

27TH YEAR OF PUBLICATION

THE FIELD ARTILLERY JOURNAL

SEPTEMBER-OCTOBER, 1937

COOPERATION BETWEEN TANKS AND ARTILLERY

—GENERAL FREDERIC CULMANN, FRENCH ARMY

JAPAN MODERNIZES HER ARTILLERY

THE GERMAN XXIII RESERVE CORPS CROSSES THE MARNE

(Concluded in this issue)

—COLONEL CONRAD H. LANZA, FA

PUBLISHED BIMONTHLY BY
THE UNITED STATES FIELD ARTILLERY ASSOCIATION

September-October, 1937

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ARTICLE II OF CONSTITUTION

"The objects of the Association shall be the promotion of the efficiency of the Field Artillery by maintaining its best traditions; the publishing of a *Journal* for disseminating professional knowledge and furnishing information as to the field artillery's progress, development, and best use in campaign; to cultivate, with the other arms, a common understanding of the powers and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond; all of which objects are worthy and contribute to the good of our country."



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★ A Message to the Field Artillery ★

Our Field Artillery Association was founded in 1910, due principally to the active interest and zeal of the then Captain William J. Snow, FA, who later became a Major General and Chief of the arm. For twenty-seven years it has been publishing the *Field Artillery Journal*. This Journal is the voice of the Association and the medium through which matters affecting the field artillery's progress and development are discussed and made known throughout the service. It has contributed much in professional thought respecting doctrine, methods, equipment and armament, which has exercised a signal influence upon the prescriptions of official publications of the War Department pertaining to the field artillery as an arm. Of an influence so compelling and so valuable, it is justly proud.

The Journal is to be found on the tables of great city libraries, in the files of a hundred foreign military schools, officers' clubs, and military students. It is frequently reviewed in the foreign military press, and its content was recently discussed flatteringly on the editorial page of a great American daily.

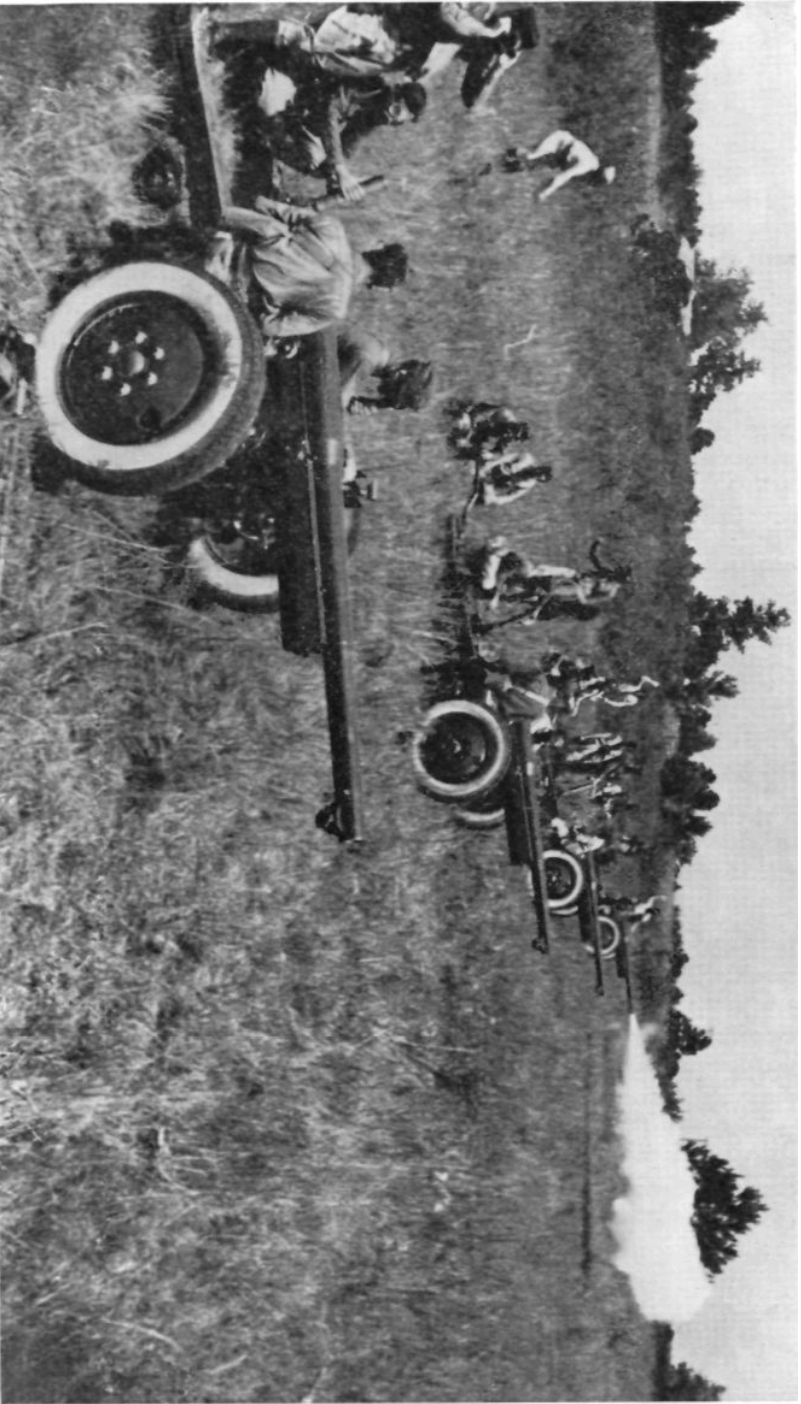
The Journal has no advertising revenue. Its salary list is limited to one clerk. It depends for its very life on membership dues in the Field Artillery Association, and its capacity for attaining a standard commensurate with its mission is measured by the amount of these receipts. The prompt payment of these dues is essential to the maintenance of such standard.

The funds received are expended in publication of the Journal, in an annual award for a prize essay, another for a prize thesis, still another for the award of an ROTC medal, and for the maintenance of a sufficient reserve.

The Association is the guardian of the interests of all components of the field artillery, and is worthy of the support of all. Its current membership of 2,500 by no means exhausts the list of eligibles for such membership, and it is suggested that those who are eligible, but not members, are overlooking a not unimportant opportunity to join with those who are furthering professional interest and arm solidarity.

I have been honored with the Presidency of this Association, and in that capacity I wish to emphasize the statement in the pages of its Journal that suggestions for the betterment, either of the Association or of the Journal, will be welcomed from its members.

UPTON BIRNIE, JR.,
Major General, U. S. Army,
Chief of Field Artillery.



NUMBER FOUR—FIRE!
Battery F, 117th FA, Alabama National Guard, of the 56th FA Brigade. (See "Is This Perfection?" page 333).
—Photo by Mr. Thomas D. McAvoy, courtesy of LIFE.

THE FIELD ARTILLERY JOURNAL

VOLUME 27

SEPTEMBER-OCTOBER, 1937

NUMBER 5

Cooperation Between Tanks and Artillery

A study based on the new French regulations
on the tactical employment of large units

BY GENERAL FREDERIC CULMANN, FRENCH ARMY

Translated from the French by Sgt. Fred W. Merten, DEML

EARLY this year a new edition appeared of the French regulations on the "tactical employment of large units." Dated August 12, 1936, these revised regulations supersede those of October 6, 1921, which were written under the influence of the events of 1918, but are now obsolete owing to the progress made in armament and motorization.

The motor has largely replaced the horse, with results as follows:

(1) *Light mechanized divisions* have taken the place of a part of the cavalry divisions.

(2) *Large motorized units* (divisions and corps) are used as G.H.Q. reserves for both tactical and strategical missions that call for speedy disposition.

(3) *Improvements have been made in the equipment of all units*, with the view to aiding and accelerating their general mobility, or to expediting the execution of certain operations. These improvements aim at the motorization of certain reconnaissance elements; the heavy infantry weapons (accompanying guns, mortars, machine guns, etc.), by means of self-propelled mount and tractor, both partly armored; and ammunition and supply trains, for the transport distances have increased simultaneously with the artillery ranges.

(4) *The infantry attacks jointly with tanks*, while both receive constant artillery support. This conception results from the evolution of the tactics introduced in 1917 and 1918. However, the increase ?? the number of tanks as well as in their speed and radius of action meanwhile has brought about a change in these tactics. The antitank gun, the armor-piercing projectile, and the tank-versus-tank attack, all present various new problems that must be considered.

Inasmuch as the subject of the present article deals only with the tank attack, we shall exclude from our further discussion the light mechanized divisions, large motorized units, and various improvements listed above.

One of the outstanding features of the maneuvers of motorized and mechanized forces that have been held in France and Germany is that they reveal common characteristics. By a general employment of cross-country vehicles (tanks, tractor-drawn artillery, infantry accompanying guns, combat ammunition trains), it may be possible to advance at so rapid a pace, once the hostile front is penetrated, that the retreating enemy will have no time to bring up reserves and offer resistance. Thus wide strategic gaps may be exploited with better results than were possible in the World War; and a

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speedy and complete victory may be won.

GENERAL CHARACTERISTICS OF THE EMPLOYMENT OF TANKS

According to the new French regulations, the employment of tanks in combat is governed by rules which prescribe also the cooperation of the other arms, as follows:

I. *The infantry is charged with the principal mission.* It seizes, occupies, organizes, and defends the ground.

II. *Provided the situation is favorable, tanks not supported by infantry may occupy a piece of ground temporarily, but cannot hold it permanently.*

Infantry accompanying speedy tanks should be provided with motor transportation as long as the situation permits. If the tanks lose contact with the supporting infantry, the attack will be a failure and will be costly both in men and materiel. Yet they will become separated from each other if the infantry detrucks prematurely or advances too slowly. Again, there may be a line of fortified positions permitting the tanks to pass with minor losses, but pinning down the infantry by fire from the flanks. The separation may also be due to a heavy artillery barrage which the enemy will fire unless his antitank guns succeed in destroying the tanks. This method is widely employed. It applies notably to the light mechanized divisions, where the tanks and the infantry are organically distinct elements.

The events of the civil war in Spain have shown anew how dangerous a lack of contact may be. When the nationalist troops of General Franco, supported by 200 tanks, launched their great drive on Guadalajara with the view to outflanking Madrid, they gained 30 miles in one single bound. However, the tanks, which advanced at an average rate of nine miles an hour, had no motorized infantry and

artillery to support their attack and consolidate their gains. The outcome was that the tanks became isolated and lost 18 miles of the newly gained ground when the government troops made a counterattack.

III. While the speed of the tank has been materially increased, the weight of its armor likewise increases with the improvement of the antitank gun. *Thus there exists an endless competition between gun and armor.*

The speed and radius of action of the *infantry tank* depend upon the thickness of its armor and the power of its weapons, which must include a cannon in addition to machine guns. The *medium tank* is regarded as the outstanding type of modern tank. The Russian T-28 Tank, now used in Spain, is a typical example of the medium tank. This tank is an improved model of the British 18-ton Vickers-Armstrong tank (gun: 37-mm.-47-mm.; armor: 20-mm.-25-mm.; maximum speed: 27 m.p.h.).

The modern *antitank gun* is either a 37-mm. gun, like the German antitank gun used in Spain, or, better yet, a 47-mm. gun.

IV. To quote from the regulations of August 12, 1936: "*One must constantly bear in mind that, under modern conditions of warfare, the antitank gun opposes the tank in the same manner as the machine gun opposed the infantry in the World War.*" This statement seems to be rather categorical. We shall return to the subject in the next chapter, which is devoted to antitank guns and the penetration of armor.

V. "*In view of the considerable increase in the number and power of the antitank guns used by all foreign armies (up to 60 guns in a division), the tank attack must be supported and covered by strong artillery.*"

Moreover, no Frenchman believes that the artillery could lose its great

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importance in combat or witness a reduction of its numerical strength in relation to the other arms, even though the number of tanks should continue to grow or further improvements be made in tank construction.

With regard to the increase in antitank weapons, the French regulations have this to say: "The action of tanks will extend into depth only after the hostile defense is disorganized. Action in depth is employed notably for the exploitation of gains where the use of armored cars calls for decisive results." These instructions apply principally to the light mechanized divisions which do not go into action until the breakthrough is complete and the attacking forces have reached a zone free from fortified positions; that is, a zone where the withdrawing enemy can offer no serious delaying action.

Finally, we arrive at a passage which is characteristic for the employment of tanks: "Tanks are not organized for combat according to a rigid classification based on their weights; nor is a certain model of tank designed for particular missions. With the progress made in tank construction, the distinction between light, medium, and heavy tanks fails to indicate definitely the possibilities of the various models. On the contrary, *most tanks are now designed for an all-around purpose, from accompanying the infantry to penetrating deep into the hostile front.*"

Under these conditions, the tanks are named after the task to which they are assigned, regardless of model.

Tanks are called *accompanying tanks* when their mission is to accompany the infantry; the tanks then are subordinated to the infantry.

Tanks are called *independent tanks* (*chars de manoeuvre d'ensemble*) when their particular mission is in the interest of the general operation of a major unit.

In that case, the tanks are subject to the orders of the general commanding this major unit.

Again we may state that it is difficult to draw these lines of distinction, as most tanks are now suitable for any purpose.

PENETRATION OF ARMOR AND ANTITANK GUNS

In paragraph IV of the preceding chapter, we compared the effect of the antitank gun in opposing tanks to that of the machine gun in firing on infantry. Actually, no belligerent goes to war with the assurance that the projectile of his antitank gun will penetrate the armor of the hostile tank. Penetration of armor is essential, however. Considering that the large number of tanks (60 tanks on a front of 1000 yards) employed in the successive waves of the hostile attack and the speed of the tanks, especially if the zone of advance is not broken up by large shell holes or blocked by tank mines, it is imperative to put the hostile tank out of action with one single hit. Furthermore, the maximum range rarely exceeds 1500 yards, which corresponds to five minutes of travel on the part of the attacking tanks; and the armor of the tanks is constructed so that it presents a curved surface in all directions, hence the shell must strike the armor at a minimum angle of impact of 60 degrees in order to be effective.

Above all, the penetration power of a projectile depends upon the quality of the steel used in its construction. The chemical composition of the steel plates of tanks, the heat treatment and the mechanical and electrical processes to which they are subjected in the course of manufacture are held strictly secret; moreover, the resistance of the armor varies with the thickness of the steel. As for the chemical composition, steel with a high content of nickel

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quadruples in hardness by an addition of three percent glucinum. This density may be redoubled by continuing the process of tempering the steel and adding more weak doses of glucinum (from one to one and one-half percent) (according to M. Ballay, whose works were recently presented to the Academy of Science in Paris).

Thus we may conclude that the proportion of hostile tanks susceptible to destruction by antitank guns is too small. For example, only armored cars and light tanks (10-mm.-13-mm. armor) are vulnerable at any range; medium tanks (20-mm.-25-mm. armor) can be destroyed only at short ranges; and heavy tanks (armor from 45-mm. on up) are entirely immune to destruction. The only hope one has then is to eliminate the attacking tank by smashing its fragile parts, but these are targets of small dimensions.

A number of artillerymen favor a return to the high-explosive shell for the purpose of putting the hostile tank out of action. However, this shell has a very small radius of effect; it must either make a direct hit on the wheels, tracks, bow, etc., or burst within less than two yards of the tank. As the radius of effect of the high-explosive projectile depends largely upon the nature of the ground at the point of impact, the results vary greatly. Nevertheless, the ordinary high-explosive shell is but a substitute, to be replaced by any armor-piercing shell of the same caliber that will penetrate the armor of tanks.

In Spain, this type of shell is widely employed by the artillery in firing on tanks.

The French 25-mm. antitank gun is satisfactory with regard to accuracy and rapidity of fire, but has a tendency toward lacking in penetration power.

The German 37-mm. gun (used by the Nationalist troops) is considered very effective; on the other hand, one must

bear in mind that the armor of the Russian tanks (used by the Government troops) is of poor quality.

Belgium, Switzerland, and certain other countries have adopted a 47-mm. gun. Several years ago, the Bofors works in Sweden introduced a 47-mm. gun; this gun fires a projectile weighing one and one-half kilograms and has a muzzle velocity of 560 meters (too low) and a maximum rate of fire of 40 rounds a minute. The penetration power of this gun is as follows:

Penetration Power	Range	Angle of Impact
50-mm.	900-m.	90°
30-mm.	1600-m.	90°
20-mm.	3200-m.	90°
or		
Penetration Power	Range	Angle of Impact
42-mm.	900-m.	60°
30-mm.	1100-m.	60°
20-mm.	2150-m.	60°

It is to be noted that the 37-mm. projectile weighs only 700 grams.

Most European armies use only two calibers, the 37-mm. and 47-mm. guns. The latter gun possesses two advantages of great importance:

(1) *The 47-mm. gun fires a projectile weighing at least twice as much as the 37-mm. shell; its penetration power, therefore, is more likely to balance the steady progress made in armor protection.*

(2) *The effective range of the 47-mm. gun is much greater than that of the 37-mm. gun (1000-m. for the 47-mm. gun and 700-m. for the 37-mm. gun according to German calculations); consequently, its duration of fire is greatly superior, which is an essential factor in opposing speedy tanks.*

A 47-mm. gun, with a muzzle velocity of about 700 meters, is effective against *present day combat tanks*; yet it is wholly inadequate against *heavy tanks* designed to clear the path and

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penetrate deep into hostile territory. Such tanks include the French 70-ton 2-C Tank, whose armor will resist the 75-mm. gun, model 1897. Germany is reported to be building 100-ton tanks with a 60-mm. armor. In order to put machines of this kind out of action with a single hit, one must have a 75-mm. gun with a muzzle velocity of 850 meters; still better would be an 85-mm. gun firing a ten-kilogram projectile with a muzzle velocity of 700 meters.

Several countries are testing means by which to break up a tank attack *before* it reaches the line of positions of the defending party. With this aim in view, a self-propelled gun has been introduced; this so-called "tank chaser" is a speedy cross-country vehicle and is only partly armored to avoid excessive weight. Its accuracy of fire is enhanced to a maximum by means of various devices, such as a short recoil gear, an automatic breech mechanism, and a mechanical loading device.

This powerful gun is not mentioned in the French regulations of August 12, 1936.

Thus we arrive at the conclusion that the antitank gun must be as powerful as possible, for it is not known how strong the steel will be which the probable enemy will use in armoring his tanks. A sacrifice to economy is bound to have the gravest consequences at the outbreak of a war. There are two outstanding gun models, a 47-mm. gun for the armament of tanks and antitank elements, and an 85-mm. gun for tank chasers.

METHODS OF ATTACK

The new French regulations distinguish between the attack without tanks and the attack with accompanying tanks.

(1) ATTACK WITHOUT TANKS. This method of attack seems feasible only if directed against an opponent who is broken up and demoralized or whose

effectives are weak. In any other situation, it would be a serious mistake for the infantry to attack without tank support on the battlefield of the future, where automatic weapons will abound. The outcome would be similar to the experiences of 1914 when French officers, placing morale above all material considerations, submitted their troops to horrible and futile slaughter. The tank is the only arm that can venture into the midst of the hostile fire with a minimum of danger and clear the path for the infantry.

(2) ATTACK WITH ACCOMPANYING TANKS. The tanks neutralize, or, preferably, destroy the automatic weapons that oppose the advance of the infantry.

Mixed units of infantry and tanks are created under the command of the local infantry commanders. They are organized in width and depth, with every precaution taken against breaking the contact between the infantry and the tank elements.

Within these mixed units, the tanks either operate within the ranks of the infantry, as they did in the World War (probably slow tanks of old models); or they immediately precede the infantry (probably speedy modern tanks) and later participate in covering and supporting the attack.

In both instances, the infantry exploits without delay the gains made by the tanks.

INDEPENDENT TANK UNITS. In certain situations, the corps commander will place at the disposal of the division commander elements of his tank reserve. These tanks constitute the first wave of the attack.

The division commander assigns the tank units missions that are well defined both as to time and space. In other words, he assigns them zones of action in width and successive objectives

in depth. Moreover, he coordinates their advance with the range of the artillery fire.

The independent tanks precede the mixed units of infantry and accompanying tanks by several miles. They neutralize or, if possible, destroy the hostile automatic weapons and antitank guns, thus replacing to a certain extent the regular supporting artillery. On the other hand, the artillery must effectively cover the tanks throughout the operation; and the tanks often require an artillery preparation, unless the zone of approach is obscured by the ground or by smoke screens. It is evident that such an employment of tanks calls for artillery that possesses a long range, is accurate in firing, and is well directed by balloons and airplanes.

The missions of these independent tank units are as follows:

The independent tanks may precede the infantry and accompanying tanks to their successive objectives. (For example, the enemy is to be enveloped, but no information of his disposition is available, except that his front is not stationary and is composed of hastily collected troops.)

The independent tanks may attack hostile armored forces. (Although combat between tanks is mentioned in the new French regulations, no definite instructions are given for this type of combat. Only speedy tanks armed with artillery and self-propelled antitank artillery are qualified for tank-versus-tank action.)

Finally, *the independent tanks may penetrate deep into the hostile front*, provided it is sufficiently disorganized.

EXPLOITATION OF GAINS. When the hostile resistance is no longer serious, the tanks may form the backbone of *mechanized detachments* composed mainly of armored vehicles of all units involved in the operation (mechanized reconnaissance elements, motorized

cavalry brigades and, perhaps, light mechanized divisions).

Tank units of lesser speed and less suitable for far-reaching action, preferably, are assigned missions in which they accompany the infantry.

ARTILLERY SUPPORT FOR TANKS

The artillery assists both the infantry and the tanks. While, in the *offensive*, the artillery prepares and supports the attacks, in the *defensive* it serves to delay and disorganize the hostile attacks and finally throws in its entire resources towards crushing and repulsing the enemy. In either case, the artillery fires counterbattery and aims at the destruction of the hostile tanks and armored cars.

When functioning as a part of a division, the artillery executes:

Direct supporting fire. This fire is delivered by the direct-support groups and, preferably, is directed by the forward elements of the attack.

Covering fire, in addition to direct support. The execution of this fire devolves upon the *division artillery reserve* which is directly responsible to the division commander.

(1) ATTACK WITHOUT TANKS. When infantry attacks without tanks, direct supporting fire is indispensable. The artillery delivers its fire a short distance in front of the forward infantry elements; this distance is determined by the radius of burst of the ammunition fired and by the nature of the ground.

(2) ATTACK WITH ACCOMPANYING TANKS. When the attacking forces include accompanying tanks, the artillery leaves a safety zone between its shortest fire and the attacking infantry and tanks. The depth of this space depends upon the conformation of the ground, the characteristics of the tanks employed and the maneuvering of the tanks in relation to that of the infantry.

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(3) ATTACK PRECEDED BY INDEPENDENT TANK FORCES. While the artillery covers the independent tanks in this case certain artillery elements cooperate directly with the tanks in order to lend the fire the necessary flexibility.

In the event that the independent tanks should cease to cover the infantry or the mixed units of infantry and accompanying tanks—which may be in compliance with the instructions given the tanks or due to hostile counteraction—the security of the attacking forces demands that coordination of the entire system of artillery support (direct support and covering fire) be established with a minimum of delay. Hence it devolves upon the artillery commander to organize his command with this contingency in view.

GENERAL CHARACTERISTICS OF ARTILLERY SUPPORT

Preparation fire for an attack must be as violent as possible; its duration varies from a few minutes to several hours. The principal objectives of an artillery preparation are hostile infantry positions and their defenses, antitank weapons identified by ground or air reconnaissance, and suspected antitank gun emplacements.

Direct supporting fire generally consists of shelling the nearest objective, this shelling being maintained until the progress of the attack makes it necessary to lift the fire. If it has been impossible to make a close reconnaissance of the organization of the hostile defense system and provided the division has at its disposal sufficient artillery and ammunition, the direct supporting fire takes the form of a *rolling barrage*. Otherwise the rolling barrage as a rule is employed only during the initial phase of an operation, with the view to launching the first wave of the attack (opening barrage) or when the first wave passes

from a terrain that is subjected to little fire to one that is heavily shelled (a frequent occurrence where there are abrupt changes in slope).

Covering fire prolongs direct supporting fire. Among others, the objectives of the covering artillery include probable observation posts of the enemy and suspected emplacements of his antitank guns. The covering artillery seizes upon targets that appear in the course of the operation and, in particular, combats the distant antitank guns which often may be the source of dangerous flank fire.

The artillery must be ready at all times to cover the infantry and tanks with defensive fire; while the attention of the infantry and tanks is fixed on their objectives.

CONCLUSIONS

I. In defining the purpose of the various methods of fire, the text of the French regulations makes excessive use of the term "neutralization." Actually, neutralization is intended to lower the *morale* and has only a *temporary effect*. While gas shells produce an enduring effect, their use is outlawed. Neutralization fire is not suitable, therefore, especially if the fire is delivered by independent tanks which operate several miles in advance of the attack wave or by artillery groups executing covering fire. On the contrary, the artillery must always aim at *fire for destruction*; and the tanks must deliver antipersonnel fire, for which their short ranges render them highly suitable.

Moreover, the regulations recommend firing on zones whence the enemy might counterattack or employ his automatic weapons and antitank guns. But that would be firing on hypothetical targets and would involve a waste of ammunition. The air service (balloons,

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autogiros, airplanes) must always be on the alert and direct the artillery fire.

