

# THE FIELD ARTILLERY JOURNAL

NOVEMBER-DECEMBER, 1934

PUBLISHED BI-MONTHLY BY  
THE UNITED STATES FIELD ARTILLERY  
ASSOCIATION

# NOVEMBER-DECEMBER, 1934

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# THE FIELD ARTILLERY JOURNAL

EDITED BY  
DEAN HUDNUTT

MAJOR, FIELD ARTILLERY, UNITED STATES ARMY



Patron Saint of Artillery

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**GENERAL WILLIAM M. CRUIKSHANK**

# THE FIELD ARTILLERY JOURNAL

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## GENERAL WILLIAM M. CRUIKSHANK RETIRES

General William Mackey Cruikshank was born in Washington, D. C., on November 7, 1870, and had his first taste of military service in the cadet corps of the Washington, D. C., High Schools. In 1889 he was appointed by President Cleveland to the U. S. Military Academy, from which he graduated in June, 1893, and was commissioned as Second Lieutenant of Artillery.

In 1899 he was promoted to the grade of First Lieutenant and in 1901 to the grade of captain of the Artillery Corps, in which grade he spent two years in the Philippines. He graduated from the School of Submarine Defense in 1903. When the Artillery Corps was replaced by the Field Artillery and the Coast Artillery arms in 1907, he was assigned to the former.

From 1909 to 1911 he served with the Signal Corps, spending part of the time on the Mexican border. He was promoted to the grade of Major in 1911.

From September, 1915, to January, 1918, he was in the Adjutant General's Department, being promoted to Lieutenant Colonel in 1917 and to Colonel in 1918. In 1917 he went to France as Adjutant of the First Division.

He was promoted to the grade of Brigadier General, National Army, in June, 1918, and remained in that temporary grade until August, 1919. During the War he saw service at Verdun, Chateau-Thierry, the Marne, St. Mihiel and the Meuse-Argonne. In 1919, he was Chief of Artillery, First Corps, in France and later commanded the Third Field Artillery Brigade in Germany.

From September, 1919, to June, 1920, he was a student at the Army War College. Upon graduation from this institution he spent four years with the G-3 Division of the General Staff in Washington.

He was promoted to the grade of Brigadier General on September 1, 1925, and assigned to the command of the Second Coast

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Artillery District with station at Fort Totten, N. Y., remaining at this station until January, 1927, at which time he went to Panama and assumed command of the Panama Coast Artillery District.

In 1930 he was made Commandant of the Field Artillery School, on which duty he remained until going on leave prior to retiring from active duty. He was placed on the retired list on November 30, 1934.

General Cruikshank was awarded the Distinguished Service Medal, with the following citation: "For exceptionally meritorious and distinguished services. He commanded with ability the artillery of the Third Division on the Marne during the German attack on July 15, 1918. Subsequently, during the advance on July 18, due to his tactical knowledge and successful placing of the guns, he greatly assisted in the repulse of the enemy. Later he rendered valuable services as commander of the Artillery of the Fourth Corps."

He is an Officer of the Legion of Honor (French).

General Cruikshank is an outstanding Field Artilleryman and has been so for many years. During his recent command of the Field Artillery School that institution made great progress.

His ever sound counsel and pleasing personality, which were so evident in his command while he was on active duty, will be missed by the Field Artillery.



# ARTILLERY IN LANDING OPERATIONS

BY CAPTAIN HAROLD D. SHANNON, U. S. MARINE CORPS

## INTRODUCTION

THE title of this article was chosen to indicate the role of the artillery in a Joint Overseas Expedition having as its objective a forced landing on a hostile shore.\* In the following pages an attempt is made to set forth briefly the problems confronting artillery commanders peculiar to such operations, the basic principles involved and methods for the solution of their problems.

The subject of "Landing Operations" should be one of general interest to our services when we consider that the geographical location of the United States, between two oceans, is such that in the event of a major war, for us to take the full offensive would require, with two exceptions in part, Joint Overseas Expeditions.

Our present text on Joint Overseas Expeditions sets forth the general principles for the planning and conduct of such expeditions in order to insure the most effective cooperation and coordination between the Army and Navy forces participating therein. These general principles, while setting forth the purpose, scope and phases of Joint Overseas Expeditions and the missions of the services participating therein, leave to the several arms of the Army the task of solving their problems and establishing the basic principles essential as a guide for the training and preparation of their respective arms in the roles they may be called upon to play in this most difficult of operations.

## GENERAL CONSIDERATIONS

There is probably no operation in war that requires for its successful conclusion more thorough study, more careful planning, more complete preparation, more detailed staff work and more skillful execution on the part of all concerned, than does the seizure by a military force of a beach-head on a hostile shore.

General Ian Hamilton says: "Staff officers who have had only to do with land operations would be surprised. I am sure, at the

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\*The opinions or 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.



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amount of organized thinking and improvisation demanded by landing operations . . . The diagrams of ships and transports; the list of tows; the action of destroyers; tugs, lighters, signal arrangements for combined operations; these are unfamiliar subjects and need very careful fitting in."

Should a War Plan contemplate a landing in force in the early stages of campaign, it is evident that the basic plans and preparatory arrangements should be worked out prior to the declaration of war. This applies particularly to the provision of the special types of vessels, armament, equipment and ammunition that would be necessary and to the training of personnel.

The shipping involved in moving an expeditionary force overseas will be very large, causing the withdrawal of large numbers of commercial carriers from trade routes, with consequent interference with the country's commerce for an indefinite period; the expense involved in training and equipping the expeditionary force will be great; the time needed for the training of the troops, if they are to have a reasonable chance of success, will be long; yet with all these eggs placed in one basket, the question as to whether the outcome shall be a success or involve an enormous disaster will depend very largely on the outcome of the plans covering the few hours of intense activity devoted to the landing. If the Navy's plan of landing, including naval supporting gunfire and air support, is based on sound premises, if the small craft provided for the landing of troops and material is suitable and in sufficient numbers, if all the details are thoroughly worked out, if the officers and men in charge of landing are thoroughly trained and instructed in this special type of operation, then we will have done everything possible to assure the successful landing of the expedition.

A joint overseas expedition has many of the advantages inherent in offensive warfare. It has the initiative with a wide choice of objectives, limited only by the suitability of landing places, and routes of approach toward them. The mobility of its reserves retained afloat affords an excellent opportunity to exploit initial successes ashore.

On the other hand, it requires a longer time to launch an attack

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by troops from transports than from a position on shore. During the approach to the beaches in small boats, troops offer a particularly vulnerable target to all enemy weapons. Usually, troops must land and fight over comparatively unfamiliar ground where information of hostile dispositions will be more difficult to obtain than in other types of operations. Difficulties of supply will be greatly increased. Finally, success will depend to a great degree upon the proper coordination and intimate cooperation of two distinct services.

### SEA COAST DEFENSE

A proper conception of the tactics and principles employed in sea coast defense is essential to the artilleryman if he is to correctly appraise the task confronting him.

The defense of coast lines are joint Army and Navy problems resulting in combined operations. Hence, the need for control of the sea before attempting a major overseas expedition. A knowledge of the principles underlying successful landing operations is essential to the proper dispositions for the defense of a coast; and conversely, a knowledge of the latter is essential to a proper conception of the needs of the landing force in gunfire support, etc., if a forced landing is to be accomplished with the minimum of losses.

Sea coast defence is a special form of defense in which the line of resistance is held by a small number of forces, while large mobile reserves support any part of the front.

Fixed harbor defenses will already be located. In determining how to dispose of his mobile forces the enemy will consider the principles involved in landing operations. Railway and field artillery will be prepared to cover all sections of the coast favorable for our landing operations. A beach cordon will be provided for the defense of fixed harbor defenses, artillery positions and for the defense of the beaches and routes of advance to the beach-head.

The main line of resistance may be at the beach or on strong tactical localities immediately in rear thereof. Provision will also be made for all possible delay between the beach and the probable objective of our landing force. The enemy may also employ under-water

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obstacles, such as wire, mines, etc., to obstruct free passage to probable landing beaches, and wire on the beaches to bring our landing forces under his prearranged fires.

Providing secrecy has been maintained as to the exact point and hour of landing, it is probable that the enemy beach cordon will not exceed in strength, one infantry company with machine guns and some light artillery, per mile of front.

### NAVAL GUNFIRE SUPPORT

The question of the real value of Naval gunfire in support of a landing seems to remain an open question. However, as Naval vessels must furnish all the supporting fire until the troops, with their artillery are established on shore; the only alternative is to accept the facts as they are, and energetically set about to improve the old and develop new methods for the delivery, control and distribution of an effective fire that will furnish the fire support essential in such operations: . . . at the same time looking to our artillery matériel and means of landing same with a view to furnishing artillery support ashore at the earliest practicable time under the prevailing conditions.

We know that there is a great difference between naval and land artillery fire. Fire from the former may cause a temporary cessation of fire from shore defenses but it does not necessarily destroy enemy material and put their guns permanently out of action. Naval gunfire will, however, accomplish more than we give it credit for, if properly controlled and utilized.

The British Navy claimed that the Army's estimate of the value of naval support was based on results obtained in the early days of the Gallipoli Campaign when the ships had practically no ammunition and all the ships were inexperienced in this kind of operations. This was not the case later. They had had a year's actual war experience. They had improved their methods of spotting, observation, communication, direction and control of fire. They knew where to look for targets and were better able to recognize them when seen. They no longer boomed away at the high cliffs and expected to kill Turks under cover behind them, but maneuvered their ships into positions where their flat trajectories would sweep the gullies and ravines and enfilade the

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enemy trenches and areas behind the cliffs. They rendered this support even if a ship had to stick her nose on the beach to do it.

As compared with army artillery, naval artillery is generally characterized by more limited angles of elevation and higher velocities, resulting in flatter trajectories, greater erosion and less accuracy life. The flat trajectory is a handicap in the fire against shore objectives, particularly as it may make fire on reverse slopes impossible due to the relative small angle of fall. The heavy artillery, with limiting elevations of 30 degrees and 40 degrees has angles of fall at extreme range of from about 45 to 54 degrees. The lighter guns (except the A. A. guns), most of which are limited to 20 degrees elevation, have small angles of fall. The angle of fall can be increased by the use of reduced charges, provided the resulting loss of accuracy and reduction in range be accepted.

The service projectile for the naval heavy artillery is armor piercing, a thick walled shell fitted with a delayed action fuze. Owing to the thickness of the shell, the weight of the bursting charge is relatively less. Antiaircraft projectile is usually H. E., but may be shrapnel, fitted with a combination nose fuze. The 5-inch A. A. projectile is particularly effective.

The delayed action fuze of the naval service projectile permits the shell to bury itself in the ground before bursting. This, in connection with relatively smaller bursting charge, greatly reduces the effect of the naval shell against shore objectives, as compared with corresponding types of army projectiles. Consequently, the Navy will either have to employ projectiles of special type for shore operations, or, in order to produce the same effect, will have to attain a considerably greater volume of fire on the objective.

While ammunition expenditure on shore is only limited by the amount available in the area, by accessibility of dumps, and by the practicability of transportation, ammunition expenditures afloat are seriously limited by the amount that can be carried by the firing ship. Transfers of ammunition from another ship to a firing ship during the progress of an attack would not be practicable. Transfers from improvised magazines to the regular

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magazines of a ship can not be made without seriously slowing the fire of heavy calibers.

Naval heavy artillery is equipped with a fire control system which permits of indirect fire without the employment of an outside aiming point. This system permits of reasonable accuracy, except perhaps in deflection, but has not the precision commensurate with that obtainable on shore.

The fire control systems of the medium and light naval artillery (with the exception of the A. A. guns) are capable of indirect fire only by the use of auxiliary aiming points, such as the reverse horizon in elevation, and in train an object on shore with an offset, or a rough compass bearing. For great precision with these batteries, direct fire is practically a necessity.

The 5-inch A. A. battery is fitted with the most modern system of indirect fire, permitting a greater precision than any other with this type of fire. This, in connection with the characteristics of the gun and projectile, makes it by far the most valuable weapon the Navy has for medium caliber work against shore objectives. The 3-inch A. A. batteries are not fitted with director system, and are capable of direct fire only.

Direct fire against shore objectives at night, either in elevation or deflection would probably be impracticable, even with star shell or flares.

The first requirement of naval fire control against shore objectives is the ability of the firing ships to locate themselves accurately and continuously. This requires accurate bearings and ranges of navigation marks such as charted objects on shore, tangents of shore lines, or bearings and ranges of auxiliary marks specially placed for the purpose. This requirement, in connection with the necessity of observing the fire, practically precludes carrying out a support operation at night.

Naval artillery is designed and installed on ship board so as to be highly efficient for naval combat. It can not be safely used to place concentrations close to friendly troops after the manner of corps and division artillery, except under conditions where the target is visible from the firing ship.

Naval vessels can render their most efficient support by gunfire when conditions permit the ships to anchor or stop, the target

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visible and the sea calm. When the enemy's submarines and aircraft force the ships to keep in motion, the employment of their fire for the immediate support of front line troops becomes extremely difficult.

Certain ships may be designated as "accompanying ships" whose mission it will be to approach close to the designated beaches at the time of the initial landings, and cover with direct fire on the beach and positive slope in rear thereof, the debarkation of troops from small boats. The fire from "accompanying ships" and other ships close enough to be able to fire direct fire in support of the initial landings and the advance to the line of observation immediately in rear of the beach, should be effective. The effectiveness of the fire from ships in position beyond the range of good visibility ashore, in order to be able to fire on reverse slopes or distant targets, will depend to a great extent upon the efficiency of plane observation. Hence, the need for air superiority and competent observers.

### NORMAL TASKS OF THE ARMY, NAVY AND MARINE CORPS

The normal Army tasks in joint attacks initiated on the sea and directed against shore objectives:

- (a) The deployment into boats used for landing and operated by the Navy.
- (b) The delivery of rifle and machine-gun fire from landing boats except from such machine-guns as are parts of the Naval equipment of the boats.
- (c) The deployment from the landing boats and the gaining of a foothold on shore.
- (d) The organization of a defensive beach-head.
- (e) The organization and conduct of operations to extend the beach-head.
- (f) The conduct of operations beyond the beach-head for the accomplishment of the mission.

The normal Navy tasks in joint attacks initiated on the sea and directed against shore objectives are:

- (1) Naval forces.
  - (a) To provide adequate reconnaissance.
  - (b) To provide the defense against enemy naval forces during landing operations.

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(c) To provide, man, equip and operate the small craft required for landing operations.

(d) To cover the landing by mine sweeping, gunfire, aircraft and screening operations.

(e) To provide signal communications between ships and shore.

(f) To organize and operate the necessary sea lines of communications for forces ashore.

(2) Marine forces.

Marines organized as landing forces perform the same functions as above stated for the Army, and, because of their constant association with naval units, will be given special preparation in the conduct of landing operations.

The distance a maritime force can advance overseas is limited, unless secure Naval bases have been established along the route of advance. The securing of such bases is ordinarily the province of the naval service (Navy and Marine Corps): the subsequent holding of these advance bases becomes a function of the Army, relieving the Marine forces for further operations with the fleet.

### THE ESTIMATE OF THE SITUATION

The problems of the artillery commander, his staff and subordinate commanders will begin with the assignment of their units as part of an overseas expeditionary force. The preparation of plans will be based on an estimate of the situation involving exhaustive studies of enemy strength and resources. It will probably be quite as apparent to the enemy as to ourselves that certain localities present favorable conditions for hostile landing operations, so we must expect that the landing will be prepared for and opposed.

The expeditionary force commander and his artillery commander will make a study of the terrain involved. They will put themselves in the enemy's place and will arrive at certain conclusions as to the defender's dispositions and the probable resistance to be overcome within a particular landing area. Certain tactical localities or important beach areas will clearly indicate where strong defenses are likely to be installed: others where secondary defenses will exist: machine guns and anti-boat

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guns, skillfully concealed and strongly protected, will cover and sweep the approaches to the beach; tactical localities in rear of the beach will be occupied by combat groups to repel or delay the attacker's advance inland from the beach; local reserves will be prepared to eject the attacker in case of a rupture of the beach defense; along the beach will be under-water obstacles, such as wire, mines, etc.,—in fact, the expeditionary force commander and his artillery commander will draw up a complete plan of the enemy's defense measures as they conceive them to exist in the minds of the defenders.

A good deep sea harbor is a primary requisite for a major overseas expedition. On the other hand, it is desirable that the initial landing be made in a locality which is not covered by permanent fortifications, but that if defended at all, the defenses will be limited to the ordinary field fortifications. As good harbors, suitably located for offensive purposes will ordinarily be strongly defended, these conflicting requirements will probably necessitate that initial landings be made to one flank of the selected harbor, with a view to its prompt capture by the landing forces. This means that we can not count on any facilities for landing matériel other than those which we bring with us. If we go prepared to land all artillery matériel on a beach and find unexpected local facilities available, nothing will be lost. On the other hand, if we go prepared to land only light artillery on the beach and the situation develops the need for medium and heavy artillery ashore before the selected harbor can be taken, we will find ourselves in the inexcusable position of having come unprepared.

The expeditionary force commander will be influenced in his selection of landing places by the artillery commander's report to him as the probable effectiveness of the naval supporting ships' gunfire against the various places under consideration: his estimate of the effectiveness of the enemy's artillery fire covering the approaches and landing areas: and his opinion as to the ability of the artillery units to land their matériels with the means available. The landing places ultimately decided upon will be the result of a compromise between the Army and



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Navy commanders. Upon the selection of the landing places will depend the plan of attack.

### EMBARKATION AND VARIOUS STEPS PREPARATORY THERETO

The composition of the expeditionary force, the loading of ships and embarkation of troops, the supply of small boats for landing of troops and supplies; provision for supporting gunfire by the navy; naval air support, etc., will be based upon a definite plan of attack.

The Navy should therefore gather as complete information as possible concerning approaches to selected landing places and the landing places themselves, including terrain inland from the landing places up to the limits of naval supporting gunfire.

From their study of the terrain involved, the expeditionary force commander and the artillery commander will have arrived at certain conclusions as to the enemy's dispositions. The probable defenses will be shown on a large scale map to enable the "grid" system of locating targets to be employed. Based on the expeditionary force commander's scheme of maneuver, the probable location of reserves and his own estimate of the probable location of hostile batteries, the artillery commander will formulate his recommendations for naval gunfire support and the scheme of artillery liaison and communications. Similarly these considerations will enable him to assign missions to his own artillery units for the attack.

A combat team is the basic unit in landing operations and normally consists of an infantry battalion with supporting troops. In view of the difficulty of centralized control in the initial stages of landing, it is considered desirable to attach one battery to each assault battalion; the balance of the divisional artillery to operate as normal tactical units in accordance with the plan of attack. Missions must be assigned to the various artillery units and the necessary attachments to infantry units made early in order to permit the maximum combined training before embarkation and the drawing up of the embarkation schedule in accordance with the plan for employment.

On account of the limited means available for transportation.

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especially in the transports and the limited facilities for the embarkation of troops in small boats and the unloading of matériel together with the great need of a large number of small craft for the transfer of troops and material from ship to shore, the Army must reduce equipment to absolute essentials. Whenever practicable, motor transport should replace animal transport and the motor transport provided should be of the types which can be most easily handled into and out of small boats. Combat efficiency should not, however, be unduly sacrificed to facilitate sea transportation.

In both the Gallipoli and the Mesopotamia campaigns the British seemed to consider their superiority in naval guns as making unnecessary to a great extent the amount of field artillery normally required. As a result, they suffered heavily in the Gallipoli campaign and the progress of the Mesopotamia campaign was seriously hampered through a lack of sufficient artillery support. We must realize that landing against opposition is, in effect, the assault of an organized position.

At this time the artillery commander must give consideration to his matériel and plan for ammunition supply. The new pack howitzer is exceptionally well adapted to the close support of infantry units in landing operations; it is easily broken down into light loads which makes it convenient to carry ashore in almost any small boat. It also satisfies the requirements of artillery landed with assault battalions in that it is easily manhandled once ashore. It has been adopted by the Marine Corps for this purpose.

The Marine Corps has tractorized its pack howitzer battalions and employs cross country trailers that are not only suitable for the supply of ammunition but also for the carrying of other supplies. A light pneumatic tired cart, known as the "Cole Cart," provides a means for laying wire, for transporting ammunition to the guns pending the landing of the trailers with their prime movers and for getting ammunition up to positions close to the line where tractors with trailers would be exposed. Such an organization could be well adapted to light batteries and battalions of assault divisions eliminating heavy caissons for which there will be little use. The 75-mm gun is not handled with the same

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facility, either ashore or in and out of boats, as the pack howitzer; it requires ramps for unloading from small boats and occupies twice as many boat spaces as the pack howitzer.

The suitable counter battery howitzer to be chosen will depend on the size and range of the weapons employed by the enemy. The new 105-mm howitzer has much to be said in its favor as a counter battery weapon for assaulting divisions; it is lighter, more easily handled and has greater mobility than the 155-mm howitzer. On the other hand, the 155-mm howitzer has a greater range and greater effectiveness. Both howitzers would have to be taken ashore on artillery lighters. The terrain over which the operation is to take place and the road net available will influence the artillery commander in the selection of the appropriate weapon. It may be desirable to equip two battalions of the medium regiment with 105-mm howitzers and one battalion with 155-mm howitzers.

