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**THE  
FIELD ARTILLERY  
JOURNAL**

**EDITED BY**

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**THE UNITED STATES FIELD ARTILLERY ASSOCIATION**

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**WASHINGTON, D. C.**

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103RD FIELD ARTILLERY  
Rhode Island National Guard

# THE FIELD ARTILLERY JOURNAL

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VOL. XIV

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## THE SPIRIT OF THE ARTILLERY

BY LIEUTENANT-COLONEL WILLIAM BROWN MELONEY, F.A., O.R.C.

AS IN the beginning the decision of battles still hangs, and always will, upon the issue of that moment when the infantry involved comes face to face with bayonets or knives or clubbed rifles or whatnot or no more than their primal bare hands and teeth.

That moment of flesh contact, of body to body, epitomizes the whole purpose and end of the military art as expressed in an army in the field. It is the single objective, the one goal of all that precedes it—all organization, all training, all technical practice, all study, all discipline, all subordination. There can be no other.

In the evolution of things mankind has developed many weapons to accomplish successfully his approach to and participation in the deciding physical contact on the battle ground. But none that he has yet produced is comparable either in potentiality or possibilities of achievement with his cannon or gun on wheels that he calls his field artillery. He has brought it to such perfection and himself to such dexterity in its use that it may be accepted as a law that an army without a trained service of artillery support is an army lost. On it has come to depend entirely his ability to clear the way for his infantrymen, to smash and batter down whatever obstacles rear themselves in their path, to send them forward in protecting walls of steel and flame, to destroy or neutralize the fire of the enemy's artillery and overwhelm the smaller arms, to sustain morale, to carry them, with the smallest losses and injury, through the last foot to the body conflict and, even then, to shield them and deny their antagonists the succor of reënforcements.

The arm, however, has never been, is not now, and perforce, can never be because of its own and the very nature of things, more than a subordinate component of any fighting force. For all of its power it is the most dependent of all of an army's services. Beyond a limited period, involving inevitable sacrifice of itself, it is incapable of self-defense. Alone it can accomplish nothing, but given the whole faith of the infantry to whose support it is assigned, trusted, requested not to do the impossible, permitted to function to the fullest

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within its proven sphere, it can assure victory to disciplined troops possessed of the will to conquer.

Field artillery, certain histories to the contrary and notwithstanding, is one of the most modern of institutions. It actually was founded as late as 1897 upon the application of the recoil system which obviates the relaying of a gun after each round and makes rapidity of fire a mere matter of command. Before that there were guns on carriages and in batteries which accompanied troops into the field.

Lay writers in dealing with the subject generally hark back for a beginning to the days of the javelin catapults and rock windlasses and then come down through the centuries to the time of Frederick the Great and Napoleon to treat of them as masters of the arm. The year 1897 is sufficient for artillerists. They bring Frederick and Napoleon on the scene for the purpose only of recording that instead of having been masters of the arm the arm was their master and to trace from that fact the inception of the misunderstanding and lack of coöperation as between the artillery and its sister services and in particular the infantry, which remained a heritage of all armies even down to and including the late war.

Was Napoleon a master of the arm when he said to his commanders: "Let the gunners alone; they are an obstinate lot"? Was Frederick the Great a master of it when he permitted his artillery officers to take an oath of exclusion—an oath not to "betray" any of the "secrets of the artillery" beyond their respective regiments? (Mixing paste was one of their "secrets"!)

But there were no more secrets about or in artillery then than there are now. There is nothing esoteric about the artilleryman's craft. Nor can there be. How utterly absurd is this idea of exclusion and special knowledge when one simply pauses to consider that nine times out of ten chance and not aptitude or desire determines the assignment of our personnel. Our infantrymen might have been cannoneers and our cannoneers infantrymen. It is the same stuff.

As for Napoleon's "obstinate gunners" they have disappeared from every army. Most certainly they do not exist in the American Army and they never can under the tradition that has been erected by those officers, who, since 1907, have been responsible for giving the nation a field artillery organization and such a school of thought as dominates it.