II. While an artillery preparation is necessary in most cases and the constant support of this arm is considered indispensable, the shell craters tend to retard the progress of the tanks to a point where they lose the relative invulnerability which their inherent speed lends them. Hence, whenever it is not necessary to tear up the ground, but superficial artillery action suffices, the high-explosive percussion shell should be equipped with a supersensitive fuze causing the projectile to explode on the surface.

III. The French regulations of August 12, 1936, assign the artillery a very important role in preparing and covering attacks. Certain writers find it difficult, however, to concur in these views—and not unreasonably so; for artillery fire delivered at a range of several miles is not powerful enough to destroy or even to neutralize the automatic weapons and antitank guns of the enemy. The errors in range of a good modern gun average only three percent of the range, but the difficulties of observation increase with the distance. It is impossible to solve this problem even by posting an observer near the objective, where he would be in a position to send reliable information; for an objective looks different from a distance of a few hundred yards than from one of several miles, and so errors in estimate would be inevitable.

Objecting primarily to the long ranges at which the artillery must fire and denying that the tanks are capable of clearing the path for the infantry, these writers advocate the employment of short-range artillery placed, for example,

in line with the reserves of the infantry regiments. These guns would have self-propelled mounts and would be partly armored, so as to be proof against small-arms ammunition and shell fragments. The champions of this cause would arm all division artillery with this kind of gun, both for direct and indirect fire. Without going that far, it may be wise to guard against the innovations which the next war will bring by using this type of gun for the armament of batteries designed for direct support of infantry and tanks.

ANTITANK DEFENSE BY ARTILLERY

The antitank defense is organized by the division commander. Besides artillery, it comprises the organic antitank guns of the infantry regiments, the division antitank elements, and those attached as reinforcements.

The antitank defense extends over the entire depth of the zone of action. This calls for considerable medium artillery. Moreover, one must bear in mind that this artillery requires a great deal of time to go into position. As a rule, the defense system is composed of antitank elements attached to the *advance guard* by the various units; a *principal barrage*, which should coincide as much as possible with the general barrage fired by the artillery and machine guns; *interior barrages*, that is, barrages placed on the most favorable passages for the tank breakthrough; and a barrage fired on the hostile *main line of resistance*.

If the opportunity presents itself, tank elements of the division reserve should make a counterattack.

Is This Perfection?

BY BRIGADIER GENERAL SUMTER L. LOWRY, JR., 56TH
FA BRIGADE

HOW well-trained can a National Guard Outfit be, and when can you say that a unit of the National Guard has reached its maximum possible standard of efficiency?

We all know that the National Guard is made up of part-time soldiers who must make a living first and then become soldiers in the time left over—so it is only fair to assume that the Guard cannot be as perfect as you can expect a regular outfit to be. I think, however, that it is fair to require of the National Guard a very high standard of perfection because the Federal Government is putting at its command the very best instructors in the regular army and the most up-to-date equipment and material that money can buy. I believe that one National Guard outfit, at least, has very nearly reached this high standard of perfection.

I make this statement after the completion of the recent maneuver of the 56th Field Artillery Brigade. This maneuver demonstrated that this brigade has staff officers and unit commanders capable of planning and executing a problem involving a brigade of field artillery and that the officers have the necessary technical knowledge and experience to carry out the staff plans and that the command, as a whole, has the morale, esprit, and physical stamina to complete the maneuver in as nearly a perfect manner as can be expected of National Guard troops.

I wish to say here that I take no personal credit for this accomplishment.

The entire credit is due the colonels of the regiments who trained and disciplined the outfits and to the regular army instructors who supervised the training at home stations and in the field.

This is what the 56th Field Artillery Brigade did. Made up of troops of the 31st Division—116th Field Artillery, Colonel H. W. Hesterly, Florida; 117th Field Artillery, Colonel Percy S. McClung, Alabama; 114th Field Artillery, Colonel A. G. Paxton, Mississippi (this regiment was not present for the maneuver—they train at Camp Shelby); 106th Ammunition Train, Captain J. D. Finlay, Jr., Alabama; Brigade Headquarters Battery, Captain Chester H. Yates, Florida, Brigade Staff, Alabama, Florida, Mississippi and Louisiana, Major Lucien J. Moret, Chief of Staff, it rolled into Camp Jackson, South Carolina, at 8 PM July 4th, and at 7:30 AM, July 5th, was on the range ready to start its service practice preliminary to the maneuver to come later on in the week. I mention this to demonstrate the fact that the brigade has reached a point in its training where not a minute is lost upon arrival in camp before the troops go into their service practice. The firing included airplane adjustments, high-burst check adjustments and *K*-transfers, large-and-small-*T* time bracket, forward OP conduct of fire and liaison adjustments through fire-direction centers. All axial and precision problems, except check adjustments, were solved with 37-mm. ammunition only.

After a week of such service practice

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the brigade was ready for its maneuver to the Fort Bragg Reservation. Every detail of this maneuver was carefully planned and thought out by the brigade and regimental staffs. The problem involved a march from Camp Jackson, South Carolina, to Fayetteville, North Carolina, and then to the western edge of the Fort Bragg Reservation—a distance of 190 miles. The first units of the brigade left Camp Jackson at 5 AM July 12. When night came, on the first day, bivouac had been made, mess had been prepared and served in the field, combat orders had been issued and reconnaissance had been made by the brigade, the regiments and battalions: the battery commanders had reconnoitered and selected their positions, and all necessary survey work had been completed. About sundown, airplane photos (single verticals) were delivered to the brigade. The entire brigade was limited to the use of 1/20,000 Fire Control Data Sheets and 1/62,500 tactical maps of Fort Bragg Reservation. Within four hours many of the units of the brigade had completed the restitution of targets to the Fire Control Data Sheets: overlays had been delivered to battery commanders, and they were busy preparing work and command sheets for schedule fires to be delivered upon occupation of positions the following morning.

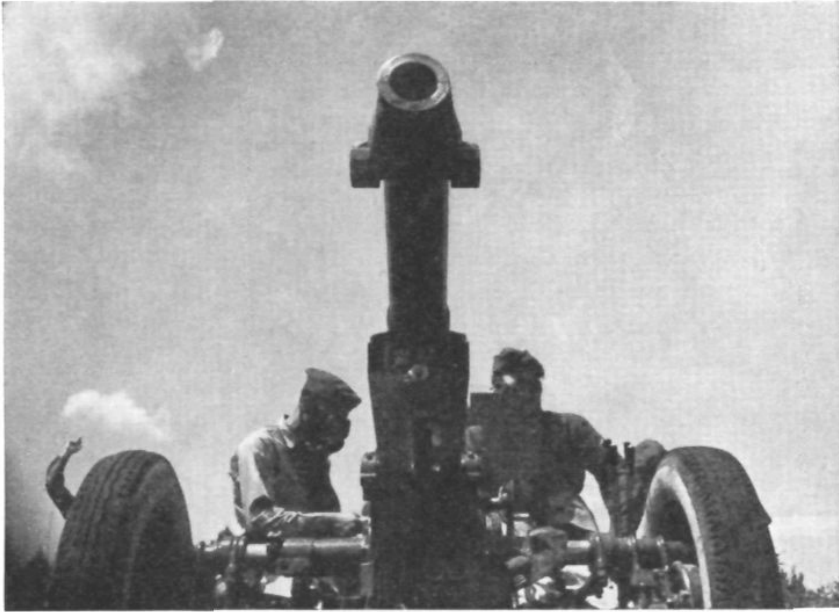
At five o'clock on the second morning the brigade moved from its bivouac area a distance of eighteen miles to occupy positions. By eight o'clock every unit in the brigade was ready to deliver fire. To correct the map data, *K* was secured from check adjustments, some of which were made by bracket adjustments for a 100-yard bracket and others of which were made by precision adjustments with only one

round fired at the trial elevation. Yet, almost without exception the transfers which were made with the *K* thus obtained were entirely satisfactory. This experience demonstrated many things: First it demonstrated the ability of civilian soldiery as represented by the 56th Field Artillery Brigade to deliver effective scheduled fires with data obtained from Fire Control Data Sheets on which targets had been restituted from single verticals, even when the *K* was based on information obtained either from a 100-yard bracket adjustment or by precision adjustment with but one round fired at the trial elevation. Second, it demonstrated the high state of proficiency of the officers and men of this brigade and particularly of the various staffs, the entire problem being executed with exceptional success in the normal time allowed for such operations.

On the afternoon of the second day the brigade prepared for a displacement during the night and the delivery of scheduled fires at dawn from positions six miles distant from those occupied that day. The necessary reconnaissance was made and positions were selected. The necessary survey was completed. Arrangements were made for high-burst check adjustments during the night and routes for the night displacement were carefully reconnoitered.

At eleven o'clock that night, in complete darkness (no lights of any kind were permitted), with a very late moon hidden behind very heavy black clouds in every direction, displacement was initiated. Before one mile had been traversed a heavy, blinding rainstorm added to the difficulties. Yet within ninety minutes all units were in their new positions and high-burst check adjustments by one gun per battalion were being made. And again

IS THIS PERFECTION?



—Photo by Mr. Thomas D. McAvoy, courtesy of LIFE.

BATTERY F, 117TH FA, IN THE 56TH FA BRIGADE MANEUVERS

on the third morning as dawn appeared, schedule fires prepared from data obtained from the same Fire Control Data Sheets (on which new targets had been restituted from single verticals and corrected by *K* based on information obtained from the high-burst check adjustments by one gun per battalion) were being delivered on time.

That day the brigade returned to Camp Jackson, without a single mishap or casualty and without any sickness except an occasional case of an upset intestinal condition, each of which had the careful attention of the very efficient medical detachments attached to the regiments of the brigade.

Five years ago the regular army instructors, assigned to the units of this brigade, led them around by the hand. This year, under the guidance of Senior Instructor Colonel A. L. P. Sands, these units had reached such a high state of

proficiency that these instructors merely observed and approved, with well-merited satisfaction in their knowledge that they had contributed so much to this high accomplishment.

Now the reason I believe this outfit has reached the maximum standard of efficiency now set for National Guard Field Artillery is because this maneuver involved a difficult march, a tactical problem under simulated war conditions, a night displacement and the actual delivery of tactical fires of the most difficult nature. The brigade subsisted in entirely uninhabited country with no facilities whatsoever and was able to overcome all difficulties and meet every situation with great efficiency and very little confusion. The intense heat which prevailed during the entire maneuver was borne without a murmur from the officers or men, showing the very highest

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order of esprit and physical stamina. In other words, this brigade is ready to take the field, subsist, move, and fight on its own, and do a good job of all three. I wish also to bring out the fact that this high state of training has been reached *not* by an isolated battery here and there, but by the *entire* brigade of field artillery.

After twenty years observation and

experience in the National Guard, I can truthfully say that I have never seen an outfit equal the performance of this one. Now that I have convinced *myself* that the 56th Field Artillery Brigade has reached the maximum standard of efficiency, there is nothing left to do but to raise this standard a little bit higher and give the outfit something else to shoot at.



Japan Modernizes Her Artillery

REVIEWED BY SERGEANT FRED W. MERTEN, DEML

THE *Wehrtechnische Monatshefte* of June, 1937, a German publication, presents a timely article on the reorganization of the Japanese artillery by Colonel M. Blümner, German Army, Retired.

According to the author, the peace strength of the Japanese artillery, in 1934, included:

15 regiments of field artillery (90 batteries);

4 regiments of mountain artillery (16 batteries);

4 battalions of horse artillery (8 batteries);

8 regiments of heavy field artillery (48 batteries);

3 regiments and 8 independent battalions of heavy artillery (34 batteries);

2 regiments of antiaircraft artillery (8 battalions).

This approximate total of 850 guns, 300 of which were heavy calibers, was augmented by a number of antiaircraft batteries designed for local air defense and by the accompanying guns of the infantry.

With the increase of the military strength of Japan from 17 to 25 divisions, a program inaugurated in 1934 and recently completed, there has been a corresponding increment in artillery units. The number of guns maintained by the peace establishment is now estimated at no less than 1700 guns, including 400 heavy guns.

In addition to this artillery, Japan has on hand a large number of old guns which the Regular Army discarded in the process of reorganization. The national munitions industry has been greatly developed to assure a speedy production of new guns in the event of war. The

modernization of the artillery materiel is clearly reflected by the increasing costs of production. Whereas, in 1930-1931, the average cost of the light field gun was 10,000 yen, that of the heavy field gun 30,000 yen and that of the heavy gun 4,000,000 yen, the corresponding figures, in 1936, were 17,000 yen, 35,000 yen and 12,000,000 yen (according to *The Japan Chronicle*).

LIGHT ARTILLERY

The Japanese infantry is heavily armed with accompanying guns. In addition to six small grenade projectors (range 550 yards) per company, the infantry battalion, as a rule, includes two mortars, two or more antitank guns, and several infantry howitzers. The 72-mm. mortar will be replaced by the 81-mm. Stokes-Brandt mortar. The 37-mm. antitank gun is likewise giving way to a more powerful gun: and the number of antitank guns is being increased. There has been introduced a new 70-mm. gun-howitzer capable of both flat-trajectory and high-angle fire. While this gun-howitzer is highly effective against machine-gun nests and similar targets, it is not suitable as an antitank weapon because of its low rate of fire.

In the course of reorganization, the infantry regiment has been organically assigned a battery of four 75-mm. guns. These are Krupp 75-mm. mountain guns, model 1908, turned in by the mountain artillery regiments in exchange for modern materiel. The gun is drawn by two horses, although during the campaign in China it was drawn also by one horse hitched to a pair of shafts that were attached to the front trail by links; the remainder of the gun equipment and the ammunition are carried by pack animals. Weighing only 1,500 pounds in firing

position, this mountain gun proved to be very practical in the difficult terrain of Manchuria and China. It fires a 12.8-lb. projectile and has a range of 6,000 yards.

The infantry division, which is the highest unit in the Japanese army, as a rule includes a regiment of light field artillery composed of three gun battalions and one howitzer battalion. Each battalion consisting of three batteries, the regiment possesses an effective strength of 36 guns and 12 howitzers. According to the Russian *Artilleriski Zhurnal*, the howitzer battalion is to be distributed among the three gun-battalions. In addition to this division artillery there is a field artillery school battalion at the Artillery School.

The 75-mm. field gun, model 1905, was formerly manufactured by Krupp, but is now produced by the Japanese munitions plants at Nagoya and Osaka. Its original maximum range of 9,000 yards has been increased to 13,300 yards.

For more than two years, the Japanese artillery has been testing the Schneider 75-mm. field gun, L/40. This gun has a muzzle brake and an increased traverse; it is said to have a maximum range of 16,500 yards. However, this new gun is not yet standard—evidently because it is too heavy (3,600 pounds in firing position) to be used by the division artillery in the difficult terrain of Central and Eastern Asia. Moreover, field batteries cannot observe the fire at such extreme ranges; the accuracy of the fire decreases rapidly after 12,000 yards; and the wear of the tube is considerable at these ranges.

The 120-mm. howitzer, model 1905, which fires a 26.5-lb. projectile and possesses a range of about 6,400 yards, will be replaced by a Schneider 105-mm. howitzer. This light Schneider howitzer has been used with good

results in Manchuria and China. Tests have further been made with three heavy Schneider howitzers, the most powerful of which has recently been adopted. It has a traverse of 54 degrees and a maximum range of 13,000 yards, firing a 35.3 lb. shell with a muzzle velocity of 1,800 feet. Like the light howitzer, this heavy howitzer combines the advantage of a long range with the disadvantage of an excessive weight (4,255 lbs. in firing position). In addition to this modern howitzer, the Japanese artillery is said to employ also an improved model 1929 howitzer with a shorter range.

From the foregoing we may conclude that the fire power of the Japanese infantry division has been materially increased in recent years by an augmentation of the accompanying guns and the organic assignment of artillery to the infantry regiments, as well as by the adoption of modern guns for the field artillery regiments.

The mountain artillery regiments, comprising two battalions of two batteries each, are employed with, or in place of, the division field artillery regiments. The strength of four regiments probably has increased considerably in the course of reorganization. As noted in discussing the organic artillery of the infantry regiments, the 75-mm. mountain gun, model 1908, is gradually being replaced by a more modern gun.

The four battalions of horse artillery are assigned to the four independent cavalry brigades. This artillery is armed with the 75-mm. Krupp gun, model 1915, which weighs 3,285 lbs. and fires a 14-lb. high-explosive shell with a range of 9,000 yards, and a 15 lb. shrapnel with a range of 6,400 yards.

HEAVY ARTILLERY

Since the Japanese army has no corps

JAPAN MODERNIZES HER ARTILLERY

organization, the heavy field artillery must be classified as army artillery.

There are four brigades of two regiments each and one school battalion at home, and one regiment in Manchuria. The strength of the regiment is two battalions of four batteries each. The materiel consists of 105-mm. guns and 150-mm. howitzers comprising old, improved, and new models. Thus there is a 105-mm. gun, model 1930, with a range of 20,000 yards, besides the old 105-mm. Arisaka gun. The range of the heavy howitzers measures around 11,000 and 13,000 yards. While the gun batteries are motor-drawn throughout, the howitzer batteries are horse-drawn.

The heavy army artillery apparently still numbers three regiments and eight independent battalions. The regimental strength is three battalions of two batteries each. The guns are of from 150-mm. to 410-mm. calibers; they are old models and include both flat-trajectory and high-angle fire guns. One of the principal pieces of the fortress artillery is a 240-mm. howitzer with a maximum range of 12,000 yards. The 155-mm. gun likewise is primarily employed by the fortress artillery; this gun fires a high-explosive projectile with a range of 16,500 yards and a shrapnel with a range of 12,000 yards. There are also large-caliber railway guns.

ANTIAIRCRAFT ARTILLERY

The Regular Army maintains four regiments (48 guns) and two independent battalions of antiaircraft artillery, besides a number of independent batteries assigned to the regiments and independent battalions of the heavy artillery and to the cavalry brigades. An antiaircraft battery consists of four guns or of four platoons of two guns each.

In addition, there are antiaircraft units for the defense of large cities, industrial centers, and seaports; these units have been in existence for a number of years. No less than 70 antiaircraft guns, including searchlight and sound-locator units, were acquired by popular subscription during the past four years.

The greater part of the antiaircraft units of the Regular Army no doubt are armed with guns up to 40-mm. The so-called heavy antiaircraft artillery uses modern 75-mm. and 105-mm. guns. The 75-mm. gun possesses a vertical range of 10,500 yards, a horizontal range of 15,500 yards, and a rate of fire of 25 rounds a minute; in the case of the 105-mm. gun the corresponding figures are 13,000 yards, 19,000-20,000 yards, and 15 rounds a minute. Both guns have a traverse of 360 degrees and an elevation of 85 degrees.

The armored trains of the Japanese army, which numbered a brigade of ten trains several years ago, most likely are armed with field guns. These trains were employed in the Manchurian campaign with excellent results.

The war-strength ammunition supply of the Japanese artillery battery is 50 percent high explosive shell, 25 percent shrapnel, and 25 percent gas shell. Japan continues to attach great importance to the shrapnel. Furthermore, tests made in the use of illuminating projectiles by heavy artillery proved entirely satisfactory in the case of the 203-mm. gun.

Owing to the shortage of horses in Japan, motorization of the artillery is greatly stressed. The heavy artillery is already motorized throughout. At least one-fourth of the heavy field artillery (the 105-mm. guns) is motor-drawn. On the other hand, most of the division artillery remains horse-drawn

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for the present. The artillery of the cavalry brigades is partly motorized; and a motorized battery will be assigned to each of the motorized infantry regiments that are now being organized. The tank brigades will receive a battalion of self-propelled artillery each. The 37-mm. antitank gun of the infantry is likewise partly to be equipped with a self-propelled mount. Practically all higher artillery headquarters are motorized; the same applies to a major part of the artillery supply and ammunition trains.

The artillery tractors are primarily of American manufacture. The ammunition trains are partly equipped with tracklaying trucks and are now testing armored ammunition trucks.

The munitions industry of Japan probably is in a position to supply most of the guns, ammunition, and vehicles required by the artillery—provided it is assured the import of the necessary raw materials, such as iron ore, zinc, aluminum, rubber, and the like. The national munitions plants have been doubled and the private armament industry has been tripled within the past two years, so that Japan is now said to be capable of a yearly production of 10,000 guns, 1,000 trucks, and other materiel.

The largest munitions plants are at Osaka and Nagoya; heavy guns are constructed mainly in the Muroran and Hokkaido factories; and powder and explosives are manufactured at Itabasi and Koisibawa.

The standard of training of the artillery is high, as is that of the other arms. Officers and non-commissioned officers attend the Artillery School and undergo training with the school battalion. Division and army maneuvers are held annually. Emphasis is placed on the cooperation between artillery and infantry. Centralized fire control constitutes one of the basic principles of artillery employment in Japan. Even when the division artillery is divided into three groups—for direct infantry support, counterbattery, and general employment—the different groups as a rule remain directly responsible to the artillery commander. On the defensive, the major part of the artillery is employed in the probable direction of the hostile offensive; here, too, centralized fire control is preferred.

In conclusion, it may be said that the Japanese artillery has not only witnessed a great numerical increase in the past few years, but has made vast strides also in armament and organization.

WINNERS OF FIELD ARTILLERY ASSOCIATION MEDAL

Winners of the United States Field Artillery Association Medal at the ROTC camps of the 1937 training season, selected on the basis of outstanding soldierly characteristics during the camps, were:

Fort Knox—David R. V. Golding, Culver Military Academy.

Fort Riley—Joseph E. Rood, University of Missouri.

Fort Warren—Frederick A. Harris, University of Utah.

Camp Bullis—Richard E. White, Texas A. & M.

Pine Camp—Edwin Albert Williams, Cornell University.

Camp McCoy—Lee A. Rodgers, University of Illinois.

Fort Hoyle—Newland Baldwin, Jr., Virginia Military Institute.

Fort Sill—Thomas Boyle Campbell, University of Oklahoma.

Fort Lewis—Earl Mills, Oregon State Agricultural College.

Presidio of Monterey—Cameron B. Hall, Leland Stanford, Jr., University.

Fort Ethan Allen—Francis X. Leary, Harvard University.

Lumpkin and His Jugheads

(Extracts from a speech by the Honorable Louis Johnson, Assistant Secretary of War, to the American Legion, Department of Virginia, at Danville, August 25, 1937.)

"Note well that when I speak of the Army I refer to it as 'your' Army or 'our' Army. It is not a conscripted force called to the colors against its will. It is not a mercenary horde bent on spoil and splendor. It is a body of American citizens, recruited from your farms and your factories, from your schools and your homes, who have chosen as their life's work service in the professional armed forces of our country.

"Perhaps I can best illustrate their character by pointing out the career of Danville's outstanding World War soldier, a peace- and war-time Regular, who has devoted his life to the Army and whose heroism in France has been rewarded with a Distinguished Service Cross.

"His name is Lawrence M. Lumpkin. He left his home in Danville to join the Army almost thirty years ago. At that time, Henry Wooding, your beloved perennial Mayor, had served but twenty-two of his successive fifty-two years as the head of your municipal government. The Army was very small—smaller than it is even now. The automobile was in its infancy. Horses and mules provided the principal means of transportation. Lumpkin chose the career of an Army muleteer.

"In the cactus fields of Texas, in the jungle swamps of Panama, in the shell-torn fields of France, he and his pack train of heavily laden mules have become conspicuous.

"At Exermont, on the morning of October 4, 1918, at the opening of the second phase of the Meuse-Argonne offensive, the attack of the 1st Division met with stubborn resistance. Infantry lines were halted. Communications with the artillery broke down. A call was sent for telephone wire. Trucks were bogged down. Wheel horses faltered in their traces. Upon Sergeant Lumpkin then fell the duty to load a pack train of ten mules with telephone wire and to rush them to the firing line.

"There was no time to reconnoiter. Lumpkin loaded his mules with the heavy reels of wire and threw several diamond hitches. He formed the animals into a narrow column of single files and started out. The shortest route led over high, open ground. Almost immediately the enemy spotted the pack train. It opened fire. One mule let out a pitiful bray and toppled; then another, and another. Five of his ten mules were killed.

"Undaunted, Lumpkin continued. He moved out at a full gallop, brought his train up to the artillery position, unloaded his packs and delivered the badly needed telephone wire. Then he turned around, made a second trip and brought up the rest of the valuable cargo.

"For this act of gallantry. Lumpkin received the Distinguished Service Cross. He wears eight stars on his World War service badge for four major and four minor operations on the Western Front. Since the Armistice he has continued in the Service. Today he is a Staff Sergeant in the 2d Field Artillery at Fort Clayton, Canal Zone, in charge of a pack train in the mountain artillery—still loyal to his faithful mules."

The Low-Down Bogey

BY *SAPERE AUDE*

THIS paper sets about dragging the bogey of low-altitude attack of ground troops out into the cold light of reason, there to dispel its frightening (principally because they're vague) contours. That this is a true bogey will appear, since, in the last analysis, it answers the full dictionary definition—an imaginary object of terror, especially of needless fright. Further—and confirmatory of its true bogey nature—this bogey finds most frequent application for inspired purposes, seeking through the impulse of fear to excite overmastering alarm or dread, thus to secure ends not supported by reason.