It is certain, however, that the need ashore for an effective counter battery weapon, capable of replying to enemy weapons, will be felt early in the operation despite a preponderance of naval gunfire. In this connection, the following quotation from an article by Brigadier General Sir Hugh Simpson Baikie, commander of the British artillery at Helles, is considered enlightening:

"As for heavy artillery, practically speaking, there was none! Only one 6-inch Howitzer Battery (4 howitzers) and one 60-pr. Battery (4 guns) were in action at Helles up to July, when four more guns of the latter caliber were landed. Unfortunately, however, the 60-prs. were of little use, as the recoil was too great for the carriages and the latter broke down beyond repair by our limited resources after very few rounds. At the beginning of August only one 60-pr. gun remained in action. Consequently we had no heavy guns capable of replying to the Turkish heavy guns which enveloped us on three sides, and from whose fire our infantry and artillery suffered severely."

With a peace time determined estimate of the requirements of special artillery equipment for assault infantry divisions no time will be lost in submitting requisitions for same when an emergency arises. By the same token, as soon as the Army determines

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the kind, size and quantity of artillery matériel that assault divisions will require, the Navy can devise the special equipment necessary to handle and land same on the beach.

Estimates of the amounts of ammunition required immediately and from "D" day on, by periods, should be submitted early to assure sufficient time for manufacture and a continuous supply once the operation commences. It will be necessary to arrange for distinctive markings of ammunition, especially ammunition of the same caliber for different types of guns or howitzers, in order to assure the landing of the proper kind of ammunition at the proper place. In the Gallipoli campaign the British suffered from an insufficiency of ammunition and numerous other embarrassments against which extreme precaution must be exercised when so many "unfamiliar hands" handle shipments of ammunition. The following quotations from Gallipoli Diary illustrate some of the experiences at Helles:

". . . . After the big British attacks on the 6th and 7th of August, their ammunition (two batteries of howitzers, manned by Territorials) began to run short. On demand about 500 or 700 rounds were sent up from Murdos; on arrival each shell was found to be only 40 lb. weight, whereas former shells were of 50 lb. weight. Their fuzes were also of new pattern, which existing fuze keys would not fit, and, to crown all, no range tables had been sent for this new pattern of shell. In spite of continual letters and telegrams to the War Office, when I left Helles in September no new pattern fuze keys or range tables had ever arrived from England; consequently these shells remained stacked on the Peninsula while the batteries only fired occasionally for want of ammunition.

"On another occasion, when we were in the greatest straits for 15 pr. ammunition, many hundreds of rounds arrived at Helles, which on being landed were discovered by my staff only to be suitable for the Ehrhardt R.H.A. guns in Egypt, no such guns being in the Dardanelles."

Detailed plans must be worked out so that the forces concerned have every opportunity of landing in tactical order, with guns, ammunition, supplies, etc., as needed, and of gaining their various objectives in the minimum of time. This in turn means

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that in loading transports, material required by the forces on the transports for at least forty-eight hours after landing must be with the troops and that articles must be loaded generally in inverse order of requirements, i. e., last in, first out. Unloading is usually in the following order: first, troops and weapons; second, water; third, ammunition carried by organization trains; fourth, organization trains.

The naval authorities will make their estimate as to the necessary naval forces to provide for the security of the expedition throughout its movement overseas, to support the landing, and provide the necessary destroyers, tenders, tugs, special boats and small boats required for the actual landing of the expeditionary force, in the tactical order desired, and in accordance with the schedule of landing of waves of troops, bearing in mind the fact that many small boats are apt to be destroyed or damaged in the landing.

In order for the Navy to determine on the number and types of ships to form the "support group" for the landing operations, the expeditionary force commander must furnish the naval commander with an estimate of the amount of artillery support required from the Navy to cover the landing. Subordinate artillery commanders will be required to estimate the requirements for their respective zones of action. These requests should then be consolidated by the artillery commander as the requirements for the expeditionary force. With the expeditionary force commander's estimate of the required artillery support as a basis, the naval commander, in his estimate of the situation, will consider the problem of supporting the troops during the landing and will arrive finally at a statement of support which he finds he is able to furnish. The expeditionary force commander then, with the statement of support of the naval commander as a basis, should prepare a tentative draft of his Field Order which will include the allocation of the naval gunfire support to the various units (artillery plan). The tentative Field Order will then be carefully analyzed by the naval commander, if practicable in conference with the expeditionary force commander or his representative, and when concurred in, will be used as the basis for the preparation of a tentative draft of the Naval Operation Order

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covering the operation. The expeditionary force commander should then analyze the tentative draft of the Naval Operation Order and conferences should be held for the purpose of adjusting whatever differences there may be. As a result of these conferences, the final Field Order and Naval Operation Order will be prepared and issued to the forces concerned.

Upon receipt of the Naval Operation Order, the various subordinate naval support group commanders will prepare their individual plans and their recommendations as to the special ammunition and equipment which may be required.

The general scheme of covering fire prepared by the artillery commander for the guidance of the naval support group concerned should include:

- The objectives to be covered;
- The volume and nature of fire required on each objective;
- Time schedule of commencing and lifting fire on assigned objectives; and

The arrangements necessary, including communications, for calling for special fire, or for carrying out such departures from the plan or schedule as may be necessary.

The artillery commander's scheme of fire must be accompanied by the necessary grid maps.

It would be most desirable to provide for an artillery officer as part of the scheme for liaison and communications on each ship of the supporting group. Artillery officers so detailed would probably prove invaluable as observers and advisors to the naval gunnery officers of the ships to which assigned. Present plans contemplate the control of naval gunfire on shore objectives by naval fire control parties attached to supported units. In his account of the expedition into Mesopotamia, Vice-Admiral Nunn makes the following pertinent statements:

"During the bombardments the gunboats cooperated with the artillery, who gave all possible assistance. Brigadier General Gordon, R. A., Major Lynch-Staunton, and Captain McIlwaine of his Staff—and, indeed, all the gunners—did their utmost to help us. Their advice was often sought, and most valuable it proved,—particularly that upon the subject of improvised methods of indirect firing, controlled by telephone to forward observer,

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a procedure which was, of course, comparatively strange to us all . . . ."

Army artillery may be mounted on the ships' decks to assist in supporting the landing. Medium howitzers are particularly valuable for this purpose, as they provide curved fire against troops on shore. Battleships and battle cruisers ordinarily can furnish deck space for one battery on each ship. The assignment of ships to handle army guns of larger caliber than 75-mm must be made well in advance of sailing, as decks may have to be strengthened to sustain firing stresses. The British employed army field pieces on ships and barges throughout the Mesopotamia campaign, in support of shore operations, with great success.

A review of the landing places of expeditionary forces of the past seems to indicate that the landing places of the future will be just plain beaches, with such artificial obstructions as the enemy may be able to arrange. Thus, the artillery commander is confronted with the serious problem of arranging for the landing of his matériel in order to furnish the infantry with the necessary supporting fire as it advances the attack on shore.

Boats at present carried by vessels of war and merchant ships are not suitable for transporting large quantities of army supplies or the heavier army equipment, such as medium field artillery pieces, tanks, motor trucks, etc. Special barges or lighters will have to be provided by the Navy for this purpose prior to embarkation. Barges, beetle boats, etc., are still in an experimental state.

While the Navy furnishes the necessary personnel to operate all barges, beetle boats, etc., the artillery units will have to furnish the personnel to assist in loading artillery matériel and ammunition into boats and be prepared to do all the work incident to unloading same on the beach.

### THE MOVEMENT OVERSEAS

The time involved in the movement overseas should be utilized by all artillery officers in ironing out last minute details, perfecting communication facilities, liaison details and the scheme of liaison and fire control.

### THE LANDING INCLUDING PREPARATIONS THEREFOR

The Navy will appoint a beachmaster for each beach where a

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landing is to be made. He will be assisted by and cooperates with the shore party commander. The beachmaster is a naval officer, and has complete control of the beach and the landing facilities. He locates signal stations for communicating with ships, has the beach marked in order that it may be readily recognized and maintains communications with the Navy.

The shore party commander will be an army officer and will work in cooperation with the beachmaster. The shore party commander takes charge of all troops on the beach and of all facilities pertaining to the clearing of the landings, after the immediate vicinity of the landing point has been cleared of the enemy. He controls labor parties, establishment of dumps, collecting stations and prisoners' cages, supervises all construction required and takes such measures as may be required to prevent undue losses from hostile shell fire. He establishes a message center and marks the route to the front. The establishment of a message and information center is important, as troops are liable to have difficulty in finding the parts of their units which have landed before them or which have landed at a different part of the beach.

The embarkation in boats and barges for the landing will be in accordance with the previously prepared schedule upon which the Navy based its estimate of the number of boats, barges, etc., necessary.

As there will never be sufficient boats and barges available in the early stages of the landing to land artillery in tactical units, the artillery commander in preparing his part of the schedule must view the landing of his units as a displacement by battery from the transport area to the beach. The landing of the artillery should be based upon a definite flow ashore, in proportion to infantry, as for instance: a light battery per battalion of infantry and a medium battery for each light artillery battalion, bearing in mind that the boats and barges available to land the artillery matériel will also be required for landing tanks and other heavy matériel. The Navy will furnish the information as to the capacities of the equipment furnished.

The time required to load boats and barges from the transport and unload on the beach should be determined by tests and fifty



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per cent added to the time thus determined to allow for the unforeseen delays that arise under actual service conditions.

As outlined previously, certain definite phases in the operations are to be expected, each being marked by attacks with limited objectives:

First Phase: The seizure of the beaches and the line of observation directly in rear of the beaches, to permit the attached artillery to land and get into action, followed by an attack to obtain the defensive beach-head line which should secure the beaches from enemy light artillery fire.

Second Phase: The organization and conduct of operations to extend the beach-head and secure the beaches from enemy medium artillery fire.

Third Phase: The conduct of operations beyond the beach-head for the accomplishment of the mission for which the operations were undertaken.

Liaison details should accompany the infantry units ashore prepared to call for fire direct from supporting ships, pending the arrival ashore of their respective artillery units. Reconnaissance details should go ashore early and commanders should establish their command posts ashore early in the operation.

At each command post ashore having control over naval supporting elements, artillery and aviation liaison sections should be so organized that messages between the troops ashore and the naval supporting elements can be transmitted in the terms and manner to which each is accustomed. The personnel of these sections should be designated and trained to work together before the expedition is embarked.

Present plans provide that the beachmaster organize, maintain and control all communication with the Navy, with artillery and Army Air Corps liaison personnel attached to the beachmaster's communication center. The Navy is definitely charged with the establishment and maintenance of necessary signal communications facilities for both Army and Navy needs between ships and the communication center ashore, while the Army prolongs the axis of signal communications inland as the attack progresses.

While the above plan may satisfy the needs for tactical control communications, it should not be depended upon as the primary

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means of fire control communications and would be an unnecessary relay in the communication link if artillery liaison officers are provided for each supporting ship. The need for direct communication between the supported unit and individual supporting ships for fire control purposes is illustrated well by the following quotation relative to the Gallipoli campaign:

"An extract from the log of H. M. S. *Euryalus* (flag of Admiral Wemyss) on April 27th:

- 8:55 a.m. Shore station to *Euryalus*.  
Open fire on 168.K.2.
- 9:16 a.m. *Euryalus* to *Swiftsure*.  
Can you open fire on 168.K.2 or shall *Euryalus*?
- 9:40 a.m. *Euryalus* to *Swiftsure*.  
Aeroplane has been sent for to spot on 168.K.2.
- 9:55 a.m. Admiral Wemyss on *Euryalus* to Admiral Nicholson on *Swiftsure*.  
If you require an aeroplane for observing your fire on 168.K.2 will you communicate with the aerodrome at Tenedos?
- 10:00 a.m. Adm. Nicholson to Adm. Wemyss.  
Request that *Euryalus* fire on 168.K.2, as we are firing on another important target.
- 10:05 a.m. *Implacable* to *Euryalus*.  
Borders report enemy advancing in large numbers on 168.K.2.
- 10:15 a.m. Adm. Nicholson to Adm. Wemyss.  
Your 0955 I have already got an aeroplane spotting on 169. Our range is not quite clear for 168.K.2.
- 10:20 a.m. Vice Admiral CinC. to all ships.  
Open fire on 168.K.2.
- 10:28 a.m. 87th Brigade at 'X' beach to *Euryalus*.  
Enemy reported advancing down valley in 168.K.2.  
They never did fire on 168.K.2."

### THE ATTACK

The support during the movement from ship to shore and the advance to seize the terrain immediately in rear of the beaches must be furnished by rifle, machine gun and naval one pounder fire from the boats as they approach the beach; by concentrations laid down on the beaches prior to landing followed by fire on successive concentrations and counterbattery fire from ships and aircraft.

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The initial attack from the line immediately in rear of the beaches may take place before the attached artillery gets into action, with the additional support of infantry weapons. However, in the face of determined resistance it is not probable that any appreciable progress will be made pending the entry into action of the attached artillery. The degree and rate of progress from then on will depend to a large extent on the volume and effectiveness of fire support rendered by the artillery ashore, allowing the naval guns to engage the more distant targets. All the divisional artillery will be needed ashore to gain the beach-head.

The following quotation pertaining to the 3d Australian Field Artillery Brigade at Anzac illustrates well the risks that must be taken:

"Guns were placed absolutely in the infantry front trenches, on the sky line, no troops of any kind being in advance of them. It would have been quite useless to take up positions behind the infantry line in the normal way, owing to the configuration of the ground, for in such cases the lowest range at which the crest would be cleared was 3,000 yards, while our targets were from 500 to 1,000 yards distant. Indeed at night, shrapnel shell with fuze set at zero was frequently used. . . .

"The supply of ammunition was very difficult. It had to be delivered by hand to the guns over a bullet swept area, the distance from the beach to the guns being about half a mile, while in this distance the hills rose 400 feet."

General Hamilton indicates the necessity of the infantry obtaining a sufficient foothold ashore immediately, in order to get the artillery ashore at the earliest practicable moment, in the following remarks:

"Normally it may be correct to say that in modern warfare infantry cannot be expected to advance without artillery preparation. But in landing on a hostile shore the order has to be inverted. The infantry must advance and seize a suitable position to cover the landing and to provide artillery positions for the main thrust. The very existence of the force, its water supply, its facilities for munitions and supplies, its power to reinforce, must absolutely depend on the infantry being able instantly to

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make good sufficient ground without the aid of artillery other than can be supplied for the purpose by floating batteries. This is not a condition that should take the commander of the covering force by surprise. It is one already foreseen."

During the period when the Navy is furnishing the air forces, the Army must be prepared to furnish skilled observers in order that the type of information desired may be obtained and nonessentials eliminated. The artillery commander will probably be called upon to furnish observers for the control and adjustment of fires on shore objectives.

The failure to make provisions for trained observers was felt by the British at Gallipoli and is stressed by General Hamilton in the following quotation:

". . . There were not sufficient pilots and there were no observers at all. Brave and efficient as the naval pilots were, they could not be expected to be of any use as artillery spotters unless they had been thoroughly trained for this important duty. This deficiency had to be made good at all costs by drafting young artillery subalterns from their batteries and sending them to the Air Force, where their lack of training and experience in operation was at first severely felt, although later these lads did magnificent work. . . ."

### DEFENSE

The necessary anti-aircraft guns and machine guns for defense against enemy aircraft, and the necessary heavy artillery for the protection of mine fields and long range fire against enemy ships, should be included in the Artillery Commander's estimate of the artillery matériel required for defense purposes.

### WITHDRAWAL

The withdrawal of troops and the evacuation of positions on shore may be required by strategical considerations or may be necessary by reason of unsuccessful tactical operations.

When the situation permits, plans will usually provide for evacuation in the following order: animals, supplies, artillery matériel, troops. However, when in close contact with a superior enemy, it may be necessary to establish the following priorities for evacuation: troops, artillery, supplies, animals, in which case provision should be made for the destruction of such artillery

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equipment, supplies and animals as cannot be evacuated.

Commenting on the British withdrawal from the Gallipoli Peninsula, General Liman Von Sanders, commanding the opposing enemy forces, pays the highest tribute to the British strategy in the following quotations from his account of the Dardanelles Campaign:

". . . . The troops (Turkish) of the Anafarta group, in their easier terrain, fell on whole nests of ground mines, causing many losses. In various places near shore, it even came to short fights with the rearmost enemy, as occurred with the 126th Turkish Infantry. But even here, the enemy embarked with hardly mentionable losses. The withdrawal was prepared with extraordinary care and skillfully executed."

To accomplish this feat the British sacrificed large quantities of stores, ammunition and a large number of guns to maintain a "normal front" to the last. Hundreds of animals had to be killed, but nevertheless the normal quantities of supplies and ammunition and the normal replacements of men and animals were landed daily, after the evacuation was commenced, to obtain the element of surprise and to escape from a superior enemy with a minimum of losses.

### CONCLUSIONS

From a consideration of the foregoing it is believed that the establishment of the following basic principles to govern the role of the artillery in landing operations are justified:

1. That the Field Artillery should, in peace time, determine the types of matériel it would employ in the event of a landing operation, in order that the Navy may also, in peace time, develop suitable small craft for landing such matériel on a beach.

2. That light trucks or tractors should replace horses as prime movers for light artillery.

3. That the ammunition carrying vehicles for the artillery of assault divisions should be of a type suitable for the hauling of other supplies as well.

4. That one light battery (preferably pack howitzers) should be attached to each assault infantry battalion for the initial stages of the landings. Artillery so attached should revert to artillery

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battalion control as soon as the situation ashore permits of more centralized control.

5. That the time schedule for landing the remainder of the divisional artillery should contemplate a constant flow of batteries and ammunition ashore in a definite proportion to infantry.

6. That the arrangements of the details for naval gunfire to support the landings, with naval commanders, is the function of artillery commanders in their capacity as technical advisors to infantry commanders.

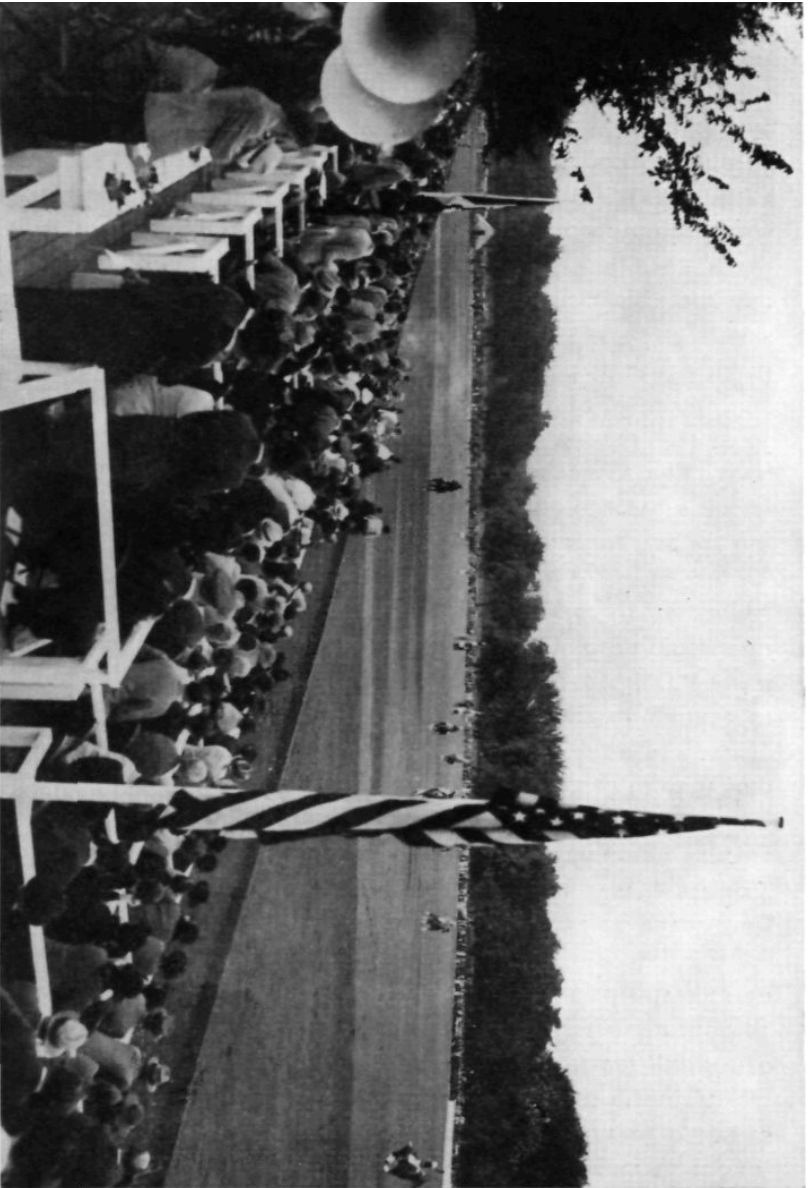
7. That while the responsibility for the control of naval gunfire in support of the landings rests with the Navy, artillery commanders are responsible for obtaining the maximum support from such fires.

8. That artillery liaison officers should be attached to each ship in the support group.

9. That communications for the control of naval gunfire in support of the landings should be direct from artillery liaison officers with supported units ashore to artillery liaison officers on supporting ships and not through the beachmaster's communication center as contemplated at present.

10. That during the period the Navy is furnishing the air observation the Field Artillery should furnish the observers necessary for the control and direction of fires on shore objectives.

11. That there should be no reduction in the normal amount of divisional artillery regardless of the preponderance of naval guns to be available. The artillery commander should treat the naval gunfire to be available as reënforcing fire insofar as it affects his determination of the amount of artillery necessary for the contemplated operations. While entirely dependent upon naval gunfire to cover the initial landings, once the expedition is established ashore the demands upon the Navy for reinforcing fires should not be such as to unnecessarily curtail the movements of a large number of ships: nor should the lack of ready available field artillery hamper the expedition in extending its operations beyond the effective range of naval gunfire support, if the mission of the expedition should so require.