The breath of that tradition, the very soul of that school of thought, stand out in the Drill Regulations of the Field Artillery. What is written in that book the war saw practiced and imposed in practice by the regular leaders of the arm and their subordinates. In what spirit this was done is only fully realized when confronted

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with such an official record as is contained in a recently published lecture by Brigadier General L. R. Holbrook, the artillery commander of the First Division.\*

Says General Holbrook, quoting a memorandum for "permanent reference and guidance" for all concerned on the Front and dealing with the matter of infantry relationship:

"If at any time the services of a liaison officer are unsatisfactory he will be relieved at once without question as to cause, and always upon suggestion or request of the respective infantry commanders. . . .

"All liaison officers are expected to establish such close and cordial relations between the infantry and supporting artillery as to insure effective mutual coöperation between the two arms at all times. The success or failure of an important action depends largely upon their skill, understanding and thoroughness; the useless expenditure of enormous quantities of costly ammunition (frequently supplied with great difficulty), may be avoided through proper suggestion as to the appropriate fire requested. Tact and good judgment must be exercised by them at all times, *and a spirit of sincere loyalty to both arms must animate them in all their conduct. . . .*

"They will keep infantry commanders informed as to the character and efficiency of the fire that can be delivered upon call, and inform them in regard to the daily schedule of artillery fire to be delivered. . . .

*"It is inadmissible that shorts shall fall within our lines, except through grave inefficiency of responsible officers, who thereby jeopardize their positions, and no detail will be omitted in positively arriving at definite facts. . . ."*

Understanding with all branches, but above and beyond everything else and at any cost understanding and coöperation with the infantry—that is the American artilleryman's credo.

The recent war experience confirms our artillerists teaching and belief, with innumerable instances in the records of the French and British as well as the Americans, that to accomplish victory there always must be this unwavering spirit of coöperation between the foot soldiery and the guns. The life of the infantry and the fate of the cause depend on it; likewise the life of the artillery and its honor besides.

Among the great lessons of the war in sustenance of this—one for infantrymen and artillerymen to study over and over again—is

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\* The title of the lecture is "Artillery in Recent Operations." It was delivered before the students of the Army Centre of Artillery Studies, April 7, 1919. It was published as part of Information Bulletin No. 65, by direction of the Chief of Field Artillery, April 15, 1924.

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the Mangin offensive inaugurated on the northeast Verdun front on October 24, 1916. There was teamwork in the preparation of that momentous offensive and on the day of attack there was coöperation. The result is part of imperishable history.

But for a moment let a glimpse be taken of what the first six hours of the fighting produced.

The forces involved were: French—Six divisions of infantry, 68 batteries of light artillery, 168 heavy howitzers, 168 trench pieces, 51 batteries of heavy guns and 21 guns or mortars, calibre 240 to 370 mm. Germans—Sixteen divisions of infantry, 406 batteries of light and intermediate artillery and 57 (estimated) guns or mortars of the large calibre.

The attack was launched in a fog at H. 11:30. By evening the general results were:

"German losses estimated at 20,000 men, 3500 prisoners, 15 guns, 51 trench mortars, 114 machine guns. French losses, total, 5000 men."

That quotation, as well as the excerpts following, is from a translation of a French artillery discussion published by The Army War College at Washington in August, 1917. (War Department Document No. 659.)

"Execution and results of counter-battering fire: 30 per cent. of the guns attacked by our demolition fire were actually put out of action."

Out of 158 German batteries developed into a betrayal of themselves by a sham attack on October 22nd, only 90 were able to go into action on October 24th, and of these forty per cent. were silenced. Afterward only one in four resumed activity.

"Generally speaking, the Mangin command reports that the German artillery fire was very weak until about 3 P.M. It is certain that fire on our first lines was effective only after many trials, a few barrages only reaching the southwest slopes of Douaumont. Barrages in rear of our lines were more effective. Very little fire on our batteries. This irregular and hesitating fire, probably, due also to the blinding fire directed on the observing stations, was definitely established by the reports both of the artillery intelligence service and of the aviators. Our artillery was thus free to fire *all the time*, and to engage every newly signalled battery with great rapidity. . . .