Take a look at this grade A. Triple-X bogey of ours (see the composite of Sunday supplements ever since the World War, the comic strips, the pacifist propaganda; even the daily press!): The poor plodding groundling, helpless and impotent, is swooped upon at will, day and night, completely wiped out at the whim of the low-flying plane, which soars off leaving complete and utter destruction behind it! Simplicity itself: A rattle of machine guns, a shattering of bombs, a rain of gas (who can escape that?) and off our bogey goes to return again for another death-dealing frolic—after a sandwich and a cup of coffee! And this goes on day and night! The bogey sees all, knows all; attacks unheralded and when least expected, leaves nothing living behind him—and there's no escape! (Also—and to our utter confusion—there's an implied comradery among bogeys; a "We bogeys gotta stick together!" idea! Red bogeys, bound for attacking Blue groundlings, wouldn't

think of molesting Blue bogeys bound for attack of Red groundlings, for if bogey fought bogey there might be a standoff and the bogey business would lose its public, and the profits would be bound to fall off!)

Honestly, do you really believe all this? Or haven't you thought about it seriously? No matter. Whether you do or don't—or only partially—bear with me a short while, for right here I'm going to start in being serious from the viewpoint of a field artilleryman, and take this bogey, and roll him over, and poke and prod him, and see how much of him's real and material, and how much may be just good old bogey, after all!

* * *

Let us agree to start with that there is going to be low-flying attack of ground troops—history and the trend throughout all armies definitely requires that assumption. (Note that this paper deals only with the low-flying attack.) That being accepted, analysis proceeds first to an investigation as to the extent, or probability of such attack; then to an examination of how effective this attack may be expected to be (the combination of these two gives an index of the danger); third, because it is a correlated subject and one bearing somewhat upon the first two, the character and extent of defensive armament which field artillery units should carry with which to meet attack. The first is the least difficult of the three questions, although all are difficult, being supported by little experience data.

THE LOW-DOWN BOGEY

What is the probability of attack?

Attack is admittedly extremely hazardous from the viewpoint of the airman when it must be carried out under conditions to be found in war. Therefore it is costly in planes and pilots. This statement will undoubtedly find disagreement among certain bold spirits, nevertheless the hazards of low altitude and high speed, lack of opportunity for immediate close reconnaissance, and danger from ground fire, are cogent reasons supporting this view. For this very reason alone, attack will not be ordered by the high command unless satisfactory results cannot be obtained by other less-costly means. In preference to attack, artillery fire and higher-altitude bombing will be employed against targets where effective results may be expected therefrom.

Attack will be employed only against targets which offer a profitable return for the possible cost entailed; this has to do with the vulnerability of the target to attack, the return to be expected from successful attack, the possible reduction in effectiveness of the air forces as a whole (since they are deprived thereby of the services of the attack units for air force missions), and with the possible cost in losses. Consideration of the two last-named factors leads to the conviction that attack of ground troops offers profit in return for entailed risk only when it is necessary and the major issue of battle is to be decided thereby. Expect therefore to be attacked during the critical stages: A unit moving into battle at a decisive moment, the retreat, the pursuit—and then only when a vulnerable target is presented to the enemy attack. This latter for field artillery is when on the march, or in bivouac—hardly conceivable when in position.

Weather conditions and visibility must be favorable for the attacker; low-

lying mist and attack by night create great hazard for the plane.

Terrain exercises an influence in that effectiveness of attack falls off with inability to secure surprise, to locate the target quickly and accurately; wooded terrain offers protection and concealment to ground troops; open terrain permits dispersion (reducing vulnerability) and facilitates security against surprise. Ground troops are in greatest danger when passing through defiles, on the other hand the defile localizes the danger, affording opportunity for concentration of defensive effort.

Attack is a weapon used by air forces for the furtherance of their own effectiveness; for example, it may be employed against enemy airdromes to reduce his air effort, thereby permitting increased freedom of action of the friendly air force. The withdrawal of the enemy's attack from such missions, in favor of its use against ground troops, operates against the efficiency of the enemy's other air echelons, and will undoubtedly be a consideration weighing heavily in the matter. Can you not hear the airforce commander protesting that attack of ground troops fritters away effort much better employed, for ultimate profit, against the larger, more important, more vulnerable targets? And with reduced overall risk to planes which are costly and, above all, difficult to replace?

Summing up, serious attack* of field artillery units will occur only when the following conditions are severally presented: On the march, or in bivouac, when movements of large bodies of troops are in process; at critical stages

*Author's Note: We will always be subject to attack by the individual airman who, with an excess of enthusiasm, takes it into his head to do a little personal strafing upon his own initiative. He will be, as during the World War, a nuisance—hardly a serious menace.

in actions involving large forces, particularly in pursuit; when weather close to the ground is favorable; by day, and very rarely by night—due to greatly increased hazard—under very favorable night conditions; when the bombardment type of air offense either does not need the support of attack echelons, or cannot operate, or of itself cannot produce effective results. *These conditions lead to the conviction that: (1) The probability of seriously executed attack is extremely low in the case of infantry division field artillery units and those of corps and GHQ, save in the case of retreating forces closely pursued; (2) the peculiar vulnerability of horse artillery increases the probability of its being attacked, as does the character of operations for which cavalry may be employed; that is, its mobility used in rapid strokes against points vital to the enemy; (3) although theoretically the vulnerability of pack units is the equal of horse artillery units, the probability of attack of pack units is reduced, since as targets they are less profitable because their employment is indicated in terrain where dispersion is possible (if not usual), where cover exists and where the type of terrain makes attack more hazardous to the plane; (4) the probability of attack of field artillery units of mechanized forces is relatively high, upon the score of the vital character of its operations from the viewpoint of the enemy.*

(The invocation of Old Man Bogey to pounce upon us is going to be infrequent and should be discernible in advance in the majority of cases! Study of the situation by the higher command, with a view to foreseeing and forestalling his pounces, should be of profit!)

What is the expected effectiveness of attack?

(Here we roll our bogey over and see what his capacities for evil are; his tools, and arms, and their effectiveness. It's hard to reach any definite and accurate conclusion as to effectiveness, for some of his weapons are new and untried in actual war, so that we must judge as best we can. Perhaps the most difficult thing to contend with is making due allowance for our bogey's rather extreme claims for them. His position is natural—for he ceases to be a bogey when imagination will not run riot and reason refuses to take him at his own face value. This portion of this paper is one man's opinion, and if you differ in the details, so be it! It boils down to one conviction which you will find italicized later on — if you differ with that, then the bogeyman *has* got you and the only thing to do is duck under the covers and hope for the best!

Our bogey says he pounces and annihilates—let us see!)

The expected effectiveness of attack is a matter of form of attack coupled with an estimate as to the effectiveness of the weapons. Other things being equal, a target of a high order of vulnerability is the most profitable from the viewpoint of the attacker. This, in the mean, means a target sufficiently concentrated to enable effective attack in one passage of the planes. Respecting field artillery units it indicates that column on the road, or bivouac, or groups concentrated in a fairly large area, are the most favorable formations from an attack standpoint. A closed-up column on a straight road is probably the most vulnerable, for it lends itself to ease of location and ease

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of striking; if it be in a defile, so much the better for the attacker.

The weapons commonly considered for use in attack are the machine gun, the bomb, and chemicals. Of these three it is usual to consider that the bomb and chemicals are the main reliance for casualty - producing effect, and that the machine gun serves its best purpose by keeping down ground fire during the approach and passage of the plane.

In striking a column, or even an area, it may be expected that the attack will be made in a trio formation, since this lends itself to maneuver and to control and covers an area wide enough to insure coverage of the immediate target—even in the case of a column upon a road which has succeeded in scattering to the sides thereof. The usual procedure may be expected to take the form of machine-gun fire during the approach and passage of the planes and the dropping of bombs or spraying of chemicals—or maybe both—during the passage of the planes. The attack of a column may of course vary from such a form, as for instance, the attack by several single planes in succession, or even by single planes from the front and rear simultaneously.

Even with the very high cyclic rate sought in aircraft machine guns, the extremely high speed which the planes seek and secure in attack—which favors surprise and their own safety from ground fire — results in making the density of machine-gun fire low. Thus, although little protection is available to ground troops from it, the effect is probably best characterized as moderate—approaching scattering. (At 200 miles per hour, with a 1200-round-per-minute gun, 20 rounds are delivered per 100 yards of travel; with four guns firing through a 20-yard wide strip, one round per 25 square yards. This isn't going to be pleasant, it's admitted—but

it isn't like trying to get through the fire of a machine gun firing on a final protective line!)

The bomb is a major weapon of attack. Properly placed it will be the equivalent of artillery shell of equal weight in all probability. Protection from it, as in the case of the shell, may be secured by cover afforded by folds in the ground, ditches along a road, and the like.

In an attempt to evaluate the casualty effect to be expected from machine-gun fire, and from bombs, the writer endeavored to determine the expected hits per square yard upon prone vertical, and similar targets. Definite data upon the accuracy to be expected could not be found, nor could it be estimated, and the effort was abandoned as fruitless at this time. There were examined, however, two reports of demonstrations carried out in the past—one, upon ground unfamiliar to the attacker and more or less under wartime conditions, showed a surprisingly low order of effect; the other, under a favorable set-up and upon familiar ground, a very high order of effect. From these it is not argued that a low order of effect is to be expected in war, but it is argued that circumstances alter cases and a high order of effect is not necessarily going to be the rule.

Respecting chemicals it is to be noted that proper equipment and proper protective measures and training will reduce effect; more important, however, is the fact that chemicals may be sprayed across the path of movements, where their effectiveness is still almost the equal of spraying directly upon the troops themselves—the latter rather difficult as far as accurate placing of the spray is concerned—and at a greatly reduced risk of the planes to ground fire. This alternative may well be employed

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by the enemy, being efficient and economical.

Effectiveness of all attack weapons falls off in almost direct ratio to the target density. Wide intervals and large distances between units and groups offers promise of reducing effect to small proportions. Congestion of the roads, particularly in defiles, will, however, like any other tactical error, be of grave consequence unless special security and defensive measures are taken.*

Effectiveness of attack is dependent upon careful planning and skillful execution. It depends upon excellent reconnaissance. It demands a high degree of coordination. The attack cannot cruise about awaiting a favorable target—even selecting one type of troops as against another. The time factor does not permit correction of an initially misplaced attack. The effectiveness observed in peacetime attack operations cannot be considered as that which is to be expected under war conditions, especially in the attack of troops upon the march where reconnaissance and planning are limited. The factor of the moral effect upon the individual pilot, which certain knowledge that he is to encounter, or is encountering, fire will engender, cannot be calculated. It may be taken as certain, however, that it will seriously and adversely affect his accuracy and skill. Flying at extremely low altitude is in itself accepted as hazardous; it becomes additionally so at high speed, and more so still when carried out over points not hitherto reconnoitered by the pilot. When, on top of these hazards, is placed the possibility of being hit by hostile fire, in a type of flight which needs only to be deranged by an amount which would be inconsequential

*Author's Note: As witness the disastrous results of neglecting to take proper measures in the recent case of Spanish rebel columns moving on Guadalajara!

at higher altitude to be catastrophic here, it must be accepted that accuracy will suffer.

As to effectiveness these considerations lead to the conviction that the degree of effect will not be insupportable; indeed, field artillery units engaged with the enemy under situations equally probable may come under shell fire which will be of the same order of effectiveness.

(Now here's our bogey disappeared on us — just faded out! After all he turned out to be just another problem of meeting a new application of fire power—a new military weapon if you will—rather clearly defined in its uses and nothing all-destroying about it.)

What are the defenses we should adopt against the low-flying attack?

The first and primary defense against attack is the employment of our own air forces against those of the enemy. If his planes be kept on the ground they cannot attack the ground troops nor can they interfere with the operations of our own air corps. Of coordinate importance, though possibly a secondary line of defense, are the organized antiaircraft units. When the pressure of tactical needs requires operation of ground units at such times, or under such conditions, as may offer to the enemy a profitable return for his attacking them, both the air forces and the organized antiaircraft units should be employed in denying the enemy, to the extent that is necessary or possible, the opportunity for successful attack.

Within field artillery units the time and method of movement and operation should seek to make the maximum use of the passive defense measures of dispersion and concealment, together with proper security. In these is conceived to lie the most easily and most cheaply

THE LOW-DOWN BOGEY

obtained insurance against serious effect from attack. Experience indicates that active-defense possibilities within field artillery units lie only in the fire of weapons. Although proposals have ranged from the use of smoke screens, through many devices such as cannon shooting coils of wire, balloons supporting cables, and so on, none of these have offered promise. After many years of experiment with using the machine gun for the purpose, the arm has abandoned it and has settled upon the semiautomatic rifle (the automatic rifle employed in semiautomatic fire is presently prescribed) as the basic defense weapon. The machine gun was abandoned because, all factors considered, its overall efficiency is below that of the semiautomatic rifle for use at times of greatest danger—that is, upon the march.

When auxiliary weapons are proposed for the arm it is basically proper to limit them to bare necessities, otherwise efficiency in the employment of the major weapon is certain to suffer. What then is the measure of necessity in the auxiliary weapons which should be provided field artillery units with which to defend against air attack?

Earlier in this paper were brought out the situations under which attack might be expected: They are characterized as being occasions when successful attack is vital from the enemy's viewpoint. At such times attack, once determined upon and launched, will be made in the face of any odds; no amount of fire will then deter the enemy, for there is that in the human psychology which will always respond when men are needed to take a desperate chance. By fire, therefore, we cannot *stop* the attack — unless we

should shoot down all planes, an entirely improbable event. The best to be hoped for is reduction of effectiveness of the attack by moral effect of fire upon the pilot. The end to be sought is the establishment of a definite factor of loss—not necessarily a high factor of loss, for, if we cannot stop attack thereby (and such is argued as the case), a high factor of loss will not achieve immunity and therefore is costly in auxiliary armament and diversion of effort beyond proportionate return.

Exactly what will be the requirement in fire power needed to establish this factor of loss cannot now be determined; it will not be determinable, probably, until we confront an enemy, for enemies differ. We have no potential enemies respecting whom any preference should be accorded in sufficient seriousness to govern present numbers of weapons.

There are therefore prescribed, per unit, a small number of automatic rifles, which number may be amplified when need requires, and which serves at present to meet training needs. This number accords also with the index of need resulting from the combination of our factors: Probability of attack (low) and effectiveness of attack (not insupportable).

In numbers, the allocations to horse cavalry and pack units appear generally the same as for other units. Although probability of attack of these units may seem greater, and likewise their vulnerability, the character of terrain over which they may be expected to operate, and the increased facility with which they may move in dispersed formation, largely reduces the greater need which may appear at first glance.

Illinois Goes to Camp — Modern Style

BY HOWARD H. GASAWAY

THE eleven trucks, and the 35 student drivers, who had never driven convoy before . . . the woolen slacks, shirts, and overseas caps in which we reported at 5:00 AM June 18 at the Armory . . . the drawing of equipment . . . the hasty mess . . . the departure at 6:35 AM for the 800-mile round trip to Camp McCoy . . . the first two-hour halt . . . the change of drivers . . . the 100-yard interval on the highway, and the two truck-lengths in cities . . . the difference between driving a prime mover with a 75-mm. gun behind, and driving the wire truck, the station wagon, or the pick-up . . . the assistant drivers trying to unfold their route maps in the wind . . . the first halt for noon mess at 1:30 PM, and the unaccustomed juggling with the messkit . . . the many inspection halts the first afternoon . . . supper and camp near Savanna, Ill. . . the greasing, gassing, and oiling. . . the obstinacy of the shelter tent in moving out of line when pitched . . . the absolute worthlessness of the shelter tent on a fine night like this . . . the absolute necessity of the shelter tent when it starts to rain . . . the ease of convoy driving on yesterday's straight, level roads . . . the difficulty of today's driving on the curling hills when you can't see the truck ahead or behind . . . the Wisconsin border . . . the long drive to noon mess . . . by order of the commanding officer, noon is postponed until 2:30 PM. . . . Camp McCoy at 5:00 PM, 425 miles, no casualties except the Doctor, severely wounded by a blunt instrument in the hands of a mosquito . . . the checking of equipment . . . the

shouted greetings, not unmixed with friendly acrimony, to the student friends who arrived the previous day, horse-drawn fellahs, 40 of them . . . and 14 more motorized studes from Michigan State, at Lansing . . . the daily reveille at 6 AM . . . make bunk . . . sweep floor . . . empty waste can . . . arrange clothing . . . police area outside tent . . . hold breath for inspection . . . and don't forget shoes aren't shined until sole glitters . . . the daily drill and instruction . . . the difficult-draft test in which we beat the horsemen . . . the three exhibition RSOP's . . . the night occupation of position . . . the officers who told us the hours before midnight were the best for sleeping . . . the opposing school of thought which maintained the hours before noon were greatly superior . . . the average gain of 8 pounds per man . . . the athletic events . . . the social events . . . the events leading up to the tragedy: You're on guard! . . . the breaking-up of camp July 28 . . . the return trip by the different route . . . the wag who claimed he had to go back as he left the faucet running in the bath house . . . the big cities this trip . . . the police escort through Madison . . . the inconvenient speed of the trucks in that a pretty girl is out of sight too soon . . . the arrival at Champaign at noon July 29 . . . nothing more to do . . . except turn in equipment and wash trucks . . . the pleasure at having completed the most educational six weeks we had ever enjoyed, and the thought: If we weren't the first ROTC students to drive a motor convoy to summer camp—who was?

Italian Divisions

THE FAST-MOVING AND THE MOTORIZED

NOTE: The following is a translation of a portion of the Italian Ministry of War pamphlet, Combat Regulation of the Division (*Norme per il Combattimento ?? Divisione*).

The Fast Moving Division (*Divisione Celere*)

Characteristics.

1. The Fast Moving Division is intended for wide maneuver and rapid and decisive action based on maneuverability and surprise rather than on strength. The unit is a delicate one which wears out quickly and is slowly restored; it is an error to assign to it missions that may be carried out by other units. When it has accomplished its mission, it should be relieved from the front and restored to efficiency for new missions suited to its characteristics.

The *conditions of effective employment* of the fast-moving division are: A well-chosen and well-timed mission; *a commander with ready judgment and broad views, bold and experienced*, confident in himself and in his troops; very light but perfect reconnaissance and liaison; light, elastic services.

2. The organization of the fast-moving division is not rigid or unchangeable; it may be suited to the mission and situation.

The division is composed of two nuclei:* (a) Cavalry, motor-cyclists and tanks for maneuvered actions; (b) cyclists, motorized units and artillery for actions in strength. The organization of the fast-moving division is completed by engineer units and the services. The two nuclei of the fast-moving division may be disjoined and coupled to similar elements of other divisions. By combining two fast-moving divisions a *fast-moving corps* may be formed, composed of two fast-moving divisions, or by a division mostly of cavalry and another mostly of motorized units.

3. Air reconnaissance is an indispensable means for obtaining the maximum efficiency from the fast-moving division; by broadening its field of vision, it gives full play to the characteristics of the division. The headquarters controlling the fast-moving division must assign aircraft to it.

4. The cavalry units, which possess outstanding tactical mobility but minor fire power, are especially suited to reconnaissance and maneuver on various terrain. The cyclist and motorcyclist units, the motorized troops and fast-moving artillery, which are road-bound,

*A later book on organization of the Army published in January, 1937, gives the following organization of the "Fast Moving Division." This organization is believed to be more logical than the one given in paragraph 2.

Divisione Celere.

1 Headquarters Command

1st Group:

1 Brigade Headquarters

2 Regiments Cavalry, each composed of:

Headquarters, 2 groups of 2 squadrons each, a Light Tank Squadron, and a Depot (Territorial). The 1st group in each regiment is composed of 2 Rifle Squadrons, the 2nd Group of 1 Rifle Squadron and 1 machine gun squadron. Each rifle squadron is composed of a headquarters platoon and 4 rifle platoons of 3 sections each with 1 machine rifle per section. Each machine gun squadron is composed of a headquarters platoon and 3 machine gun platoons of 3 guns each. The light tank squadron consists of a headquarters platoon with 3 light tanks and 3 platoons of 4 light tanks each.

1 Regiment Bersaglieri (less motorized elements), consisting of 2 Battalions of Cyclists, each composed of 3 rifle companies and 1 light machine gun company.

1 Artillery group 75/27-mm. guns. Horse Artillery, composed of 3 batteries of 4 guns each and a small auto-park.

2d Group:

1 Battalion Bersaglieri, auto transported, composed of 3 rifle companies and 1 light machine gun company.

1 company Bersaglieri, motorcycle machine guns, composed of 4 platoons of 4 light machine guns each.

1 Group, light fast tanks, 30 tanks.

1 Artillery Regiment, consisting of:

1 Group 75/27-mm. guns or 75/18-mm. howitzers motorized, consisting of 3 batteries of 4 guns each.

1 Group 105/28-mm. guns, motorized, consisting of 2 batteries of 4 guns each.

1 Chemical Platoon (active service only) Services.

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and possess greater fire power, are better suited to actions in force.

Mechanized elements render useful service both in reconnaissance and combat.

5. The fast-moving artillery must direct its action on the principle of immediate intervention. Therefore:

Broad decentralization of groups and batteries;

Very advanced emplacements;

Commanders will *always* be informed of the situation and maintain contact with commanders of other fast-moving units; commanders must have plenty of initiative; *very rapid* fire motions; exceptional counterbattery.

6. The *engineers* must facilitate the movement of the large unit to which assigned, and obstruct enemy movements; and be employed on defensive works only when in defensive positions.

7. Means of liaison must be such as to permit rapid utilization; therefore, extensive employment of motorcycles, and prevalency of radio and optical means over wire communication.

8. The services must operate smoothly; their characteristics are rapidity and adaptability.

9. The fast-moving division is essentially a large maneuvering unit in the strategical and tactical field.

In the strategical field:

- a. To break through the covering line;
- b. To occupy rapidly important position;
- c. In reconnaissance;
- d. In general advance guard.

In the tactical field:

- a. For maneuver to a flank and for protecting a flank;
- b. For exploiting the success and for pursuit;
- c. In case of a break in the front, for protecting the retreat.

The breakthrough.

10. This is an exceptional form of employment and is effected after a surprise motion and in case the enemy's

covering line is passing through a period of crisis so that it may be pierced by a rapid, maneuvered irruption of forces.

In this case, the discontinuity of the enemy front permits and necessitates:

An active and skillful reconnaissance to determine what sectors of the enemy front are occupied and defended and what sectors are merely guarded or actually uncovered.

A carefully planned and resolute action to pin down occupied sectors and break through screens to cause the defense to fall back.

Reconnaissance and action of breaking through screens are generally assigned to cavalry, frequently reinforced by cyclists and tanks.

11. If the action of breaking through a screen is obstructed by resistances, it is necessary:

To neutralize them immediately by rapid and violent concentrations of fire.

To attack them resolutely, enveloping them with cyclist and tank units.

12. The fast-moving division—should it succeed in making a sufficiently wide gap in the enemy covering line—must *dash through* it resolutely and pass beyond, leaving to other forces the mission of widening and holding the gap.

The element of time is of preeminent importance; rapid and bold action is therefore necessary and carried out on the following criterions:

a. Security will be assured almost exclusively by the aggressive attitude of the reconnaissance force, taking advantage of the enemy's disorder following the breakthrough.

b. Mixed detachments of sufficient strength moving swiftly on separate routes and converging on the objective.

c. The objectives of the detachments will lie beyond and on the flanks of the locality which the main body of the division will occupy; when they are reached, reconnaissance will be intensified and preparations made for offensive

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or defensive action according to terrain.

d. The main body, united and protected by the detachments, will proceed rapidly toward the objective.

If resistances obstruct the advance, overcome them by all means, and if possible, by envelopment action.

When the objective is reached, the fast-moving division must be replaced as soon as possible and assembled in a locality where it may be quickly restored to efficiency.

Occupation of positions.

13. Its aptitude for swift movement makes the fast-moving division available for preceding the enemy in occupying an important position.

To accomplish this it is necessary:

a. First, to make use of the *swifter* elements to reach the position as quickly as possible and in the best condition;

b. Second, as soon as these first elements have reached it, the position will be organized for defense, and units will remain ready to plunge forward in continuation of the offensive or to leave the position to other units.

Should the position to be occupied be too extensive with respect to the available force, it will be advisable to:

Hold the greatest possible force in readiness to forestall the enemy;

Despatch nuclei forward with the mission of reconnoitering the terrain and obstructing or at least delaying the enemy's advance to give the main body time to counterattack.

Reconnaissance.

14. The purpose of strategical reconnaissance is to discover the location and attitude of the enemy.

This reconnaissance is *normally* entrusted to aviation; exceptionally, to the fast-moving division, which, by preceding the strategical large units by two or three marches, replaces the reconnaissance aviation when it is *unable* to operate.

The fast-moving division may also complete and reenforce tactical reconnaissance when reconnaissance nuclei of the first-line army corps are not sufficient to counter a strong enemy reconnaissance force.

The fast-moving division is generally subdivided into two echelons:

The first — reconnaissance detachments — charged with reconnaissance and contact;

The second—main body—to open the way, support, and finally pick up the first reconnaissance echelon.