A BIT OF ACTION, INTERNATIONAL POLO MATCHES, WASHINGTON, D. C.

# THE SPIRIT OF THE OLD AND THE NEW FIELD ARTILLERY

BY THE LATE MAJOR GENERAL HARRY G. BISHOP

(Editor's note: This is the first chapter of a book entitled "THE KING OF BATTLES"—an outline of modern Field Artillery by the late Major General Harry G. Bishop which is to be published by the Houghton Mifflin Company early in 1935.)

THE development of Field Artillery commenced in a serious way in the second half of the Fourteenth Century. One of the principal reasons for this development being its ability to batter down the castle walls of recalcitrant feudal barons, and, in the course of a century or so, it resolved itself into four classes—namely, field, siege, position and coast. At the present time, the generally accepted divisions are light, medium, heavy field artillery, coast or position artillery and antiaircraft artillery.

From the very beginning of its existence, even in the days of the catapult and ballista, artillery was a thing apart from the army. When the true combat troops of early days, archers, bowmen, spearmen, knights and musketeers, ran up against stone walls and castles, they stood aside while the machines of the artillery were brought up to laboriously hammer a breach. Thus, field artillery naturally came into its normal and predominant role—the support of infantry. But, unfortunately, at the same time, it unconsciously acquired a doctrine of standing by until summoned, whereupon it proceeded about its business without much regard to the other troops and then stood aside when its work was done—having little or nothing to do with its brothers-in-arms.

Up to Napoleons time, the field artillery was regarded as a species of skilled mechanics, rather than a soldiery. In fact, the furnishing and handling of artillery was allotted to civilian contractors, who produced the required matériel and hired the men to operate it. Napoleon, that master of battlefields, was the first to make the field artillery a real part of the military establishment.

Some of the European traditions that have come over to us are most interesting and curious.

It was part of the privilege granted by Frederick the Great to the artilleryman that his monthly pay was reckoned anew from the day when a fortress was captured or siege repelled. No provost-marshal



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had the right to judge him; that was the prerogative only of his own superiors. His wife and child stayed with him, not with the general baggage train. When food was distributed, he did not have to stand in line with the other soldiers, but need only raise his fire stick to be served immediately. He did not need to plunder, since by right all the churchbells of captured cities and all captured artillery belonged to him and must be purchased from him by his field-marshal with money. When a foot soldier, chased by the military police, could gain the artillery train and lay his hand on a gun, his pursuers could not touch him and this right of asylum lasted three days.

The Austrian army commenced paying more and more attention to sapping and mining methods of warfare and its rawly trained gunners grew less and less able to hit their targets. The honor and reputation of the gunner in the Austrian army, after all, depended on the success of his aim and often this was also true of his life. To correct this, he was eventually allowed only three ranging shots, even though the cannon were of a make unknown to him. The fourth shot must hit the target, and no joke. "Hit it, you beast, or I will hang you," cried Wallenstein to an artilleryman at the siege of Stralsund. Archduke Ferdinand hanged a gunner at the siege of Regensburg in 1634 because he twice missed his aim.

It was hardly to be wondered at in such circumstances that experienced artillerists could work wonders with their crude pieces. At the investment of Prague, one of them shot at a distance of 400 paces the "ears" from which the alarm bell of the fortress was suspended and thus prevented the news of the attack from being heralded. At the siege of Ostend, another Imperial gunner cut the anchor chain of an enemy ship.

Quoting Hohenlohe, "The little they (the artillery) had to learn more than other soldiers, in order to discharge the duties of their profession, was exaggerated by them into a great science which, being surrounded by a veil of impenetrable mystery, kept soldiers of the other arms at a distance, as its substance appeared more wearisome by the diffuseness of its treatment. I need only refer to the chapter 'on the art of making paper and paste' with which,

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at that time, every manual of artillery began, or to the books of geography, history and the higher mathematics which formerly formed part of the equipment of the limber of every field gun. The gunner of those days took pleasure in a mask of learning under a veil of mystery, which, though it estranged the other arms from the artillery, yet caused them to entertain a certain respect for it on account of its unknown erudition."

When one surveys the large number of bulky official publications that provide the mental menu of the present day field artilleryman, it is apparent that Hohenlohe's criticism is still applicable.

Common sense, hammered home by battlefield failures, eventually prevailed abroad as well as in the United States, and there arose a feeling that success in war could be secured only by proper coöperation and teamwork, social as well as tactical. As a result of this feeling, a tendency within the field artillery to draw closer to the other arms grew more general.

But traditions are difficult to overcome in every walk of life, and particularly so in military life, where conservatism reigns supreme. Regulations are most difficult to abrogate or change, and for a long time many stumbling blocks to field artillery progress remained entrenched in the drill books. For example—in the Prussian artillery, among other absurd regulations of long standing, was one known as the "promise of secrecy." By this regulation, every officer of Prussian artillery was strictly forbidden to betray any of the "secrets" of the artillery beyond his regiment. As everything that he learned was usually branded as a "secret," he was effectually prevented from conversing about the artillery with officers of other arms.

Another absurd regulation, worse than the one just quoted, was to the effect that every artillery officer was personally responsible for artillery used in battle and maneuvers. If the artillery officer received an order that he judged incorrect or ill-advised, he was personally responsible for its effect, unless he protested and was relieved from this responsibility only in case he was overruled. As Hohenlohe goes on to say: "In consequence of this principle, indiscipline, insubordination, the spirit of contradiction, and the art of making difficulties were skillfully taught the young officer."

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This regulation, coupled with the one imposing secrecy, which prevented the artilleryman ever talking about his arm, resulted in a general spirit among the other branches of the service to let the artilleryman alone with his technicalities and his secrets.

Thus, in spite of the fact that the field artillery is the least self-sustaining of all the combat arms and incapable of producing decisive results by its own activities, it continued to hold itself aloof from the other arms. There was hesitancy in giving artillery any orders, or a disregard of its capabilities when orders were given. Its commanders were rarely consulted and, as a result, the other arms were thus deprived of the full measure of artillery assistance.

The Civil War found our field artillery in this condition, and the war was fought almost to the end without appreciable improvement in field artillery doctrines and organization. The individual batteries were skillful and resourceful and the guns were often fought to the point of annihilation of their personnel, but their full power was never realized, due to an almost total absence of high rank leadership, coöperation within the artillery itself, and coöperation with the troops it supported.

Two years after the war began, we find the Union Army in a decisive battle of the war—Gettysburg—with 67 batteries comprising 372 guns, 8,000 men and 7,000 horses on the field in action with only two general officers and four field officers to coördinate and direct its energies.

In the general decadence of the Army that followed the Civil War, the war lessons were quickly forgotten. The artillery consisted of five regiments with only two field batteries per regiment, the remainder being coast artillery.

The light batteries rarely served with their regiments—being scattered in remote posts where the light battery commander, jealously guarding the age old prerogative of exemption from post guard and fatigue duty and successfully resisting all attempts of post commanders and other superior leaders to engage his battery in exercise with other troops, set up a little kingdom of his own with his officers and his men as his loyal retainers, his stables and parking area as his castle, and his battery carriages and equipment

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as the royal exchequer. No wheel ever turned in those days, come hell, high-water, or commanding generals, except "by order of the Captain."

This static condition was far from acceptable to many officers of clear vision. A general renaissance of the artillery, commencing with the Endicott Board in 1893, resulted shortly after the Spanish-American War in a rearmament of the field artillery with the long recoil gun, in experiments with various forms of battalion and regimental organization, commencing in 1903 and finally with the separation of the coast artillery and the field artillery in 1907 and its reorganization into permanent battalions and regiments.

In the ten years that followed this separation, the field artillery made enormous strides in perfecting its organization, its technique and its tactics and in acquiring that close social union with the infantry and cavalry that was so insistently urged by Hohenlohe.

Our field artillery entered the World War with a strong sense of its mission—not only to support, but to live and die with its infantry. The methods for accomplishing this mission were crude in the beginning, but the stern necessities of the battlefield brought better methods into existence and the arm can no longer be criticized for absence of the proper doctrines and principles, nor for lack of methods to carry these doctrines and principles into effect. There is no abatement in its enthusiastic efforts to improve.

Modern field artillery was given a most searching tryout in the World War. The matériel and methods, now in use in our service and the matériel projected, are the results of this test. But, while the experience of our field artillery in France resulted in numerous improvements in matériel and methods, there was, unfortunately, one far-reaching and important exception and that was the development of the fetish of precision.

It will be shown later on that artillery fire may be based on *precise calculation* and *observation*, which require instruments of precision and relatively much time, or it may be based upon *rough and ready preparation* and *observation*, requiring little or no instrumentation—a method more speedy and generally just as efficient if more ammunition is used.

During the war, the stabilization of the Western Front forced

both opponents into trench positions. The field artillery became largely immobilized and it was thus able to acquire and use apparatus and to conduct its fire with a precision not possible in moving warfare. The immobility of the Allied artillery, born of this period of stagnation, degenerated during the general lethargy of trench warfare into the fetish of precision and, just as their infantry laid aside the rifle and bayonet for the grenade, machine gun and mortar and settled down to a meticulous calculation of each next move, so the Allied artillery instructors, assigned to our field artillery, inoculated our service with methods of fire based on painful precision. The immediate effect was disastrous to the American doctrine of war, as it impaired aggressiveness, injured flexibility of fire and of movement and made officers too dependent upon accessories impossible to carry in moving warfare. It required the combined efforts of General Pershing and our senior field artillery officers to check this fetish of precision and restore the arm to its proper combat principles.

Unfortunately, precision methods have been carried over into our drill regulations in too much detail. Their very nature requires elaborate and diffuse treatment, and beginners in field artillery are likely to get a false impression of their relative value by the space they occupy in the regulations. Unfortunately, the field artilleryman must learn and practice these methods in order to use them when the proper opportunity occurs.

Mobility of transport, flexibility, and speed in the delivery of effective fire are ever our most important goals. Nor must we ever follow the will-o'-the-wisp of mechanically directed fire. The basic tools of the field artilleryman are his guns, his transport, and his five senses. His wire lines may be cut, his horses foundered, his motors dead, his field glasses lost, his gun sights missing, but he still has his voice for communication, his eyes for estimating angles and ranges, his fingers for laying off an elevation and, as long as he has a gun and ammunition, his fire must never cease.

The unsurpassed record of our field artillery since its rebirth in 1907, including also the many years when it existed only as individual light batteries, is, to my mind, almost wholly a reflection

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of the insistence of this arm on the preservation of great comparative mobility, rapidity in the delivery of fire and the avoidance of mechanical accessories. It has consistently and unconditionally rejected heavy and cumbersome equipment whatever necessity was alleged for it. It has clung tenaciously to the principle that, whatever mechanical devices might be adopted to improve the accuracy of its fire, the physical dexterity and the brains of its gunners, its section chiefs and its battery commanders are the foundations of its fire efficiency and its ultimate dependable resort.

The field artillery matériel of the leading armies of the world, its organization and tactics, are very similar. What is learned about the Field Artillery of the United States Army is applicable to that of most foreign services, and this knowledge not only may be the means of minimizing losses in our troops, but is certain to contribute to battlefield success.

The interdependence of the three combatant arms—infantry, cavalry, and field artillery—render a knowledge of the powers, limitations, and tactics of field artillery essential to the infantryman or cavalryman in the application of his own tactics.

It is not necessary that every infantryman or cavalryman attempt to be an artillerist, but he must have some knowledge of artillery to enable him to dispose and move his own troops, so as to secure the maximum advantage from his field artillery and to avoid errors so ludicrous at maneuvers, but full of disastrous consequence in war.

The important observational facilities of aircraft, as a means for increasing the powers of field artillery, require a most intimate coöperation on the part of both the air corps and field artillery and are most cogent reasons for permanent allotment of a proper proportion of aircraft to the field artillery as a means of transport for field artillery officers in the battlefield employment of their arm.

## THE BATTERY COMMANDER

*The thunderbolts of Jove I hold,  
On Mars' swept hill I stand—  
The distant field, the plain, the wold—  
I harry all the land!*

*My gun crews leap—there comes a flare  
Of yellow flame—a boom—  
Four screaming missiles ride the air  
Like harpies shrieking doom!*

*A wait—four puffs of snowy white  
Now bloom o'er hostile plain!  
With shrapnel balls their lines I smite  
In leaden hurricane.*

*Far off below the doughboys creep—  
No earthbound God am I—  
With league long strides, my four guns sweep  
Where stubborn foemen lie.*

*A flash of steel on distant height!  
Our bayonets arrive!  
And close behind my sheaf's dread might,  
They make their final drive.*

*I lift my fires—the trench is won!  
I scourge the fleeing drove;  
With dire H. E. I crash and stun—  
Death Thunderbolts of Jove!*

—H. C. JACKSON,

*Colonel, Field Artillery Reserve.*

# SHOULD WE DISCARD AIMING POINTS FOR RAPID PREPARATION OF FIRE?

BY MAJOR SHERMAN L. KISER, Field Artillery

THERE has been considerable controversy regarding the methods used for rapid preparation of fire by our field artillery.

Many officers feel that there are too many methods, that they are too complicated, require too great a knowledge of higher mathematics and too much time for proper instruction.

It is true that we have many systems, but they are not greatly different. For instance we have the simple lining-in method. In this case two men either from a forward or reverse slope line the directing piece on the target. This method is of course so simple that it is learned in a few moments and never forgotten.

Then we have another, we might say, group of methods. "The offset methods." This group contains, the Aiming Point, the Compass and the Shadow line. In the aiming point method there are two offsets, the aiming point and the target, while in the remaining two, only the target is figured.

There is really very little difference in these. In fact they are all aiming point methods. The difference being that in the last two mentioned the aiming point is magnetic north, the sun or moon at an infinite distance away, which causes this offset to be negligible. It matters little whether we aim at a tree, a church steeple, a tower, the sun, moon, stars, or magnetic north the process is very much the same.

It is essential to understand the aiming point method thoroughly first as it is the basis for all offset computations. If we neglect training in the aiming point method we are simply making all others more difficult to teach.

There are situations where the compass is most practical and would probably save time. In other cases the aiming point method will be ideal and insure greater speed and accuracy, again the shadow line or the line-in system will be useful. A well-trained field artilleryman should be expert in all of them.

The great cry is that it takes too much time. That National Guard and Reserve Officers will never be able to become proficient



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in all of these methods and still have time for other necessary training.

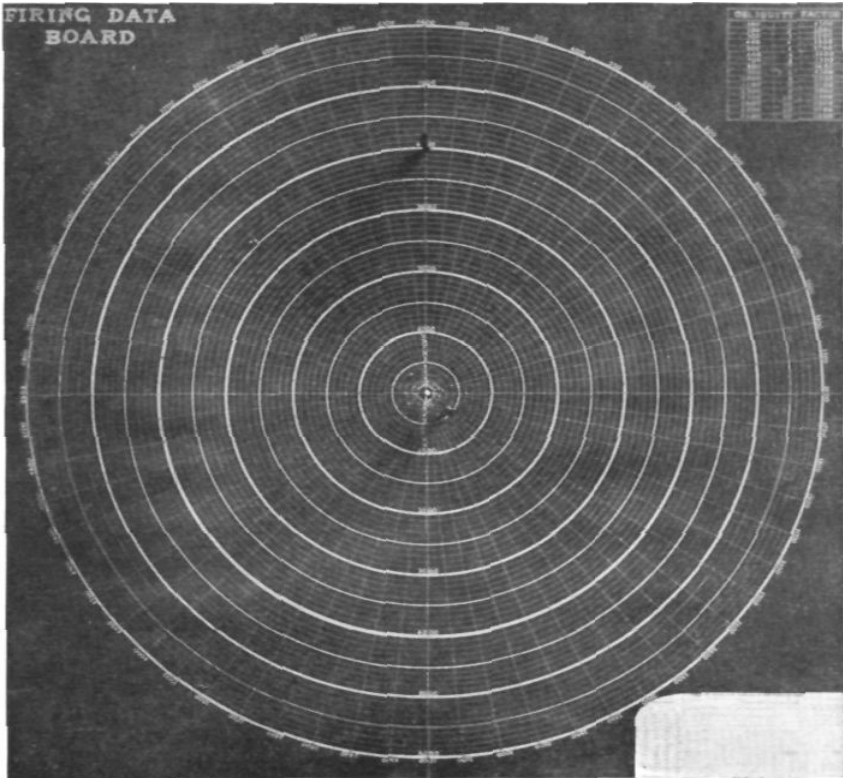
The answer to this statement is, that the time required for proper training depends on how well the training is organized and what means have been improvised to simplify instruction.

Brilliant mathematicians may explain the theory of Rapid Preparation of Fire for hours and days and yet the student may not be able to compute data.

In fact it is not necessary to teach the students the theory. It is not necessary that we have knowledge of either geometry or trigonometry. The essential thing in teaching firing data is to have the student work many problems and then when he has become proficient have him continue to work at least one each week until the process becomes automatic.

In order to accomplish this instruction with the least effort and

Figure 1.



AIMING POINTS FOR RAPID PREPARATION OF FIRE

**SAMPLE Problem**  
**COMPUTATION OF FIRING DATA**  
**CLASS ROOM FIRING DATA BOARD**

**Problem to be Solved and Returned to Instructor by** ..... **193**.....

Target (Red Peg) at 4000 yards on the 0-6400 mil line

Guns (Blue Peg) at 400 yards on the 2300 mil line

Aiming point at 5100 yards on the 3600 mil line

Site to Target from O. P. + 10 mils

Site to Guns from O. P. -40 mils

O. P. always at center of board.

~~Shell, Shrapnel—Fuso, Long Short—Charge, Normal Reduced.~~

Declination Constant..... mils

Distance to covering crest from Guns 300 yards

Site to covering crest from Guns + 20 mils

Name	Deflection Compass Plateau	Drum	D. D. for Parallel Fire	Site	Min. Range
Captain X					
Lt. A					
Lt. B					
Lt. C					
Inst. Sgt.					
Correct answer	6	60	Close 3	+ 14	1350

TR 430-85

Deflection, pars. 52 and 53. Compass, par. 53 i. Deflection difference, par. 54. Site, par. 55. Minimum range par. 60.

S.L.K.

Major-Captain 1st Lieut., F. A.  
 Instructor

Figure 2.

in the least practicable time, a Classroom Firing Data Board has been designed. See Figure 1.

It will be noted at a glance that the use of this board facilitates the assignment of problems, since all that is necessary is to change the position of one or more pins to set up an entirely new problem.

By use of a blank form the assignment of problems to officers and units at stations other than that of the instructor is simplified. See Figure 2.

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The board furnishes a permanent diagram for the explanation of all problems that are set up. It supplies a simple method of explaining the use of the obliquity factor in all quadrants at the same time. It gives a practical diagram to show the reason for the sign of the offset in any possible arrangement with reference to the guns and aiming point. It furnishes a method for easily and quickly staking out a problem according to scale and containing all of the elements of firing data, which might be figured with any of the instruments issued to the Field Artillery. It will cause all students to learn a uniform system of computing data and thereby simplify instructions within the organization. It gives to classroom students a method that is practicable and identical to field use, so that they can go from classroom to field operations and figure problems with the same speed, confidence and accuracy.

National Guard and Reserve instructors, by the installation of these Classroom Firing Data Boards in each of their units and stations can by sending out weekly problems keep all officers and instrument men constantly proficient in all methods of rapid preparation of data. After the system is established it will require approximately five minutes each week on the part of the students. This amount of time can not be considered too great a sacrifice.

There is a certain percentage of officers who invariably select the wrong obliquity factor, take the offset in the wrong direction

Figure 3.

OFFSET TABLE FOR COMPUTING FIRING ANGLE

TABLE COMPUTED ASSUMING A DISTANCE OF 100 YARDS FROM OBSERVATION POST TO GUNS (DIRECTING PIECE.)

ANGLE IN MILS T. O. G. or G. O. F.				DISTANCE FROM OBSERVATION POST TO TARGET OR AIMING POINT																			
Feet		Meters		100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
1800	1600	4800	4800	200	100	67	50	40	33	29	25	22	20	18	17	15	14	13	12	11	11	10	9
1500	1700	4700	4800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1400	1800	4600	5000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1300	1900	4500	5100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1200	2000	4400	5200	180	90	60	45	36	30	26	23	20	18	16	15	14	13	12	11	11	10	9	9
1100	2100	4300	5300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1000	2200	4200	5400	160	80	53	40	32	27	23	20	18	16	15	13	12	11	11	10	9	9	8	8
900	2300	4100	5500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
800	2400	4000	5600	140	70	47	35	28	23	20	18	16	14	13	12	11	10	9	9	8	8	7	7
700	2500	3900	5700	120	60	40	30	24	20	17	15	13	12	11	10	9	9	8	7	7	6	6	6
600	2600	3800	5800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
500	2700	3700	5900	100	50	33	25	20	17	14	13	11	10	9	8	8	7	7	6	6	6	5	5
400	2800	3600	6000	80	40	27	20	16	13	11	10	9	8	7	7	6	6	5	5	4	4	4	4
300	2900	3500	6100	60	30	20	15	12	10	9	8	7	6	5	5	4	4	4	4	3	3	3	3
200	3000	3400	6200	40	20	13	10	8	7	6	5	4	4	3	3	3	3	3	3	2	2	2	2
100	3100	3300	6300	20	10	7	5	4	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1
0	3200	3200	6400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes:— For TARGET OFFSET use angle (T. O. G.) measured at O. P. clockwise from Target to guns (Directing Piece).  
 † For AIMING POINT OFFSET use angle (G. O. F.) measured at O. P. clockwise from Guns (Directing Piece) to Aiming Point.  
 ‡ Take reading from table for each offset using sign as indicated above the angle and multiply by one, one hundredth of the distance from the O. P. to the Guns (Directing Piece).  
 Compiled by Major BENJAMIN L. KAZZ, F. A. Instructor 6023 F. A. Brigade, Kansas National Guard, January 8, 1932.  
 14-3028 Approved: M. B. McLELLAN, The Adjutant General

AIMING POINTS FOR RAPID PREPARATION OF FIRE

or open for parallel fire when they should close. For this small group I would suggest that Offset and Deflection Difference Tables be compiled as those shown in Figures 3 and 4.

