The book would have been better without them.

* * *

Foreign Relations

YOUR FOREIGN POLICY: How, What, and Why. By Robert Aura Smith. New York: The Viking Press, 1941. 233 Pages; Appendix; Index; $2.75.

The author is well equipped to deal with the subject of our foreign policy. At present on the staff of the *New York Times* in its Foreign News Department, Mr. Smith has had wide experience as a working newspaperman in many parts of Europe and Asia. This book is not offered for the experts. Rather, it is intended to appeal to the average American citizen.

Even the dubious should be convinced, after reading the first few pages of this book, that we definitely have a foreign policy, and the machinery for its operation. The various phases of the Department of State, the administrative agency primarily charged with the responsibility of managing our foreign affairs, are clearly outlined. The reader will discover the answers to many questions concerning the international behavior of our country, and how, as a citizen, he can affect this policy.

The author dwells at length on the substance of our foreign policy, and explains how the Monroe Doctrine, a basic part of this policy, has been interpreted during its existence. Of special interest to the reader is the manner in which our foreign policy is applied, and how it has kept pace with the changing conditions. For ready reference, this book also includes a number of famous documents, among which are the Nine-Power Treaty, Monroe Doctrine, and the Kellogg-Briand Treaty.

America's Past

Necessary Evil

CENSORSHIP 1917. By James R. Mock. Princeton: Princeton University Press, 1941. 231 Pages; Index. $2.50.

Censorship in the last war was, on the whole, reasonable. Certain individuals, certain unofficial groups, and a very few officials gave way to the human tendency to go too far, but the broad picture seems to indicate that America approached the problem of wartime censorship in a manner that was commendable. In practically every case, the higher authorities had cogent reasons for their suppression of objectionable matter.

There was injustice in individual cases. The emotions of a nation at war are not conducive to mature thought and the long-range view, and the emotions of individuals, whether judges, jurymen, or chairmen of patriotic citizens, occasionally ran riot with their judgment.

Mr. Mock's book is almost entirely factual. He notes instance after instance, and permits the reader to draw his own conclusions. Where groups with selfish aims have taken advantage of the necessary censorship regulations for their own ends, he notes the facts of the case—without an impassioned plea for the preservation of the rights of the individual over the necessities of the nation. The book gives us a remarkable insight into the necessity for censorship, its workings, and its possible abuses.

The Army of Misfortune

THE ARMY OF TENNESSEE. By Stanley F. Horn. Indianapolis: The Bobbs-Merrill Company, 1941. 428 Pages; Notes; Bibliography; Illustrated; Index. $3.75.

The Army of Tennessee has never had its fair share of attention in the historical works on the Confederate Army. The army that fought at Shiloh, Murfreesboro, Chickamauga, Kenesaw Mountain, Fort Donelson, Missionary Ridge, and at other famous fields, has generally been overlooked when the histories were written. Albert Sidney Johnston, Beauregard, Bragg, Joseph E. Johnston, and Hood, the army's commanders, have fared better.

The Army of Tennessee fought hard, and suffered severely. It had its recruiting difficulties, its troubles with supply, and its unfortunate defeats. On many occasions, the luck that blesses the great armies was not present. The bravery of the troops of the Army of Tennessee could rarely be questioned, but with numbers and luck against the force, its victories were not as frequent as the Confederacy wished. Generals bungled with disheartening frequency.

Even such victories as it had were fruitless—barren of result—in many instances.

Speaking of the victory at Chickamauga, the author says, "But when the first flush of this enthusiasm wore off, the people of the South gradually came to realize that it was a hollow victory, that it was, as General Alexander says, 'but another story of excellent fighting made vain by inefficient handling of an army hastily brought together, poorly organized, and badly commanded.' Bragg was not the man to do what had to be done."

At Shiloh although the Confederates lost fewer men, than their adversaries, they had fewer men to lose, and the comparative losses weighed against the cause of the South. This situation was repeated time after time.

Mr. Horn has written a book that will hold the interest of the casual reader who looks only for exciting reading, and that will bear close perusal by the historian and the soldier.

* * *

Foundation Builders

THE CONTINENTAL CONGRESS. By Edmund Cody Burnett. New York: The Macmillan Company, 1941. 726 Pages; Index; $6.00.

The serious student of American history finds almost every facet of Revolutionary War history clouded or brightened by the actions of the Continental Congress. This body, composed of members who were brilliant individually, was itself a rather ineffective body. The members could not always work together, and when they did find a basis for agreement, the states they represented often did not follow through.