15. The commander of the division, according to the orders he receives regarding the distance to be covered and the attitude to be taken:

a. Determines how many reconnaissance detachments to send forward, designating a separate route and a reconnaissance sector to each;

b. Establishes the strength and composition of each detachment according to its specific mission, to the presumable difficulties to overcome, the width of the reconnaissance sector, and the nature of the terrain;

c. Coordinates on the front the advance of the detachments:

Indicating the lines of terrain to be reached successively;

Determining the liaison and contact of each detachment with adjacent detachments and with the main body;

d. Indicates the route or the routes which the main body will follow as well as its presumable location at the end of the day;

e. Gives orders for the services.

16. Each reconnaissance detachment, according to the situation, terrain and width of the sector, sends forth reconnaissance nuclei or detaches patrols sufficient in strength for the mission assigned.

All other forces of the detachment compose the main body which will proceed along the assigned route;

17. Missions:

Reconnaissance patrols: Scout and

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reconnoiter without being led off their mission.

Reconnaissance nuclei: Direct, support and pick up reconnaissance patrols; replace them, reenforce them; collect information brought in by the patrols, assort, coordinate and complete such information and forward the results to the rear. Surprise and eliminate enemy advance nuclei; if the enemy is too strong, hold out until relieved by the main body.

Main body: Direct and coordinate the action of reconnaissance nuclei; supply and replace them; collect and assort information and forward same to the main body of the fast-moving division, open up the way for reconnaissance nuclei by combat actions; finally, pick up the nuclei and bar the principal routes to enemy reconnaissance units.

18. The action that a detachment must carry out in case of encounter with the enemy is based on the instructions received, whether to repulse or check the enemy. In the first case, should the detachment fail to open up the way, it will take a defensive attitude.

The commander of the fast-moving division, according to the general situation, decides whether to reenforce the detachment in order that it may resume the advance, or await the effects of the advance on other sectors of the front.

In the second case, if the enemy presses so as to cause the retreat of the detachment it is necessary to despatch part of the forces or all of them so as to:

Reestablish the situation by a renewal of the offensive in a sector;

Resist as long as possible to permit the intervention of the large unit coming up from the rear.

General Advance Guard.

19. The general advance guard covers and protects the action of the main body of the large unit that follows it.

The fast-moving division, if charged with general advance guard missions,

will impose the duty of reconnaissance upon its lighter elements, cavalry, tanks, and cyclist units, with the support of aviation.

The remaining force, which will carry out actions in strength, may if necessary be reenforced by motorized infantry and artillery.

The *motorized* division is particularly suited to furnish these reenforcement.

Maneuver at the wings and protection of a flank.

20. The fast-moving division is especially suited for:

Encircling an enemy wing or line;

Protecting the flank against a similar attempt on the part of the enemy.

In order to turn the enemy wing, the division with the assistance of aviation must determine the location of the extreme end of the enemy's front and the depth of his flank.

So as not to reveal this design, it is necessary to carry out observation without being detected by the enemy, avoiding combat as far as possible.

After having determined the situation, it is necessary to:

Select a direction of attack to strike at the rear of the enemy line.

Establish the direction and objective for each attacking column.

Attack with violence and swiftness to draw the greatest profit from surprise.

Give few instructions as to the attitude to be taken after the shock, trusting in the initiative of commanders.

A centralized-command notion would reduce impetus and rapidity in the attack.

21. The most effective means of protecting an endangered flank is the *counterattack*.

It is first necessary to:

Possess an aerial and land reconnaissance having a wide range of observation to signal in due time the presence of the enemy and his direction of advance,

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maintaining united the greatest percentage of the force.

Maintain a position somewhat rear and on the outside of the flank to be protected.

Launch the counterattack, making ready to press on with all force from a suitable position against the outside flank of the enemy as soon as his directions of attack are determined.

Following up the success.

22. At the end of a hard breaking-through phase, it is not usual that success is obvious or certain. Success shows here and there through symptoms that must be understood and exploited immediately so that the enemy may not overcome the crisis.

The fast-moving division is very useful in those circumstances, due to its suitability for rapid intervention in the action. It should be assembled in a position from which it may be thrown into the action at the right moment.

The fast-moving division, like a division of the 2d line, must have a skeleton plan to facilitate its entry into action.

23. The following-up or exploitation of the success carried out by the fast-moving division consists of:

Penetrating in depth;

Crossing as quickly as possible the zone in which the enemy artillery is located;

Reaching the enemy headquarters and service zone, leaving to other units the mission of widening and fixing the breach;

That is, operate in depth on a restricted front, making for objectives that are well known to all.

The first phase of the action—usually the hardest but which must be resolved in the shortest possible time—will be assigned to the cyclists and tanks directly supported by artillery in a very forward position, divided into groups or batteries.

After overcoming the first obstacle, having diminished the resistance,

widened the field of battle, the cavalry units will go into action. These will avoid the remaining enemy resistance and advance resolutely in depth, compensating their lower fire power with speed, and even more, with daring and impetus.

Pursuit.

24. The exploitation of the success must result in immediate pursuit: these two combat actions must blend; a short halt is sufficient to jeopardize the final result.

The pursuit, which at first is left to the initiative of subcommanders, must later be taken in hand, coordinated, and controlled, without which it would peter away in disconnected actions without value.

The fast-moving division, commanded by an energetic, daring officer *well informed of the situation*, is the most suited means for this decisive phase of the combat.

The exploitation of the success and the pursuit—because of the high pitch and speed of action required—are operations particularly suited to the fast-moving division.

It is not always possible to expect this division to carry out both operations.

Of the two employments, the more suited to the fast-moving division is the pursuit.

Commanders and troops, bent on reaching and overcoming vital and distant objectives, must plunge through intervals, passing over secondary routes to avoid the resistances which the enemy will bring to bear astride the principal routes.

25. In order that the pursuit in depth may be as profitable as possible, it is necessary:

a. Not to delay on minute reconnaissance and security measures; a few alert elements are sufficient.

b. To proceed by mixed, light columns, each pressing straight for its respective

objective without effecting lateral liaison;

c. To turn resistances if they cannot be attacked frontally; then attack their flanks, employing all available fire power and means;

d. To assign very mobile and well-munitioned artillery to each column; this artillery will press forward with the advance guard to give it immediate and effective fire support.

To other divisional and army corps artillery is entrusted the task of striking the enemy with long-range fire to interdict, trap, pursue, cut off his retreat, and bring him to desperation.

e. For reasons of simplicity and speed, to depend entirely on nonwire communication.

If these also should fail, proceed by initiative towards the more distant objectives.

f. To reduce supplies to a minimum, limiting them to ammunition; for remaining needs, make use of local resources.

The commander who hesitates in this phase of the combat is worse than unfit; he is a *culprit*.

Intervention in case of a break in the front.

26. When the enemy has made a gap in the front, it may be advisable to assign to the fast-moving division the mission of closing it up as quickly as possible.

27. If the gap is not wide, the division may be charged with the mission of linking up the units that remain in position. In this case it occupies and holds the connecting front, awaiting replacements, if possible, by other troops. The rules for this operation are similar to those prescribed for the 2d line division.

28. If the gap is wide and the enemy has already penetrated considerably in depth, the fast-moving division may act:

Defensively, occupying a rear position suited for checking the enemy *until the arrival* of a nearby large unit;

Offensively, with lively counterattacks on the enemy flanks and rear with a view to containing the adversary and giving the large units time to establish defense on rear positions.

Protection of the retreat.

29. The protection of the retreat is one of the most difficult tasks that may be assigned to fast-moving units.

To carry out protection at the cost of any sacrifice is a *debt of honor*. For this purpose, it is necessary to:

Allow space between units assigned for protection and those that are to be protected.

Oppose successive resistances on positions favorable to observation and fire, and, if possible, having good terrain for the wings of the alignment and obstacles to the front for hindering the action of mechanized units.

With fast-moving elements and tanks, make a firm resistance against the approach of enemy forces on the successive positions. Attacks and counterattacks, especially on the flanks of the attacking columns, must succeed one another without respite.

The fast-moving unit designated for protection leaves the combat only when replaced or when it has discharged its mission of honor.

The Motorized Division

Characteristics.

1. The motorized division is an *infantry division* on motor vehicles, and therefore capable of *swift movement* over roads.

The sensibly lower strength of the motorized division as compared to the infantry division is compensated for by additional fire power.

2. The outstanding characteristic of the motorized division is its capacity for long and rapid movement; but, being long-drawn-out in length and

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heavy, it is difficult to effect its withdrawal once it is engaged in battle.

Its disadvantages: Scant security on march, difficult to deploy, road-bound, vulnerable and cumbersome characteristics of vehicles.

3. The motorized division, when it has left its vehicles, fights like an infantry division reenforced by a strong mechanized echelon.

Though inferior in numerical strength, its greater fire power permits it to act on a wide front like that of an infantry division.

Its rapid transportation (machine guns mounted on motorcycles and tanks) permits it to *operate with speed*, at great distance, against the enemy's flank or rear.

4. The motorized division is not suitable for sustained effort. It moves fast, is aggressive in action and may be successfully launched to resolve situations that require a rapid and overwhelming effort.

5. The motorized division may be employed:

a. For prompt occupation of important positions;

b. In cooperation with the fast moving division;

c. As reserve.

In any case its entry into the action requires accurate preparations.

Marches and halts.

6. The large number of motor vehicles in the division:

Encumbers the roads; makes units road-bound; offers large targets to air offensives.

Special cautions are therefore necessary to protect motor vehicles; these are:

a. Speed and security *on the march*;

b. Order and security *at the halt*.

To escape air observation and effect surprise action, the division may move by night.

7. To assure speed on the march the following are necessary:

a. Rational selection of routes and points to unload;

b. Elastic formation of columns;

c. Accurate and rigorous march and road discipline.

8. The *selection of routes* involves the utilization of all available roads according to their individual capacity.

The best and shortest routes should as a rule be assigned to the artillery and other heavy and cumbersome elements.

9. *Point to unload*—which the division usually reaches in a single bound—should be as near as possible to the zone of employment.

Roads will continue to be utilized with increasing intensity as the zone of employment is approached.

Marching on a broad front in several columns, where possible, facilitates the deployment of the division.

10. An elastic formation of the marching column is indispensable because of:

The length of road space of the division;

The foregoing is a translation of Section IX of the "Regulations for the Combat of the Division" 1936.

The Motorized Division is organized as follows:

1 Headquarters Command

2 Regiments of Infantry motorized, each composed of:

A headquarters

2 or 3 battalions, of a headquarters and 3 companies of 3 rifle platoons (including 6 machine rifles each), and 1 heavy machine gun platoon of 6 machine guns;

1 auto park

1 depot

1 Battalion heavy machine guns, motorized, consisting of:

1 headquarters and 4 companies, each of 4 platoons of 3 guns each.

1 Battalion light tanks, consisting of:

A headquarters.

3 companies of 3 platoons each of which 1 platoon is a flame thrower platoon. The total tanks in a battalion are 10 to 12 command and reserve tanks, 24 fighting tanks, 12 flame throwers.

1 company 81-mm. mortars, motorized.

1 company 47-mm. anti-tank guns, motorized.

1 battery 20-mm. anti-aircraft guns (eventually motorized).

1 chemical platoon, motorized (on active service).

1 artillery regiment, motorized, composed of, Headquarters.

2 Groups of 3 batteries of 4 75/27-mm. guns each (gradually these guns will be replaced by 75/18-mm. howitzers).

1 Group of 2 to 3 batteries of 4 100/17-mm. howitzers each.

Regimental depot.

inevitable accidents due to the large number of motor vehicles; difference of speed between vehicles.

This elasticity is obtained by dividing the columns into many echelons composed of elements that are themselves separated by intervals.

The number and formation of columns, echelonment, and distance between echelons and elements depend on the situation, the road net, and the purpose of the movement.

Small echelons give greater independence and elasticity; but too many echelons, with their intervals, increase the depth of columns, make command action more difficult, and delay the deployment and employment of the division.

11. *The most painstaking and severe march and road discipline* is necessary, without which columns lose their bearings, cause jams, delays, and impossible situations.

To reduce accidents and delays to a minimum it is necessary:

To observe accurately the march time of columns; to remove obstacles and impediments; to regulate distances between echelons and maintain liaison.

12. The *column formation* should be very carefully planned with an exact calculation of time intervals between echelons.

In order to avoid grave loss of time and discomfort to troops it is also necessary to take into consideration the location of bivouacs and points of loading vehicles.

The chief of staff of the division is directly responsible for the perfect execution of this delicate operation; the chief of staff will assign officers and personnel to prevent jams and delays.

13. *Removal of obstacles and impediments.* The division will be preceded by a motorcycle unit to police the road a few kilometers in front of the division.

This motorcycle unit has attached a detachment for removing obstacles and impediments.

Mission of this unit: Assure a *free passage* to the division, eliminating rapidly and energetically all that may oppose its rapid advance.

14. The march distance between motor vehicles, between elements, and between echelons should be rigorously maintained even during halts.

These intervals may be changed only upon orders to this effect from:

The division commander, in case of intervals between echelons;

Echelon commander, in case of intervals between elements or between vehicles.

15. *The intervals*, besides giving elasticity to the column, permit transit at narrow crossroads or passage through columns during halts.

At any rate, crossroads and the intercrossing or columns must be subjects of special instructions; where necessary, *traffic control* posts should be established.

16. *Liaison* on the march is a matter of particular importance.

Liaison is usually maintained by motorcyclists who:

Carry orders; link up echelons and columns between each other or with the rear guard salvage unit; establish traffic-control posts.

Sometimes liaison may be effected by radio, especially on mountain roads where passage at certain points may be so difficult as to hold up even the motorcyclists.

17. *Rear guard salvage unit.* The constant care of vehicles is most essential to the efficiency of the motorized division.

When a motor vehicle is broken down on the march it must be removed immediately. If it cannot immediately continue the march it must be picked up by a special rear guard with equipment and specialized personnel for effecting repairs.

ITALIAN DIVISIONS

18. The *security* of the division on the march is provided for:

By advance guards composed usually of motorcyclists reinforced by tanks.

By units detached on the flanks and operating on routes running parallel to the principal route.

If this is not possible, it is necessary to reinforce the advance guard with elements charged with the protection of the flanks of the column and which will occupy suitable points. Once this mission is carried out, these elements take position to the rear of the columns.

19. The distance from the main body at which the advance guard and flanking elements must march as well as the composition of advance guard and elements depend on the situation, the terrain, the speed and mission of the division.

The security service carried out by motorized elements must cover a broad area.

Each echelon must always be in condition to confront small surprises caused by penetration of enemy elements; the men will always be ready to fire with rifles and machine guns while on vehicles or to take immediately combat formation on ground.

20. On the march, the motorized division is very vulnerable because it is easily detected by aviation.

It is therefore necessary to protect it from air observation by camouflage, artificial fog, antiaircraft fire, according to the situation and mission.

21. *At halts*, to protect motor vehicle parks, it is necessary:

To provide for rapid and orderly transit to and from the park.

To protect motor vehicles from air observation.

To protect them from possible sabotage and surprise.

22. For loading and despatching vehicles rapidly from parks it is necessary to:

Study accurately the terrain and roads to facilitate the formation of columns and transit from the park.

Expedite the loading and movement of trucks from park.

The exact time and locality for joining columns will be given.

The commanders of motor transport columns must be very energetic, competent, and practical; they must bear grave responsibilities.

23. The screening of motor vehicles in park from *air observation* is obtained by scattering vehicles over a given area, by camouflage and, possibly, by artificial fog.

An air raid against massed motor vehicles at a halt may bring about disastrous consequences; therefore, according to the situation, to the location of the various motor transport groups and available weapons, it is also necessary to prepare for antiaircraft defense; it would be a serious error to neglect it.

24. *To protect a park from surprise and sabotage* it is necessary to have:

A well-organized, active, and conscientious guard (advance posts, supports and rapid means of reinforcement) to ward off surprise actions by cavalry and tank units.

In the enemy's country, the guards must be particularly instructed to:

Preserve material, especially fuel, from acts of sabotage.

Assure the continuation of the movement by eliminating obstructions that may have been laid down.

No measure of security will attain its purpose unless sustained by the action of the commander and the clearness and precision of his orders which require *immediate* obedience.

Occupation of Positions.

25. The motorized division is especially suited to anticipate the enemy in the occupation of important positions and for the successive development of operations.

26. In this case, the division, preceded by a light and very fast advance guard (motorcyclists, tanks or other reinforcing units):

Advances rapidly but guards against surprise actions on the flanks;

Occupies the position;

Despatches fast elements on the most probable routes of advance, to observe and possibly block the enemy's passage;

Concentrates these fast elements, especially tanks, at the wings in order to protect the flanks and to effect *counterattacks*.

27. If the occupation of a position is made in conjunction with a fast-moving division (*divisione celere*), the senior commanding officer takes command and bears the responsibility for the action; he will remember that it is necessary to:

Avoid mixture between units and various elements.

Make a precise subdivision of missions, giving definite orders.

28. Positions that are suitable to the purpose in question are those offering natural obstacles, especially adapted to defense, such as river courses. In the case where *river courses* are selected for defense it will be necessary to:

Establish bridgeheads;

Despatch elements (motorecyclists, and, *exceptionally*, tanks) beyond bridgeheads along the principal routes with the mission of observing and possibly checking the enemy.

Hold the main body of the division ready to be promptly placed in action at threatened points.

Cooperation with the fast-moving division.

29. The motorized division may cooperate with the fast-moving division in *strategical reconnaissance* or in *general advance guard*:

To open the way with its greater penetrating power through points where

the resistance was not overcome by the fast-moving division;

To *relieve* the fast-moving division in an occupied position;

To cover the withdrawal of the fast-moving division where the terrain is suitable and where there are many roads.

30. Of these missions:

The first will consist of an attack based on *violence* and *surprise*.

The second will be an occupation for defense.

The third is especially delicate, because protection must be given so as not to involve the motorized division in the withdrawal of the fast-moving division; this is a very complex and difficult maneuver.

The movement of motor vehicles must be given special attention; movement will be *masked* and *timely*; delays or jams may bear fatal consequences.

Reserve.

31. The motorized division is well-suited to operate as a reserve.

When launched on the battlefield it is particularly suited to:

Exploit the success;

Overcome a crisis of the defense.

It usually constitutes the army reserve, and should therefore be held much in the rear to facilitate its intervention at any point in the whole sector of the army.

The employment of the division will be most productive if it is *timely* and *by surprise*. The decision regarding, its intervention must be based on a just evaluation of the situation and an exact computation of time, which requires outstanding *intuitiveness* on the part of the commander.

32. In the *exploitation of the success*, the motorized division, from which all superfluous equipment has been eliminated and which is preceded by fast, light elements to open up the way, is launched with the greatest possible

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speed to rout the retreating enemy.

The Commander.

33. The following must be the characteristics of the *commander*:

Thoroughly competent on motor transport vehicles;

Great balance and coolness;

Ready initiative and decision;

Outstanding capacity to evaluate terrain possibilities.

An incorrect or tardy evaluation of the situation and terrain may result in grave and unrepairable consequences in the employment of these large units which are strictly bound to roads.

The commander of the motorized

division and the commander of the fast-moving division must have similar characteristics; in the former the qualities of judgment and a thorough understanding of the situation should prevail; in the latter, the spirit of decision and initiative are the most important.

Both the motorized and the fast-moving division give fine results when properly employed.

Both require:

A wisely directed air reconnaissance;

Headquarters in a most advanced position;

Few but rapid and reliable means of communication.



NOTICE OF ANNUAL MEETING, U. S. FIELD ARTILLERY ASSOCIATION

In compliance with Article VII, Section I, of the Constitution, notice is hereby given that the Executive Council has fixed 4:45 PM, Wednesday, December 15, 1937, as the time of the annual meeting of the Association, to be held at the Army and Navy Club, Washington, D. C.

The business to be disposed of will be the election of six members of the Executive Council (of these, three are to be elected from the Regular Army, one from the Field Artillery Section of the Officers' Reserve Corps, and two from the National Guard) and the transaction of such other business as may properly come before the meeting.

The President appointed, as members of a Nominating Committee, Colonel A. C. McBride, Lt. Col. F. A. Doniat, and Lt. Col. J. F. Barnes, who have selected the following names for presentation at the annual meeting:

From the Regular Army

For reelection, Brigadier General Lesley J. McNair.

For election, Colonel Edmund L. Gruber.

For reelection, Colonel R. E. D. Hoyle.

From the National Guard

For election, Colonel William H. Sands, 111th FA, Virginia.

For election, Colonel C. C. Haffner, Jr., 124th FA, Illinois.

From the Officers Reserve Corps

For reelection, Colonel Leroy W. Herron.

Proxy cards are being sent to all members of the Association within the continental limits of the United States, as required by the Constitution, and it is desired that they be returned promptly. Nominations may be made on the proxy cards or from the floor at the annual meeting.

Old Issue Speaks

BY CAPTAIN C. R. GILDART, FA

The poets prate of the easy gait
Of the horse who's sure to get there;
"The friend of man," says the mounted clan,
"In fair or stormy weather,"
But Dan Magrew, a beast I drew,
At my first equitation,
Had a counterrecoil like a gun sans oil
And balked like all tarnation.

"He'll go all day, 'thout grain or hay"
(Chow hound if ever I seen one),
"He can swim a creek or climb a peak"
(If his mixture ain't a lean one),
Say, grousers beat the horse's cleat,
Noble though his race is;
'J ever see a Model T
A-jumpin o'er the traces?

"'And Sudden Death'; the motor's breath,
"Is killin' all creation";
Sez you, my frien', why way back when,
We was a warrin' nation,
A gun-shed door came down with a roar—
The drivers just dismounted—
Like a puff of smoke, the stampede broke—
My God! The dead we counted!

The fine romance of the palfrey's prance,
I haven't time to give it;
It's gettin' dark in the motor park,
The captain's in a swivet.
Roll up the pane, here comes the rain,
No sudden stops or spurtin's,
And let me see, d'I ever see,
A horse that had side curtains?

Indicating Artillery Fires at the Fourth Army Maneuvers

BY CAPTAIN JOHN F. BIRD, FA

Editorial Note: Major E. C. Fleming, FA-Res, who observed these maneuvers for *The Reserve Officer*, reported, in the October number of that publication, that more than 400 Reserve Officers, the greatest number ever to be placed on active duty at any one exercise, participated in the exercises. Part of his story referred to umpire planes flying to target areas and dropping torn paper to indicate coincidental simulated artillery fire. The flag technique described by Captain Bird in this article was discussed by Lt. Cols. A. R. Harris and John Keliher in the March-April number of the JOURNAL.

ON August 1, 1937, we found ourselves at Morro Bay, California, along with a great many other officers from the regular army, Reserve Corps, and National Guard, all umpires for the Fourth Army maneuvers. For some of us, it was to be the greatest experience of our careers to date.

Camp orders assigned all umpires to definite jobs. Since this article primarily interests the artilleryman, only artillery umpiring will be discussed; however the general set-up is necessary in order that the picture may be clarified.

The umpire system, at the San Luis Obispo-Morro Bay phase of the maneuvers, was a combination of the unit and contact umpire system, under a control group, and was organized as follows:

(1) A control group consisting of the Chief Umpire, the Deputy Chief Umpire, Umpire Executive, Liaison Officer Blue, Liaison Officer Brown, Liaison Officer Artillery, and Liaison Officer Air.

(2) A contact group consisting of the Chief Contact umpire and his assistants, the Chief Artillery Contact Umpire, and his assistants.

(3) Unit umpires with specific units.

The duty of the chief umpire was to control the maneuvers and this he did through his assistants. Liaison Officers Blue, Brown, Artillery and Air. All information concerning their particular phase of the maneuvers passed through

these officers both going to and coming from the Chief Umpire.

The general duty of the contact group was to control the front lines after contact between opposing forces occurred. This was done by means of flags raised to indicate obstacles, barriers, demolitions, artillery fire and the like.

The unit umpires were given the duties of reporting to the chief umpire all plans, orders, or decisions of troop commanders, and of assessing penalties against units subjected to hostile fire when necessary.

As stated above, the chief umpire depended upon his liaison officer, artillery, for all information pertaining to that important arm. This job fell to the lot of Lieut. Col. Louis R. Dougherty, FA, who had two sets of umpire assistants.

First: Unit umpires with the various artillery units, to report the fires and assess penalties. Second: Umpires in contact with the infantry, marking or indicating the fires accurately on the ground.

Umpire instructions were issued listing the general duties of each set. They were, in part:

DUTIES OF UNIT UMPIRES

a. Supervise and coordinate work of unit umpires with lower units.

b. Check ammunition supply and expenditure.

c. Remain normally with the headquarters of the unit to which assigned.

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d. Assess losses, in form of penalties, on artillery elements which came under reported or probable hostile fire or failed to make proper use of cover or to adopt proper formations.

e. Establish contact, when practicable, with the unit umpires of supported infantry units to check the plan of support with the scheme of maneuver of the supported unit.

f. Keep the liaison officer, artillery, informed of all artillery orders, movements, and plans including major fire missions.

g. Keep the artillery contact umpire headquarters immediately informed of important fires as to classification, location, and area, time of opening fire and duration.

The assignment of unit umpires was made on the basis of one umpire to each unit, down to and including the artillery battalion. The duties as listed were explicit and the work of the unit umpires was excellent. Reserve Officers assigned to this duty performed exceptionally well.