These tables are self-explanatory. They should be pasted in the Firing Tables so as to be always available when an officer is firing.

If he should completely forget how to compute his offsets he may refresh his memory by reading three short notes at the bottom of the offset table. These tables are simply a means of computing a part of your data before going to the firing point.

In computing the deflection difference table it is assumed that the guns are placed on line at equal intervals of twenty yards. In case the guns are staggered or are placed at unequal intervals they should be laid parallel by the executive.

Blue prints, for construction of Classroom Firing Data Boards, can be procured from the Book Department at the Field Artillery School.

Many National Guard units are using this means of teaching rapid preparation of firing data to their officers and instrument men with remarkable success. The weekly problems are received with interest and the time spent on them is negligible. Their efficiency in this very essential subject is continuous throughout the year.

If this instruction is well organized, officers and instrument men will find time to become proficient in all the present methods of computing data and will no doubt find many new useful ones.

Figure 4.

TABLE OF DEFLECTION DIFFERENCE FOR PARALLEL FIRE

FIRING ANGLE			DISTANCE FROM GUNS TO AIMING POINT																				
Over	Cross		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	
0	6400	3200	3200	40.0	30.0	13.2	10.0	8.0	6.7	5.7	5.0	4.4	4.0	3.6	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0
100	6300	3200	3100	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
200	6200	3400	3000	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
300	6100	3500	2900	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
400	6000	3600	2800	36.0	18.0	12.0	9.0	7.2	6.0	5.1	4.5	4.0	3.6	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8
500	5900	3700	2700	36.0	18.0	12.0	9.0	7.2	6.0	5.1	4.5	4.0	3.6	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8
600	5800	3800	2600	32.0	16.0	10.7	8.0	6.4	5.3	4.6	4.0	3.6	3.2	2.9	2.7	2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6
700	5700	3900	2500	32.0	16.0	10.7	8.0	6.4	5.3	4.6	4.0	3.6	3.2	2.9	2.7	2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6
800	5600	4000	2400	28.0	14.0	9.3	7.0	5.6	4.7	4.0	3.5	3.0	2.8	2.5	2.3	2.2	2.0	1.9	1.8	1.6	1.6	1.5	1.4
900	5500	4100	2300	24.0	12.0	8.0	6.0	4.8	4.0	3.4	3.0	2.7	2.4	2.2	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2
1000	5400	4200	2200	24.0	12.0	8.0	6.0	4.8	4.0	3.4	3.0	2.7	2.4	2.2	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2
1100	5300	4300	2100	20.0	10.0	6.7	5.0	4.0	3.3	2.9	2.5	2.2	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.1	1.1	1.0
1200	5200	4400	2000	16.0	8.0	5.3	4.0	3.2	2.7	2.3	2.0	1.8	1.6	1.5	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8
1300	5100	4500	1900	12.0	6.0	4.0	3.0	2.4	2.0	1.7	1.5	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6
1400	5000	4600	1800	8.0	4.0	2.7	2.0	1.6	1.3	1.1	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4
1500	4900	4700	1700	4.0	2.0	1.3	1.0	0.8	0.7	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
1600	4800	4800	1600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Compiled by Major BENJAMIN L. KENNEDY, F. A. for use of the 60th Field Artillery Brigade, Kansas National Guard, Dec. 10, 1931.



# THE BATTLE OF BUZANCY

BY COLONEL CONRAD H. LANZA, Field Artillery

## I

### PLANS AND PREPARATION

ON October 16, 1918, General Pershing having relinquished the command of the First Army to General Hunter Liggett, sent him a letter stating:

"The mission of the First Army, A. E. F., is . . .

(1) West of the Meuse.

This attack west of the Meuse will be made with the object of driving the enemy on this front to the east and on to the Meuse. The operation will be executed by pressure on the hostile right, while attacking the hostile left in liaison with the 4th French Army. The object of the operation will be to clear the Argonne Forest in conjunction with the 4th French Army, gaining the vicinity of Le Chesne and flanking the enemy's defenses on the Aire River.

(2) East of the Meuse.

The attack east of the Meuse will be continued with the object of gaining the heights between Damvillers and Dun-sur-Meuse."

This letter repeated instructions of General Petain issued on October 11, except that Le Chesne had been substituted for Buzancy. No date was fixed for the new attack. Pending advice as to this the First Army proceeded with some minor operations.

The I Corps was ordered to advance its lines to include Grand-Pré and the Bois des Loges. Grand-Pré was held in part, but the enemy fought here tenaciously; by the 21st most of the town was in American possession, but not until the end of the month was this place securely in our hands. Repeated attempts were made to capture the Bois des Loges. The south edge of the woods was many times neutralized with gas and shell fire. The wood was visible from many OPs and there was no doubt that the artillery fire was correctly adjusted. Nevertheless, every attack broke down under terrific artillery and machine gun fire and we were not able to secure a foothold near the woods. During the latter part of October the III Corps gradually advanced its front to include the Bois de Rappes and the Bois des Clairs Chènes, while the V Corps secured the Bois de Bantheville.

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The right boundary of the III Corps was the Meuse River, but the left boundary of the French XVII Corps ran at nearly right angles to this from south of Brioules. In the angle between these Corps the enemy had batteries which fired west over the Meuse or south parallel to the river, enfilading respectively the III and French XVII Corps. As the territory in which this annoying lot of batteries was located was not in the zone of action of either corps, the Army undertook to neutralize this hostile force. A French battalion of 75s was detailed for this mission and furnished 5,000 rounds of persistent gas per day per battery with which to do it.

The French battalion had no information as to the location of the enemy batteries, as they had neither been seen from the OPs nor noted in air photographs. The area in which the targets were located was a wooded terrain and it was surmised that the hostile batteries were either on, or very close to, roads which were shown on our maps. The battalion started on October 15 to lay belts of gas systematically along each of these roads. Nothing could be seen as to the results, but enemy artillery activity declined sharply and none was reported from this area after October 20.

As it was certain that a new attack on a large scale would soon be made, batteries were advanced as far forward as possible. Some divisions had a tendency to post their batteries 5,000 or more meters in rear of the front; to these the Army issued orders for movements forward. To expedite this, orders issued by the Army on and after the 17th instant allotted battery positions near the front to army, corps and division artillery, due regard being given to the character of the matériel. This resulted in batteries being distributed in depth, for each kind and calibre of artillery, from the most advanced positions to not more than 6,000 meters in rear of the front. At the latter distance, there were few batteries other than railroad artillery, which it was impossible to move further to the front. To facilitate better direction of fire and to afford opportunities for bilateral observation, a certain number of battery and OP positions in the zone of action of one corps were allotted to the adjacent corps.

Instructions were issued requiring the artillery to conduct reconnaissance of forward areas in order to locate targets, independently

## THE BATTLE OF BUZANCY

of and without waiting on other arms seeking this information. The other arms had troubles of their own and felt under little obligation to seek targets and coordinates for the artillery, while the OPs seldom located anything, although it was evident that there must be numerous targets within range of the guns. Artillery reconnaissance parties under S-2s soon located a surprising number of targets; they were so successful that this procedure was definitely prescribed for the future.

Some S-2s had rough adventures and casualties occurred. Some experiences were amusing. One S-2 went to Bantheville in a White reconnaissance car on the afternoon of the 21st, when visibility was fair. He believed Bantheville was in No Man's land. He was trying to obtain a near view of the enemy front, the exact position of which was not known. On arriving at Bantheville, the S-2 dismounted and, followed by another officer, started cautiously on foot through the town, which was mostly in ruins. He left the car parked at the south exit. He soon met two German soldiers, who surrendered without difficulty. In a little while two more Germans were encountered; these also surrendered, but one of them who could speak some English entered a protest, to the effect that Bantheville was supposed to be a German town, and that the Americans had no business to be there. He was instructed to omit his objections. Shortly afterwards a hostile machine gun opened fire on S-2 and his companion. Realizing now that Bantheville was in possession of the enemy, the officers, having disarmed the prisoners, abandoned them and retired to their car at a double time. The chauffeur had observed a good deal of what had passed and, anticipating a retreat, had turned his car around in an unbelievably small place. This party escaped without casualties. The result of the reconnaissance was that Bantheville was taken under heavy fire that same night.

Believing that Grand-Pré and the Bois des Loges were within the American lines and that these places offered a favorable base of departure for a new attack in force. Marshal Foch, on October 21, issued a Letter of Instructions, in part as follows:

"In order to insure close cooperation between the First American Army and the Fourth French Army, the following directions will be complied with:



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"The general objective to be sought in the combined actions of the First American Army and the right of the Fourth French Army is to secure the area of Buzancy (to First American Army)—le Chesne (to Fourth French Army), in order to clear the line of the Aisne, by turning it from the east.

"The operations conducted up to now by these Armies in the vicinity of Olizy<sup>1</sup>—Grand-Pré—north of St. Juvin have resulted in complete liaison through the defile of Grand-Pré and allow the American Army to debouch from the wooded region which has limited its action.

"Now that this preliminary but indispensable result has been obtained, the combined attacks of these Armies should have as their mission the fixed objective Buzancy—Le Chesne, passing around to the east and west of the wooded region of the Argonne by wide movements and without employing troops in wood fighting, which is costly and gives but mediocre results.

"Having this in view, it is necessary:

"1. That the First American Army shall execute, without any delay, a strong attack in the direction of Boulton-aux-Bois—Buzancy—Bois de la Folie, utilizing the wide exits it has secured north of the Bois des Loges and of Romagne, avoiding becoming engaged in fights in the Argonne and in the vicinity of Bantheville. Only an attack of this extent will enable it to secure its assigned objective.

"2. That the Fourth French Army . . . .

"The attention of the commanding generals of the American Army and of the Group of Armies of the Center<sup>2</sup> is invited to the foregoing instructions, which at the same time tend to widen the action of each of the two Armies, while assuring the uniting of their efforts in order to secure their assigned objectives.

"They will please report the dispositions which each of them intends to take to comply with these orders, as well as the arrangements which they will mutually make to assure their cooperation."

On the same day American GHQ sent a letter to the First Army stating:

"1. The Allied Armies in Flanders are to advance on Brussels. The British Armies are to advance toward the line of the Meuse north of Givet. The French Fourth, Fifth, Tenth and First Armies are to operate south of the line Froidechappelle—Philippeville—Agimont (north of Givet). The immediate attack of the First American and the Fourth French Armies is to turn the enemy's

<sup>1</sup>Olizy is west of Grand-Pré—not shown on map.

<sup>2</sup>This Group of Armies, General Maistre commanding, included the Fourth French Army.

## THE BATTLE OF BUZANCY

position on the Aisne by reaching the region of Buzancy—Le Chesne.

"2. The First Army will prepare to launch a general attack on October 29, with the object of securing control of Buzancy and the heights immediately east of that place. The minimum objective to be reached on the first day is marked by the general line:

Heights south of Aincreville—Bois de Barricourt—hills north of Sivry-les-Buzancy—Bois des Loges.

Immediately after reaching the general line above indicated you will proceed to free the Bois de Bourgogne from the enemy and to gain possession of the heights surrounding Briquenay. The operation of your left flank will be conducted in the closest liaison with the right of the French Fourth Army. All plans will be made for following up any opportunities to gain possession of the high ground to the north and northeast of Buzancy.

"3. While preparing for the general attack as above ordered, you will constantly bear in mind that the present situation demands that there be no relaxation in the pressure now exerted on the enemy. You will therefore so time the local operations, which are necessary preliminaries to the general attack, as to continue the pressure and will take immediate advantage of any favorable opportunities to advance your lines.

"4. East of the Meuse you will for the present confine your offensive operations to the local attacks necessary to improve your present positions.

"5. Please present your plans to me not later than 6.00 P. M., October 25."

The objectives assigned in this letter differ from those prescribed by Marshal Foch as regards the left. The Bois des Loges was not in our hands, as supposed by the Marshal, but General Pershing states in his *Experiences*, that he thought his own plan to be a better one than that of Marshal Foch and that he did not recognize the authority of the Marshal as to tactical matters.

The order of battle for the proposed attack was from west to east:

Divisions	78	77	80	—	2	89	—	90	5	—	15	French Colonial
	McRae	Alexander	Cronkhite	— X X X	Lejeune	Wright	— X X X	Allen	Ely	— X X X	Meuse River	Fr. XVII
Corps		I			V			III			↑	
		Dickman			Summerall			Bullard				
					42			1				
Divisions in Reserve					Menoher			Parker				

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The artillery available for the battle was:

	Trench Mortars	75mm guns	Heavy guns	Total	%
Main Attack					
I Corps	60	300	200	560	22.7
V Corps	48	224	240	512	20.8
III Corps	36	228	176	440	17.8
Army	—	24	277	301	12.2
Total, Main Attack	144	776	893	1,813	73.5
Fr. XVII & XXXIII Corps	84	276	293	653	26.5
Grand Total:					
number	228	1,052	1,186	2,466	
per cent	9.2%	42.7%	48.1%		100.0%

The density of guns per unit of front was:

	Attack front	Guns per km.	Meters front per gun
I Corps, less Army guns	6.2 kms	93.6	10.7
V Corps, less Army guns	6.1 kms	85.6	11.7
III Corps, less Army guns	5.0 kms	88.0	11.4
Attack front, with Army guns	17.3 kms	104.2	9.6
Two French Corps	26.5 kms	24.6	40.6

On October 22 the First Army issued Battle Instructions for the coming conflict. The essential part of this read:

"2. The First American Army, while continuing its operation east of the Meuse, will attack on its front west of the Meuse, on D Day at H hour. The heights of Barricourt will be carried and junction with the Fourth French Army gained near Boulton-aux-Bois.

(a) *Objective first day:* Cunel heights—heights north of Andevanne and Bayonville—Sivry-les-Buzancy—heights south of Verpel—eastern half of Bois des Loges.

(b) *Objective second day:* Buzancy—Barricourt—ridge 2 kilometers north of Briquenay—to connect with the Fourth French Army at Boulton-aux-Bois.

(c) *Exploitation:* Bois de Tailly—Nouart—Fossé.

\* \* \* \* \*

"3. A. The XXXIII French Corps<sup>1</sup> will hold its present front.

B. The XVII French Corps: Mission to be determined later.

C. (1) The III Corps will hold on its front from 2 kilometers west of Vilosnes to Cunel heights and will attack on its front Cunel heights to meridian 306 (1½ kilometers west of Romagne);

\* \* \* \* \*

(3) The III Corps will carry without delay the high ground north and east of Andevanne and assist the attack of the V Corps.

D. (1) The V Corps will attack on its front as indicated on the map<sup>2</sup> . . . .

<sup>1</sup>East of Verdun, on the right of the French XVII Corps.

<sup>2</sup>Plan is substantially outlined in following paragraphs.

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(3) It will seize, by a direct drive, the ridge of the Bois de Barricourt and the heights northeast of Bayonville-et-Chénery so as to effect a complete rupture of the enemy's main line of resistance on the first day.

E. (1) The I Corps on its front from St. Georges (exclusive) to Bois des Loges (inclusive) will carry the attack on the first day to the high ground south of Thénorgues, with the object of driving to Boulton-aux-Bois the next day.

(2) It will execute a holding attack on its front west of the Bois des Loges; and will closely follow up and pursue any withdrawal of the enemy.

\* \* \* \* \*

(4) It will maintain close contact with the XXXVIII French Corps on its left.

(5) It will protect the attack from hostile artillery fire and observation from the heights of the Bois de Bourgogne.

\* \* \* \* \*

"G. ARTILLERY. (1) For plan of employment . . . see Annex 1.

(2) Plans will be made for an artillery preparation of two hours.

(3) Hostile artillery fire and observation will be neutralized especially at the following points:

(a) Heights east and southeast of Dun-sur-Meuse.

(b) Wooded heights of Bois de Sassey (northwest of Dun-sur-Meuse).

(c) Wooded heights in eastern edge of Bois de Bourgogne. Hostile cross artillery fire from the above points against our attack must be neutralized.

(4) Artillery will closely follow up the advance. Routes over which the artillery will move will be designated by corps commanders. Plans for this movement must be prepared in advance.

(5) Gas will be freely employed to neutralize the enemy organizations. Yperite will be employed on the heights east of the Meuse, the Bois de Sassey and the heights in Bois de Bourgogne south of Le Mort Homme. Within corps zones, other than above, the employment of gas, including yperite, will be regulated by corps commanders.

(6) *Anti-aircraft defense . . . . .*

(B) It will assist the air service in maintaining superiority in the air. For this purpose, some of its pieces will be pushed well forward where they can maintain accurate fire over our advance lines."

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On October 23, under direction of Major General E. F. McGlachlin, Army Chief of Artillery, there convened at his CP a meeting of corps chiefs of artillery. They discussed the part that the artillery would have in the ensuing battle and what would be most conducive to insure an uninterrupted advance of our infantry and the winning of the battle. Each of the chiefs of artillery of the three attacking corps submitted a previously prepared plan covering the zone of advance of his command, providing:

- a. for a two hour preparation as ordered, directed against enemy front lines, reported positions of batteries and supposed enemy sensitive points.
- b. for supporting the infantry during its advance by fire on successive selected objectives where it was thought the enemy would probably be. These included ridges, edges of woods, ravines and similar lines located from the map.
- c. a rolling barrage in front of the infantry advance.

The three plans could have been coordinated and were complete, with outlines of the orders required which were to be issued as annexes to their respective corps field orders for the attack. Necessary drawings illustrating the plan of fire were ready.

The Army chief of artillery had had separately prepared for this conference a plan on a new principle, covering,

- a. interdiction fire for several days prior to the attack, to be maintained uninterruptedly, day and night, against those enemy lines of communication where detours were impracticable, in order to exhaust front line stores and munitions before the date of the attack.
- b. damaging the enemy personnel as far as possible, by firing each day and night until the attack, extensive rapid concentrations of fire against enemy billeting areas, location of which had been ascertained from statements of prisoners, captured documents, etc.
- c. a two-hour preparation as ordered, immediately preceding the infantry attack, differing from the preparation contemplated by the corps chiefs of artillery only in that the rate of fire of the guns was greater and near the maximum rate of permissible fire.
- d. supporting the infantry during the attack by fire delivered on the area in front of the infantry capable of containing any direct fire weapon and within 2,000 meters. This area was variable, differing with each time unit, but in general included

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terrain within the range mentioned as far as the nearest crest, line of woods or edge of towns.

- e. protecting the infantry against hostile artillery fire, by covering during the infantry attack all terrain within 7,000 meters which was capable of containing hostile batteries. There was excluded from the area within this range, territory visible from OPs and balloons where it could be seen there was no artillery, and ground unsuitable for artillery such as swamps, lakes, steep slopes, etc. Most of the ground within the 7,000 meter limit was thus excluded.

After comparing the various plans, the corps chiefs of artillery voted two out of three for the Army Artillery plan. With the Army Chief of Artillery approving, this gave a vote of three out of four chiefs present. The chief of artillery of the I Corps was a French general, who preferred his own plan of fire by successive concentrations. It was decided to accept the Army Artillery plan for the fronts of the V and III Corps and to allow the I Corps, which had a less important role, to follow the plan of their French chief of artillery. The Army commander, General Liggett, confirmed this agreement. On October 24, the Army issued the artillery plan as an annex to a Field Order. It read, in part, as follows:

"I. ORGANIZATION: . . . as shown in the Artillery Order of Battle . . .

"II. ZONES OF FIRE: Announced in orders . . . from time to time. Copy of latest order attached.

"III. MISSION OF ARTILLERY:

(a) To prepare the attack of the infantry, destroying obstacles and neutralizing the enemy's forces by a preliminary bombardment.

(b) To support the advance of our infantry, advancing in part with it to reach more distant objectives.

(c) To make demonstrations at points other than those to be attacked.

"IV. THE ATTACK:

1. On X days prior to D day, a harassing program is contemplated, as well as the neutralizing with gas of certain selected areas. This is illustrated by Map No. 2 attached hereto . . .

2. The artillery preparation is to commence at H minus 2 hours. The particular points to be bombarded and the nature of the preparation are shown on Map No. 3, attached hereto . . .<sup>1</sup>

<sup>1</sup>Maps showed graphically target areas, number of rounds to be fired at each, time to start and stop fire and caliber to be used.

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3. The barrage tables prepared by Corps and Division commanders will be coordinated by Corps Commanders for their divisions and by the Chief of Artillery of the Army for adjacent Corps.

4. By agreement with the Fourth French Army, no artillery fire will be delivered north of the line: Oches—Authe—Boult-aux-Bois (all inclusive).

"V. The Army Artillery will arrange for smoking and neutralizing with Yperite hostile observatories and positions east of the Meuse. The XVII French Corps will assist in counter battery fire against hostile batteries east of the Meuse River.