"Conclusions: It is certain that the Germans were surprised, and among the causes of the surprise we must mention the reduction of the preparation from five days to three and the launching of the attack during the fog. *But the principal cause of success was undoubtedly due to the great valor of the attacking troops, and especially to the excellence of the preparation.*



## THE SPIRIT OF THE ARTILLERY

"The characteristic features of this preparation appear to be the following: *Unity of command, good installation of liaisons, good use of the artillery.*

"We will dwell at length only on the last point. *The entire artillery of the command was under the orders of the artillery commander. . . .* (He is not named.) The plans of action of the divisional artillery had been carefully prepared. No detail had been neglected. In accordance with the instruction of General Mangin 'the whole terrain to be crossed by the attack and by the counter-attacks had been violently shelled, and *there was no zone of the terrain in which the enemy could find shelter from our fire.*'

"Consequently, the infantry, except for the Seventy-fourth Division, where the artillery preparation had been somewhat less thorough (an artilleryman speaking), met no obstacles, and without difficulty, and at the time prescribed, was able to capture the objectives assigned to it, the defenders of which were either *dead or dazed.*

*"But it was only able to advance so easily because it did not receive any shells.*

"This brings us to an essential question—that of counter-battery. An attacking infantry may find before it a level terrain, free of material obstacles and machine guns, but if it receives shells in appreciable quantity it will rapidly suffer losses which will immobilize it in a short time. In order not to receive any shells, the enemy's artillery, all of the enemy's artillery, must be silenced while and as long as the infantry is advancing and as long as it is not sheltered. It is therefore necessary to take, according to the old expression of our regulations, *the superiority over the enemy's artillery*, superiority without which there is nothing but *half success or defeat.*

"This truth . . . the memorandum of the great general headquarters on the use of artillery in offensive now proclaims. . . . It says, '*Victory is near when the enemy's artillery has been destroyed*' and '*The enemy's gun is the principal adversary.*' This truth has been thoroughly grasped by the Second Army. . . ."

Was not the spirit of the infantry in the field before Verdun on October 24, 1916? Was not the spirit of the artillery there with it? Is there not achievement for emulation suggested in what they did together that day? Is there not something in such records of tremendous accomplishment for the infantryman and his artillery brother to read together and ponder about?