The marking, or contact umpire group was composed of 9 officers, 24 enlisted men (who acted as markers), 3 telephone operators, and 9 radio operators, all under Lieut. Col. Wm. F. Maher, FA, as artillery contact umpire. This group was divided into 3 subgroups: The headquarters subgroup, the subgroup marking the fire of the Brown batteries, and the subgroup marking the fire of the Blue batteries.

The contact group had the job of indicating artillery fire on the ground at the exact location reported, with the least possible delay. To do this properly an estimate of the situation had to be made, based on the proposed plan of action of both forces. The plan of action, submitted the day before, was studied, and the areas most likely to draw artillery fire were selected. Markers

were sent to these areas ahead of time so that the fires could be indicated when reported. Communication to these markers was by means of radio, the SCR 163-A set being used. (At this point I would like to mention the performance of these sets. Since it was necessary to keep the marking groups in front of the infantry at all times, the groups had to be moved periodically. This necessitated the mounting of two sets in trucks. The sets were moved over very rough terrain, yet functioned, so that communication was never disrupted. In three days maneuvering only one set went out and that was due to a break in the cable connection, set to generator. Had it not been for the perfect performance of these sets, the artillery would not have played the important part it did during the maneuvers).

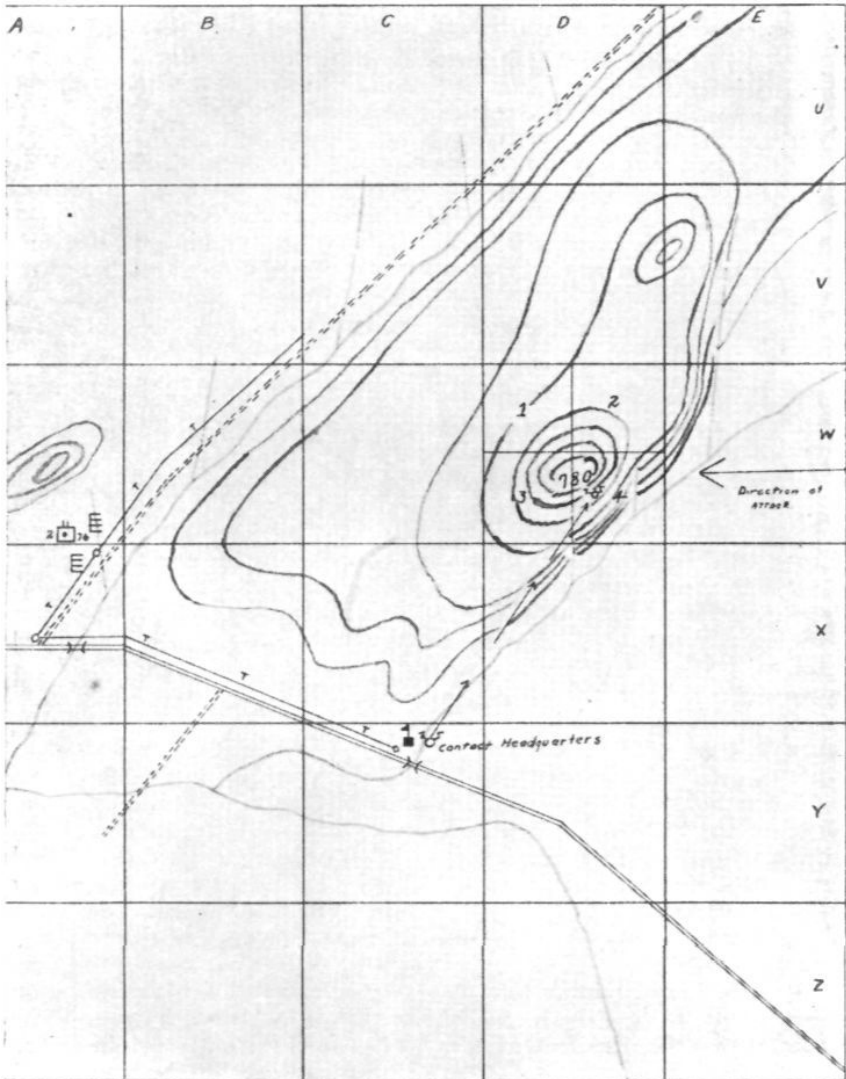
The headquarters group, located at a central station, kept a situation map, which had the location of the marking groups accurately plotted. The netcontrol station of the radio net was also at this station.

Communication from unit umpires to artillery contact headquarters was by telephone.

Let us take a concrete example:

(See Map) The Browns are attacking with the mission of securing hill 789. The Blues desire artillery fire brought to bear on this hill. Major "A," unit umpire with the 2d Battalion 76th FA gets the fire mission from the battalion commander. He immediately calls artillery contact headquarters by telephone. The message comes in and is turned over to an umpire keeping the situation map. The coordinates of Hill 780 are noted, and also the marking group in that area. A message is immediately sent by radio to this group which reads: Mark fire of two Blue batteries at DW 4 for 15 minutes (or the proper duration of time). As shown on

INDICATING ARTILLERY FIRES AT THE FOURTH ARMY MANEUVERS



THE UMPIRE FIRE CHART

the map a 1,000-yard square was subdivided into four 500-yard squares for more accurate marking. After the message has been sent, the mission is plotted on the situation map.

The message is received by the marking group and the fire is marked by means of flags. As soon as the flags go up, troops advancing in that area must take the proper formations of advance or may stop entirely, depending upon the ruling of the Infantry Contact Umpire at that location.

The lapse of time between the receiving

of the fire mission from the battalion commander to the marking of the fire on the ground approximates very closely the time normally used for adjustment. So, from a tactical standpoint, the training received is very nearly the same as from actual fire, the only difference being the moral effect of artillery fire which can never be achieved in peacetime maneuvers.

This system of marking artillery fires at the San Luis Obispo-Morro Bay phase of the 4th army maneuvers was highly praised.

Special Notice

U. S. FIELD ARTILLERY ASSOCIATION PRIZE ESSAY, 1938

A PRIZE of \$100 is offered by the United States Field Artillery Association for the best essay submitted by any Field Artillery officer of the Regular Army, National Guard, or Reserve Corps, on any subject of current interest pertaining to the Field Artillery.

The Executive Council of the Association, in announcing the essay prize, offers, in addition, a prize of \$50 to that student of the 1937-38 Regular Course of the Field Artillery School whose required thesis shall be adjudged best by the Commandant of the School or by his delegates.

The following rules will govern the *essay* competition:

(1) The award of prize to be made by a committee of three members to be nominated by the President of the Field Artillery Association, voting by ballot and without knowledge of the competitors' names or of each other's vote.

(2) Each competitor shall send his essay to the Secretary-Treasurer of the Association in a sealed envelope marked "Prize Essay Contest." The name of the

writer shall not appear on the essay, but instead thereof a motto. Accompanying the essay, a separate sealed envelope will be sent to the Secretary-Treasurer, with the motto on the outside, and the writer's name and motto inside. This envelope will not be opened until after the decision of the Committee.

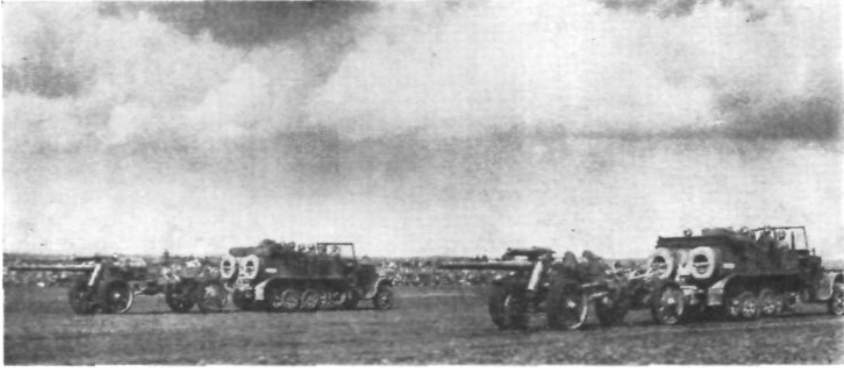
(3) Essays must be received on or before January 1, 1938. Announcement of award will be made as soon as practicable after that date.

(4) The essay awarded the "United States Field Artillery Association Prize" will be published in the FIELD ARTILLERY JOURNAL as soon as practicable. Essays not awarded the prize may be accepted for publication in the FIELD ARTILLERY JOURNAL at the discretion of the editor and the writers of such articles shall be compensated at the established rate for articles not submitted in competition.

(5) Essays should be limited to 8,000 words, but shorter articles will receive equal consideration.

(6) All essays must be typewritten, double spaced, and submitted in triplicate.

INDICATING ARTILLERY FIRES AT THE FOURTH ARMY MANEUVERS



NEW GERMAN ARMAMENT

Above—The 10.5-cm. gun-howitzer

Below—The 15-cm. gun-howitzer

These weapons are drawn either by half-track trucks, as shown, or by horses.



According to the Recruiting News: Mess Sergeant George H. Gholson, Serv Btry 10th FA, was on furlough in Missouri when the floods came along. Volunteering his services, he was placed in charge of a large feeding station, where he elicited the praise of the state relief administrator and a regimental general order in commendation . . . When Btry B, 5th FA (Captain Raynor Garey) stopped for noon mess in Binghamton, N. Y., BC and Mess Sergeant had hard time convincing Miss Letty Lynn, staff writer for local "Sun," that fried chicken, stewed corn, green salad, and fresh cherry pie were regular travel rations for Madison Barracks wagonsoldiers.

Chicago's Military Show and the Illinois Field Artillery

SOME 4,000 guardsmen of the 33d Division displayed their wares before 100,000 people in Soldier Field, Chicago, in a military tournament August 15-16, as part of the city's celebration of its Charter Jubilee. The 150-minute program was replete with thrills from the parades and demonstrations that opened it to the representation of the advance in the Argonne that climaxed it, and that incidentally rang down the curtain on the 1937 active duty training of the 33d Division, commanded by Maj. Gen. Roy D Keehn.

A story by Mr. Joseph Dugan in *The Illinois Guardsman*, said of it: "The battle also served as an exciting and terrifying argument for peace. The crash of antiaircraft guns, the fingers of light from antiaircraft searchlights sweeping the sky, the terrific speed and fire of the advancing tanks and last, the irresistible advance of the waves of infantry, firing as they moved, gave the crowds a close-up of actual war. The emotions of the crowd during the battle were electric. Many said they were frightened by the terrific din of the coordinated artillery, machine-gun, and rifle fire, but when it was over everyone there knew that the soldiers of the 33d Division in action are not just a bunch of boys playing at a game."

Among those who praised the demonstration highly were Maj. Gen. Charles D. Herron, former Sixth Corps Area commander, now en route to Hawaii.

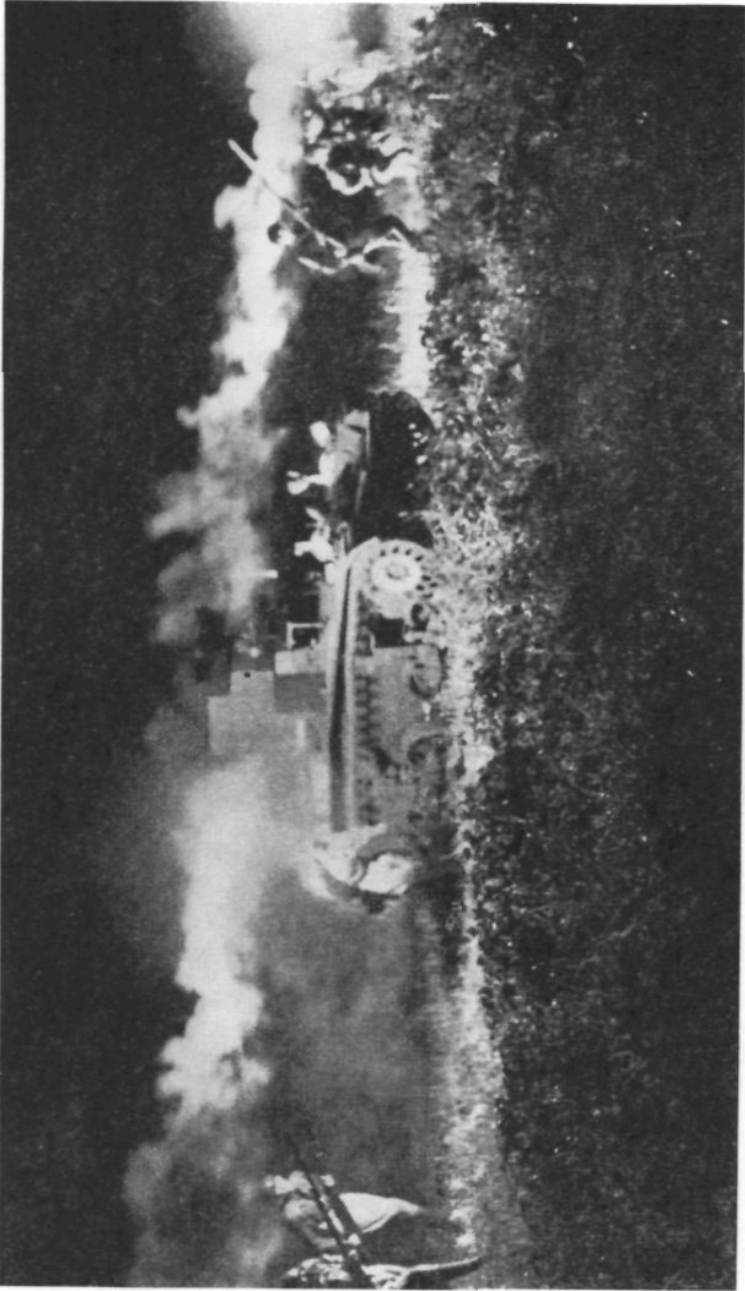
Field artillery units played their important parts in the show. The "Lancers" of the 122d Field Artillery put on their spectacular exhibition under the

direction of Captain H. H. Harz and 1st Lt. Herman D. Stucky, And the 123d Field Artillery made its first large-scale public appearance with its new modified 155-mm. howitzers. (Incidentally, these artillery regiments consistently lead the "league" with high attendance ratings, up in the nineties, the July Honor Unit, for instance, being Hq Btry & CT 2d Bn 124th FA, with no less than 100 percent.)

Active in the demonstration was the 124th Field Artillery, and why not? Their artillery drill team, called the Red Devils, drove through an involved draft demonstration at the gallop, illuminated by red flares. Their championship jumping team, coached by Captain Eddie Argo, FA (who was also an assistant manager of the Show), showed the form that had enabled them to win the Military Team Championship at Fort Sheridan, International Live Stock, Charter Jubilee, and Onwentsia Shows, featuring Capt. Roma Mura, Lt. Laddie Paschl, and Lt. Don Pon, who had soared to victory even over the Fort Leavenworth team and the Canadian International Team in these events. On Sunday, June 20th, at the Lake Forest Horse Show, Captain Mura had won the feature civilian events, and also took second place in the Individual Military Championship.

And the 124th's commander, Colonel C. C. Haffner, Jr., with eleven of his staff, supervised the Military Show, and had been technical director of the Paramount News Reel which advertised the event. From the files of a crack newspaper photographer who accompanied Col. Haffner during the taking of this reel, we reproduce the following pictures of the Show.

CHICAGO'S MILITARY SHOW

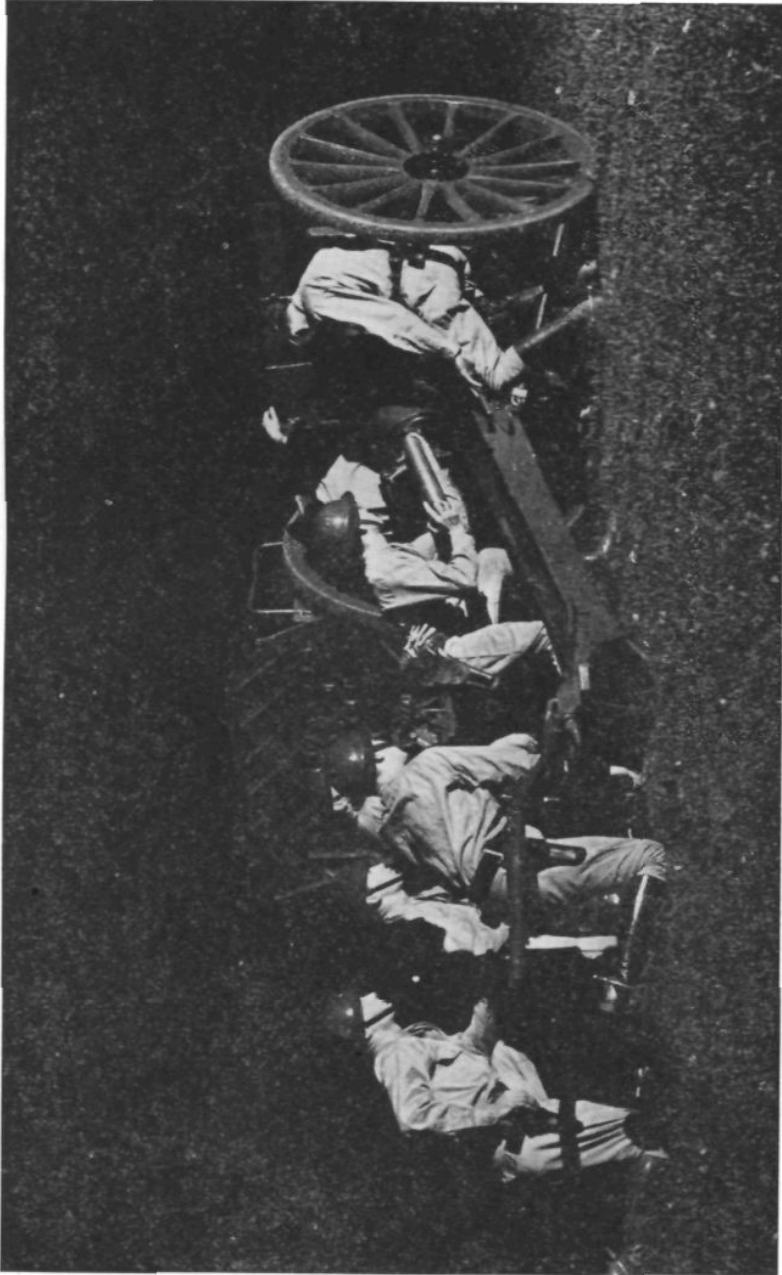


FOLLOW ME!
The assault is launched

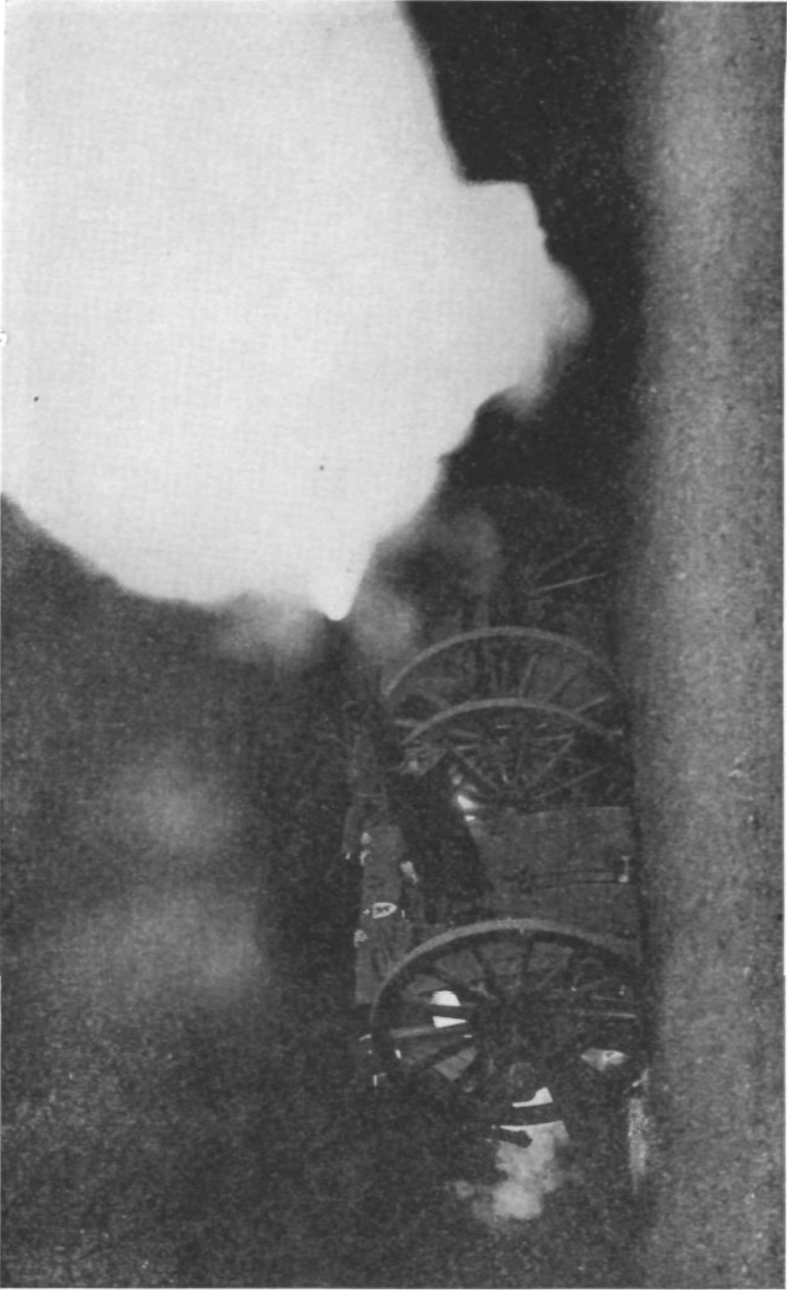


WHAT ARE WE WAITING FOR?
under cover of the fire . . .

CHICAGO'S MILITARY SHOW



LOAD!
...of the 75's of...



FIRE!
... the Illinois Field Artillery

The German XXIII Reserve Corps Crosses the Marne

BY COLONEL CONRAD H. LANZA, FA

(Concluded from July-August number)

(Up to now—The time is just before dawn, 15 July, 1918. The night crossing of the German troops has encountered terrific barrages from the artillery of the Third U. S. Division—see "Bridgeheads of the Marne" in the May-June number—and the organization and communication of the attacker has been almost wrecked thereby. His troops have lost confidence in the plan—but they continue to drive forward, now into the mouths of machine guns and rifles.

The Battle From 3:50 AM to About 11:00 AM

At 3:50 AM, the XXIII Reserve Corps had only detachments on the line of departure. The river crossing had been greatly delayed by the hostile artillery. The divisions had little information, and the corps almost nothing. The signal troops, although doing their utmost, were unable to maintain wire communication. The radio was working, but its stations were mostly for higher units, and so located that they did not bring in much front-line information. It was still so dark that the OP's could see nothing except a tremendous amount of firing, which covered all of the foreground. Everybody was shooting, and when the rolling barrage started, the intensity of the fire, coming from both sides, was appalling. It looked as if nobody could live through it.

The headquarters of the 6th Grenadiers crossed the Marne at 4:10

AM. It was dark and misty. Artillery fire was falling heavily along the river, and all rushed forward, where it seemed that fewer shells were bursting. A machine-gun nest, which the advance troops had passed by in the night, suddenly opened fire from the flank. The officers and orderlies, taken unawares, wasted no time. They rushed the nest, using hand grenades, and captured it, taking 18 prisoners, found to belong to the American 30th Infantry.

After this delay, headquarters proceeded to the railroad near Mezy. They found the 1st Battalion deployed along the line, and were informed that the 3d Battalion was to the east, held up on the river bank. The 2d Battalion had just arrived, and was available as needed. The regimental commander examined the foreground personally. He was impressed by what seemed to be the overwhelming fire of the enemy. He was certain that he must be in superior strength. It was lighter now, and visibility extended to over a kilometer, but it was hazy. Looking to the east, men were seen to be rushing down from the high ground east of Moulins. They seemed to be in massed ranks, and it was assumed that this must be a counterattack. Suitable orders were issued to the 1st Battalion as to facing part of the men in the direction of this danger, and word was sent to the 3d Battalion, which now appeared favorably situated, to take this threat in flank if the counterattack crossed the Surlélin. Other

THE FIELD ARTILLERY JOURNAL

men could be seen moving around southwest from Mezy. It was impossible to distinguish who these were, but they might be another counterattack, and the rest of the 1st Battalion prepared to meet this.

The rolling barrage was now almost a kilometer ahead, and could be seen moving relentlessly on. If any use was to be made of it, an advance would have to be made immediately at an increased gait to catch up. The 2d Battalion was ordered forward, to attack toward Crezancy. At 4:45 AM, it crossed the railroad line, and moved south. The enemy artillery fire was very heavy, but it was not on the railroad, and the troops got a good start. The 17th Machine Gun Company reported that it had been attached to the regiment, and it was directed to proceed to the right of the line, to meet that threatened counterattack from the southwest.

This machine-gun company started to cross a bridge near Charveves, which the engineers had opened, about 4:20 AM. Here the enemy barrage was falling, and so many casualties resulted from going through it that three out of six machine guns were abandoned. The remaining three arrived some time later at their assigned positions. Having taken these measures, the regimental commander reported by pigeon and courier that the enemy had been expecting the attack, that two of his battalions were held up by counterattacks on both of his flanks, that he had no reserves left, and that reinforcements were urgently required.