The author states in his preface, "The aim of the volume, then, is to relate the life-story of that Congress, from its inception in 1774 to the moment when it feebly passed the torch to its successor in March, 1789, and to relate it in such a manner as will afford a clear and comprehensive understanding of its life and labors, and more particularly of the part which it had in laying the foundations of our national structure."

Dr. Burnett's aim resulted in effect on the target. The reader can understand the difficulties that beset the Congress, in partial extenuation for the effect the Congress had on the prosecution of the war. Few casually interested students realize the extent of the theoretical independence of the individual colonies at that time, and how jealous were their representatives of the rights of their respective states.

The author sticks closely to facts. There is little speculation and less philosophy. He gives the reader credit for the intelligence necessary to do his own interpreting—and the book is more valuable historically for it.

* * *

Benedict Arnold—And Others

SECRET HISTORY OF THE AMERICAN REVOLUTION. By Carl Van Doren. New York: Viking Press, 1941. 435 Pages of text, 100 Pages of Index, Appendices, Bibliography, etc. Illustrated. $3.75.

During the Revolution, America was ripe for British fifth-column activities. The internal dissension between Whig and Tory, the uninhibited ambitions of high-ranking officers, the vacillations of the Continental Congress, and

the poor morale of the American troops contributed to assist those who were either disloyal to the Colonies, or in all conscience loyal to the mother country.

As we read this book, based on the Secret Service papers of Sir Henry Clinton and other sources, we are shocked at the extent of the treachery that existed among the Colonials, and surprised that considering the conditions of the war, there was not more. To quote Mr. Van Doren, "This is, in effect, a remarkably patriotic book. It shows that our ancestors were, in spite of many temptations, virtuous and devoted to the cause of independence. . . . There is no fiction in my narrative, and as few conjectures as possible."

Naturally, Benedict Arnold's story is the most thoroughly treated. Van Doren finds little to admire in Arnold; no sympathy or whitewash is wasted on the traitor. Major André is treated sympathetically, as an obedient soldier doing his best for his own cause.

In addition to the vast store of authoritative information the book contains about spies, traitors, and fifth columning during this critical period of America's history, book lovers will find the volume interesting from a mechanical standpoint. Good typography, excellent arrangement and page headings, and a complete index make this book a pleasure to own.

* * *

Biography

Tippecanoe

WILLIAM HENRY HARRISON: HIS LIFE AND TIMES. By James A. Green. Richmond: Garrett and Massie, Inc., 1941. 446 Pages; Appendix; Bibliography; Index; Illustrated; $5.00.

William Henry Harrison served little more than a month as President of the United States, so his place in American history must be a result of his activities before his election. Many of us are familiar with the "Tippecanoe and Tyler too" slogan of the campaign, and remember that he was the grandfather of Benjamin Harrison, but that is the extent of our knowledge of a vivid character in the drama of the early days of the Union.

Harrison served with Wayne in the Indian campaigns, he was Secretary of the Northwest Territory during stirring times, he led the American forces at the Battle of Tippecanoe, and was Commander-in-Chief of the Army of the Northwest during the War of 1812. He was a chief actor in many of the events that shaped the course of the United States.

The author obviously has great respect for General Harrison, and succeeds in endoctrinating the reader with the same feelings. Much research has gone into the writing of this book—a fact which is apparent as one reads. It is not hard to believe that Harrison was one of the great characters of American history because the author backs up his statements with credible evidence.

Garrett and Massie, who print The JOURNAL and are largely responsible for the page makeup of the magazine, have produced a volume that continues their reputation for beautiful bookmaking from the mechanical standpoint, as well as a book that illuminates one of the more obscure chapters in American history. A competent author and a capable publisher-printer have combined to make a worthy addition to any library.

Not So Mad

ANTHONY WAYNE: Trouble Shooter of the American Revolution. By Harry Emerson Wildes. New York: Harcourt, Brace and Co., 1941. 464 Pages; Notes; Bibliography; Index; Illustrated. $3.75.

"More active and enterprising than judicious and cautious. No œconomist, it is feared. Open to flattery, vain, easily imposed upon and liable to be drawn into scrapes. Too indulgent (the effect, perhaps, of some of the causes just mentioned) to his officers and men. Whether sober or addicted to the bottle, I know not."

This was George Washington's estimate of Anthony Wayne—and in spite of it, the first president chose Wayne as commander-in-chief of the Federal forces after St. Clair's defeat by the Indians after the Revolutionary War. There is the key to the story of Anthony Wayne—he was a poor leader, a far from satisfactory husband and father, a tricky politician, a failure in business, and an inferior garrison soldier . . . but he won battles.