# ARTILLERY AND TANKS

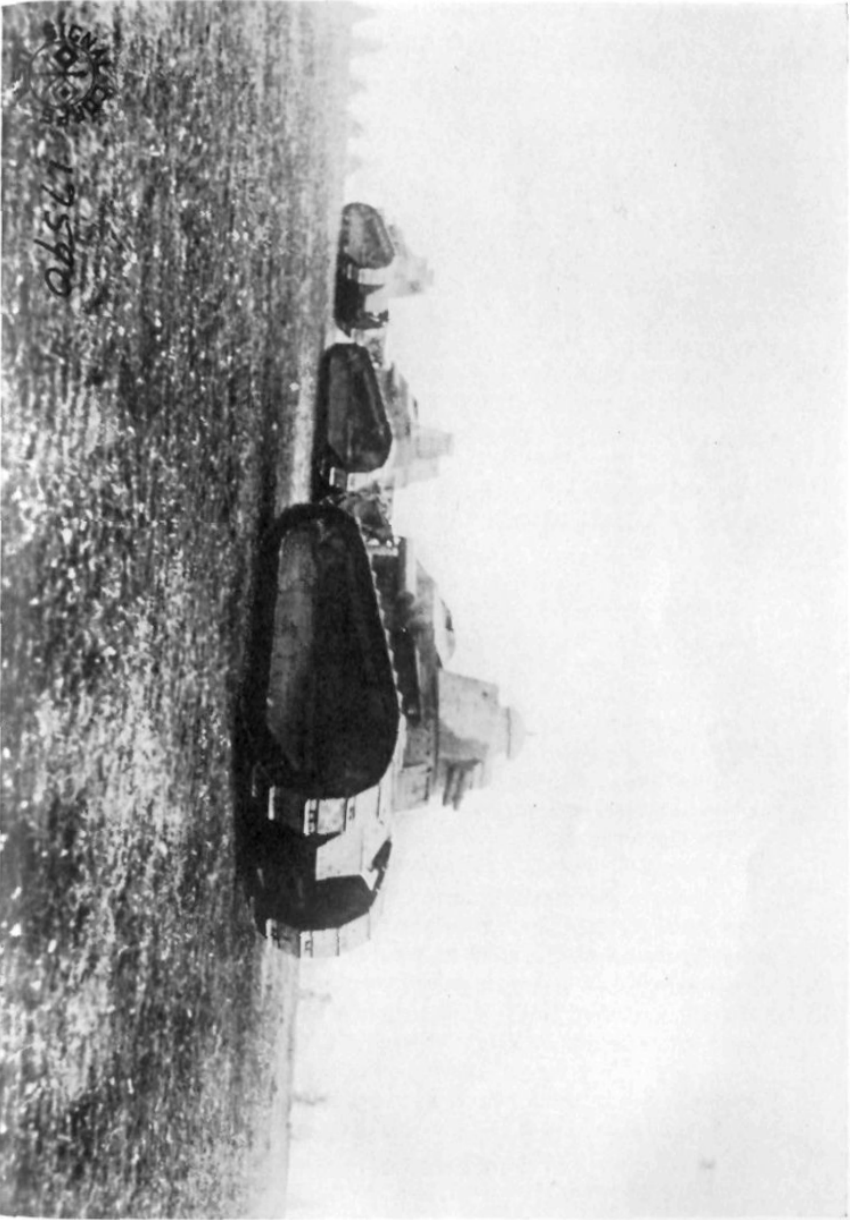
BY MAJOR FRANK B. JORDAN, F.A.

IN the following pages the writer shall endeavor to discuss these two arms from two principal angles; first, operating against each other; second, coöperating with each other. In order to do this intelligently, it will be necessary first to build up a general framework of the history and operations of the newer weapon, the tank, before a critical analysis of its tactics and technique can be undertaken. In general, the whole subject shall be considered as falling under three main heads: (1) tanks, being an outline of the origin, development, and operations of the new arm; (2) artillery *versus* tanks, being a critical but brief review of the operations of the two arms in the past, their status at present, and their prospects for the future; (3) coöperation of artillery and tanks, being a discussion, necessarily brief, of the mutual assistance rendered by the two arms in the past, and including the present and future prospects along the same lines.

## TANKS

### HISTORY

The tank, in principle, is by no means a new or novel weapon. From 1200 B.C. on down we find various traces of leading characters in various countries putting forth efforts to vanquish their enemies by the application of the same principle, *i.e.*, fire, movement, and security. In most cases, however, the sword or spear took the place of fire power, but the principle was, of course, exactly the same. The Chinese used it in 1200 B.C., as did the Egyptians and Israelites. The Roman "testudo" and the mediæval "belfry", were variations of the tank; and so right down through the centuries we find continual outcropping of the intense desire to be able to injure the other fellow, while remaining unscathed oneself. Practically every writer of importance gave some consideration to the subject, even Napoleon himself writing a paper on the possible use of such a contrivance in warfare. While the introduction of the steam engine added new impetus to the designers' efforts, still from 1769 to 1908 we find only five real attempts made to design and build a vehicle embodying the three features of offensive power, security for the crew, and mobility. But again fresh vitality was supplied by the perfection of the internal combustion engine, and the caterpillar, track-laying vehicle of the Holt type. This brings us to the period during which the tank, as we now know it, was designed and built, and during which we shall



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SOMETHING OF THE DOGGED MAJESTY OF BATTLESHIPS



AN AMERICAN TANK GOING OVER THE TOP AT ST. MIHIEL



INFANTRY AND TANKS

## ARTILLERY AND TANKS

consider, both its history and operations, under the four various Powers making use of it in the World War, *vis.*, England, France, Germany, and the United States.