The 2d Battalion was never thereafter located by its regiment. Not a report was ever received from it. We may here, however, follow its fortunes. It received a warm reception from hostile fire very early after it started, and its progress became slower than the rolling barrage, instead of faster. At 5:30 AM, it reached a line about on coordinate 259.8, and

here found entrenched infantry in front. At the same time it received enfilade machine-gun fire from the east, and more machine-gun fire from the west. The 2d Battalion, surrounded by fire, and reduced by casualties to about 250 men, went to pieces. Dismayed by the extraordinary artillery fire (which, however, was going over their heads), the circle of fire around them, and the impossibility of hearing or understanding orders, the men threw down their weapons, raised their hands and surrendered. They went quietly along to their captors. There was one exception. The 6th Company, commanded by Lieutenant Oberg, an able officer, stayed around their leader, and kept going forward. They burst through the hostile entrenched line, and, firing right and left and to the front, they re-formed and prepared to start again. About 6:00 AM, they again advanced. They now met less opposition, and reached Crezancy, which was the objective. They captured a few Americans in that village, and then prepared the place for defense, from either the west, south, or east.

This small company remained undisturbed in Crezancy during the rest of the morning. It had only about 40 men.

While the 2d Battalion was advancing, the 3d Battalion tried to storm the railroad east of Mezy. There appeared to be just a few machine guns there, and they could be seen firing from over the top of the 18-foot embankment, and supplemented by other machine guns in Moulins. It was only 500 to 600 meters from the railroad to the Marne: at this short range, the machine-gun fire was annihilating. There was high wheat in the field which afforded concealment, but it was impossible to advance. Casualties were extremely high. The artillery liaison officer was sent back, about 5:30 AM, to obtain artillery fire on the

THE GERMAN XXIII RESERVE CORPS CROSSES THE MARNE

railroad. He had trouble getting back over the river, and difficulty in getting word to an artillery CP, as all wire lines were out. It took him an hour to deliver his message, and designate the target to a battery of 150-mm. howitzers. About 6:30 AM, the infantry saw the first shells come over. It was evidently a bracket adjustment fire. Hope revived. A bracket was observed, and the machine guns disappeared just as fire for effect was opened. Word was passed along to get ready to advance again. It took a little while to line up the men. The line started, and the battery kept up its fire. Cautiously the line moved forward. Then suddenly they received a terrific machine-gun fire from a position about 200 meters from where they had been before. Men died at posts. Everyone ran to cover. The attack was useless. A new message was sent to the battery, telling them that the target had moved. It took another hour to relay that message through, and by then it was too late.

The division had placed a trench-mortar battery at the disposition of the 6th Grenadiers, but the enemy barrage was so heavy around the bridge that they were unable to use it. The engineers offered the use of two pontoon boats, but it was considered impossible to transfer trench mortars over the river in them. Soon after, the ferries also went out of commission because of the continuous barrages along the river, which was being observed by hostile aircraft.

The 1st Battalion was still along the railroad at Mezy, and west thereof. They were receiving machine-gun fire from the front and from the flanks. They had no support on either flank, and could not fire to the front, as they did not know whether such fire might not fall on the 2d Battalion, still unheard from. They had no orders to do anything, and the strain of standing around apparently helpless, and subject

to enemy fire, was too much. The men started to drift back to the river. Some swam over, and others tried to cross by any available means. About the same time the 3d Battalion in the wheat field lost heart. They were still waiting for the artillery to start another problem against those machine guns on the railroad. After an hour had passed, they had not succeeded in getting word to the artillery. And they had lost faith in the artillery, since from where they were they thought that the machine guns should have been an easy target, and yet those guns just moved laterally, and there they were. So they, too, began to fall out, and swim over to the north side of the Marne. By 7:00 AM, only a few men remained in the wheat field.

Major von Grussdorf, the regimental commander, at this hour found two of his battalions breaking, and his 2d Battalion missing for over two hours. He had acquired the impression that the enemy was in overpowering strength, and would soon counterattack. He gave up the fight, and confirmed the rearward and unauthorized movement of his men by ordering the regiment to reorganize on the north bank, to which he immediately went himself, to supervise the re-forming of his command. He took with him the commander of the 17th Machine Gun Company, who happened to be with him when he issued the retirement order. As soon as he was over, he established his CP near the river, and personally tried to rally his men. He did not have much success. The north bank was receiving artillery fire in addition to machine-gun fire. It was a very uncomfortable place, and as the men arrived, they wasted no time in keeping on to the woods.

Believing that the enemy counterattack might soon arrive, and cross the river, and in view of the demoralized

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condition of his own men, he asked a company of infantry of the 10th Landwehr Division, which happened to be passing, to assure the local defense, and then withdrew to the woods, and made another effort to re-form his men. It was now after 8:00 AM, and the regimental commander decided he ought to report on the situation to his brigade. The brigade CP was in Mont St. Pere, and Major von Grussdorf started there, taking with him his machine-gun commander. They decided to report what they had done, and on the awful resistance that had been met, and upon the danger of a prospective counterattack. Shaken by their experiences, and fearful for the future, they just rushed to brigade headquarters. They never reached their destination. The barrage was still falling, and as the two officers were dashing through it, they were both wounded as they reached the north edge of the village. They would not have found the brigade commander. Colonel Sydow had been at his CP, but he, too, had been a casualty from another shell which struck the CP shortly before his two visitors would have arrived there. Mont St. Pere was a dangerous place.

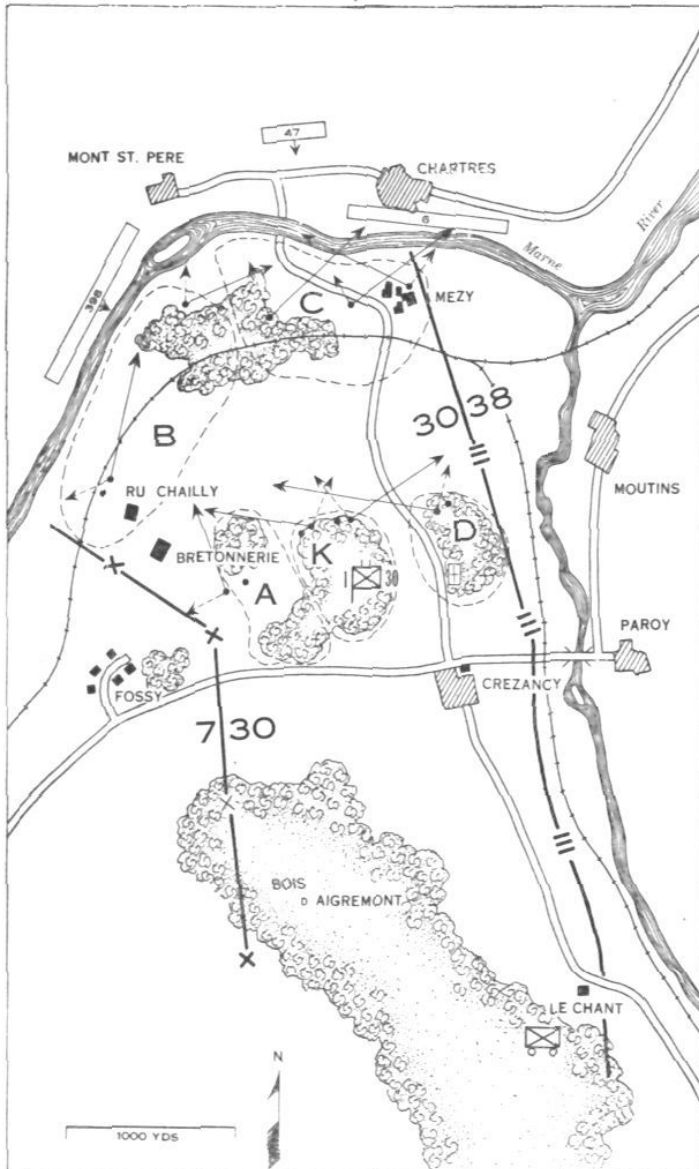
Some of the 6th Grenadiers could not swim. They stayed on the south bank. They fired intermittently until their ammunition gave out. They then individually took cover wherever they could find it, and stayed there until dark.

While the 6th Grenadiers were fighting near Mezy, the 398th Infantry on their right had been crossing the Marne, but much behind schedule. They had made no effort to follow the barrage, but concentrated on assembling the command on the south bank. By 5:00 AM practically the entire regiment was in line along the railroad. It was broad daylight. Strong hostile resistance had developed inside the rolling barrage, which was now

over a kilometer away. Numerous machine-gun nests appeared to be on the high ground just southwest from le Ru Chailly Farm. Artillery fire enfiladed the lines. Its source could not be determined, but it seemed to come from west of Chateau Thierry. Their own artillery fire seemed to have decreased in intensity, while the enemy artillery appeared to be firing more than ever. Losses occurred from shell fire, and the confidence of the troops decreased considerably. Major von Zwickhardt, commanding the regiment, had early moved to the south bank, and he now ordered an advance.

The men crawled forward. There was a tremendous amount of firing; gas and HE shells were exploding all over; and there was an uninterrupted volume of machine-gun fire, coming from everywhere. Great caution was taken in moving, and the advance was very slow. The 1st Battalion, on the right, reduced to about 60 men, was opposite the machine guns southwest of le Ru Chailly. They enveloped and rushed this nest, and were quite successful. They captured 25 prisoners belonging to the American 7th Infantry. With this exception the 398th only got forward about 100 meters. They could see men in the distance, but could not distinguish who they were. But the unexpectedly great volume of enemy artillery fire, which was falling on them, led them to believe that a counterattack was developing, and at 5:30 AM they sent a courier to brigade headquarters, stating that the line was stopped, without liaison to either flank. The courier made a quick trip, for he arrived at Mont St. Pere twenty minutes later. Colonel Sydow, commanding the brigade, at once ordered the 47th Infantry, in division reserve, to cross the river at Mont St. Pere, attack with their left towards Greves Farm, fill the gap between the 398th and the 6th Grenadiers, and carry the attack forward. At the time this order was issued, the 1st Battalion

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—Courtesy the Infantry School Mailing List, Fort Benning, Ga.

MACHINE-GUN DEFENSE AT THE MARNE.

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of the 47th had already crossed the river, and was supposed to be advancing to a position toward the right of the 6th Grenadiers. The 3d Battalion was about to cross, but the enemy barrage around the bridge was so heavy that its commander decided not to risk it, withdrew his battalion to a position where there was no barrage, and sent word asking that his orders be amended to provide for crossing by ferry, instead of by bridge.

The 398th Infantry saw nothing of the 47th. At 7:00 AM, their 1st Battalion success being reported, the 2d Battalion, next in line to the left, moved on le Ru Chailly Farm. They had no particular opposition, and by 7:30 AM had the place in their possession. The regiment was reinforced by the 2d Machine Gun Company, who reported that accompanying artillery would follow them. But none did follow, finding it impracticable to cross the river.

The 47th Infantry had difficulty in crossing. The 1st Battalion was ready to cross at 4:00 AM, by the bridge at Mont St. Pere. It was not full daylight, and although there was hostile artillery fire, the battalion got across. As the enemy fire at this hour appeared to be of unheard-of strength, the men had no great confidence in the outcome of the battle. The leading company received several shells, and the company split. They were re-formed, only to have the same thing happen again. But once more a start was made. There was no interference from enemy infantry fire, and since, according to orders, the 6th Grenadiers were supposed to have been at Mezy, and by this hour well beyond it, the battalion marched south in march column. Its leading elements had penetrated about 200 meters into a wheat field when, about 5:30 AM, they were suddenly overwhelmed with very effective rifle and machine-gun fire coming from the east. There was mist,

and the exact position of the enemy could not be ascertained.

Line was hastily deployed in the wheat field, but it was found impossible effectively to fire the machine guns, as the gunners could not sight their weapons above the wheat. It was necessary to line in the pieces by having the gunners stand in rear of them. The enemy apparently could see these men standing up, for they became casualties almost as fast as they were posted. As it was not practicable to use the machine guns, the regimental commander, who had just arrived at the front, ordered them back to the north side, with instructions to find a suitable firing position, from where they could support the rifle companies. These latter remained on the south side, and formed line.

The 4th Company, which had been in the lead, suffered badly. Its commander was wounded; the battalion adjutant was killed. The surgeon was shot down. On account of the high wheat, the troops could fire only in the standing position; whoever showed himself over the top of the wheat was soon hit. No targets could be located: the enemy was either dug in, or concealed in trees. Losses were heavy, and it was considered useless to try to advance until support from the artillery could be arranged. The machine guns, on their way back, stopped near the south bank and tried to fire from there. But they could see no enemy, and here too the wheat was too high even for the highest firing position of the machine guns. Since something had to be done, the machine guns were ordered to risk the passage over the bridge, through the barrage, to fire from the north bank. They succeeded in crossing, and found a position. Visibility was now excellent, but not a target could be observed.

The rifle companies stayed for a time on the south bank, hoping their machine guns would be able to do something,

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and that their artillery would come to their help. They could see no enemy; had no clear idea of where he was. The battalion commander was wounded. He crawled back over the bridge, trying to get word to the artillery. The men also started to crawl back. Enemy planes were over the bridge, and the hostile artillery was just storming shells around it. Some men ran the gauntlet, others swam, and some found ferries. They were not demoralized, and were re-formed on the north bank behind a stone wall. Their losses had, however, been so severe that the brigade judged them to be unfit for line duty, and ordered them to the rear in division reserve.

After taking le Ru Chailly, and finding no great force in front, the 398th Infantry moved south. By 8:00 AM it had arrived opposite Fossoy. There was some resistance, and the enemy artillery fire was very heavy. The regiment stopped, and sent word back. They did not altogether remain at a standstill, but proceeded to encircle Fossoy. La Bretonnerie Farm was solidly occupied and men were sent to the woods east of Fossoy. They found only weak enemy detachments in these places, and pushed on further. By 9:30 AM the regiment had a line of resistance about on the Fossoy—Mezy road, with outposts 500 or more meters further on. They were not being attacked, but thought that the enemy held Fossoy and some woods near there. They had no contact with other troops, except in rear to across the Marne.

Around 7:40 AM, the 10th Division received information from the air service that they had observed friendly infantry at le Ru Chailly advancing, and others in front of Fossoy, stopped by wire. The division knew that the 6th Grenadiers were falling back, but believed part of that regiment was at Mezy. It was understood that they were in precarious condition. The retreat of the 1st Battalion

47th Infantry was also known. The information of the enemy was limited to the strong and persistent series of barrages he was laying down along the Marne, considerable air activity, and the report from the 6th Grenadiers that enemy infantry was advancing. The only reserves were the 47th Infantry, less the 1st Battalion. The Division without hesitation ordered the 47th to cross the Marne, advance in the interval between the 398th Infantry and the 6th Grenadiers, and then wheel to the left and counterattack the hostile infantry supposed to be driving forward in rear of the Grenadiers. The artillery was informed of this, but their OP's were unable to see any hostile infantry. There was great activity, and a formidable amount of shells bursting pretty nearly everywhere, but real targets were hard to find.

The 47th received the order before 8:00 AM and immediately started a reconnaissance to find out how they could cross the Marne. It was evident that the location of movements across the river had become known to the enemy artillery. The shelling of Charveves was so severe that it was impossible to use the bridge there. The situation at Mont St. Pere was the same, and at both places the engineers had abandoned attempts to repair the bridges. The ferries near these places were stopped. The reconnaissance was pushed further, and it was discovered that the ferries in the 398th Infantry sector near Barrage Ecluse and le Ru Chailly might be used. This was outside the zone of action assigned, and application was made to the division for modification of orders. All of this took time, and it was 9:30 AM when the authority was received to cross as desired. In view of the points of crossing, and the doubt that any elements of the 6th Grenadiers still remained south

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of the Marne, the order to counterattack by wheeling to the left was withdrawn. The regiment was now ordered to go to the assistance of the 398th.

While this reconnaissance was being made, a part of the 2d Battalion, tired of waiting, tried to use the bridge near Mont St. Pere. The men watched the arrival of hostile projectiles, and made an estimate as to the time when the next one would arrive. Taking cover in houses, they approached the bridge, and immediately after a hostile burst, men individually dashed at utmost speed across the river, trying to be at a safe distance before the next shell arrived. This was slow, but men did get across. At the same time, couriers and wounded were trying to get back to the north side. The bridge was hit several times by shells, but the engineers, seeing the infantry risking the passage, turned out and made repairs. There was much disorder; everybody was attempting to run the gauntlet as fast as possible. The OP's, looking down from the hills, thought that the infantry was rushing across the bridge to the rear. They were mistaken, for the 2d Battalion made progress. It took nearly three hours to cross the men by file, but it was done. The enemy artillery fire had been very brisk, and between 60 and 70 men, or about 25% of the personnel, were lost.

It was dangerous to remain near the Marne, easy to see that shells were not falling so thickly a little further south. The leading elements did not wait but pushed on quickly, as far as the woods half way to the railroad. They were not sure whether any enemy had been there. They had advanced in attack formation, and had occupied the woods without trouble. They then similarly advanced to the railroad west of Mezy. They met individuals of the 6th Grenadiers still holding out, found a courier who said he came from

Crezancy, which, he stated, was held by friendly infantry, and encountered wounded and stragglers. From reports it was judged that no hostile infantry was near. A patrol sent into Mezy found only dead. By 10:30 AM the artillery fire of both sides was noticeably less. Most of the battalion had arrived, and the line was advanced to near the east and west road, just south of coordinate 260. Patrols were sent out to both flanks to explore the situation.

In the meantime, the 3d Battalion of the 47th made a wide detour to the ferry near le Ru Chailly. They avoided serious losses, but at 11:00 AM had not crossed the Marne.

While the XXIII Reserve Corps, with their 10th Division, was having difficulties west of the Surmelin River, their 36th Division, to the east of that stream, had a less-confused fight.

The 5th Grenadiers, at 3:50 AM, were still crossing the Marne. A part of the force was on the south bank, but it was 4:30 AM before enough men were on hand to warrant an advance. The 2d Battalion was on the right, and the rifle battalion on the left. It was now daylight, with tremendous activity everywhere, but the location of the enemy could not be determined.

It was realized that the rolling barrage was far ahead, and must be counted as lost. A new plan was hastily arranged, and new objectives were assigned to companies. The first was the railroad. This was reached at 5:00 AM, without any opposition, except at the railroad station at Varennes, and this was taken after only a short fight. The line advanced to the high road Moulins — Varennes. There was great activity in the valley, a tremendous amount of firing, but hostile fire was not falling particularly close to the infantry. Their confidence increased; they had advanced an average of over a kilometer, and had found no serious

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opposition. They started up the steep slopes, the next mission being to reach the unimproved road through Min Ruiné.

The advance was late. It was around 5:30 AM when it started. Moving cautiously, with scouts in advance, at about 6:00 AM they were half way to their objective. They had no liaison to either flank, but in view of the fact that there seemed to be no strong force in front, they made an assumption that the friendly troops to each side were forward—possibly close to the rolling barrage, now way ahead. Suddenly shouts and a lively rifle fire started on the right, and men in OD uniforms could be seen through the high wheat fields. They seemed to be advancing. "Americans!" This was entirely unexpected. The line was completely enfiladed. Where were the 6th Grenadiers? They were supposed to be where the enemy now appeared. What was the matter with the artillery? Could none of the OP's see this counterattack? Apparently not, for not a German shell came near; all the artillery were firing at targets beyond the rolling barrage. There was still some mist close to the ground, and there were orchards and trees about, and it was hard for the infantry to see the enemy; in fact they had not seen them until they opened fire. None of the OP's saw anything.

In the 5th Grenadiers, both battalion commanders happened to be close by. They recognized the danger. By emergency signals they stopped the advance to the south, and had men face to the west and open a rapid fire. The men themselves had instinctively turned towards this new enemy; the machine guns were brought into position, and in a short time an overwhelming fire had driven the enemy back. From dead they were identified as part of the American 38th Infantry. The line was safe again,

but the two battalion commanders decided that it was too dangerous to advance south, as originally ordered, in view of the fact that enemy forces of unknown strength were on the right flank, where supporting troops should have been. They held a consultation. Another counterattack might develop at any time, and they might not be able so easily to repel it. Their own artillery was of no help; they had no reserves; no support on either flank. It was decided that the best thing to do would be to withdraw to the railroad, and consolidate a position. It was realized that the hostile artillery could rather easily range on the railroad, if the line was located there. On the other hand, the railroad ditches and embankment did afford considerable shelter against all except direct hits. The troops retired by echelon. They were not molested, and did not see the enemy.

There was no difficulty in consolidating a position. The railroad embankment was prepared for defense, and by 9:00 AM was in fair shape to meet an attack. Still no news as to the situation, especially as to supporting troops. Luckily there was little hostile fire falling nearby. Strong patrols were made up and sent to the west, to see if they could locate those 6th Grenadiers. The patrols worked down the river bank, and by 10:00 AM had reached the woods north of Moulins. They found some Americans there. When the Americans faced towards them, they were in turn flanked by German fire from elements north of the Marne. The Americans quickly retired, and the patrol occupied the woods. They considered themselves too weak to attempt to enter Moulins, and proceeded to dig themselves in against a possible enemy reaction from this village.

The main body of the 5th Grenadiers received word, shortly before 10:00 AM, that the 175th Infantry on their left were many kilometers ahead. The

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175th wanted to know why the 5th Grenadiers were not in line where they should have been. As the right flank seemed to be at least temporarily safe, the information received led to a new estimate of the situation. It was now believed that it might be possible to move south. About 10:30 AM, a new advance was made. When 11:00 AM arrived, and the rolling barrage and a large part of the other artillery fire had stopped, the regiment was slowly moving south in its sector, finding no enemy before it.

The 175th Infantry had the most success in the XXIII Reserve Corps. They had crossed the Marne between Varennes and Reully, and, at 3:50 AM, had a sufficient force to follow the rolling barrage. The slopes were steep, and there was dense underbrush, which made the advance physically difficult. The regiment had expected considerable opposition, and had prepared the way by a preliminary intense fire of trench mortars. It had been apparently successful, for little opposition was met. Some prisoners taken were from the American 109th and 110th Infantry, and the French 125th Division. The ground delayed the advance, but did not stop it.

By 6:00 AM, the line was near coordinate 260. The resistance suddenly stiffened, and the line stopped. It seemed that the enemy's main line of resistance might be just beyond. The bend in the river covered the left flank, but there was nothing to the right. There was a great volume of artillery and machine-gun fire; the terrain seemed to be literally alive with firing. Nobody could locate the 5th Grenadiers, and hostile infantry was observed where they should have been. The country was wooded; it was evident that their own artillery could not possibly see where they were. If the advance was continued, the left flank might become

uncovered, as no news had been received from the 23d Division. It was thought best to rest and find out where the supporting troops were. Prisoners had been taken, and the enemy in the sector identified as the French 125th Division, supported by the American 28th Division. The 125th Division belonged to the French XXXVIII Corps, and this explained the occupation of the sector which had been in doubt. Its previous occupants had belonged to the French I Cavalry Corps but, as this had not been reported for several days, it had been assumed that it had been replaced. The cavalry corps might still be in the vicinity, and this fact, together with the presence of the Americans, indicated that a strong hostile resistance, possibly a counterattack, could develop. Caution was indicated. The prisoners were interrogated as to the location of the cavalry corps, and the number of Americans present, but none knew about the cavalry, and they were uncertain as to the Americans.

Around 7:00 AM, information was received that the 23d Division was moving forward, and that the left flank was safe. The reserve of the 36th Division—one regiment—was in supporting distance. The 5th Grenadiers were located in their sector, far to the rear; word was sent to them asking them to move on. It seemed that a renewal of the advance was practicable, and the order to do so was given. The 175th now made unusually rapid progress. It met hardly any opposition. Only minor infantry elements were encountered, and these disappeared with rapidity. In accordance with the plan, the line obliques to the right, and by 8:00 AM had reached hills 164 and 231. There seemed to be no special opposition, and the advance was ordered continued.

By 9:00 AM, the right of the 175th was passing to the east of Janvier Farm.

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A half-hour later the advance stopped on the edge of the woods northeast of Monthurel. An advance averaging between 5 and 6 kilometers had been made. From where they now were, they had a choice of continuing southeast, east of the Surmelin, or of attacking southwest across the Surmelin, or remaining in readiness. An attack southeast offered the advantage of a connection with the 23d Division, which was abreast, but from statements of prisoners the Americans were south of the St. Agnan valley, strongly entrenched. This reported position had been verified by the 23d Division, which could plainly see the Americans. Other Americans, recognized by their OD uniforms, could be seen in the Surmelin valley, and across on the opposite hills. Remembering the difficulties of the Marne, another river crossing seemed to be out of the question, as there was no liaison with the artillery, and no assurance that effective support could be had. Remaining in readiness was simple, enabling a much-needed rest to be had, while reconnaissance as to the next move was made. The position was sheltered by woods; no artillery fire was falling nearby. It was decided to stop, reorganize, reconnoiter, and decide later as to continuing the advance.

A hasty consultation was had by commanders. In view of the apparent enemy strength, and the possibility that he might counterattack, it was thought best to dig in, and consolidate what had been gained. Trenches were laid out by the 175th, and the 23d Division, on its left, and work started without delay. The 5th Grenadiers were again asked to move up into line. Word was sent through the artillery liaison officer back to the artillery CP's, as to where the line was, where the enemy was, and request made for protective barrages to cover the new front on emergency rocket signals. It

was agreed that the 36th Division (175th Infantry) would hold the line along the east of the Surmelin, southeast to hill 216 (1 kilometer north of Celles-Les-Conde). The 23d Division held the line east from hill 216, thence east through les Debrets.