Wayne was disloyal to his superiors, partial to certain of his subordinates, ill-tempered, not strictly honest by present-day standards, and a shirker of routine. But he was loyal to his country, courageous and effective in battle, and ahead of his time in military tactics. He demanded recognition of his achievements, and when it was not forthcoming, he sulked. On the whole, he was a character who made fast friends and violent enemies.

To give even a hasty outline of Wayne's life story in a short review is out of the question. He led an interesting life, he played a large part in the success of the Revolution and of the Indian wars which followed, and his contributions to his country's welfare far outweighed his private shortcomings. Mr. Wilde's has dug deep into Revolutionary history to give us a fine biography.

* * *

Totalitarian Beginnings

THE POTSDAM FUHRER: Frederick William I, Father of Prussian Militarism. By Robert Ergang. New York: Columbia University Press, 1941. 253 Pages; Bibliography; Index; $3.00.

Frederick William I, the father of Frederick the Great, was the Prussian originator of the totalitarian idea that the individual exists for the state. To his credit it can be said that he too existed for the state. His guiding principle in life was to build up his army, in the belief that a strong army was the very foundation stone of a successful state. It has been said that in his time Prussia was an army that had a state, not a state that had an army.

Frederick William, "the Royal Drill-Sergeant," subordinated the entire economy and life of Prussia to the army. His revenues went to the military establishment (he was personally frugal to the point of miserliness). Recruiting for the army disrupted farming and industry and resulted in large migrations from his country, and he introduced military discipline and responsibility into every possible phase of Prussian life.

That, judged by today's standards, Frederick William was insane is a foregone conclusion. His habit of striking everyone within range with his stick when he was displeased, his treatment of his own family, and his bewildered lack of understanding of why people did not love him

would have been good material for a psychologist. His obsession regarding tall grenadiers resulted in his having tall men kidnapped from other countries. Officers of units of his army which could not recruit sufficient tall men were censured, regardless of other attainments.

Frederick William did create the army with which Frederick the Great won battles, and he made a soldier of Frederick against the son's will.

Miscellany

Guidebook for Selectees

HE'S IN THE ARMY NOW. By Captain William H. Baumer, Jr. New York: Robert M. McBride & Company, 1941. 255 Pages; Illustrated; $2.50.

This book would be a fine Christmas gift for the man about to be selected for service, or for the parents and friends of men who are taking their military training.

Captain Baumer has undertaken to explain the critical first weeks of army life, as applied to the citizen soldier. Few selectees or friends of selectees would fail to profit from reading this well-illustrated volume. Written in non-technical language, the book gets down to the basic details of the recruit's early military experience.

In his references to the Coast Artillery Corps, we will forgive Captain Baumer for including a picture of an 8-inch mobile howitzer in the CAC section, because of his closing statement, "The Coast Artillery Corps is a fine branch of the service and an interesting one."

Incidentally, most of the army humor in the book is as old as the army, but the story of the Indian and the thin slice of beef is new to the reviewer.

Hawaiian High Spots

PARADISE LIMITED. By Thomas Blake Clark. New York: Modern Age Books, Inc., 1941. 299 Pages; Illustrated; $2.00.

Professor Clark hits the high spots of Hawaii's history from Kamehameha I to the late visit of a Hollywood favorite, in a style that keeps interest at fever pitch. It is easy to see that the author loves the islands and their people, although he doesn't spare his humor in stressing those facets of Hawaiian character that make the native lovable and ludicrous at the same time.

The great King Kam and his conquests, Queen Namahama and her weight and appetite, King Kalakaua and his "champagne dynasty," the missionaries, the New Bedford whalers, the Duke of Edinburgh, Mark Twain, Claus Spreckels, and scores of other characters and incidents flash through the pages of this book with the pace and humor of the more entertaining moving picture. The author manages to tell enough to give us an insight into the history of the islands, but not enough to become boring.

Divine Schizophrenia

BALTIMORE ON THE CHESAPEAKE. By Hamilton Owens. New York: Doubleday, Doran & Company, 1941. 329 Pages; Illustrated; Index; $3.50.

Most people do not like Baltimore at first, but the re-

viewer found it a city that belies its unprepossessing exterior. Hamilton Owens, editor of the Baltimore *Sun*, explains why Baltimore hides its golden light behind the apparent dinginess of an overly compact city. Owens loves the town, even while he admits its faults.

Baltimore's past explains its present. From tobacco to wheat to privateering to transportation to industry, the city has had to shift its emphasis with the changing tides. The changes in occupation necessitated changes in outlook and politics, as well as bringing about fluctuations in the city's fortunes. Baltimore's position on the border during the Civil War had a lasting ill effect on her economic well-being as well as her social structure.