### *England*

The tank idea originated in October, 1914, in the mind of Lieutenant-Colonel Swinton of the British Army, who dubbed the weapon a "caterpillar, machine-gun destroyer." Considerable opposition was encountered, and, strange to say, what little encouragement the device got came from the Navy. Mr. Winston Churchill urged the project, and some Navy funds and other assistance was secured, chiefly through his efforts. Early in 1915 a "Committee on Landships" was formed to consider and test the various types, with the result that the War Office dropped the project altogether, but the Navy, with commendable foresight, continued its efforts. Finally, in June, 1915, a joint committee of the War Office and Admiralty was formed, and after many exasperating delays and much backing and filling, not to mention the cutting of miles of official red tape, the first experimental machine was produced in January, 1916, and passed its official trials on February 2nd. This machine was known as the Mark I.

Construction was now pushed rapidly, and the new weapon was first used in the Battle of the Somme, making its debut on September 15, 1916. Its success varied with the situation, but enough confidence was established for the War Office to authorize the expansion of the corps to 1000 machines. From that date until the Battle of Cambrai, the tank was fought and improved upon, but without carrying any great conviction to the army at large. In this battle, however, the dreams of the Tank Corps at last came true. The machines were employed in accordance with the principles that the Corps had been learning during the many minor actions since the Somme. The chief characteristics of this battle were the surprise feature (brought about by extreme secrecy and no preliminary bombardment), the employment of tanks in mass (over 400 being used), and the selection of a field of battle suitable for tank operations. From now on the future of the weapon was assured.

From Cambrai until the summer of 1918 the same process of improving the weapon was continued, and a new type, the "Whippet," made its appearance. This tank was lighter and faster than previous types, and designed generally for pursuit and exploitation of successful attacks. A detailed account will be given later of the exploits of one of these new instruments. This period also brought the first tank-to-tank action at Villers-Bretonneux, demonstrating clearly that the best antidote for the tank was another tank.

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The battle of Amiens (August 8, 1918) was, in general, a repetition of the Cambrai operation. This time, however, the British were prepared to take full advantage of the deadly effect of their weapons, and made the encounter, to quote Ludendorff, "the black day for the German Army." Four hundred and twenty tanks were used, and the entire operation was carefully prepared and nicely executed, with marvellous results for the British Army.

From August 8th until November 5th, tanks were used whenever available in practically every action fought by the British, some even being used in the Palestine campaign. So great was their moral effect that the very appearance of one of these mechanical monsters was enough to start the Germans on the homeward path, and the British Commander-in-Chief expresses their service in the following words:

"Since the opening of our offensive on August 8th, tanks have been employed in every battle, and the importance of the part played by them in breaking the resistance of the German infantry can scarcely be exaggerated. The whole scheme of the attack of August 8th was dependent upon tanks, and ever since that date on numberless occasions the success of our infantry has been powerfully assisted or confirmed by their timely arrival."

### *France*

The tank was proposed and developed in France independently of, but practically concurrently with, the British tank. It was first suggested by General Estienne in December, 1915, and through 1916 experienced the same throes of alternate encouragement and sneering criticism that its British cousin was undergoing at that very moment. Finally, early in 1917, two types, the St. Chamond and the Schneider, generally lighter and rather inferior to the British tank, were designed and produced in sufficient numbers to be employed in the attack at Chemin des Dames in April, 1917.

Although this action was a failure from a tank point of view, and it was clearly demonstrated that the two types both had vital defects of design, the French persisted in their use. In May of the same year they were used with marked success, and again in October, at Malmaison, the tanks rendered valuable assistance. This type was then rendered practically obsolete, though still used to some extent, by the arrival of its faster and handier younger brother, the Renault.

This tank was first designed in November, 1916, but not produced in quantity until the spring of 1918. It was less than half the size of the Schneider and St. Chamond, much easier to handle, and had far better cross-country ability. It was first used at Retz, on May 31, 1918, to the considerable surprise of the Germans. From July

## ARTILLERY AND TANKS

15th until the Armistice the Renault tanks were used constantly, taking part in over four thousand engagements. They proved themselves particularly valuable in breaking down the final resistance of the Germans by their prompt disposal of rear-guard machine guns.