By 11:00 AM, reorganization and consolidation were in full progress, and the decline in artillery fire on both sides indicated that the main battle was over.

The Battle After 11:00 AM

At 11:00 AM, the artillery had not yet reliable information as to the location of the infantry. The OP's saw but few targets, and were unable to see infantry, except those crossing the Marne. Ammunition was low, and as all prescribed fire had been delivered, and there was nothing to see, fire was reduced to blocking enemy roads and lines of communications, with reduced allowances. The enemy artillery had reduced its fire too, and it was clear that the hardest part of the day's fighting was past. The batteries had not suffered many casualties. Both sides had directed their fire largely on supposed infantry targets; this was particularly the case with the enemy. The artillery was in good shape, and it now lost no time in reorganizing. Telephone lines had been shot away, and details were at once sent to work to repair them. As soon as practicable, communication was reestablished with the OP's and with the observation balloons. Officers were sent to the front to locate the line and arrange for desired barrages. As counterattacks might occur, the OP's were warned to keep a sharp lookout for targets. Visibility was excellent, and it was thought that an enemy advance would be seen.

The engineers went back to work on river crossings. They repaired the

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bridge at Mont St. Pere and reopened it for traffic. They got the ferries going again. The air service materially aided by keeping down hostile observation over the Marne valley. Contact planes had located infantry in the forward areas, but were unable to identify to which side the infantry belonged. Flares had been seen, but without certainty as to who set them off. The substance of their reports was:

One bridge at Mont St. Pere destroyed; and one in use.

Ferry operating near Barrage Ecluse.

Infantry at la Bretonnerie Farm, believed to be all Germans.

Isolated infantry posts, nationality unknown, scattered irregularly between le Ru Chailly and Mezy.

Infantry believed to be German north of the St. Agnan valley.

In view of the uncertainty as to the situation, neither the divisions nor the XXIII Reserve Corps issued any tactical orders at this time. Efforts were concentrated on reestablishing order, and forwarding ammunition and supplies. The artillery were ordered to forward batteries to south of the Marne without delay. However, there was only one bridge, and the artillery considered it too hazardous to send batteries over it before night. They prepared to do this.

On the right of the line, the 398th Infantry were having a rather hot fire fight with hostile infantry elements. The last company of the regiment went into line at 11:30 AM when the regimental commander considered that he was being attacked on both flanks. Major von Zwickhardt inspected his command. His men were tired; it was very hot; there were but few men present— there had been straggling, as well as killed and wounded. The enemy seemed to be strong and active; he might attack. In view of the weak state of the regiment, should a counterattack come, the result might be

disastrous. The major thought it best to assume a good defensive position where he would be able to make a stiff resistance and be favorably situated to receive supplies and reenforcements. He ordered the regiment back to the railroad. He was in haste to be established there, and to get there quickly abandoned 2 machine guns and a 1-pounder. The men withdrew quietly, and if the enemy followed, nobody saw them. Notice was sent to the artillery, with request to arrange the usual protective barrages.

By 11:00 AM, the 2d Battalion 47th Infantry had completed the crossing near Mezy and Barrage Ecluse. Machine-gun fire had stopped, and artillery fire was much reduced. With caution and in attack formation, the battalion advanced south. They found the enemy behind the railroad. They attacked. The fight lasted only a short time, for the enemy withdrew, retiring southeast. By noon the railroad was held. From dead and prisoners it was ascertained that the enemy had consisted of about 80 men belonging to the American 7th and 30th Infantry. A strong patrol was sent to Mezy and found that place empty except for the dead. From these it was evident that the 6th Grenadiers had been there. The 398th Infantry was next located on the right, and liaison established. Scouts were sent out to the front, but an advance in strength beyond the railroad was not attempted.

East of the Surmelin there was relative quiet after 11:00 AM. Hostile troops could be seen occasionally across the Surmelin and St. Agnan valleys, but they did not move. The 5th Grenadiers moved south to join on to the right of the 175th Infantry. They avoided Moulins, which was considered as held by the enemy and too hard a place to capture without aid, and proceeded over the high ground east of the Surmelin. They passed by Janvier Farm, found no enemy, and arrived at

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their destination without incident. After consultation with the 175th Infantry, it was decided to make a new advance, which was fixed for 2:00 PM. The Grenadiers were to hold the east edge of the Surmelin valley, while the 175th Infantry joined with the 23d Division on their left for an advance south across the St. Agnan. Word was sent to the artillery, with request that they prepare the attack by a suitable artillery preparation.

The artillery received this information as to the attack. They had no batteries south of the Marne, it being impracticable to move them over that river, owing to continued hostile barrages and enemy air observation. The range from the nearest positions to the new targets was from 8000 meters up. The enemy trenches south of the St. Agnan had been noted in air photos for some time, and were marked on the firing charts. Observation was impossible, as there were no working telephone lines to south of the Marne. The only batteries having sufficient range to reach the targets were the 150-mm. guns and howitzers, plus part of the army artillery of larger caliber. The ammunition supply was small; replenishment was not expected before night, and then not over one day's fire. The corps chief of artillery decided that an artillery preparation of 30 minutes was the maximum that could be made. He gave orders accordingly, fixing 1:30 PM for opening fire. Word was sent by courier to the infantry; it was immaterial whether they all received word or not, since the infantry had themselves determined on 2:00 PM as the hour to launch their attack.

The infantry received some rest. They were pleasantly surprised at the inactivity of the Americans, and by 1:00 PM had come to the conclusion that there would be no counterattack. They

proceeded with their plans. Small detachments of infantry were sent forward to occupy the foreground. It was very hot, and the men were tired. But their enthusiasm was returning. They began to think that they were winning the battle, and that just another effort would finish the Americans. They waited for the artillery to open the fight. It was found that south of the St. Agnan there were two belts of wire in apparent good condition in front of the enemy trenches. It was hoped the artillery had noted this, and would cut them.

The artillery preparation started on time. In addition to shelling the enemy positions the roads through the Surmelin valley received heavy fire to block all lines of communications. The infantry watched with growing interest. They had an excellent view. The officers noted that the fire appeared to be accurate; there were just about as many overs as shorts on the targets. The shell bursts, being all of large caliber, were easy to observe, and when they fell in trenches or among the wire caused great damage. Unfortunately, a large proportion of shells failed to fall within the limits of the target. When 2:00 PM came, the infantry commanders consulted. Their opinion was that the target was a formidable one—deep trenches, with double belts of wire. Probably there were dugouts, sheltering reserves. It was believed that the wire had been cut only in places, and the trenches damaged, but not seriously so. As for the dugouts, no one could tell. It was realized that this situation was not the fault of the artillery. At the ranges they were firing, the dispersion in depth was necessarily considerable, and this condition could be remedied only by displacing the batteries forward. Until night, this would be impracticable. It was decided to suspend the attack because of insufficient preparation by the artillery.

During the afternoon the artillery

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fired in support of the right of the 5th Grenadiers in a local advance from hill 164 towards Paroy and Launay. This was within range of the 77-mm. guns. They had an enfilade fire on the assumed enemy positions, and could fire a rolling barrage, based primarily on deflection changes. It was quite successful, for the infantry advanced to the edge of the high ground. Aviation units bombed and machine-gunned the Surmelin valley, and no enemy reaction occurred. This ended the activity for the day in the 36th Division, other than continuous artillery fire.

In the meantime, Lieutenant Oberg and his 40 men from the 6th Company 6th Grenadiers were in Crezancy. Neither side shelled this village, and this small band had all morning to prepare a good position. Before noon, enemy infantry in attack formation advanced from the Bois d'Aigremont. They had a front of about 400 meters, and considerable depth. They were estimated as at least 400 men. Fortunately they had no artillery support, and the 40 Grenadiers, sheltered behind stone walls, fired effectively. They delayed the attack for an hour, but at noon it was evident that both flanks were overlapped, and that it would be impracticable to prevent the enemy entering the village. The line retired, under cover of the buildings, to the high road Fossoy—Crezancy—Paroy, allowing the enemy to enter the south part of Crezancy. He appeared to be satisfied with this modest gain, for no further attempt to advance was made. The Grenadiers were much too weak to counterattack. They sent in a report as to their situation, but received no reinforcements. They held their position until 9:00 PM. Unsupported on both flanks, short of ammunition, and without orders, and with a superior enemy immediately at hand, they now retired, and without incident regained the Marne.

The 10th Division, at 1:00 PM, surveyed the position of their troops. They had heard that some Grenadiers were at Crezancy, but had not heard how many. The 398th Infantry, and the 2d Battalion 47th Infantry, held the railroad from le Ru Chailly to Mezy, both inclusive. The 3d Battalion 47th Infantry could not be located. Not even its regimental commander knew where it was. It had been last reported around 9:00 AM, when it had been granted permission to cross the Marne near le Ru Chailly, instead of at Mont St. Pere. But no reports had come in indicating that it had done either. There was still heavy firing by the enemy against the Marne crossings, and the engineers had had heavy casualties while constantly repairing bridges. The XXIII Reserve Corps released the 23d Engineer Battalion to the 10th Division, and they were assigned the mission of maintaining the river crossings. This was a hard job. German aviation was active, but it was impossible to prevent occasional enemy observation of the river. The location of ferries was changed each time hostile artillery fire showed that the enemy had located it, but the bridges could not be moved before night. Passages across the Marne were precarious. The 10th Landwehr Division, on the right, advised that a machine-gun company from the 377th Infantry was in position north of Gland, in favorable position to fire on any attack against the right of the 398th Infantry. But for some time no signs of an attack were seen.

The 2d Battalion of the 47th Infantry advanced their lines 500 to 700 meters south of the railroad. They found no enemy, and asked instructions as to advancing further. They had heard that Grenadiers were at Crezancy, but had not advanced this far. They patrolled actively, exploring the terrain. One patrol advanced through Fossoy, as far as l'Herbennerie. They caught one prisoner—a

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corporal from the American 7th Infantry, but in general the territory passed over was empty.

Shortly after 3:00 PM the observation balloons reported hostile infantry in attack formation, and on a front of about 450 meters advancing north from woods beyond le Rocq Chateau. The artillery and OP's were warned. The firing charts indicated that if this infantry passed the road extending east from le Rocq they would be visible to the OP's, and a special lookout was ordered. The division chief of artillery detailed nine batteries, three 105-mm. howitzers, and six 77-mm. guns, to take the target under fire as soon as it came in sight. The artillery was so sure of their prey that they invited the division commander to come to the OP to see what was going to happen. Baron von Gruter accepted, and as the corps commander. General von Kathen, happened to be at his CP, the two generals went together. They were promised a treat.

They arrived in time. Visibility was excellent. The Chateau of le Rocq had a sharp-pointed tower, excellent as a base point. The generals had it explained to them that the target was yet hidden by the trees, and had only been seen from the air, but that its front was known, and its left was just east of the Chateau. The nine batteries had previously adjusted fire on le Rocq, and they were now all laid, and ready to fire. The chief of artillery was to give the command.

About 3:30 PM, isolated men, supposed to be enemy, could be seen emerging from the tree-lined road east of le Rocq. This was too unimportant a target to warrant fire. A quarter of an hour later, a well-defined infantry line advanced in open formation from the trees. It was easily seen from the OP's, and the command to fire was given. All

nine batteries let loose. Infantry in attack formation was such an unusual target, and the observation was so good, that every battery commander fired two or three concentrations as rapidly as possible. There was such a crash of bursts, smoke, flame, and dust, as to obscure everything, but to the two generals it looked like a marvelously fine regimental problem. When the fire ceased, and the smoke cleared away, the target had disappeared, and was assumed to have been annihilated. The generals were greatly impressed, and, convinced that the artillery could handle any counterattack that might develop; they returned to their CP's much encouraged.

The generals felt so well, indeed, that the corps commander announced at 4:30 PM that the attack of the 10th Division would be continued next day. The division at once started on an attack order, and warning was sent to the troops. An intensive search was started for the missing battalion of the 47th Infantry. Officers scoured the country; and inquiries were made everywhere. Not a clue could be found. Finally, at 5:30 PM, their regimental commander located them just around the corner from the division CP in Mont St. Pere, hidden in the cellars of that village. Their commander announced that he received the order to cross the Marne shortly after 8:00 AM. He understood he was to cross at Mont St. Pere in rear of the 2d Battalion, but considered this too hazardous, and asked and received permission to cross near le Ru Chailly. He made a detour to opposite that place, and personally examined the situation, and decided that this was about as dangerous a place as the first. He examined other possibilities, but always with the same result. As he considered it impracticable to carry out his orders, and was unable

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to find any open space where his men could be protected from enemy artillery, he had proceeded to the cellars, which were deep, cool, and afforded reasonable protection. And here he still was, and the battalion, too. He was routed out, given some strong comments, and ordered to get his men, assemble them, cross the Marne at once by the bridge at Mont St. Pere regardless of enemy fire, and go into line at Mezy on the left of the 2d Battalion.

The 3d Battalion got out. They started across the Marne about 6:00 PM, half going over the bridge, and the other half by ferries, but moved slowly as soon as they were over the river. At 7:00 PM they advanced by rushes on Mezy. They met only artillery fire falling along the Marne in a steady volume, and reached Mezy without difficulty, establishing liaison with the 2d Battalion on the right. The division, in the meantime, assembled the remnants of the 6th Grenadiers in division reserve near le Psoutier.

There was no further fighting south of the Marne. The 47th Infantry, around 6:00 PM, sent another patrol through Fossoy to l'Herbennerie. It captured two men from the American 30th Infantry, but, as before reported, the terrain was virtually empty. A hostile patrol arrived before Mezy at 9:00 PM, but this was easily driven back. Up to dark, the OP's had seen small groups of men occasionally moving around near le Rocq. Several problems were fired against these, and nothing developed. Night came down, with artillery activity on both sides. The Allies shelled the Marne crossings, and the Germans the enemy lines of communications.

The XXIII Reserve Corps attack order required:

The 36th Division to attack next day, south across the St. Agnan;

The 10th Division to advance the night of 15-16 July.

The 10th Division order was issued at 6:15 PM. It directed the 398th and 47th Infantry (less one battalion) to advance at 9:30 PM to the line Fossoy—woods northwest of Crezancy—Moulins. Each of the regiments was to receive one platoon of 77-mm. guns as accompanying artillery. A few minutes after this order was issued, an army order arrived, materially changing its requirements.

The Seventh Army did not approve of the proposed advance of the 10th Division. They considered that this division had been definitely repulsed, with one of its three regiments useless for combat. It was realized that the other regiments held the railroad, but the right of this line as far as le Ru Chailly was open to enfilade artillery and machine-gun fire from the west. They ordered this division withdrawn behind the Marne, the railroad line being useless. The situation of the 36th Division was considered favorable, and it was directed that its attack should continue on the following day, but west across the Surmelin, against the Bois d'Aigremont, and the Bois de la Jute, and not south across the St. Agnan.

The corps sent word hastily to the divisions, and orders were cancelled until new orders could issue. The 36th Division had not issued an attack order, so there was nothing to change there, but the 10th Division had to draw up an entirely new order, this time for a retreat. It came out at 8:30 PM. It directed the withdrawal of all troops south of the Marne at once, less outposts, which were to hold the railroad until just before daylight, when they, too, were to retire. The 398th Infantry was directed to organize for defense the

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river west of Mont St. Pere, and the 47th the left sector of the division.

During the night of 15-16 July, commencing at midnight, the troops crossed north over the Marne. The artillery covered the operation by a heavy fire on towns and roads to block enemy movements, and by registration fire from barrages. The only reaction was the enemy artillery, which kept up a constant fire, with numerous barrages, against the railroad, the Marne, Mont St. Pere, and the roads.

The attempt of the XXIII Reserve Corps to cross the Marne was ended.

Comments

The second battle of the Marne was one of the rare instances in modern warfare where both sides were prepared. There was no surprise. The exact forces are not known, but as to artillery, they were roughly equal, with the Allies having a larger supply of ammunition. Both sides fired an artillery preparation of extraordinary violence, and this had a major effect on infantry forces in the forward areas. Even when not under shell fire, the detonation of bursts all around, the sights of destruction visible to all, the constant noise of projectiles passing overhead, and to both sides, affected the nerves of the men, and caused many to succumb to what is known as shell shock—a physical nervous exhaustion.

The attack of the 2d Battalion 6th Grenadiers started with a strength of about 300 men. The 30th Infantry reported having taken about 200 prisoners; about 40 succeeded in reaching Crezancy, leaving a balance of about 60 unaccounted for as killed, wounded and missing. When the 200 surrendered they were in a circle of fire, south of Mezy, but the artillery fire, extremely heavy, was all going over, and the infantry fire, judged from the

casualty list, was by no means annihilating. Three companies out of four raised their hands, overcome by the sights and sounds of the battlefield. Shortly after this, the opposing American force abandoned their positions, and retired. After 8:00 AM, the infantry action west of the Surmelin was slight, due to mutual retirements. Both Germans and Americans were convinced that overwhelming forces were against them, and neither attacked. There was an enormous amount of firing. Every gun within range, and every machine gun within kilometers was firing, and the general impression was that strong infantry attacks were being launched. In fact, there was no attack; the infantry on both sides were falling back to retired positions, and when they settled down were 2 to 3 kilometers apart. This situation did not materially vary during the afternoon; neither Germans nor Allies located their opponents.

The counterattacks of the American 38th Infantry east of the Surmelin had considerable local success. They brought in numerous prisoners, secured important information, and protected their own front. They had the advantage of being partially hidden by wooded country, and being on the enemy's flank. The counterattacks west of the Surmelin were frontal, and had slight or no success. The attack against Crezancy was by three American companies. According to their strength returns they had about 200 men each present, but there is a lack of information as to how many were present at the jumpoff. Certainly they greatly outnumbered the small German force in Crezancy. The Americans did enter the village, but did not drive the enemy off.

The counterattack of the American 7th Infantry east of le Rocq Chateau was unfortunate. A large part of the

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personnel had been casualties, due to exposure to the artillery preparation. They were tired and worn when they started, and knew nothing of where the enemy was. Probably less than half of the prescribed strengths were present. They advanced in view of hostile aviation, and formed along a tree-lined road, on the sky line, from the enemy's point of view, on which the hostile artillery had registered. With visibility excellent, and no cover, they never had a chance after they emerged from cover. At the time, the failure of this counterattack was attributed to the major in charge, who was relieved from his command. It is doubtful, in view of his orders, the condition of his men, and his own inexperience, if another officer would have done any better.

None of these counterattacks had any artillery support. They belong to the day when it was believed that infantry could go anywhere, any time, and needed no support. This may have been the case in past times, but in modern warfare, except when a surprise is secured, infantry can seldom advance unaided by artillery.

Barrages played a decisive role in the second Marne battle. They were extensively employed, as was interdiction fire. A better name might be "blocking fire," to cover barrages for areas, and interdiction for roads.

The Allies started their blocking fires at 8:00 PM 14 July. This included interdiction fire on roads, and the like, and barrages on presumed enemy assembly points. It lasted three hours, and was nearly useless. The interdiction fire did block roads, but it was light when this started, and it was easy to see how to detour around the danger points. As only infantry was to be moved, and the ground was dry, the infantry started an average of 15 minutes earlier than

they had intended. This was of no importance. Nobody had arrived by this hour at the assembly places, and this fire was practically wasted.

The Allied barrages which commenced about 11:40 PM had a very important effect. None of them were observed, for it was night, and no targets had been seen. Their locations were selected by map studies. In the 10th Division, the 398th Infantry, and the 47th Infantry each had one battalion scattered by this fire, and so thoroughly that these troops failed to be a factor thereafter. The total infantry strength of the division was less than 3,000, and was reduced by this fire to about 2,300. The infantry elements of that part of the American 3d Division opposed, counting combat units only, exceeded 8,000 men. This was too great odds. In the 36th Division, 1½ battalions out of 9 were dispersed by barrages. In all, 3½ battalions out of 18 were put out of action by Allied barrages, or nearly 20 percent of the total, a very material gain.

The barrages maintained after the commencement of the battle along the Marne river prevented the movement of artillery or vehicles across the river, or the forwarding of supplies, and greatly increased the time required for infantry to cross. Before daylight air observation was available, the barrages were primarily of value due to the time element, as they fell only at selected places. These were avoided by the attackers, but the necessary detours took so much time that the infantry were not ready to follow the rolling barrage. After observation was available, the barrages were better regulated. Bridges were soon located, and thereafter could hardly be used. Ferries could be operated, but only by frequent changes of location.

Barrages do require a large amount

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of ammunition, but they sometimes win battles, and this was one of those times. Without them, the German infantry would have been ready to follow their double-heavy shell and gas barrage, and then the result of this battle might have been delayed.

One phase of blocking fires may need more attention in future. This is the desirability of locating detours. When visibility is good, and the terrain is open, location of blocking fires can be seen by all concerned, and detours may be readily located. At night, difficulties arise, especially if the country is rough or wet, and the possibility arises of detouring columns meeting other similar columns. The Allies in this battle had difficulty in keeping the artillery supplied with ammunition because of its being

impossible at night to find a way around blocked places. The Germans suffered such delays in their tactical movements as to have a decisive effect. Perhaps our regulations might better provide that G-I's, through the MP service, be responsible for locating and marking detours, and guiding trains, supplies, and troops thereover.

Taking it all in all, the artillery of the Allies in this battle won the decision. Their fire did not fall so much on hostile infantry. After these had once crossed the zones of barrages along the Marne, they were comparatively free from artillery fire, but those steady, continuous barrages along the river broke the attack by making it impossible to furnish ammunition, supplies, and replacements to the few troops that were able to cross to the south bank.



Reviews

CAVALRY COMBAT. Published by The Cavalry Association. Compiled by Major Fenton Stratton Jacobs, Cavalry, under the supervision of the Assistant Commandant of the Cavalry School. Price \$2.50.

"If you want to win your battles, take and work your blooming guns."

—KIPLING

This is a book which does for the Cavalry what "Infantry in Battle" did for the foot soldier. It is a compilation of historical episodes, each chosen to illustrate some feature of patrolling, counter-reconnaissance, rearguard action, and the like, taken from every field of the World War—and it is likely the reader will receive somewhat of a shock, after hearing, for years, only of "The Desert Mounted Corps," or "The Seven Pillars of Wisdom," to learn that troopers, armed with saber or with lance, thrust home so many widely separated charges in the teeth of modern weapons. For instance, we learn of the action, colorfully told, of the 4th Squadron 10th Chasseurs, cavalry of the French 74th Infantry Division, south of Soissons 30 May, 1918. The French 299th Infantry had been driven back, with serious losses, from the ridge at Berzy-le-Sec. A mounted attack was necessary to relieve the pressure. Eighty troopers drew saber and charged. "In a few minutes the charge had covered a distance of two kilometers . . . It had swept the plateau first from east to west, then from south to north." The Germans were driven back in confusion. Members of the German 7th Grenadiers over whom the charge had passed surrendered without resistance. One chasseur was wounded; none was killed. Eleven horses were killed, ten were wounded, three were missing. From which one might infer, perhaps, that machine guns sited for knee-high fire, if surprised, are

not as effective against cavalry as supposed.

It is too often a vice of the reviewer that he interpret a book in the light of his special interests. But let some virtue attach to examination of this book in terms of artillery. Here it is, a large, well-bound, well-illustrated volume of 512 pages, with 120 maps and sketches; after each episode, a discussion of the tactics involved, the errors made, or the opportunities seized; preceding each chapter, the appropriate text from official doctrine.

And under the heading of Chapter Twelve, Miscellaneous, we find but a dozen pages devoted to Horse Artillery, much of it a reprint from this JOURNAL for 1920. The discussion which follows this section emphasizes the draft-mobility handicaps imposed on horse artillery, and looks forward to the lessened weight of the new 75-mm. howitzer as measurably improving the situation. Matters such as these are obvious to the sister arm.

But nowhere, even in the many incidents described where horse artillery is mentioned, are there many conclusions to be drawn concerning proper or improper employment of the arm.* The text, of course, does not describe modern artillery practice. It treats of the lessons to be learned from what was done in the World War. And one can only surmise that the proper employment of its artillery was largely a hit-or-miss proposition to the commanders

*It is known that teamwork between cavalry and artillery has been greatly improved of late years. Indeed, a forthcoming issue of "The Cavalry Journal," it is said, will contain an article by an officer of horse artillery experience, which will go far to explain details of technical cooperation. Its reading is recommended as supplementary to this work, certainly to that chapter on "Communications," which, dealing mostly with larger units, omits mention of cavalry-artillery radio, which is perhaps the framework of present methods.

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of the cavalry units whose operations were described.

Is it because artillery support of cavalry was so little effective? Is artillery-cavalry teamwork so mysterious? Is it the fault of the artillery, or of the cavalry, that but casual stress on artillery support appears in these incidents?

We need but to look back to the World War for the answer. Before that time neither infantry nor artillery understood the other. But position warfare permitted complete organization of the attack. The rolling barrage, and the progressive concentration, under which armor the doughboy crept, step by step, and close in front of whom the devastation of artillery fire spread itself upon the enemy, made him appreciate the guns.