"VI. Artillery demonstrations will be arranged for later, to be fired on D day on the front of the XVII and XXXIII French Corps.

"VII. Employment of Anti-Aircraft Artillery is shown on map and plan attached hereto . . ."

The gist of this order lay in the plans accompanying it, which are too elaborate to reproduce in this article.

The entire plan, with necessary maps, was made at Army Artillery headquarters. The Corps had been consulted as to the desired rate of advance of the infantry. They advised a rate varying with the terrain, from about 25 meters a minute in open country to about 10 meters a minute in woods. The artillery plan showed, on the accompanying maps, control lines for the rolling barrage, plotted for 20 minute intervals. Lines for rest and reorganization, selected with slight unavoidable exceptions along ground defiladed from enemy view, were provided. These lines were:

	involving an advance of	total time allowed	Map No.
1st	2½ to 3 kms	3 hours	4
2nd	1½ to 3½ kms	3 hours	5
3rd	about 2 kms	1½ hours	6
Total	up to 8½ kms	7½ hours	7

These lines for rest and reorganization—RRLs—were selected by the artillery, and with the barrage control lines, were issued without securing any special approval in advance. As the annex became part of the Army field order, it had the necessary authority as soon as so issued. So far as the records show, no infantry command adversely criticized the foregoing details of the plan of attack; some of the reports were highly commendatory for what the artillery provided for them.

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The plan of interdiction fire was based upon the favorable condition that the enemy's positions, on both banks of the Meuse, lay but a short distance from the Cotes de Meuse, a geological fault consisting of rough bluffs separating two fairly level surfaces differing in altitude by about 150 meters. The opposing armies were on the upper level, to reach which the Germans had to use roads leading upwards from the lower level. These roads ascended the bluffs through narrow, wooded ravines, from one to two miles long. It seemed that if these ravines could be blocked, the enemy would find it impracticable to supply his troops on the upper level, as detours were believed to be impracticable to arrange without considerable time and preparation. This fire started on October 25 and continued without interruption to include the day of attack.

The plan of harassing fire consisted of heavy concentrations of fire directed on areas where information indicated the enemy had billets or CPs, selected from study of air photographs, statements of prisoners and captured documents. It went into effect on October 26, on Army orders, of which the following is a sample.

TARGET	DATE	GAS & HE SHELL TO BE FIRED TOTAL			
		by Army	by Corps	TOTAL	
1. Bois de Tailly	5 hrs. 28 Oct.	400	150	550	
	21 hrs. 29 Oct.	400	150	550	
2. Bois de Mont	20 hrs. 30 Oct.	500	200	700	
	16 hrs. 31 Oct.	400	200	600	
3. Bois de Barricourt	1 hr. 29 Oct.	600	200	800	
	22 hrs. 30 Oct.	500	200	700	
	13 hrs. 31 Oct.	400	100	500	
4. Le Fay Bois	9 hrs. 28 Oct.	200	200	400	
	14 hrs. 29 Oct.	100	200	300	
	11 hrs. 30 Oct.	100	100	200	
5. Bois d'Andevanne	6 hrs. 28 Oct.	300	200	500	
	10 hrs. 29 Oct.	150	100	250	
	4 hrs. 30 Oct.	300	300	600	
	20 hrs. 31 Oct.	200	200	400	
*	*	*	*	*	*

No calibre under 155mm was used in this type of fire. Enough batteries were assigned to insure that the fire would be completed within fifteen minutes in order to preclude any possibility of the enemy escaping by evacuating the area under fire. To further assist in this, batteries were selected so as to deliver fire from as widely different directions as could be conveniently arranged.

The plan for the rolling barrage was changed from that previously



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employed. A 75mm barrage was provided as usual, just in front of the infantry advance to indicate to them the line and to afford minor protection. From eight to ten batteries per kilometer front were available for this fire. Preceding this was the main barrage, a new feature, fired by pieces not less than 155mm calibre and covering the terrain from 500 to 2,000 meters in front of the infantry. This barrage was omitted wherever it would fall on ground from which direct fire could not be brought to bear against our troops. Where this barrage passed through woods it was doubled and in dense woods tripled by using 8" and 9.2" howitzers. In the main barrage each battery covered 200 meters front, fired two rounds per battery per minute and made range jumps of 50 meters. No special provision was made for cutting wire, even where it was known to exist. It was expected that the main barrage would cut wire in its path as it rolled over it. During the last period of the attack, the main barrage was the only one, as at this time the infantry would be out of effective range of the 75mm batteries. These could consequently commence to displace forward about two hours before the end of the engagement.

Infantry protection against artillery fire was provided by neutralization of concealed areas, where hostile artillery might be. This fire was to be very heavy during the two hour artillery preparation after which it was to be reduced in order to release batteries for the main barrage. Gassing with persistent gas of probable hostile OPs on the flanks was undertaken gradually before the day of the attack. The enemy retaliated and some of our hill tops became impossible to use.

We did not have for this battle as many guns as in some previous ones. To relieve this handicap, orders were issued to increase the rate of fire of batteries. Examination of ammunition expenditure reports for past actions showed that in no case had the artillery, on an average, fired at as much as half the authorized rate for maximum fire. It seemed that as much could be accomplished as before, with a smaller number of batteries, by correspondingly increasing the number of problems each battery was to fire within a given time. The rates prescribed for the coming battle were:

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for	rounds per battery per hour
75mm guns	400
105mm guns	240
155mm how.	160
155mm guns	120
8-inch how.	120
9.2-inch how.	120

These rates of fire were more than twice the actual expenditures at the battle of St. Mihiel, but were all within the capabilities of the guns without straining the matériel.

The artillery plan required a very extensive use of heavy guns. Not only did they outnumber the 75s but their programs of fire required constant use, and in the final stage of the battle they were to be the only guns available. Most of the Army artillery was moved far forward. Some of the GPF batteries were in front of the line of departure, protected only by outposts; needless to say, they were carefully camouflaged and not permitted to fire for registration or other purposes in advance of the attack. The artillery plan required that the fire of the Army artillery be concentrated at different hours in front of the I, V or III Corps according to the resistance these corps would probably meet. When one corps was scheduled to pass through difficult terrain, another corps would be passing in part over defiladed terrain or easy ground; when one needed maximum artillery support, the others would require less. Each corps was to be given all possible support at periods when it was most needed, but the guns were to be free for the use of other corps when not so required. Modern long range artillery made this possible.

On October 23, the Army sent a letter to each corps commander, as a supplement to its orders. It read:

"I have considered all possible means available to us to insure success in the coming operations. I believe that I have covered all except one element, that is, the psychological. Personally, I do not believe that we pay enough attention to this factor and also that we do not realize the great influence it has on the American soldier. Enthusiasm and determination to win can be instilled in the American soldier by the attitude, activity and spirit of commanders, as well as in any other nationality. This spirit can be worked up in our soldiers very easily by concerted efforts on the part of our commander(s).

"In the present operation our success is not so apparent to the

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lower ranks, as they do not visualize the strategy of the whole front. Our immediate front does not appear to them a glorious success, especially in comparison with the advances of the other Allied armies. They hardly realize that our fighting has forced the German to retreat on other fronts and has thus permitted the Allies to pursue. It is only fair to the lower ranks that this honest statement should be brought to their attention.

"It appears to me that a great deal can be done by our higher commander(s) in gaining personal contact with the lower ranks and explaining to them the situation. I know from what little experience I have had, that the presence of the higher commanders, with the attitude of cheerfulness combined with enthusiasm and determination has an immediate effect on the lower ranks.

"With the foregoing thoughts in mind General Liggett has requested me to start a campaign in order to produce the desired psychological results for our next attack. At Army Headquarters we are forcing this campaign and hope that you will do the same. In this connection I believe that it would be well to insist that division, brigade and regimental commanders visit daily all their lower units and gain more personal contact with the men. There is no question in my mind that the spirit exists to soundly thrash the Germans in the next attack. This spirit can be made use of if our officers will only appear more frequently among the men with the firm conviction of thrashing the German in the next attack."

On October 25 General Pershing visited Marshal Foch at Senlis and advised him as to his intentions for the coming attack on the Meuse-Argonne front. On the day following, the General came to Souilly, the command post of the First Army, and discussed the situation with General Liggett, commanding the First Army, and General Drum, its chief of staff.

On October 25, Marshal Foch, having examined a draft of the First Army orders for the forthcoming battle, wrote regarding them to General Pershing. The Marshal stated:

"The proposed operations of the Fourth French Army, as well as those of the First American Army, provide for these armies, a method of attack by successive limited objectives.

"Such a method, employed for a long time during the war of positions, may yet, in certain circumstances still be advantageously used, when only restricted results are needed. But it can not be the general rule, because it can only give limited results.

"Limiting the advance of troops beforehand by lines on a map,

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prevents these troops from taking advantage of occasions which always present themselves after a successful attack; and the high command by its restrictive orders compromises the final result—and in every case, causes it to be more costly.

"Important results, such as we seek at the present period of the war, in presence of an enemy whose strength is daily decreasing, can only be hoped for by an advance as rapid and as deep as possible.

"Troops launched in an attack need only know the direction of the attack; along this direction they proceed as far as practicable, attacking and maneuvering against the enemy without regard to alignment, units most advanced assisting those temporarily held up. They will operate in this manner, not towards *lines* fixed on the map in advance, but towards the *enemy*, with whom they will never lose contact once they have gained it."

GHQ, AEF, forwarded the foregoing letter to the First Army on October 28, with one of transmittal, reading:

"1. Enclosed herewith is a translation of a note from the Allied Commander-in-Chief concerning methods of attack.

"2. The experience of the enemy as well as of the Allies since March of this year fully justifies the general principle enunciated by the Allied Commander-in-Chief.

"Under present conditions it is certain that the surest road to success is found in energetic advance at those places where the resistance is weak. Such advances will surely bring about the fall of the enemy's strong points. On the other hand the falling back of certain troops because other troops have not reached a rigid line marked on a map not only limits success but causes unnecessary losses. It must be remembered also that orders given during the course of an action with a view to removing restrictions on an advance seldom reach the firing line in time to avert the evil results of such restrictions.

"An objective should be regarded as a MINIMUM RESULT to be obtained. Only the most exceptional conditions should be allowed to LIMIT large units, such as our divisions, to such a result.

"3. It is desired that you apply the foregoing principles in your coming operation and that you particularly instruct your corps and division commanders that the objectives assigned them are the MINIMUM and not the MAXIMUM that they are expected to attain."

On October 27, General Pershing revoked the order to attack on the 28th, and in lieu thereof directed that the attack be made on

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the same day as prescribed for the French Fourth Army, which was ascertained to be November 1. The formal field order of the First Army for the attack as of D day, also came out on the 27th. This order was substantially the same as the Battle Instructions previously referred to, except that it provided:

- a. that the two French Corps east of the Meuse conduct an artillery demonstration during both the artillery preparation and the subsequent attack.
- b. that no artillery fire be directed north of the line Oches—Authe—Boult-aux-Bois after an hour on a day to be specified later by the Army Chief of Artillery.

The latter requirement was to prevent any friendly artillery firing into the zone of action of the French Fourth Army should they succeed in reaching the vicinity of the line indicated.

On October 29, the V Corps issued its attack order for D day. The artillery portion of this order read:

### "IV. MISSIONS.

#### "(a). Divisional Artillery:

"The Divisional Artilleries will directly support the Infantry advance by preparatory bombardment and by rolling barrages of 75s and standing barrage of 155mm howitzers (from H hour until completion of the operation). In addition they will cover the front by the fire of such flanking guns as can be emplaced by the Divisional Artillery Commanders, or bring an oblique fire on the hostile front. They will also perform such special missions in ... the infantry advance, as may be assigned by Division Commanders.

"In firing barrages, one battery of 75s in each battalion will fire shrapnel.

"Plans of the Divisional Artillery Commanders will be coordinated with each other by mutual agreement, with the machine gun plan in each division and submitted to the chief of corps artillery for approval.

#### "(b). Corps Heavy Artillery:

"The Corps Heavy Artillery is charged with the counter battery and with interdiction fire and harassing fire within the corps normal zone.

"All guns not required for these missions, will be used to participate in the preliminary bombardments and assist in the advance of the infantry on successive objectives.<sup>1</sup>

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<sup>1</sup>These objectives were the rest and reorganization lines.

## THE BATTLE OF BUZANCY

"When the infantry attack approaches each objective, all guns of the corps artillery will lift therefrom and fire on targets in the immediate front that may impede the advance. . .

\* \* \*

### "VI. ACTION DURING THE ATTACK.

"Capture of 1st and 2nd Objectives:<sup>1</sup>

*"Divisional Artillery:*

"At H minus 10 minutes, the Divisional artillery supporting the 2nd Division will lay down a standing barrage on the enemy's front line, the last three minutes thereof to be fired with smoke shell as hereafter prescribed.

"From H minus 3 minutes to H<sup>2</sup>, a smoke barrage will be laid down on the enemy's front line by the batteries of 75s which are to fire HE in the rolling barrage, the remaining batteries of 75s will fire shrapnel during this time. Rate of fire 6 rounds per piece per minute. Batteries whose distance from the front line require the use of reduced charges will fire HE shell in this barrage.

"At H hour the Divisional Artillery will establish a rolling barrage in front of the infantry advance. Divisional Artillery plans will be in accordance with the Army scheme<sup>3</sup> and will be coordinated by mutual agreement of adjacent artilleries. Rate of advance—100 meters in 4 minutes over open ground—100 meters in 6 minutes up steep slopes and 100 meters in 8 minutes through woods.

"75s—2 batteries per battalion will fire HE and the third battery will fire shrapnel superimposed over the HE. Shrapnel ranges will exceed the shell barrage by 200 meters. One fourth of the guns firing shell will fire smoke shell. Rate of fire 100 rounds per piece per hour. 155s will fire a series of standing barrages, lifting as the infantry advances so as to fall at least 500 meters beyond the rolling barrage. Rate of fire 40 rounds per piece per hour. During halts the 155mm howitzers will maintain heavy concentrations on all enemy organizations within 2 kilometers of the front line.

"8" Howitzers will be used to intensify the barrage through the Bois de Hazois. Arbre-de-Rémonville (east of Bayonville-et-Chénery) and in the La Fey Bois, northeast of Rémonville.

"During the halt from H plus 2.30 to H plus 3 (hours) and until required to lift therefrom, the 8" howitzers will bombard

<sup>1</sup>These objectives were the rest and reorganization lines.

<sup>2</sup>H hour was later designated as 5.30 A. M., which was before daylight.

<sup>3</sup>The Army Artillery furnished copies of the control maps to lower units. Each unit receiving a copy could add thereto by indicating the allotment of targets and mission to its subordinates, entering this graphically on the map.

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the organizations in the northern part of square 00, the southern part of square 11, Chénery, Bayonville-et-Chénery, and Rémonville.

"IAL fuzes will be used in the barrage wherever practicable. The density of the barrage will be variable. Thin in front of the advances over open ground and very dense on enemy organizations and woods. In passing through woods the barrage will be reënforced by an 8" howitzer fire in depth—500 meters in front of the 75s. During the pauses, the barrage will generally be kept thin, unless for special reasons the Divisional Artillery Commander considers it should be strong, or unless the infantry should request increased density to withstand counter attacks."

Similar orders were issued by the I and III Corps.

(To be continued)



# NASEBY AND THE INCOMPREHENSIBLE ENGLISH

BY FLETCHER PRATT

ENGLISH writers frequently point out that American military ideas stem rather from Continental than Anglo-Saxon sources. The criticism has an accent of indignation, as though the Transatlantic cousin were somehow betraying the common cultural heritage. Yet it is an indignation conscious of its own unrighteousness, too, for the British themselves are the first to admit that only a people of their own extraordinary genius and persistence could have made a success of a system founded on such a glorification of inefficiency as the national motto—"Muddle through."

And a study of their military history reveals that it is in army affairs that "Muddle through" attains its apogee. Perhaps this is because no Englishman is more than a day's journey from the sea and the navy attracts the best brains; perhaps it is because the British, always sensitive to pictorial values, demand that their generals look like fighting men without troubling whether they act like them—but whatever the reason "Mad dogs and Englishmen walk in the noonday sun" and the military history of the tight little island is the most astonishing hodge-podge of inefficiency, courage, brilliance and stupidity that the world has to offer. The Boer War is a perfect example—a conflict fought out with the weapons of Port Arthur and Verdun, the bravery of Agincourt, and the best tactics of Saratoga. The guiding principle seems to be providing the best possible soldiers with the most advanced weapons and making the least possible use of the combination.

And yet "the English always forget to win all the battles of a war but the last one." There is a magnificent simplicity about the British military mind; it can only hold one idea at a time, but because of this very fact, makes the most of every idea that penetrates the crust of its innate conservatism. No Englishman would be capable of taking an army whose every feature, in tactics, organization and even armament, was utterly new, into the



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battle that would decide the fate of his country—as Gustavus Adolphus did. Yet no other nation could have produced an army like Wellington's which persisted through a cloud of defeats to ultimate victory in sublime self-assurance, without the slightest change in tactics, organization or armament, while all around a new art of war was being developed. Neither art nor storms can make the oak tree bend.

It is this national characteristic, resurgent in a dozen forms, that makes English battles so interesting to the student. Many new concepts in war fail acceptance in spite of their value, because they are struck dead at birth by some lightning bolt of inspiration from the other side—King Francis' combination of artillery and cavalry, for example. The success of Gustavus Adolphus' ideas was in no small degree due to the fact that he faced a formalized opposition. In English battles the opposition is always formalized; there are no intuitional flashes, nothing but a dogged determination to prove the old way best. It is a background of grey against which the slightest illumination stands out in dazzling relief; the innovator can try out his new idea to the fullest extent, perfectly certain that the enemy will neither find an effective counter nor produce a good copy until its success is assured.

Thus, in the wars of the English Revolution, everything is dead average, Chinese and dull until one remarkable man, Oliver Cromwell, appears on the scene with his single great idea. It is a war fought out of text-books, and what is more, out of textbooks a century old. One realizes with something like a shock that the Royalist army is still the feudal levy of the Plantagenets; the Parliamentary, the armed peasantry of Jack Cade. The infantry, beneath contempt as to military quality, is formed up in huge blocks which are called *terzias* in the outworn Spanish fashion; the cavalry charges at a gentle trot; the artillery lumbers around behind its teams of twenty oxen and must be placed in position the day before a battle, because it can never move during one. Gustavus Adolphus, fifteen years after he blew the last vestiges of such a system into the fog of Lutzen, never existed, and the world may change but English hearts (and heads) of oak, never.

## NASEBY AND THE INCOMPREHENSIBLE ENGLISH



OLIVER CROMWELL

Yet there was one man who found this state of things profoundly disturbing. Oliver Cromwell, "Old Noll," was not primarily a general, but a politician. At Edgehill, as early as 1642, he saw the ineffective military results of the Parliament's policy without any deep-seated dissatisfaction. It was the political results of the old system that worried him; the Parliament was losing its grip by little and little. "Your troops are old decayed serving men and tapsters," he wrote to Hampden, "their troops are gentlemen's sons and persons of quality. Do you think the spirits of such base and mean fellows will ever be able to encounter gentlemen who have courage, honor and resolution in them? You must have men of a spirit that is likely to go as far as gentlemen will go or you will be beaten still."

As Hampden was English he paid no attention to this sound advice; as Cromwell was also English he persisted in believing it was sound and set out to prove it empirically. The problem,

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concisely stated, was this—to find some psychological or other means of raising the morale of base and mean fellows till it equalled the spirit the gentlemen of the Royalist army had by right of birth and six centuries of experience as the hereditary soldiers of the realm; to induce in them an artificial fanaticism. Now aside from the cornered-rat fury of extreme economic pressure which had made the medieval jacqueries, and for which the necessary conditions were lacking, there are only two means adequate for such a purpose—religion and discipline. (For surely there is something fanatic in the effect of a discipline that will make a corps like the Old Guard prefer death to surrender when there is not the slightest hope that the sacrifice will be useful.)

Oliver Cromwell did not neglect religion—one has only to remember Praise-God Barebones and the fact that the Parliamentarians were called "the Saints"—but it is to his everlasting credit that he realized the full possibilities of discipline. And in this connection it is significant that one of his leading lieutenants was named Fleetwood, a nephew of that same wandering George Fleetwood, who had ridden with Duke Bernard in the last fierce charge at Lutzen, and who wrote home of his boundless admiration for the wonderful effects of the discipline Gustavus had instilled in his Swedes. In that press-less age, letters were the only newspapers, treasured and re-read long after the occasion for them was gone. Is it too much to suppose that Cromwell drew many of his ideas of training at third hand from the King of the Swedes?