### *United States*

This country profited by the lessons of both England and France, and organized a Tank Corps immediately upon our entry into the war. Colonel S. D. Rockenbach was appointed chief of the new arm, and immediately worked out the organization of the Corps along the lines of both British and French ideas; the heavy battalions following the British, and the light battalions the French practice, as far as consistent with American ideas and characteristics. Units were organized and trained in both England and France, and first employed in the reduction of the St. Mihiel salient, where the light tanks got into action. These units were used again in the Argonne with excellent results, and further to the north the heavy tanks made their debut on September 29th with the British. Both light and heavy battalions did good work right up to the end, their actions following generally along the same lines already indicated for the British and French. To quote from General Pershing's final report:

"While the Tank Corps has had limited opportunity, its personnel has responded gallantly on every possible occasion and has shown courage of the highest order."

### *Germany*

The tank idea was first presented in Germany in December, 1913, and again in 1914, and experiments were conducted in the summer of 1915. Nothing came of it, however, until the British had sprung their surprise on the Somme, and then the Germans prepared drawings of their machine, but apparently thought so little of the whole scheme that no rush construction was ordered until the summer of 1918, when it was too late to swing the balance to the German side.

The first German tank, known as the "A-7-V," was begun in the spring of 1917, but so slow was the progress of the work that only ten were ready for the offensive of March 21, 1918. This tank was woefully deficient in cross-country ability, and seemed to embody all the defects of the Allied types, without any of their compensating advantages. It had two outstanding good features—spring suspension, and centralized one-man control. In every other respect it was greatly inferior to the Allied weapons, as results on the field of battle soon proved.

The success of the British tanks at Cambrai in November, 1917, lent added impetus to the German tank program, but it was by now

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hopelessly behind the Allies' lead. They could do little more than dabble with new designs, and extemporize organizations from captured machines and motley, ill-trained crews. Most of their energies were concentrated on anti-tank devices, and the tank program was accordingly crowded out. For once the Allies had stolen the start on the German General Staff, and held their lead to the end. And, in this case, it was the direct cause of the loss of the race to the Germans.

### PRESENT STATUS OF TANKS

This subject shall be discussed along the general lines of the history of the tank, grouping the matter under two headings, *viz.*, (1) Status of the tank at home, and (2) Status of the tank abroad.

#### *At Home*

In our service we have at present on hand one hundred heavy tanks (Mark VIII, Anglo-American), and several hundred light tanks (six tons), which are practically exact copies of the French Renault. While these machines may be considered practically obsolete for fighting, they are valuable for training and demonstrating purposes. They are, in fact, the only types available to our service today, except the experimental types to be considered below. It is believed we are falling behind the British, but are about on a par with the French in the matter of present tank equipment.

The following experimental types have been completed, and though recognized as not the ideal tank, are still undergoing tests with a view to further improvement in future designs:

The Christie 14-ton convertible type is a medium tank carrying a light cannon (2.24-inch calibre) and three machine guns, with a crew of three men. It has a demountable track that enables the vehicle to run on wheels wherever paved roads are available. It is not considered as a suitable tank, but is a step in the right direction.

Medium A, pilots 1 and 2, are both tanks designed by the Ordnance Department, and are generally the same basically. Both weigh about 20 tons, and carry light cannon and machine guns, with a crew of three men. Several improvements are embodied in the No. 2 pilot, the important ones being an improved track and semi-pneumatic control. No. 1 pilot was recently equipped with a Liberty engine, which enabled the tank to make as high as 25 miles per hour over average terrain. Both tanks give promise of valuable ideas to be incorporated in future designs.



## ARTILLERY AND TANKS

The following types are under design or construction, and will be heard from during the coming year:

Medium 15-ton Ordnance tank, which is an improved Medium A. Several of the lessons taught by the pilots 1 and 2 are featured, and the tank is brought within the 15-ton limit set by the General Staff. The outstanding features of this tank will be the improved track, pneumatic control, and increased speed.