However, a mounted attack cannot lean up against a barrage. It is launched under the shelter of fire so far-flung—the events occur with such bewildering rapidity, that the action is over, the decision has been obtained, and only the tenseness and the thrill remain.

What were the gunners doing? Oh, they threw a few rounds as we started. But didn't those enemy wagonsoldiers tear us up!

There is one feature common to the majority of these instances. The narrator was conscious of the effect on himself, his comrades, and their mission, of the hostile artillery. This made, naturally, the profoundest of impressions on him. He was less subject to a sentience of his own artillery, and what it was doing, and it is not too much, perhaps, to suspect that on the occasions friendly artillery was not even mentioned, that it was, indeed, present, and performing deeds vitally affecting the outcome of the action. This would be but natural, as the comparatively great range of the arm

places the emphasis of action, not on the far end, but the near.

On those occasions when the artillery galloped up with the leading supported elements, slammed into action and engaged the enemy and the hostile guns from positions in the open, employing direct laying, it attracted attention, and the drama of its operations is enthusiastically and appreciatively described. This is bound to affect—and it is known that it has affected—the feeling of many cavalymen that such positions are those most to be desired for cavalry support.

Perhaps they are. Yet, if time and knowledge be available, surely the less-attention-attracting indirect-laying position concealed from air observation is that which lends itself to best effective employment, and assures a continuity of support unbroken by the contingency of changing position under fire. Only the most accomplished artillery, the most thoughtful cavalry, can team to employ such positions. Time is precious. Support is needed. Reconnaissance is short. We may not be able to fire from that screen of wooded hills to the left rear. But we can from this plateau. Action front! Target, base of those trees!

At any rate, the editor and compiler made thorough search, with the military libraries of the world at his disposal, for examples of detailed cavalry-artillery cooperation. Such instances were comparatively few. The cavalry commander was concerned with the disposal of his troopers. After that, it would appear, he thought of his artillery—but after, not simultaneously. One receives the impression that the Germans, more than any other, were artillery conscious, and constantly thoughtful of the value of their guns.

Not that the cavalry did not want guns with them. British brigadiers, for example, demanded attached batteries,

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and got them. But when it dawned upon the high command that some brigade might need *all* the artillery support of the division, at times when an attached battery was "sleeping peacefully" with its reserve brigade, the guns were formed into division support. That so elementary a principle of employment should have to be learned in combat continues to pose the question: Whose fault is it—that of the cavalry, or of the artillery?

Well might each of us study the sketches of this volume, examine the mission, and ask ourself: "Where, in this set-up, could I best emplace my guns?"

That might have something to do with it.

●
THE SIEGE OF ALCAZAR. By Major Geoffrey McNeill-Moss. Alfred A. Knopf, New York, \$3.50.

Major Moss's account of the Toledo siege is a minor masterpiece. There is little applicable to our case from the details of the operation, deeply engrossing a story as it is, even if stripped of the narrator's brilliant style. But there is some grain of knowledge to be had from these extracts,* describing the Nationalist march to relieve the castle:

"Ahead comes as scout, an improvised armoured car, captured from the enemy . . . three or four touring cars with legionaries and machine guns . . . then the main body . . . in the strangest fleet of motor coaches . . . impressed where found . . . gaily coloured . . . packed with armed men. Forty coaches of legionaries, forty coaches of Moors, eight lorries of ammunition, perhaps with two field guns in them, another forty coaches of legionaries, a wireless signal wagon, hastily contrived, an ambulance or two, a tank-wagon for motor spirit, a touring car with machine-guns trained to

the rear . . . then, perhaps, on every twentieth roof-top, three men lounging beside an anti-aircraft gun, cocked skyward, ready to fire.

* * *

"The legionaries are in khaki shirts, short-sleeved. . . They have taut faces, burnt with the sun, plastered with white dust. They are fit, alert, confident, conscious of being masters of their trade, certain of victory; and, knowing that, cheerful and gay.

"The Moors are solemn and patient . . . shanky, hollow-checked, sinewy. They are polite. They seldom smile. They walk softly, and with the forward thrust of animals that live dangerously.

* * *

"In battle the legionaries advance in those short baffling rushes which only the finest infantry, once down, will rise to, when under fire. The Moors in battle work upon their stomachs and wriggle forward at reptilian speed.

* * *

". . . And the battle was every time the same.

"The leading armoured car breasts a rise. . . A mile ahead there is a village. . . The armoured car slows and sends back a signal. There are two flashes from the village, bright even in the sunlight. Guns!

. . .

* * *

"Behind the slope the coaches close up and stop. The legionaries are out. The Moors are out. . . A little party with machine-guns doubles out, clears the road, and makes ready to advance, astride it. A battalion with its machine guns is doubling out into the empty land that stretches forever to the left. Another battalion is doubling out upon the other side. . . The battalion in reserve—'less the party with machine-guns on the road'—takes position, scattered in little groups. The wireless in a lorry has reported and is calling for planes.

*The ellipses (. . .) indicate omissions from the story.

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". . . The centre party with its machine-guns breaks cover over the ridge and, well extended, goes forward on each side of the road, cautious but never checking. . ."

* * *

"For half an hour the air whistles with bullets. . . To left and right the flanking battalions have trotted out. Now they are a mile, or more, outside the farthest trenches of the enemy. They face 'front' again, and order their advance, so as to pass a mile wide on each side of the village. The town-bred volunteers catch sight of them and, after shouting and pointing, bring their rifles around. The range is fifteen hundred yards. . ."

* * *

"The advance goes on round either flank. Now the machine guns in the village cannot fire at the advancing troops, who are already too far round for them. The volunteers within the village look about them, wondering what will happen next. Planes have been called for by their commanders, also. But in an army of eager amateurs messages arrive, or not, according to their luck. The gunners on the village fringe grow restless. Guns are not rifles; they are valuable! They clank the drop-fronts of their ammunition limbers shut. Presently they begin manhandling the guns out of position. The rifle-men hear that sound. So the guns are off? Some fire faster. Some look about them. A few slink back.

Now the flanking battalions of the Nationalists can see clear behind the village. They halt, lie down, make ready their machine guns.

In the village all is confusion. The Marxists have gone into committee. Syndicalists are keeping up their fire. Anarchists favor a forward movement and a charge at any cost. But soon the less courageous of the militia-men are slinking back. Someone tries to stop them. An

argument ensues, bitter, wordy. . . Someone in comparative authority forms up a party and starts it off towards the rear. But at such times a formed body moving rearward is like a magnet. Stragglers dribble out after it. . . Some motors in the village are sounding horns, perhaps to rally the troops, perhaps to get the road clear for themselves. Presently the retreat is general; and in no order at all. Three, four, five thousand men; all keeping to the asphalt road which runs ahead of them, over the naked countryside.

"Out on the flanks are the Nationalist machine-gunners. . ."

The book has 63 illustrations and 3 maps to illustrate this very detailed and authoritative account of the Thermopylae of 1936.



IF WAR COMES. By Major R. Ernest Dupuy, FA, and George Fielding Eliot, late Major, MI-Res. The Macmillan Company. \$3.00.

How would you like to have a combat estimate of the world, up to the minute? Here it is. The authors have used Ethiopia, Spain, and China, as examples, and, just to show how recent the information is, the release date for reviews was September 21, and the Spanish account includes the Rebel movement on Santander June 25th.

There is no modern phase of fighting, land, sea, or air, left untouched in these 369 pages. Gas, planes, tanks, submarines, even strategic materials, find a place among them. The volume is replete with striking press despatches, and with comment upon them, and interpretation. Perhaps two quotations will serve to illustrate the contemporaneity of the account:

"Bear in mind that to the trained soldier street fighting is as abhorrent as a stormy lee shore to a skipper of sail. Why? The answer is simple.

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Street fighting, the capture of a town, necessitates pushing on in the open against men protected by masonry, necessitates storming house after house, vicious hand-to-hand fighting wherein the attacker surrenders all advantages of tactics and mobility. The amateur soldier, his flanks protected by masonry, practically invulnerable to artillery fire—how can you support such an attack with artillery?—may, if he has any fighting spirit at all, defend himself to the last round of ammunition, and when that is gone, he still has bricks and roof-tiles to shower on the heads of the assailants."

Again: "It is not always easy, in the face of the remarkable changes in the means of making war, to remember that when battle is joined, the outcome depends upon the human element above all else, whether in the phalanx of Alexander, the open order charge of the Roman Legion, or the thunder and clatter of the tank attack at Cambrai. Mr. John Langdon-Davies, writing in bitter indignation of Franco's advance from Seville to the environs of Madrid, exclaims: 'They (the rebels) are winning a military victory because such victories are won, not by men, but by machines.'

"Nothing could be farther from the truth. The more complicated the device, the less its value in untrained hands. A tank is but a death trap for its crew if that crew is not trained and trained thoroughly in handling their vehicle and its armament; a machine gun is merely a noisy nuisance unless a cool, disciplined, and efficient gunner is behind its sights.

"Fixed and immutable as the principles of war themselves is the eternal truth that war is made by human beings, and that he who would understand it must study not only the theory of his subject, but the powers and the weakness, the fortitude and the fears of the human mind, the human body, and the human heart."

So much for the theme. There is a considerable amount of sound detail in the chapters on forecast of the new war by land and sea, and the principal powers of the world, in their capacities and probable intentions, are very completely described.

The book will receive, during the next four months, an unusual introduction to readers in the form of a MARCH OF TIME release featuring it and its authors, which will appear in 7,800 theaters throughout the country.



Brig. Gen. Walter E. Prosser, newly starred, commanded 350th FA 92d Div AEF, and after war was assistant director, FAS. . . 303d FA celebrated twentieth anniversary September 5th at estate of Major and Mrs. Robert H. Gardiner, at Gardiner, Maine. . . New CO of 15th FA, Ft. Sam Houston, is Col. John N. Greely, former editor of this JOURNAL, and son of famous Arctic explorer, Maj. Gen. A. W. Greely. . . Col. Beverly Ober, 110th FA, awarded 282 medals to members of regiment at final ceremony of summer training.

The Journal in the Foreign Press

JOURNAL authors and their friends may be interested to learn what of the magazine content has drawn particular comment in the foreign military press. Most of these publications either review, or make brief mention of the articles in contemporary military publications. Among those recently noted were:

Revue D'Artillerie, France, March, 1937, FA Journal, Nov.-Dec., 1936. Mentioned: Dust For Simulated Bursts, by 1st Sgt. John C. Hooker, 17th FA; Convoys at the Crossroads, by Sgt. Robt. E. Dorsey, 6th FA Brig.; One-Second Flights, by Capt. I. L. Kitts.

May, 1937, FA Journal, Jan.-Feb., 1937. Mentioned: Italian Artillery in Ethiopia, by Lt. Col. John S. Wood; Two Views on Transport, by Col. E. N. Wentworth, FA-Res., and Capt. C. G. Blakeney; Who in the Driver's Seat? by Capt. J. I. Greene, Inf.; And Now the Autogiro, by Brig. Gen. L. J. McNair.

July, 1937, FA Journal, Mar.-Apr., 1937. Maps for Tomorrow, by Capt. Thomas North; Field Artillery in the Maneuvers, by Lt. Col. A. R. Harris; The Defensive-Offensive Maneuver, by Col. Ralph Talbot, Jr.; Motor

Convoys in the Second Army Maneuvers, by Captain W. F. Millice.

Rivista di Artigleria E Genio, Italy, July-Aug., 1937. A review of Artillery Missions and Doctrines, by Col. Allen J. Greer, in FA Journal of May-June, 1937.

Revista Militar, Argentine Republic, July, 1937. Reviews of The Proposed Division Passes in Review, by Lt. Col. T. J. J. Christian; Saint Barbara of the Batteries; Artillery Missions and Doctrines; and Bridgeheads of the Marne, by Colonel Conrad H. Lanza, in FA-Journal of May-June.

Bulletin Belge des Sciences Militaires, Belgium, August, 1937. Mention of Bridgeheads of the Marne, and a brief of an article from *La France Militaire*, referring to that on the autogiro by General McNair in the Journal for Jan.-Feb.



The Reserve Officer, organ of the Reserve Officers Association, complimented the Journal in its September number by reproducing, with permission, a frontispiece and two other illustrations from its content, and drawing particular attention to one of its articles.



Major E. M. Fickett Cav, PMST at Ashland Senior High School, Ashland, Ky., has had mimeographed a 32-page booklet, "Cadet's Handbook," for the use of his unit, which should be valuable for orienting new students. . . . Capt. Stephen Roby, FA-Res., 1456 Ridge Ave., Evanston, Ill., has published a four-color map, 24×36, giving the posts, camps, and stations of the Army, and listing the units thereat, which sells for \$1.95. . . . During Fourth Army maneuvers, umpire planes flew to target areas and dropped torn paper to mark the coincident delivery of simulated artillery fire. . . . 12th Obs Sq tests new photo lab trailer to accompany 150-mile-day marches of Mecz Cav Brig for developing and printing of reconnaissance air photos.

THANKS TO THESE—

General FREDERIC CULMANN, of the French Army, is the distinguished artilleryman who has contributed at intervals to this JOURNAL for a number of years. Our photograph shows him in



the uniform of a Colonel at the time, 1925, when he was Assistant Chief of Staff of the Army of the Rhine. He has recently served as Chief of the Secretariat of the Commission for Fortification of the Maginot Line. One of the foremost authorities in Europe,

General Culmann is the author of *Tactique D'Artillerie*, reviewed in our last issue, which is currently creating a stir in the foreign military press.

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Brigadier General SUMTER L. LOWRY, JR., whose 56th Field Artillery Brigade did such a full one-night stand at Fort Bragg, is Chairman of the Board of the Gulf Life Insurance Company of Florida. This is on the side. He is V. M. I., '14; was Captain, Infantry, 31st and 84th Divisions, AEF; has been with the Florida National Guard continuously since; organized the 116th FA, and served as its Colonel twelve years. He has been Brigade Commander the last two years. Active in the American Legion, and former State Commander thereof, he has also found time to take part in civic affairs, such as serving as President of the Jacksonville, Fla., Chamber of Commerce. There is ancient counsel to the effect that if you want something done, turn it over to a busy man. The hustling 56th Brigade's was no mean feat.

●

THE PICTURES accompanying General Lowry's article were loaned the Journal through the courtesy of LIFE Publishing Company, who graciously relaxed their policy of exclusiveness of reproduction in favor of the members of the Field Artillery Association. These and many more—six pages of them, in fact—appeared in the August 9th number of LIFE, whose Mr. Thomas D. McAvoy lived with the 56th Brigade on its march, and snapped his camera shutter 24 hours a day.

THANKS TO THESE

Captain C. R. GILDART, who raises an Old Issue (Why bring that up?) wasted an apology for writing it. He reports he is on leave and the fish aren't biting. This is something less than advertising for Reno, Nev., where his contribution was postmarked. When the fish start biting again, he will probably be back at his station, instructor with the Philadelphia Guard.

Colonel CONRAD H. LANZA, faithful and valued contributor, whose remarkable series of articles on the Marne is concluded in this issue, is now on leave in France, en route to new station in Hawaii. In the near future the JOURNAL will publish his observations on the recent First Army Maneuvers.

Captain JOHN F. BIRD, former Secretary of the Department of Tactics,

FAS, is now on duty at Leland Stanford, Jr., University.

Sergeant FRED W. MERTEN is on duty with the translation division of the Historical Section of the Army War College. Extremely able linguist, his finest performance of 1937 was the facile translation of a postcard, written in German, and read to him over the telephone by an Iowan with an Oklahoma accent. This was an interesting experiment, and will be repeated whenever any of our French, Spanish, or Dutch correspondents furnish material.

HOWARD H. GASAWAY is a senior at the University of Illinois.

Sapere Aude, who dismisses The Low-Down Bogey, is a field officer of artillery of long and varied experience.

"August 29th

"This has been hospital week for me. There are a half-dozen sizable ones in this area, some in shacks and some under canvas. It occurred to me that the number of our gas casualties was out of all proportion to the amount of German gas coming over. I resolved to find out why, and toured the wards searching out the gas cases and getting from the men themselves the circumstances under which they became casualties. Most are 'mustard' cases. The 'phosgenes' seldom get that far. Chlorine has not been used much. Some arsenic arrives, but the effects wear off before the men get to the ambulances unless phosgene or mustard accompanies the arsenic.

"My records are pretty complete now. Sixty per cent had not been trained to adjust their masks properly and keep them on until ordered off, or had never been told how to detect the presence of mustard and knew nothing of its persistency; or antimustard ointment had not been issued to them, or had been and they had not been told what it was for. Thirty per cent had been properly trained, but were too slow to do what they knew they ought, or impatient to be rid of their masks, or would not vomit with their masks on and dump out later, or were too lazy to use ointment when they were in 'mustard.' The rest, a scant ten per cent, were ill-starred. Their canisters would not absorb the heavy concentration. Or they were caught in their sleep. Or the inhaling tube or mask fabric was torn by a fall or a shell splinter. Or the whole device was lost in battle.

"The fact remains that German gas is nine times more effective than it needs to be. And the fault is two-thirds deficient training and one-third bad discipline."

—From "A Chemical Officer At the Front," by Lt. Col. Harold Riegelman, CW-Res., in the *Chemical Warfare Bulletin*, July, 1937.

Some Forward Observations



LEAVENWORTH — WAR COLLEGE. Those are always attention-attracting headlines, with plenty of reader interest. The November-December number of this JOURNAL will contain an authoritative account, explaining in detail the administrative injunctions of the War Department, and the method employed in the Office of the Chief of Field Artillery to comply with them—with special attention to the current selection of next-year classes.

POINT WITH PRIDE DEPARTMENT—Some of the minor items in this JOURNAL seem to be scrutinized pretty carefully. There was the case of the March-April issue, which carried a small tag to the effect that Rensselaer Polytechnic Institute, Troy, N. Y., offered awards of scholarships to the sons of Army and Navy officers. Harold W. Huntley, Jr., son of Colonel Huntley, instructor at the Army War College, saw this; decided there was no good reason why the Army award should not be his; won it. The awards are the equivalent of \$1600, or tuition for four years, and are offered annually, one each, to the son of an officer of the Army, Navy, and Marine Corps. A grade of at least 85 was required for consideration.

VIEW WITH ALARM DEPARTMENT—The July-August number erroneously carried 1st Lt. R. S. Pratt, Jr., as ADC to General Marshall, whereas he is ADC to General Thomas E. Merrill. Further, and horribly, it spelled Lt. Col. C. M. Busbee as Lt. Col. H. M. Busby. The fellow responsible has been admonished. It is difficult to punish him adequately.

100 PER CENT UNITS—Ft. Lewis CCC District; 111th FA, Virginia NG; 68th FA (Mecz). New members secured by:

Col. W. H. Sands, 111 FA	48
Maj. J. H. Fye	26
Maj. E. R. Roberts	23
FAS	19
Capt. C. A. Kaiser, Res.	15
Capt. W. B. Walters	11
Capt. F. W. Crary	8
Maj. T. C. McCormick	7
Lt. Col. Newton N. Polk	6
Capt. T. S. Gunby	5
Maj. L. H. Frasier	1
Capt. Wm. C. Edgar, Res.	1
Capt. W. R. Schaefer	1

AN OFFICER of our Arm, whose anonymity will be tampered with only to the extent of remarking that he would almost fulfill the requirements of the legendary engineer who requisitioned for men twenty feet tall and five feet wide, sent in a sizable flock of memberships. The acknowledgment, in

SOME FORWARD OBSERVATIONS

thanking him, mentioned the expectation that one of such physique would do things in a big way. A portion of his reply:

"As a matter of fact, it wasn't a big job to get subscriptions. The quality of merchandise is such that it sells itself. There was no necessity to use strong-arm methods. Your complimentary reference to my oversize physique is appreciated. However, I have seldom bent my strength to any useful purpose, desiring, let us say, not to professionalize it. My size has led people to believe I am good-natured. Otherwise it earns me the annual gibes of army doctors—no doubt actuated by envy. Also, at service schools, it has enabled those in authority to single me out at an early stage, so I could be roared at by name."



EXTRACT FROM another letter: ". . . I have just finished Colonel Lanza's 'Bridgeheads of the Marne' in the May-June issue of the JOURNAL. You may well imagine how thoroughly I enjoyed it when I tell you that it was my good fortune to have been a member of the 2d Bn 10th FA, whose CP was at Greves Fme (190.2-255.5). Yes, sir, as I read, I lived it all over again . . . the long hours in the old nose-punching gasmask . . . the incessant shelling . . . the wild rumors as to the true location of the Boche and of our own infantry . . . the uncertainty of life . . . worst of all, the total absence of reliable communications. It all comes back vividly. A year or so ago I read, for the first time, Colonel Butts' little book upon the 30th Infantry's participation. Before and since that time I have read other accounts of the action, but never

have I come across any chronicle covering the entire battle so thoroughly and understandably written.

"Nineteen years have passed, but not until reading this article have I understood or known the *why* of some of the things that happened. This is truly a splendid account of how a battle is actually *fought*, and not how it is solved in a classroom."

The last line of this Homeric saga, the subject of Colonel Lanza's pen for a year's issues, appears in this number. When the account, which had treated of the movements of large units, became focused on the field of operations of the Third Division, it aroused intense interest, and among the letters received in this office praising it as the best story of the last German attack yet told was one from Mr. Louis P. Shoemaker, Washington, secretary of the Third Division Society.



MARCH OF TIME films 11th FA; LIFE sends a photographer to follow the fortunes of the 56th FA Brig; and Paramount records the Chicago Military Tournament and the 124th FA.



What seems to be most needed in the line of inventions is some adaptation of the Braille system for Oriental airplanes.



ELEVENTH'S experiments (last issue) in picking up GPF's and antiaircraft weapons as sidearms to the 155 Hows may eventually shed light on that ancient query: What does a searchlight battery do in the daytime?

MILITARY BOOKS

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

	<i>Price</i> (Domestic postage included)
FIELD ARTILLERY: The King of Battles— <i>Maj. Gen. H. G. Bishop</i>	\$2.00
THE AMERICAN ARMY IN FRANCE— <i>Maj. Gen. James G. Harbord</i>	5.00
WITH NAPOLEON IN RUSSIA— <i>Gen. de Caulaincourt</i>	4.00
NO PEACE WITH NAPOLEON— <i>Gen. de Caulaincourt</i>	3.00
R. E. LEE— <i>Freeman</i> (4 vols., each)	3.75
A MODERN MILITARY DICTIONARY— <i>Col. Max B. Garber</i> —Cloth.....	2.50
—Leather	2.75
INFANTRY IN BATTLE	3.00
THE INFANTRY BATTALION IN WAR— <i>Lt. Col. Walter R. Wheeler</i>	3.00
CAVALRY COMBAT	2.50
THE SIEGE OF ALCAZAR—(<i>McNeill-Moss</i>)	3.50
IF WAR COMES—(<i>Dupuy and Eliot</i>)	3.00
SOLDIERS OF DARKNESS (Combat Intelligence— <i>Gowenlock</i>).....	2.75
EUROPE IN ARMS (<i>Liddell Hart</i>)	2.50
THE UNITED STATES ARMY IN WAR AND PEACE (<i>Spaulding</i>)	5.00
ITALY'S PART IN WINNING THE WORLD WAR— <i>Colonel G. L. McEntee</i>	2.00
THE NATION AT WAR— <i>Gen. Peyton C. March</i>	3.00
FOCH: THE MAN OF ORLEANS— <i>Capt. Liddell-Hart</i>	4.00
THE WAR IN OUTLINE— <i>Capt. Liddell-Hart</i>	4.00
COMBAT INTELLIGENCE— <i>Schwien</i>	2.00
WAR IN THE PACIFIC— <i>Denlinger and Gary</i>	3.00
VERDUN— <i>Pétain</i>	4.00
REMINISCENCES OF A MARINE— <i>Lajeune</i>	4.00
JULY, 1914— <i>Ludwig</i>	3.50
FOCH SPEAKS— <i>Bugnet</i>	3.00
IT MIGHT HAVE BEEN LOST— <i>Lonergan</i>	3.00
THE OLD ARMY: MEMORIES— <i>Parker</i>	4.00
ULYSSES S. GRANT— <i>McCormick</i>	5.00
AMERICAN CAMPAIGNS (2 vols.)— <i>Steele</i>	10.00
POLO PONIES— <i>Cullum</i>	5.00
ROBERT E. LEE, THE SOLDIER— <i>Maurice</i>	4.00
FIFTEEN DECISIVE BATTLES— <i>Creasy</i>	1.00
ORDEAL BY FIRE— <i>Pratt</i>	3.00
OFFICERS' MANUAL (Revised)— <i>Moss</i>	3.00
OFFICERS' GUIDE, 1930	2.75
ARTILLERY TODAY AND TOMORROW— <i>Rowan Robinson</i>	2.00
SOME ASPECTS OF MECHANIZATION— <i>Rowan Robinson</i>	1.50
THE FELLOWSHIP OF THE HORSE— <i>Lt. Col. Goldschmidt</i>	5.00
LIFE OF GRANT— <i>Fuller</i>	5.00
HORSE SENSE AND HORSEMANSHIP— <i>Brooke</i>	5.00

A reduction of 10% will be made to JOURNAL readers who purchase any of the above books through the U. S. Field Artillery Association.

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