No matter; in typically English fashion he began to experiment with the new model for an army on the small troop of horsemen he commanded, being careful to choose only "such men as had the fear of God before them and made some conscience of what they did" and then drilling them day in and day out till they moved like automatons. "From that time forward they were never beaten:" Cromwell's Ironsides stood up to and broke down the feudal chivalry in a dozen little combats, and their commander became a marked man, his Ironsides a corps d'elite, constantly growing in numbers as well as skill. At Marston Moor in 1644 the whole left wing was his cavalry, and though the Parliamentary right was broken and its infantry center on the edge of dispersal,

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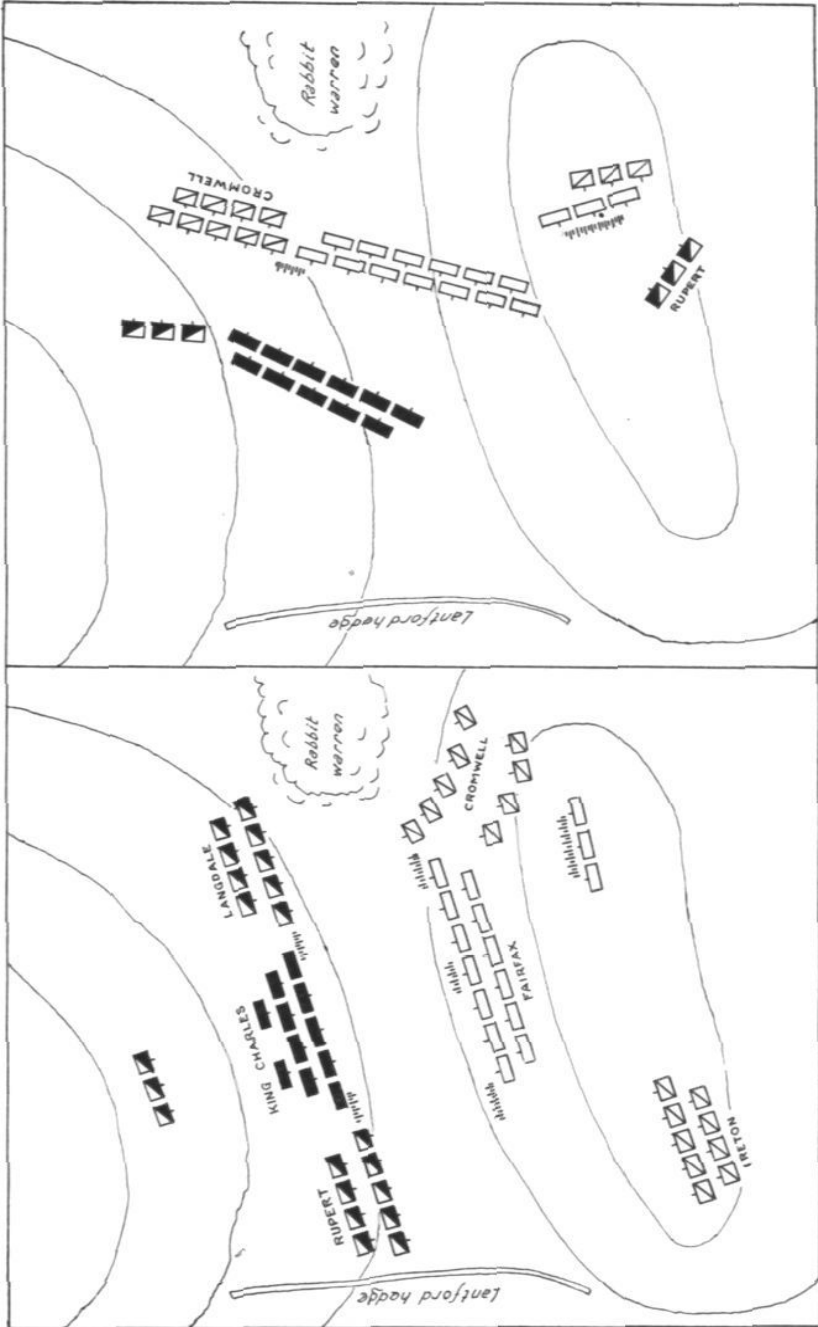
the Ironsides were held so well in hand that after one victorious charge, Cromwell was able to rally them for a second which decided the day.

The demonstration convinced the Parliamentary leaders. In the fall of that year came the great mutiny in their armies and a reorganization was indicated. Cromwell and his Ironsides were selected as the core for the experiment of extending the New Model to the whole army—an experiment, incidentally, that nothing but the failure of their own efforts to solve the problem could have induced Englishmen to make.

The organization was curious, conventional and revealing; it was practically that of the Spanish tertiaries of a century before, with infantry mostly armed with pikes and trained for defensive action at the expense of mobility. The heavy cavalry was still supposed to trot and to fire pistols before falling on with the sword. The possibilities of the bullet were still neglected. Artillery was "not much accounted of because of the gunners' enforced commerce with infernal substances" and their odious habit of swearing. The only tactical innovation was a small body of dragoons; a force of musketeers, mounted for strategic movement, who were expected to fight on foot. The background was almost completely formalized; the one real novelty was Oliver Cromwell's stern discipline and the continual drills made possible by the fact that the New Model was, for the first time in modern history, a professional army, supported by the whole body politic, instead of a militia depending upon plunder for its pay.

Fortunately the Royalists adhered to the comfortable old habit of fighting only in warm weather; it was June of the next year, and the New Model had more than six months of Oliver's training under its belt before the forces stood face to face again. The place was the plain of Naseby, with King Charles' troops occupying a low eminence, Dust Hill, and the Parliamentary army Mill Hill, facing it. Lord Fairfax was the nominal commander for the Commons, holding the infantry center in person; Cromwell, on the right with his Ironsides, was the real general. He did not yet know that a big rabbit warren lay on his front and flank, inhibiting cavalry movement. There were about 10,000 foot, most of them in two lines of deep regiments in the center,

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with a battery of artillery on the front of either flank and a smaller one dead center. At the right rear, on the crest of Mill Hill, was a small infantry reserve supporting a big battery. The right wing was slightly refused; the left wing, under Ireton, much more withdrawn, back behind the crest of the same hill. and out on the extreme left, the dragoons were posted with their muskets behind Lantford Hedge, a big line of growth, impassible for horsemen.

All the defensive preparations on the left were arranged to draw the sting from the attack of Prince Rupert. "Rupert of the Rhine," who held that flank of the Royalist army. Only twenty-three years old, he was a veteran of a dozen hard German campaigns, with a reputation as a thunderbolt cavalry leader. It was his charges that had broken the Parliament at Edgehill and overthrown their right wing on Marston Moor; nothing could withstand his onslaught. Center in the Royalist army, King Charles himself commanded his infantry, arranged in two lines with a small reserve. The guns, much fewer than those of the Parliament, were on the flanks of the foot. Leftaway stood Lord Langdale with more cavalry, and there was a small army reserve, also of horse. The Royalist forces were inferior in number, but cared very little for that; they had the ablest cavalry captain in the world, and what ranked as its best horsemen; their infantry were seasoned mercenaries, professionals in quite another sense than Cromwell's old decayed serving men, tried warriors who had been fighting ever since they attained puberty. Every man of them was glad to get the experimental New Model into a pitched battle—there was Marston Moor to avenge, where a moment of impatience and the unsteadiness of Scots infantry had brought upon them a defeat they felt undeserved.

The antithesis of the two armies was complete; iron faces, clean-shaven to avoid "the vanity of hair" under the helmets in Cromwell's line, and voices raised in a psalm as they moved slowly toward the combat; gay plumes, perfume and bridles fretted with silver among the Royalists. Each had planned a defensive fight on the respective hills; but as the cannon began to boom across the valley, fiery Rupert could no longer wait, and rode forward with a shout, tossing his sword in the air to catch

it by the hilt as he came on.

Fairfax' left-wing artillery opened on him from one flank; the dragoons blazed away from the shelter of Lantford hedge on the other, but he dashed right through the fire and up the slope of Mill Hill. The smoke of the gunnery hung thick; the day was overcast; as Rupert's mailed riders came through the murk and up the rise on horses half-blown by the distance and gradient, they found—nothing at all. It was the most dismal ending possible for a brilliant charge. The blow died in vacuum. Rupert's men clattered to a halt, peering uncertainly through the smoke about them—at Fairfax' solid formations around his guns on their left, at the hedge from which the dragoons were peppering them in the rear, at the King's spearmen obliquing forward behind them. And just at that moment, Ireton, obedient to Cromwell's orders, came over the brow of the hill, blades and helmets all in line.

Old Noll's ingenious tactic was a success and the opportunity was perfect; the Royalist horse stood stationary to receive the blow, its morale shaken, its horses weary. But Fleming Ireton, that man of saintly life and sound discipline, was no battle-captain; the only thing he could think of was that he was facing that dreaded Prince Rupert. Instead of charging, he too came to a halt. That was all Rupert needed; with a whoop, he set spurs to his mount and flung himself up the hill on Ireton, followed by his whole band. The position was startlingly reversed; it was the Parliamentary cavalry who received a charge at the stand. They were stout fellows, but nobody could take chances like that with Rupert of the Rhine. There was a blaze of pistols and then shock tactics prevailed over passive defence; Ireton's whole wing was hurled back over the crest, down the other side with increasing momentum and into prone rout, hotly pursued by Rupert.

Out on the other wing Lord Langdale started forward, but the Parliamentary infantry overlapped the Royalist here, bringing their artillery directly in his front. The gunners opened up a rafale of fire that tore holes in the dense masses of Langdale's cavalry and brought their movement to a halt. Cromwell had intended to meet them with a normal trot-charge in counterstroke

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at the foot of Mill Hill; with Ireton's wing collapsed and Langdale hanging back, he saw he could not, and ordered an advance lest his army lose all morale. His right became involved in the rabbit warren, lagged behind, then swung leftward in a series of echelons to avoid it. Cromwell, impatient of the delay, spurred up to a hand gallop, and the Ironsides went smashing into Langdale in the most perfect of all forms of cavalry attack; a charge at the gallop in close-knit echeloned squadrons.

The spearhead of the oblique fell just at the point of Langdale's line that had been most sorely stricken by the Parliamentary guns and went right through it; as the succeeding squadrons fell on, Langdale's whole corps was broken up and flung off on an eccentric, leftward, rearward and out of the fight. The Royalist center lowered spears, tightened ranks and received the Ironside hurricane with wonderful steadiness; Cromwell was beaten back, but the shock was so severe that King Charles could not hold his position either and the artillery of the Royalist left center went lost.

Fairfax in the Parliamentary center had refused his left when Ireton went to pieces, advanced his right where Cromwell won. The whole effect was a prodigious left half-wheel, and he now stood transverse the battlefield, his right on the captured Royalist guns, his left back at Mill Hill. As the Ironsides streamed back from their attack, there came a lull for rearrangement on both sides.

And now, at last, the long months of discipline in the New Model began to tell. Cromwell had his troopers perfectly in hand in spite of their victory over Langdale and their repulse in the center. They fell in on Fairfax' right in unbroken formation, dressed ranks and awaited orders. A foaming messenger from the King rode across the field seeking Rupert to bring him back to stay this impending thundercloud. But Rupert was far out in the Parliamentary rear, pursuing Ireton's fragments. He tried to rally, but his men were too scattered, only a few squadrons could be gotten together. But Rupert was nothing if not brave; with these few squadrons he went up Mill Hill again in a direct charge on the new left of the Parliament, an effort to roll up their line. It was utterly hopeless; Ireton's steel-clad horsemen



had been less racked by defeat than the Royalists by victory, and at the rallying bugle he gathered as many men as the Prince. The reserve artillery swung around to face the new menace. Rupert was shot to tatters as he came across the hill-top; into the ruin Ireton charged; and Prince Rupert, for the first time in his life, discovered what defeat was like.

But what happened on this wing was no longer of any consequence; it was a mere pendant to events in the center, where King Charles had brought up his cavalry reserve to cover his left and formed all his infantry in two lines. Fairfax turned the captured guns against the weak point—the point where foot and cavalry met—and Cromwell stormed up Dust Hill against them with his rallied troopers. The Royalist horse, hugely outnumbered, was encircled and crushed; the left of the Royalist infantry, unsettled by the gunfire, cut to pieces.

Everything was in ruins around him, but King Charles, that merry monarch, also had his streak of bulldog tenacity. He never thought of retreat; the remaining spearmen were formed up in solid blocks with musketeers at the corners and he dared the Parliamentarians to come on. Twice Cromwell flung his squadrons, afire with victory, against those locked ranks; and twice they were beaten back. Fairfax brought up the Commonwealth foot on three sides of the defenders and they closed in a murderous hand-to-hand struggle, with the Ironsides hovering round to fall on any formation that broke ranks. The most desperate fighting of the day went on here; the King's men held out for two whole hours in spite of the loss they suffered and it was not till the ammunition was all gone and Fleetwood's Parliamentary regiment (shades of Lutzen!) fell on the last Royal *terzia* with clubbed muskets, that the battle could fairly be counted won.

With it went the crown of England: all that remained was a feeble guerilla warfare, easily stifled by the iron regiments Old Noll had trained. Naseby decided more than the temporary issue between King Charles and his legislature; it determined once and for all, that England should be a constitutional monarchy and set the Anglo-Saxon races on the path that led straight to the democracies of today. France, which never had a Naseby nor a Cromwell to make one, could only reach the same end through the

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much more bloody, savage, and enervating process of the Robespierres and Napoleons.

But the great importance of Naseby to the military student lies in the fact that it marks the first appearance of the true professional soldier, as he distinguished from those hired braves, the mercenaries; the man who unites a patriotic willingness to perform his task with the training that enables him to perform it efficiently. It is the first of the long series of examples which history continues to furnish with such unwearying persistence, that soldiers of this type will always beat the best militia. For no militia army was ever much better than that which King Charles led onto the field of Naseby, composed as it was of men who thought the pursuit of arms the only proper avocation of a gentleman; and no professional army was ever made of more unpromising material than Cromwell's tapsters and old decayed serving men. It is true that the great success of Old Noll's first charge at Naseby was in some sense, accidental; he did not mean to go in at the gallop or in echeloned squadrons, and he did not mean to prepare the road with artillery fire against the objective. But the organization of his men was so sound, he had them so well in hand, that the success of the movement was certain in any case; and against the favorable accidents may be set off the unfavorable one of Ireton's fatal hesitation on the other wing. Accidents never really happen, they are provided for in advance in the minds of those to whom they occur, even in war—especially in war.

In a technical sense, indeed, it is a thousand pities that neither Cromwell nor anyone else of his time realized the full implications of this chapter of "happy accidents." Today, indeed, we can see it was no mere chance that his cavalry should find Lord Langdale's line standing still, with gaps all along it or that Rupert should be so readily hurled to ruin when he came up Mill Hill the second time. No mere chance; for both were due to the murderous pounding of the despised artillery. We have no means of knowing to just what cause Oliver ascribed these strokes of fortune; we can only be certain that the Commonwealth continued to believe all artillerymen in league with the Evil One, and to leave to discovery of its paramount influence to a later age

## **BRIGADIER GENERAL CHARLES MICHAEL BUNDEL**

General Charles Michael Bundel was born at Sharon, Pennsylvania, June 2, 1875, and appointed to the Military Academy from Pennsylvania in June, 1895. Upon graduation in 1899, he was appointed second lieutenant of Infantry and ordered to the Philippines. He was promoted to first lieutenant in 1900, and in 1902 was assigned to Fort Reno, Oklahoma. In 1906 he was promoted to the grade of captain.

General Bundel was sent to Gettysburg, South Dakota, for field service against the Ute Indians in 1907. In 1910 he was transferred to Alaska, where he remained until 1912, at which time he was ordered to the Presidio of San Francisco. In 1914-1915 he was stationed at El Paso, Texas.

General Bundel was an honor graduate of the Army School of the Line in 1916. He joined the Punitive Expedition into Mexico and was promoted to major the same year. General Bundel transferred to the Field Artillery in 1917.

He was promoted to lieutenant colonel and, later in 1917, to colonel, National Army, with station at Camp Taylor, Kentucky. In September, 1918, he sailed for France and was assigned first to the Field Artillery Firing Center, Camp de Souge and then to command of the 159th Field Artillery Brigade and, later, to the 109th Field Artillery at Bazougers, France.

General Bundel joined the Army of Occupation in Germany, where he commanded the 76th Field Artillery. In July, 1919, he returned to the United States and was made an instructor and, later, Director of the Command and General Staff School.

Upon graduation from the Army War College, in 1925, he became an instructor and Director, War Plans and Command Divisions, Army War College.

In 1929-1930 General Bundel commanded the 12th Field Artillery, was then transferred to command of the 1st Field Artillery and the School Troops Division, the Field Artillery School. He remained upon this duty until 1932, when he became Chief of Staff, Third Corps Area. While on this duty, he was promoted to the grade of brigadier general effective September 1, 1934, and ordered to duty in command of the Third Field Artillery Brigade at Fort Lewis.

## **BRIGADIER GENERAL CHARLES D. HERRON**

General Charles Douglas Herron was born at Crawfordsville, Indiana, on March 13, 1877, and appointed to the U. S. Military Academy from Indiana in 1895. After graduating therefrom in 1899 he was assigned to the 18th Infantry in the Philippines. He was promoted to first lieutenant in 1900.

Prior to the World War, General Herron served continuously in the Infantry, being promoted to captain in 1906. During this period he graduated from the School of the Line in 1907, the Army Staff College in 1908, served as instructor with the Indiana National Guard in 1911 and 12 and from 1914 to 1916 in Panama. Promoted major in 1916 he served as an instructor at the Plattsburg Training Camps. In 1917 he transferred to the Field Artillery and was commissioned a colonel in that arm.

During the World War, General Herron served in the A. E. F., first as regimental commander of the 313th Field Artillery, then on the General Staff at General Headquarters, later as Assistant Chief of Staff of the 1st Division and finally as Chief of Staff of the 78th Division. He participated in the St. Mihiel and Meuse-Argonne offensives.

After the War, General Herron returned to his regular rank of lieutenant colonel and served in Washington, D. C., at the War College, from which he graduated in 1920, and on the War Department General Staff until 1923. He was promoted to colonel in 1921.

For the next four years he served at the Field Artillery School, first as a student in the Advanced Course, and later as Commanding Officer of the First Field Artillery and the School Troops Division. From 1927 to 1929, General Herron was Chief of Staff of the Philippine Department.

In 1930, after a short tour of duty at Fort Sheridan, Illinois, General Herron was detailed as the War Department Executive Officer for Reserve Affairs with station at Washington, D. C., which office he holds at the present time. He was promoted to brigadier general October 1, 1934.

For exceptionally meritorious and distinguished service as Chief of Staff, 78th Division, during the Meuse-Argonne offensive, General Herron was awarded the Distinguished Service Medal.

# INFLUENCE OF INDUSTRIAL PRODUCTION ON MILITARY OPERATIONS

FROM A LECTURE GIVEN BY COLONEL MENU AT THE CENTRE DES HAUTES  
ETUDES MILITAIRES

(Continued from the September-October Journal)

Should we speak of the inaccuracy of artillery fire? of the insufficiency of the number of guns of 75?

We will say just a few words about them as the file of charges against manufactures is far from being exhausted.

The inaccuracy of artillery fire! It is caused on the one hand by deficient manufacture which delivers shell whose center of gravity and weight are extremely variable, and on the other by an incomplete knowledge of the laws which govern the flight of the projectile throughout its trajectory due to the variation in ballistic and meteorological elements.

What if our infantrymen and the Germans had known what the fire barrages, which in the eyes of the command assured the inviolability of the lines during the night, really were:

Insufficiency in the number of 75 mm. guns! During the month of December, 1914, coinciding with the arrival on the battlefield of munitions made by the first improvised manufacturers, the bursting of tubes started.

On March 20, 1915, 236 pieces had had premature bursts; on May 5, there were 500.

The Artois offensive was beginning, and for the Tenth Army alone, from May 9 to 16, in 8 days, 76 pieces burst, representing the value of 19 batteries.

These were not the only losses however. There was also the destruction by the enemy.

On February 22, General Joffre was short 520 cannons; a request was addressed to the Minister to give to the manufacture of 75 material all the extension necessary.

Only 4 guns came out of the factories during the first three months.

Deficits are increasing: end of March, 609; middle of April, 805. This represents the value of 200 batteries, one quarter of our resources. In the face of this situation Joffre makes the decision to organize 3 gun batteries.

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Little by little projectiles improved; the rate of premature bursts slowed up; however deliveries were slow.

Consequences are felt in the following strategical order:

April 16:

"Five new divisions have only been equipped with caissons of 90 mm. guns without ammunition."

August 5:

". . . The creation of batteries of 75 corresponding to the organization of the new large units for which I asked you by letter 1228 of February 4, has been put off owing to the necessity of remedying, first of all, the crisis due to bursts."

Again on September 22:

". . . The new divisions which went up to the line have not yet received the proportion of artillery which should be apportioned to them."

Is it not current to affirm that manufactures played a first role during one year? And we have not mentioned here the deficiencies observed in more powerful calibers: 155, 220, 270, 370, deficiencies which lasted much longer and the study of which will take all the year 1916 and up to the middle of 1917.

We will only mention essential facts in the history of munitions of large calibers in order to have the time to examine other things which will take us to November 11, 1918.

Shell for the 155 were provided for in the initial plan at the rate of 465 per day.

From the month of October, 1914, Joffre requested an increase of production. On December 24 he says: 2,000 per day; on December 29, 3,000.

He received then hardly 300, and during the battles of December out of 104 pieces of 155 C. T. R. (Rapid fire gun) of which the armies dispose, 16 only could be put in service.

The same occurred for the February offensives, as at that time the lack of explosives did not permit filling a single shell of 155.

And for the preparation of the Artois battle, when the destruction of organizations cannot be entrusted to projectiles of

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75, Joffre cannot give to Foch the 40 guns of 155 C. T. R. which the latter requests.

Is it astonishing that in these conditions the centers of resistance could not be overcome?

Between May 1 and June 20, the armies consume 155,000 shell while the manufacturers only make 95,000, a certain number of which, we must remember, are being sent to Mediterranean ports for dispatch to the Orient.