The author titles one chapter "Divine Schizophrenia," as good a phrase as any to describe the city's divisions within itself, caused by its geographical position and the resulting lack of homogeneity of its population—Catholics and Protestants, Northerners and Southerners, Irish, French and Germans. The differences in population meant differences in interests—with the resulting conflicts which have remained blots on the history of the city.

Baltimore has been a courageous city, fighting for her place in the world. She lays her present position to more than geographical accident or to easily-won riches. She has made the most of her harbor and of the surrounding countryside, but other cities have done the same without building up the reputation for vitality, doggedness, and culture that is Baltimore's.

* * *

The Red Bull

THE COLORADO CONQUEST. By David O. Woodbury. New York: Dodd, Mead and Company. 1941. 361 Pages; Illustrated; Index; $3.00.

To most of us, the Imperial Valley is a vague name associated with cantaloupes and grapefruit. To David O. Woodbury, this productive area is the scene of one of the longest continuing battles that Americans have waged—a battle of man against the Colorado River. The discouragement and the defeats that man has suffered from this unpredictable river, only to shake off the blows and fight again, would have broken a weaker people.

Charles Robinson Rockwood was the engineer whose faith and skill made possible this productive area, but he is also the man whose thin skin and egotism almost wrecked the communities not once, but several times. Rockwood's life was spent battling the Colorado with a fair percentage of victories, and battling with financiers and politicians with almost a perfect score of defeats.

The Colorado is a tricky river, noted for its burden of scouring sand and its unpredictable rises and falls in level. What it gives it takes away—man can only do his best against it, and man's best is not always good enough. Boulder Dam and the All-American Canal have done their part to tame the river, but it was Rockwood and his fellow pioneers who made the dam and canal possible. Woodbury tells the story well.

* * *

The Spiritual Side

ON GUARD. By Joseph R. Sizoo. New York: The Macmillan Company, 1941. $1.00.

A pocket-sized book containing 365 short inspirational messages and seven prayers. Dr. Sizoo, a nationally-known clergyman, saw service in France during World War I, and seems to know soldiers—he proves his knowledge of men by keeping his messages down to an average of 125 words each. The book has been praised highly by Chaplain Brasted, Bishop Leonard, and Paul D. Moody, formerly director of the General Committee on Army and Navy Chaplains.

* * *

Courts-Martial

THE SOLDIER AND THE LAW. By John A. McComsey and Morris O. Edwards. Harrisburg: The Military Service Publishing Company, 1941. 381 Pages; Illustrated; Index; $1.50.

For the officer who finds *Manual for Courts-Martial* a bit on the obscure side, this book will be very valuable for the excellent manner in which it applies the *Manual* to every-day cases. The book is divided into three parts: Trial Prevention, Procedure, and Practical Illustrations. The appendices, including forms for the different procedures, check lists, and other information, are especially valuable.

The style of the book is excellent, phrasing needed information in every-day English, and in logical sequence. Of course any officer *can* get by with reference only to the official *Manual for Courts-Martial*, but this book will assist in digging the information from the *Manual*, as well as giving hints and helps that an official publication cannot very well include. It is well worth the purchase price to every officer who commands troops, as well as to those who expect to be members of a court-martial.

* * *

The Tools We Use

WHAT THE CITIZEN SHOULD KNOW ABOUT OUR ARMS AND WEAPONS. By Major James E. Hicks, O.D. New York: W. W. Norton and Company, Inc., 1941. 240 Pages; Illustrated; Index; $2.50.

It is unfortunate that the Norton Company's series necessitated the "What the Citizen Should Know" part of the title. Many officers and soldiers might pass this work by because of the title—and they shouldn't. There is a wealth of information about the tools we work with.

Most of us will find parts of the book that are superfluous because we are familiar with certain of the weapons mentioned, but few of us will know all that Major Hicks tells about the weapons. His brief historical sketches about the development of the weapons are especially well done.

Officer candidates, the younger officers, and citizens who are really interested in national defense should find this book a source of much valuable information.

* * *

WHAT THE CITIZEN SHOULD KNOW ABOUT THE MARINES. By Captain John H. Craige. New York: W. W. Norton & Company, Inc., 1941. 205 Pages; Illustrated; Index; $2.00.

This is another of the Norton Company's Citizen's series. It tells the history of the Marine Corps and how the Corps operates today. The author thinks the Marines are a top-notch organization of military professionals, and we agree with him.

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Chapters 5, 6, and 7, covering Drill for Units with Animal-Drawn Carts or Pack Animals, Drill for Units with Motor Carriers, and Drill for Motor and Wagon Units, have been omitted as not pertaining to Coast Artillery units. However, the sequence of paragraph numbering as well as chapter numbering remains the same as in FM 22-5.

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