7,000 shells a day asks Joffre on June 11; on June 24, he asks for 12,000. And deliveries then average 2,500. Let us examine them: one-half is made of shell of steel and cast iron whose destructive power is three times less effective than that of the explosive shell; the other half which is made of cast iron shells (primarily intended for firing exercises and now employed as war shell) have still further reduced capacity.

The rate of production which Joffre requires for the battles of September, 1915, has been promised to him for February, 1916, as it is necessary to apply to the United States where a mission of qualified specialists is sent for the purpose of organizing the production.

It is due to the absence of this heavy ammunition that in September the Artois battlefields were abandoned to carry on the battle in Champagne. We know the brilliant conquest of the first line positions, but also the costly and definite check at the second line positions which the heavy artillery was unable to attack owing to lack of munitions.

It is only in June, 1916, when the battle of the Somme was starting, that the production of shell of 155 reached the rate required by Joffre; 26 rounds per piece in service and per day, or at that time 18,000 rounds.

Let us examine the consequences of this change.

In 1915 in the battle of Champagne, between Sept. 25 and Oct. 15, the lives of 4,343 officers and 175,471 men were lost. During the battle of the Somme, from July 1 to Nov. 30, the losses were 5,000 officers and 189,411 men.

On the one hand, in 21 days, 81,500 killed or missing; on the other, 65,000 in 154 days.

What price was paid in 1915 for the insufficiency in munitions.

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And during the battle of the Somme many lives could have been spared if the materiel of calibers superior to the 155—which had a capital role to play—had been able to intervene fully.

Projectiles of 220 and 270! The offensives of December, 1914, and February, 1915, were carried out without them.

There existed however 330 pieces of 220 and 56 howitzers of 270 awaiting to be used. There was also a supply of 420 rounds per piece for the 220 and 350 rounds for the 270; but after that there was nothing and it was impossible for the Commander in Chief to know if industry would one day be able to supply these reserves.

In March, 1915, Foch, who is preparing the offensive in Artois, asks for 8 howitzers of 220; in April he asks for 4 howitzers of 270. Joffre knows that he cannot count on any delivery before a long time; however, he gives to his lieutenant the material and calls on his munition reserves. It is with these 12 pieces that the battle started.

At the beginning of June it is stated that the first deliveries will begin. Joffre reinforces the Tenth Army in powerful artillery. When the battle finishes on June 20 there are allocated to this front 20 howitzers of 220 and 12 howitzers of 270. But this materiel which might have been decisive in the first days of May now comes too late.

Industry has started to produce a few shells but cannot load any, while Joffre asks for 3000 shells of 220 and 1000 shells of 270 daily.

Preparing a new offensive, the Commander in Chief writes on July 26:

" . . . The proposed offensive which will require a heavy consumption of projectiles would be compromised if no important improvement is brought immediately to the present output of our factories."

Having read this the Minister sends a second mission to the United States and while technicians are traveling full speed on their way to America the battle is started and results in a sanguinary strategical defeat.

Yet everything that could be done has been done. The loading



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of projectiles of 155 has been slowed up in order that the explosive necessary could be utilized for the 220 shell. During September 1200 shells are manufactured daily but these are only cast-iron shell for firing exercises. Real war shell would have required too much explosive, and there was none.

As regards the 260 shell, metallurgy has furnished at the beginning of September a total of 1650 projectiles; these will remain empty.

In July, 1916, when the battle of the Somme begins, the production in loaded shell is still very weak:

For the 220, 1200 instead of 3000.

For the 270, 90 instead of 1000.

Nothing has been received from America yet.

When will the Commander in Chief be given satisfaction?

For the 220, when the battle of the Somme is finished, in December, 1916.

For the 270, it will take longer still, until April, 1917, nearly two years!

Talking about large calibers, let us say a word about the shells for the 370.

Ten mortars have been put under construction in October, 1914; the first models came out of the factories in June, 1915, and Joffre wishes to utilize them for the next battle in September. Projectiles have been promised to him.

The metallurgical industry delivers in 3 months, before September, 600 shells. But the guns cannot be used, there being no explosive available for this caliber.

Such is condensed and reduced to its essential lines, the history of the manufacture of artillery projectiles:

September, 1914-April, 1917: 31 months were necessary in order to obtain projectiles for battles in the quantity required by the Commander in Chief.

During this long period, four phases are distinct:

September-November, 1914: Beyond what has been provided for in time of peace, nothing can be produced.

December, 1914-May, 1915: 75 guns absorb all production.

June, 1915-June, 1916: All calibers are supplied progressively.

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But when it comes to supplying the needs for a battle, a choice must be made, for if an effort is accomplished in favor of one caliber it is to the detriment of all the rest, whose supply is considerably decreased.

July, 1916-April, 1917: When circumstances require the increase of the resources of one caliber, there is no corresponding diminution in the quantity for other calibers; however, the necessary quantities have not yet been attained.

Beginning with May, 1917, all the needs of the armies are satisfied.

The story is ended.

But another one continues, it is that of the materiel whose manufacture up to the Armistice will not cease to cause to the Commander in Chief the greatest worry:

Rifles and machine guns in 1914 and 1915,

Heavy artillery of the large units, short and long, from 1915 to 1918,

Materiel for tanks in 1916, 1917 and 1918.

Materiel which constitutes the artillery reserve of the Commander in Chief: material on tractors from 1916 to 1918, heavy railroad artillery, 1914 to 1918.

For each of these categories, we find the peculiarities encountered in the preceding study; we could look up the records and basing ourselves upon documents formulate the same grievances.

Brutal and instantaneous opening of the battlefield to the infantry! How much blood has been spilled because the aim in view could not be reached!

We will study two new aspects of the problem of manufacture: one refers to tanks, the other to heavy, powerful artillery.

We are at the end of January, 1917. General Nivelle has just replaced Joffre as Commander in Chief of the French armies. Manufactures have reached their full development. From 50,000 in 1914, workmen employed in the manufacture of war material have increased to 1,600,000; this figure will only be increased by 100,000 until the end of hostilities.

Orders for tank materiel are in full swing. Schneider tanks have been ordered a year ago; after a very difficult start, the manufacture has just begun. Since the middle of the month deliveries

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attain 3 tanks per day; they will reach 4 in the middle of February. The order for 400 tanks will be completed at the end of March.

At the Renault factory, a new type of tank has been studied, the light machine gun tank, of which Joffre in November last has ordered 1,000.

On the other hand, the battle of the Somme has put in evidence the considerable difficulties which oppose the movement of artillery in the shell-holed ground of the battlefield (we must not forget that this materiel was the siege equipment of 1914! . . .). Joffre has decided to overcome these difficulties by the employment of cross-country vehicles, called caterpillar vehicles, trucks and trailers; he has asked for means of transport for the artillery of two divisions, 75 and 155 C, and for the heavy artillery, cross country trucks or trailers. We then see the Minister of Armament pass an order at the beginning of January, 1917, for 350 cross country trucks from Renault and 500 cross country trailers from Schneider; this materiel to be constructed at a fairly rapid rate.

Such is the situation when General Nivelle arrives at G. H. Q.

The new Commander in Chief has entirely different conceptions. He attaches a capital importance to the progression of the artillery and is little interested in tanks; he asks that preference be given to the manufacture of cross country vehicles.

The Minister of Armament, in conformity with these new directives, asks Schneider to build first of all cross country vehicles and to put off the manufacture of tanks; he does the same with Renault and moreover reduces the order for tanks, which was previously of 1,000, to 150.

On March 31st, instead of 400 tanks, Schneider delivers only 206. In the battle of the Aisne, 132 tanks invested with a third-rate mission are engaged in one part of the battlefield without any conviction; we know what became of them.

As regards cross country vehicles, Schneider and Renault have been able to develop a model. Manufacture will soon be progressing.

Two weeks later, on April 13, a letter comes from G. H. Q.:

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"Concentrate all efforts on the manufacture of Schneider tanks and that of light machine gun tanks," writes General Nivelles.

A second time the order is reversed; again it is necessary to modify the dispositions taken. Cross country vehicles again take second place.

It is too late for the Schneider tanks, which have had their chance and lost it. The Renault tanks, affected by a delay of six months, will be entirely lacking at the time of the German offensive in March, 1918; they will only be available in quantity on August 28, 1918, two months only before the end of the war.

Cross country vehicles, conceived for glorious strategical feats, will one after the other, ignored, disowned, be sent to the rear to live in parks a life which was a failure and they will be placed next to transport wagons in convoys of munitions or materiel.

Such is the first story.

Here is the second, which relates to heavy artillery material.

We will begin in June, 1917. But in order to understand how events became linked, we must first of all look back as far as June, 1915.

The battle of Artois has just finished. Preparatory destructions could not be effected by 155mm projectiles, these being delivered in very small quantity by industry and reserves being almost completely exhausted. The 75 shell has assumed the greatest part of a mission which, since the month of February, has become notoriously beyond its capabilities and which the Bange guns of 155, with slow fire, could not have fulfilled.

"Recent combats, writes Joffre on June 24, 1915, "have revealed the essential role fulfilled by the 155 CTR (rapid fire gun) in the preparation of attacks against fortified positions.

"This gun, owing to its speed of fire and its powerful effects on barbed wire buried in the ground, is very effective for destruction of accessory defenses, which reveal to the enemy the point of attack chosen only a very short time prior to the attack.

"It is therefore indispensable to provide for an increase of the allotment to the armies of guns of 155 CTR, other materiel of the same caliber not being able to replace them

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in this special mission owing to an insufficient speed of fire."

Howitzers of 155 with rapid fire are then asked from the Interior.

In January, 1916, the total of the orders amounts to 512 pieces, but meanwhile, in September, 1915, during the Champagne offensive, "siege materiel" has been employed in a preparation which required six days.

For the battle of the Somme, Joffre was hoping to be able to facilitate the access of the battlefield to the infantry by a brutal, massive and rapid action of the artillery, but in June, 1916, only 30 guns of 155 with rapid fire had come out of the factories. Once again it is the guns of 1914 which lead the action. Destruction fire begins on June 24, slowly conducted, shot by shot; it lasts until July 1st, seven days.

While started in June, 1915, at the time when the 155 caliber has become necessary to overcome passive defenses, the problem of destruction was only solved in July, 1916. We have the power but not yet the speed of fire, nor mobility.

At the rear, modern guns of 155, 220 and 280 are being constructed according to orders passed during the year 1915.

On May 30, 1916, the 1st Bureau at GHQ has established a program tending to eliminate definitely all the obsolete siege materiel and to equip the French armies with modern materiel: divisions, army corps, reserves of the Commander in Chief.

This includes 2,200 pieces of 155 C (short), 1,500 pieces of 155 Long, 960 pieces of 105, 320 pieces of 220 and 80 mortars of 280.

Ten months later, during the spring of 1917, we see the 2nd Division of the General Reserve on tractors bringing all its power to the battle: there are 632 pieces of 155 and larger calibers. This would be formidable if, out of a total of 84 groups, there were not 73 which are still armed with the siege materiel of 1914. It is therefore not surprising that the preparation which began on April 6 was prolonged until April 16, lasting 11 days.

Manufacture is now progressing.

General Petain replaces General Nivelle. His ideas are entirely different from those of his predecessor.

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"It would be dangerous," wrote General Nivelle on April 11, "to confine ourselves to the dogma of an unchangeable front. . . Only a very mobile artillery is susceptible of reinforcing everywhere and at all times the progression of our infantry. . ."

In the constructions for heavy artillery materiel, he gave the priority to the 155 C. As a consequence of this decision measures have been taken in the interior to arrive at a monthly production of 200 pieces. The program of May 30, 1916, in so far as this materiel is concerned, will be realized in February, 1918.

General Petain, on the other hand, esteems that, before progressing, the problem of forcing positions must be solved. He writes on June 25:

"From the information which we have obtained, it appears that defensive organizations realized by the enemy during 1917 are notably stronger than those which he had established up to that date and that they include particularly numerous concrete shelters. . ."

He only wants to give battle with powerful materiel in great numbers.

"When shall we be able to dispose of the materiels of 220 with rapid fire, and 280 of the Program of May 30, 1916?"

The Minister of Armament answers: "In September or in October, 1918. Not before!"

From that moment—July, 1917—the fate of the campaign of 1918 is settled.

"Take all that is necessary from the manufacture of the 155 C," says General Petain. "I desire that the realization of the program for the 220's and 280's be accelerated as much as possible in order that as large a number as possible of these two categories be delivered prior to February 1, 1918. Moreover, I desire that their numbers be doubled, that is, I would like to have 640 pieces of 220 and 240 pieces of 280 (respectively 160 and 80 batteries).

"I request you to study urgently the means for arriving at this result."

This causes a complete upset.

"A change in the program of manufacture causes a considerable perturbation," says Loucheur.

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And the following conversation takes place:

"What can I have for February 1, 1918?"

"It is impossible to deliver another gun of 280, above what has been considered; as regards the 220's, the factories will be able to deliver 132 instead of 124. That is all."

"And when will the program of May 30, 1916, be completed?"

"By sacrificing the 155 C, we cannot gain more than two months on former estimates: July, 1918, for the 220; August, 1918, for the 280."

"What about doubling this program?"

"In March, 1919, for the 220; in July, 1919, for the 280."

It was then, in this month of July, 1917, that General Petain was called upon to take a very serious decision which would engage the whole future.

Either change nothing in the program of manufacture which is being carried out and in which first place is given to the 155 C; or modify completely the dispositions taken and give the priority to heavy, powerful materiel.

In the first case battle will have to be given in 1918 by attacking the enemy positions with the 155 caliber; in the second case it will be necessary to wait until 1919 in order to dispose of larger calibers.

Placed before this dilemma imposed by manufacture, General Petain decides to wait until 1919 to deliver his battles and seek victory.

On the other hand, the Commander in Chief desires to have at his disposal a strategical instrument of maneuver. He knows that the 2nd Division of the General Reserve, owing to lack of modern materiel, will not acquire before the middle of 1918 the mobility which should characterize it.

He then applies to the 1st Division of the general reserve of heavy artillery.

"It is necessary," he writes on May 8, 1917, "to have an artillery which is supple, powerful and very mobile; the most supple artillery that we can have in order to travel distances of 200 or 300 kms is the heavy railroad artillery."

He asks the Minister of Armament to speed up the manufacture

## INDUSTRIAL PRODUCTION ON MILITARY OPERATIONS

of this materiel, as he wishes to have it by February 1, 1918; this still to the detriment of the 155 C, for which he fixes a minimum to be delivered on this same date.

These requests exceed the possibilities of the Interior and will not be met.

To sum up: It is only in August, 1918, that all infantry divisions have been equipped with the rapid fire heavy artillery which was requested for May, 1916.

At the Armistice, the tractor artillery still counted among its equipment, in the proportion of one to four, the siege materiel of 1914 and 1915.

As regards the heavy railroad artillery, out of 288 powerful guns which it should have received, only 48 were constructed.

Therefore:

It was only three months before the Armistice that the Commander in Chief was able, by utilizing either his artillery or his tanks, to launch his offensives by surprise.

As regards strategical mobility, this failed him to the end.

This exposé shows that it was not only during the first year but during the entire course of the war that manufacture played a primary role. At no time were they able to satisfy the needs of the armies, and the hardships which the latter suffered have had terrible effects on the battlefields.

We ask ourselves how a situation which had such serious consequences could have occurred and we feel the need of looking into the organization of the interior.

There is subject matter there for another study of the highest interest which we could not reproduce in this review. However, we must state that the study of the records shows that the rear has furnished an immense effort, that it found itself in front of many difficulties, some of them insurmountable, and that all have worked to the limit of their forces.

It has been necessary to transform completely the industrial activities of the country, while nothing had been organized or even provided for. Today, we know better: it is possible to foresee and organize and such a situation must not occur again.



# ASSIGNMENT OF FIELD ARTILLERY OFFICERS TO ORGANIZATIONS (As of Oct. 1, 1934)

## 1ST FIELD ARTILLERY (FORT SILL, OKLA.)

Colonel R. C. Foy

### MAJORS:

J. H. Carriker  
J. A. Hoag

O. E. Beezley  
R. W. Beasley

### CAPTAINS:

E. R. Roberts  
B. C. Anderson  
H. H. F. Gossett  
R. H. Dixon  
L. H. Frazier  
W. Hayford, 3d  
T. C. Harry  
N. J. McMahan  
E. M. Graves  
T. W. Russey

C. M. Lucan  
R. D. Terrell  
M. C. Walton, Jr.  
W. A. Ray  
H. C. Harrison, Jr.  
I. L. Kitts  
C. P. Townsley  
J. P. Donnovin  
L. S. Arnold  
R. C. Snyder

### FIRST LIEUTENANTS:

G. L. Holsinger  
H. C. Fowler  
C. E. Berg  
C. R. Hutchinson  
H. C. Larter, Jr.  
S. A. Beckley  
M. V. Gannon  
A. E. Solem  
D. S. Somerville  
G. B. Coverdale  
L. C. Davis  
R. P. Turner

E. V. Holmes  
J. A. Cella  
C. L. Taylor  
J. R. Wheaton  
J. M. Burdge, Jr.  
S. C. Lombard  
E. W. Searby  
J. M. Willems  
T. E. Lewis  
H. W. Wilkinson  
W. W. Scott  
H. S. Isaacson  
J. E. Holley

### SECOND LIEUTENANTS:

D. G. Dwyre  
H. S. Whiteley

W. H. Allen, Jr.  
W. J. Thompson  
R. W. Timothy

## 2ND FIELD ARTILLERY (PANAMA CANAL DEPARTMENT)

Lt. Col. E. L. Gruber

### CAPTAINS:

D. L. Ruffner  
G. H. Duff  
S. G. Fairchild

W. M. Wright, Jr.  
L. E. Babcock  
P. J. Atkinson  
H. F. Schoonover

### FIRST LIEUTENANTS:

T. McGregor  
F. S. Gardner  
F. S. Stritzinger, 4th  
F. C. Foster

R. C. Partridge  
C. A. Pyle  
K. W. Treacy  
M. Faulhaber

### SECOND LIEUTENANTS:

P. R. Weyrauch

G. W. Power  
H. S. Sundt

ASSIGNMENT OF FIELD ARTILLERY OFFICERS  
 3RD FIELD ARTILLERY (FORT BENJAMIN HARRISON, IND.)  
 Major J. K. Boles

CAPTAINS:	C. M. Thirlkeld
C. D. Parmalee	L. V. Harris
A. L. Shreve	E. T. Hayes
W. B. Leitch	
 FIRST LIEUTENANTS:	 J. P. Woodbridge
E. A. Routheau	R. S. McClenaghan
R. Sears	M. D. Masters
J. R. Lindsey	E. M. Quigley
R. P. Hollis	P. A. Berkey
V. R. Smith	R. C. Ross
 SECOND LIEUTENANTS:	 C. P. Westphaling
J. J. Davis	J. E. Godwin
R. F. Bower	J. K. Wilson, Jr.
F. G. Paul	R. B. Franklin
J. K. Bryan	J. W. Ferris
P. R. Walters	R. P. Thompson

3RD FIELD ARTILLERY (FORT SHERIDAN, ILL.)  
 Major H. E. Maguire

CAPTAINS:	A. M. Goldman
C. B. Cole	J. P. Crehan
M. A. Dawson	A. F. Doran
A. Brill	
 FIRST LIEUTENANTS:	 D. V. Johnson
C. E. Hixon	S. F. Yeo
 SECOND LIEUTENANTS:	 F. H. Tapping
W. R. Gallup	F. W. Ellery
A. R. Hercz	C. L. Williams, Jr.
J. C. McCawley	T. S. Pollock
W. A. Downing, Jr.	H. C. Plapp
S. E. Otto	R. L. Martin
K. L. Davis	R. C. Bahr
J. F. Surratt	L. K. Meade

4TH FIELD ARTILLERY (FORT BRAGG, N. C.)  
 Lt. Col. T. D. Osborne

CAPTAINS:	R. L. Allen, Jr.
E. S. Brewster, Jr.	R. A. Gordan
G. R. Middleton	
 FIRST LIEUTENANTS:	 G. P. Harrison
J. J. Deery	M. C. Walter
W. H. DeLange	J. B. Horton
 SECOND LIEUTENANTS:	 H. C. Porter
E. C. Shinkle	H. J. Versace
W. P. Whelihan	J. F. Smoller

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J. P. Pearson, Jr.  
W. S. Penn, Jr.  
B. E. Spivy, Jr.

D. G. McLennan  
D. H. Heyne

### 5TH FIELD ARTILLERY (MADISON BARRACKS, N. Y.)

Colonel R. W. Briggs  
Lt. Col. H. W. Huntley

Major W. M. Tenney

CAPTAINS:  
H. E. Tisdale

R. A. Knight  
D. S. Doggett

FIRST LIEUTENANTS:  
T. E. Meyer  
G. J. Deutermann  
R. T. Finn  
T. B. Whitted, Jr.  
E. B. Thayer  
K. N. Decker

J. E. Perman  
J. T. Loome  
R. B. Hart  
A. Vepsala  
J. B. Kraft  
Second Lieut. A. H. Hogan

### 6TH FIELD ARTILLERY (FORT HOYLE, MD.)

Colonel N. B. Rehkopf  
Lt. Col. H. H. Fuller

Lt. Col. W. Bryden  
Major R. C. Batson

CAPTAINS:  
J. H. Fye  
S. T. Wallis  
E. C. Ewert  
G. P. Hays

G. G. Heiner  
C. C. Brown  
M. H. Doty  
T. F. Hickey  
W. R. Philp

FIRST LIEUTENANTS:  
N. H. Smith  
R. E. O'Connor  
D. F. Healy, Jr.  
W. D. Paschall  
S. L. Cowles  
John Meade  
C. F. Burbach  
B. A. Holtzworth  
F. H. Morse

M. H. Burckes  
J. L. McKinnon  
R. T. Tompkins  
T. C. Wood  
B. F. Luebbermann  
W. T. Sexton  
O. W. Martin  
F. A. March, 3d  
G. R. Carpenter

SECOND LIEUTENANTS:  
J. P. Craig  
C. H. White, Jr.  
A. B. Proctor, 3d

T. L. Crystal, Jr.  
W. J. Holzapfel, Jr.  
B. C. Patrick

### 7TH FIELD ARTILLERY (FORT ETHAN ALLEN, VT.)

Colonel J. F. Barnes

Lt. Col. G. W. DeArmond

MAJORS:  
H. Eager

K. P. Lord  
W. E. Burr

CAPTAINS:  
D. J. Sabini  
E. S. Van Benschoten  
H. L. Berry

R. L. Greene  
F. H. Boucher  
Z. E. Lawhon  
A. E. King

## ASSIGNMENT OF FIELD ARTILLERY OFFICERS

FIRST LIEUTENANTS:

F. W. Watrous	K. L. Johnson
D. J. Oyster	W. J. Eyerley
A. J. Hastings	C. S. Follansbee
J. C. Campbell	L. E. Jacoby
S. P. Collins	L. H. Ham
W. H. Kenneth	D. S. Babcock
W. L. Carr	J. E. Salmon
	R. S. Marr

SECOND LIEUTENANTS:

S. Sawicki	F. P. Miller
J. D. Armitage	R. Park, Jr.
G. C. Lothrop	D. P. Armstrong
	G. C. Duehring

### 7TH FIELD ARTILLERY (MADISON BARRACKS, N. Y.) Major E. Yeager

CAPTAINS:

W. B. Walters	W. C. Brigham
W. F. Kernan	J. T. B. Bissell

FIRST LIEUTENANTS:

H. K. Palmer, Jr.	R. F. Hallock
K. S. Sweany	G. A. Grayeb
L. R. Wingfield	C. G. Nelson
	J. Massaro

SECOND LIEUTENANTS:

W. R. Goodrich	W. H. Richardson, Jr.
N. M. Wallace	R. G. Speiser

### 9TH FIELD ARTILLERY (FORT LEWIS, WASH.) Major W. F. Maher

CAPTAINS:

J. R. Williams	K. K. Jones
A. E. Billing	W. J. Egan
H. P. Gantt	L. M. Kilgarif

FIRST LIEUTENANTS:

J. G. Anding	W. H. Bertsch, Jr.
L. M. Johnson	C. J. Kanaga
F. B. Porter	H. J. Harper
E. H. Barr	P. L. Martin

### 10TH FIELD ARTILLERY (FORT LEWIS, WASH.) Col. F. W. Clark

MAJORS:

S. F. Clark	W. W. Crawford
-------------	----------------

CAPTAINS:

J. G. White	J. J. France
M. M. Potter	P. W. Allison
A. L. Warren	R. C. Hirsch
M. B. Patton	J. E. Ray
M. B. Barragan	C. R. Lehner
T. C. McCormick	C. D. Calley
	N. J. Eckert

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### FIRST LIEUTENANTS:

F. R. Brisack  
H. C. Raymond  
C. W. Stratton  
V. F. Burger  
H. E. Sanderson  
J. E. Slack

R. C. Hendley  
P. Sather  
L. E. Heyduck  
F. Q. Goodell  
F. H. Canlett  
F. W. Lee  
W. C. Stout

### SECOND LIEUTENANTS:

R. H. Harrison  
J. W. Park  
R. W. Fletter

J. H. Rothschild  
H. M. Peyton  
P. H. Lash, 2d  
J. R. Messersmith

### 16TH FIELD ARTILLERY (FORT MYER, VA.)

Lt. Col. J. L. Devers

### CAPTAINS:

H. W. Blakeley  
W. R. Frost

H. P. Brotherton  
W. H. Colbern  
P. Mallet

### FIRST LIEUTENANTS:

L. B. Downing  
W. H. Barksdale, Jr.  
R. W. Mayo

A. P. McCone  
D. G. Erskine  
J. Ganahl

### SECOND LIEUTENANTS:

W. H. Hoover  
A. Graham  
F. I. Pohl  
R. C. Moore  
H. King  
T. B. Maury, 3d  
G. E. Adams

A. Hero, 3d  
J. P. Honeycutt  
B. D. Jones  
N. C. James  
E. A. Walker  
J. D. Seaman  
R. E. Weber, Jr.  
C. Lynn, Jr.

### 17TH FIELD ARTILLERY (FORT BRAGG, N. C.)

Colonel E. R. W. McCabe

Lt. Col. M. Magruder

### MAJORS:

L. McHale

C. L. Clark

### CAPTAINS:

L. M. Haynes  
W. W. Murphey  
J. McDowell  
J. Hunt  
F. S. Conaty

J. F. Hepner  
V. A. Dash  
S. R. Hurt  
M. C. Calhoun  
F. J. Achatz  
R. H. Knapp

### FIRST LIEUTENANTS:

A. S. Bennet  
M. B. Stokes  
P. H. Enslow  
B. Furuholmen  
L. L. Hittle  
R. Condon  
W. R. Grove

W. F. Millice  
J. H. Workman  
S. F. Little  
R. C. White  
J. L. Lewis  
W. W. Ford  
E. H. McLemore  
T. A. Doxey

## ASSIGNMENT OF FIELD ARTILLERY OFFICERS

W. D. Williams  
W. E. Watters  
P. H. Ringsdorf

R. L. Mabie  
C. P. Summerall, Jr.

Second Lieut. S. L. Steadman

18TH FIELD ARTILLERY (FORT SILL, OKLA.)

Major H. D. Jay

CAPTAINS:

O. N. Schjerven  
A. P. Kitson  
D. T. Boisseau  
H. E. Sowell  
H. J. Gaffey

W. W. Belcher  
H. Kernan  
L. L. Partlow  
J. L. Danforth  
M. S. Creusere  
N. F. Galbraith

FIRST LIEUTENANTS:

G. E. Wrockloff  
H. F. Handy  
G. V. Keyser  
R. J. Handy  
C. N. McFarland  
L. W. Haskell  
G. F. Lillard  
R. T. Strode  
C. F. Boyle  
J. V. Daly

O. L. McDaniel  
F. H. Sinclair  
R. E. Chandler  
E. McGinley  
S. H. Fisher  
J. P. Holland  
W. A. Wedemeyer  
F. A. Granholm  
M. H. Lucas  
V. B. Barnes

SECOND LIEUTENANTS:

R. C. Hattan

J. L. Beynon

18TH FIELD ARTILLERY (FT. RILEY, KANS.)

Major I. T. Wyche

CAPTAINS:

R. H. Slider

S. M. Smith

FIRST LIEUTENANTS:

H. Crawford  
J. T. Dawson  
F. N. Leakey  
R. J. Pride

C. W. Land  
C. E. Hart  
H. H. Hunt  
O. Ellis

SECOND LIEUTENANTS:

W. E. Kraus  
J. A. Costain  
T. C. Foote

G. W. Peake  
R. G. Baker  
J. R. Winn

18TH FIELD ARTILLERY (FORT SNELLING, MINN.)

Capt. R. V. Maraist

FIRST LIEUTENANTS:

C. H. Day

C. Wesner  
D. Q. Harris

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19TH FIELD ARTILLERY (FORT KNOX, KY.)

Major A. C. Sandeford

CAPTAINS:	R. W. Hasbrouck
J. A. Wallace	
FIRST LIEUTENANTS:	F. J. Hierholzer
J. O. Taylor	S. V. Krauthoff
N. W. Jones	

24TH FIELD ARTILLERY (PS) (FT. STOTSENBURG, P. I.)

Col. F. A. Ruggles

MAJORS:	J. C. Wyeth
H. L. McBride	G. P. Downing
F. C. Mellon	
CAPTAINS:	I. L. Foster
J. P. Eckert	R. B. Willis
W. C. Green	J. D. Balmer
E. A. Henn	M. L. McCreary
A. M. Sheets	W. A. Metts, Jr.
M. C. Wilson	S. F. Reyes (PS)
W. A. Beiderlinden	T. E. Beuchler
F. V. Segundo (PS)	S. White
FIRST LIEUTENANTS:	R. D. Powell
J. L. Graves	D. Larr
V. H. Connor	H. C. Layton
G. F. Wooley, Jr.	G. A. A. Jones
C. A. Horne	B. Evans
T. W. Brown	M. S. Sulit (PS)
V. Z. Gomez (PS)	N. Catalan (PS)
A. D. Garcia (PS)	J. L. Langevin
A. Martelino (PS)	
SECOND LIEUTENANTS:	F. G. Terry
H. E. Brooks	A. C. Goodwin, Jr.
R. L. Carmichael, Jr.	P. L. Sherbourne
G. E. Lynch	S. W. Horner, 2d
W. Menoher	

36TH FIELD ARTILLERY (FORT BRAGG, N. C.)

Capt. O. M. Marshburn

FIRST LIEUTENANTS:	S. S. Koszewski
C. E. Margrave	S. M. Bevans
T. E. De Shazo	C. O. Wiselogle
W. D. Webb, Jr.	G. R. Scithers
A. B. Devereaux	
SECOND LIEUTENANT:	
J. D. F. Philips	

## ASSIGNMENT OF FIELD ARTILLERY OFFICERS

### 76TH FIELD ARTILLERY (FT. F. E. WARREN, WYO.)

Col. C. R. Norton

Lt. Col. J. R. Starkey	Major F. B. Inglis
CAPTAINS:	J. G. Cook
J. C. Cook	C. F. Murray
C. W. Bonham	H. B. Dawson
B. M. James	
FIRST LIEUTENANTS:	R. D. Warring
J. E. Adkins, Jr.	H. L. Love
R. C. Lawes	H. W. Brimmer
G. M. Cole	
SECOND LIEUTENANTS:	G. L. Roberson
A. V. Dishman	J. B. Rankin
G. E. Dietz	D. L. Hine

### 76TH FIELD ARTILLERY (PRES. OF MONTEREY, CAL.)

Lt. Col. J. P. Marley	Major J. O. Daley
CAPTAINS:	R. W. Yates
T. E. T. Haley	E. J. Roxbury
F. L. Thompson	
FIRST LIEUTENANTS:	W. R. Schaefer
M. Pierson	F. S. Kirkpatrick
F. F. Carpenter	G. J. Reid
J. F. Collins	
SECOND LIEUTENANTS:	R. W. Meals
C. R. McBride	R. Totten
M. Tague	M. B. Chatfield
J. G. Shinkle	H. M. Batson, Jr.
T. H. Berkowitz	C. C. Smith
M. V. Pothier	

### 77TH FIELD ARTILLERY (FORT SILL, OKLA.)

Major V. Meyer	Capt. R. Campbell
----------------	-------------------

### 3RD BN., 80TH FIELD ARTILLERY (FORT DES MOINES, IOWA)

Major E. C. Williams

CAPTAINS:	R. L. Gervais
J. C. Patterson	B. B. Lattimore
R. Garey	W. E. Corkhill
G. G. Holmes	
FIRST LIEUTENANTS:	R. T. J. Higgins
E. M. Link	O. R. Marriott
F. O. Wood	L. M. Rouch
S. E. Stancisko	R. M. Costigan



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82ND FIELD ARTILLERY (FORT BLISS, TEXAS)

Col. G. P. Tyner	Lt. Col. P. W. Booker
MAJORS: R. C. Rutherford	H. C. Jones
CAPTAINS: L. J. Whitlock E. A. Hyde J. G. Watkins	W. B. Weston F. B. Lyle H. J. Guernsey R. G. Miller
FIRST LIEUTENANTS: R. A. Ellsworth A. R. Sewall P. A. Garvin	E. J. Murphy D. Danford M. C. Cureton, Jr.
SECOND LIEUTENANTS: M. L. Fisher W. Taylor, Jr. D. Parker, Jr. W. O. Darby J. B. Evans R. H. Adams	D. A. Herman P. E. La Due J. R. Brindley G. T. Powers, 3d H. J. Hubbard K. A. Cunin T. E. Wood

1ST BN., 83RD FIELD ARTILLERY (FORT BENNING, GA.)

Lt. Col. L. P. Collins	
CAPTAINS: R. G. Mangin W. H. Quarterman	L. S. Partridge H. W. Tarkington
FIRST LIEUTENANTS: C. H. Studebaker L. B. Ely G. D. Vanture P. W. Thompson	G. H. McManus, Jr. J. P. Barney, Jr. L. S. Griffing T. Calhoun J. V. Carroll
SECOND LIEUTENANTS: J. R. Beishline W. A. Harris R. B. Neely P. T. Hennigar	D. F. Walker G. Chapman C. R. Revie S. K. Yarbrough, Jr. E. F. Benson

2ND BN., 83RD FIELD ARTILLERY (FORT BRAGG, N. C.)

Lt. Col. L. J. McNair	
CAPTAINS: J. L. McIlhenny	P. Winlock
FIRST LIEUTENANTS: L. C. Friedersdorff R. J. West	C. Covelli, Jr. R. G. Duff J. L. Hardin
SECOND LIEUTENANTS: M. Moses F. R. Redden	M. O. Perry J. A. Berry, Jr. H. G. Sparrow

## ASSIGNMENT OF FIELD ARTILLERY OFFICERS

H. K. Whalen	W. F. Ryan
W. J. Givan, Jr.	R. L. McKee
H. L. Sanders	J. H. Squier
T. G. Bilbo, Jr.	

### 2ND AMMUNITION TRAIN (FORT SILL, OKLA.)

Captain J. F. Brittingham

FIRST LIEUTENANTS:	M. K. Kurtz
D. P. Poteet	

### BATTERY "A", 1ST OBSERVATION BN. (FT. BRAGG, N. C.)

Capt. J. Mesick

FIRST LIEUTENANTS:	E. T. Owen
J. M. Works	A. F. Freund
H. W. Kruger	

### 1ST FIELD ARTILLERY BRIGADE (FORT HOYLE, MD.)

MAJORS:	L. E. Hibbs
J. M. Eager	N. N. Polk

CAPTAIN:  
J. H. Keatinge

### PERSONNEL OF THE 2ND FIELD ARTILLERY BRIGADE (FT. SAM HOUSTON, TEXAS)

#### 12TH AND 15TH FIELD ARTILLERY REGIMENTS

Col. J. H. Bryson

Lt. Col. R. McT. Pennell	Lt. Col. R. H. Lewis
--------------------------	----------------------

MAJORS:	D. J. Page
C. H. Tate	R. T. Heard
J. G. Burr	D. C. Schmahl

CAPTAINS:	C. R. Hall
E. A. O'Hair	W. W. Dixon
N. E. McCluer	E. R. Block
J. W. Loef	J. F. Roehm
C. A. White	W. A. Enos
C. C. Knight	

FIRST LIEUTENANTS:	R. P. Huff
E. M. Edmonson	T. A. Jennings
J. H. Hinds	W. D. McNair
G. E. Burritt	R. O. Smith
A. N. Williams	R. S. McEldowney
H. P. Adams	S. Wood
O. M. Barton	A. E. Smith
G. E. Mitchell, Jr.	J. K. Gibson
W. L. Coughlin	J. A. Samouce
J. C. Strickler	T. O. Foreman

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### SECOND LIEUTENANTS:

G. K. Cusack  
S. Smellow  
L. V. Hightower  
W. H. Isbell, Jr.  
R. L. Cardell  
I. W. Jackson  
A. M. Haynes  
R. S. Carter  
C. A. Schrader  
E. H. Eddy  
L. A. Mason  
W. Y. Frenzel  
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13TH FIELD ARTILLERY BRIGADE (FORT BRAGG, N. C.)

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## FIELD ARTILLERY NOTES

### 476th Field Artillery Celebrates Winning Trophy

The 476th Field Artillery, Reserve, with Headquarters in Louisville, Ky., celebrated the winning of the Toulmin Trophy, which is given each year to the best Reserve Regiment in the Fifth Corps Area, with a Military Ball, given in the Crystal Ball Room of the Brown Hotel, Saturday, October 13th. The event was probably the most successful on the Social Military Calendar for the Kentucky Military area this year.

Major General A. J. Bowley, Commander, Fifth Corps Area, made official presentation of the trophy to Lt. Col. Earl E. Major, Commanding the regiment. The General congratulated the Regiment for its splendid work during the year 1934, and said he knew the good work would continue. Lt. Col. Major, in his speech of acceptance pledged 100 per cent co-operation of the Regiment with any program of the Corps Area Commander and the Army Officials, in National Defense. He said that he hoped to have his Regiment so trained that should there be an emergency it would function in a way that would reflect credit on the service.

Lt. C. R. Gildart, F. A., with offices in the Federal Building, is the Artillery instructor for this Regiment as well as all Artillery Reserve units in the Kentucky Military Area and is in no small way responsible for the splendid work accomplished during the past year.

The Military Ball was attended by all Regular Army, National Guard and Reserve Officers in the vicinity of Louisville and by Brigadier General Guy V. Henry and a large representation of officers from Fort Knox.

The proceeds are to be used to purchase a painting of General William J. Snow, formerly Chief of Field Artillery, and present it to the officers of Fort Knox, for use in the new Officers Club. General Snow was probably the person most responsible for the selection of the site now occupied by the Military Garrison, seeing in this location the possibility of a great Field Artillery School.

### **Fort Lewis Horse and Transportation Show**

The annual Fort Lewis Horse and Transportation Show was held on September 15, 1934, before three thousand spectators. The events were colorful and the schedule was rapid enough to keep the interest of the spectators during the entire show.

The Transportation Show events were judged in the morning and winners paraded as a closing event in the afternoon. Events in this section consisted of an Artillery Gun Team with Gun, Tractor with Howitzer, Liberty Truck, Escort Wagon, Motorcycle, and both horse-drawn and tractor-drawn Reel Carts. All painting conformed to Training Regulations in force and the appearance of the contestants indicated considerable work in preparation for the show.

The Horse Show events were on the afternoon schedule and consisted of Children's Riding, Best turned out Trooper, Jumping, Officers' Charger, Children's Jumping, Bareback Jumping, Light Harness Horses, Pair Jumping, Ladies' Saddle Class, and Open Jumping. Entries for most of the events averaged over twenty in number and were of considerable quality. Due to the widespread interest in events of this nature in the community, approximately three-fourths of the competitors were civilians. There are a half dozen riding clubs in the nearby vicinity and from each club there was a representative contingent.

In addition to the Horse and Transportation events, there was a display class which included airplanes, machine guns, tanks and tractors, 37mm guns, Field Artillery Trainer, etc. These displays were in good condition and afforded considerable interest to both the military and civilian spectators.

Brigadier General O. B. Rosenbaum presented the trophies and took an active interest in the entire show. Prominent Tacoma civilians were in attendance and spoke highly of the high standard attained in the various classes.

## BOOK REVIEWS

"THE KING OF BATTLES," an exposition of the art and science of Field Artillery, written by the late Major General Harry Gore Bishop, Chief of Field Artillery, combines breezy treatment with brilliant and lucid explanations of subjects which too often prove stumbling blocks to those out of contact with the Field Artillery. The author's facile manner of imparting information prevents this book from becoming a text—it is far too interestingly written. A perusal of this book will not make a field artilleryman of the reader, but should help him along the road thereto. "The King of Battles" will be published by *Houghton Mifflin Company*, of Boston, in February, 1935. Price, \$2.00.

THE HEROIC YEARS. By FLETCHER PRATT.—Aside from being the formative period, and the most truly critical period of American history, the years 1801 to 1815 also represented the most interesting period. It was an age of great men, violent passions, and tremendous events, perhaps the most arresting and dramatic in American history.

In 1801 Jefferson took with him to the Presidency a bagful of ideals; he left office with only one of them intact—peace at any price. Here is recorded the politics and financial juggling of Jefferson's two terms; the amazing American naval power in 1812 is foreshadowed in the Barbary battles; Lewis and Clark become the rallying-point of new blood in the West; Jefferson combats the arrogant British attitude and press-gang policy with ineffectual diplomacy and the Embargo; the Burr-Hamilton quarrel is set forth, and the later dramatic Burr conspiracy which looked toward an Empire in the Louisiana country.

Then Madison was in, with an ear cocked to the younger men who would not brook England's arrogance. Finally the war, long in the brewing, broke. The war is the climax of the book; with its end at New Orleans. American independence was established without further chance of cavil, and the most critical period of our history was concluded.

Fletcher Pratt has written many excellent articles for the FIELD ARTILLERY JOURNAL. It is believed that our members will wish to read "The Heroic Years." Price. \$3.00.



## MILITARY BOOKS

Following is a list of latest books on military subjects which are recommended for their professional value as well as interesting reading:

	<i>Price</i> (Domestic postage included)
INFANTRY IN BATTLE.....	\$ 3.00
ITALY'S PART IN WINNING THE WORLD WAR— <i>Colonel G. L. McEntee</i> ...	2.00
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OFFICERS' MANUAL (Revised)— <i>Moss</i> .....	3.00
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# THE FIELD ARTILLERY JOURNAL

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Volume XXIV  
1934

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*EDITED BY*  
DEAN HUDNUTT  
MAJOR, FIELD ARTILLERY, UNITED STATES ARMY

THE UNITED STATES FIELD ARTILLERY ASSOCIATION  
WASHINGTON, D. C.

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