Christie 9-ton convertible, which is a smaller edition of the 14-ton tank mentioned above. Little is known of this model, and it is believed to be still in the course of design.

The present program in our service contemplates continuing the present types in service, and building experimental tanks until the desired degree of perfection is attained. Quantity production is not to be attempted until this ideal has been approximated, at least. Efforts are concentrated now on the production of a medium type of 15 tons or less, and next in priority, an improved light type of approximately 5 tons to be transported on a truck. The new medium tank should be ready for test some time during the current year.

### *Abroad*

England is by far the keenest on the subject of the tank. She is favoring the medium type at present, and most of her units are thus equipped. She also is using armored cars to some extent, some of her tank corps units having them on hand at present. Just what the status of her tank program is, is hard to say, as she maintains a discreet silence on everything pertaining to tanks. There is good reason to believe, though, that she is leaving us behind in both development and construction.

France comes next to England in tank interest, and is generally equipped with a slightly improved Renault. Experiments are being conducted with an extremely heavy type (70 ton), embodying an electric drive feature. Tank development, however, is rather an expensive luxury for France at this period.

Germany had rather an elaborate program at the Armistice, and some construction on several types had been started. Both heavy and medium types were designed, but work was called off and the partially completed models broken up under Allied supervision. It is not believed that any tank design or construction has since been attempted, as such work is too difficult to conceal from inquisitive observers.

Italy had projected a tank just before the Armistice, but its present status is not definitely known. It is believed they have a few

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on hand built by Fiat, but no progressive work is being done along tank lines at present.

### PROSPECTS FOR FUTURE DEVELOPMENT

Both at home and abroad the prospects for future development are considered excellent. Though tank construction is expensive, it is believed that the various nations will build pilot models until the desired results are obtained, and then arm their forces with the approved type on the very eve of the outbreak of war. By being organized for quantity production, it will be possible to do this so that the units can take the field a few months after hostilities commence. The last war showed Europe the folly of being caught napping in mechanical inventiveness, and neither England nor France have any intention of being caught that way themselves in the future. Tank development is expensive—but so is insurance. In this country, it is believed, the ultimate development will be a cross-country chassis, which can be used for either military or commercial cargo purposes. An armored body of suitable type will render it easily convertible into a formidable weapon, and its commercial demand will assure its availability in large numbers in time of emergency. This line of development, it is hoped, will enable us to keep abreast of our keenest competitors, England and France.

### ARTILLERY *VERSUS* TANKS

#### GENERAL

Although the principles underlying the operation of the two weapons against each other can be expressed in a few words, it is thought best to bring these facts home more forcibly by giving a critical review of the various operations, with especial attention to the activity of artillery *versus* tanks. In so doing, the following subdivision of the subject will be made, *viz.*, (1) With the British; (2) With the French; (3) With the Americans.

#### *With the British*

Field artillery was not used against tanks to any extent in the earlier battles, most of the casualties resulting from mechanical trouble and ditching. The Germans apparently started experimenting along this line, however, and at Bullecourt (April 10, 1917), 9 out of 11 tanks employed were put out by direct hits. After this action the armor-piercing (AP) bullet was also employed, but the thickening of the tank's armor offset this to some extent.

The importance of artillery fire as a counter-tank weapon was realized right after the battle of Messines (June 7, 1917), when the AP bullets used by the Germans failed to penetrate the new Mark V

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machines. *Indirect* fire, however, seemed to be stressed, and the possibilities of direct fire over open sights practically overlooked.

When the British made the surprise attack at Cambrai, the proper appreciation of direct fire was at once made apparent. Prior to this battle the Germans had tried emplacing special anti-tank guns, sited for direct fire, at a ratio of about two per divisional front. Although their true value was not realized until Cambrai, that they were taking due toll of the British Tank Corps may be gathered from this extract from the history of the 3rd Brigade on the 19th Corps front during the 3rd battle of Ypres (July 30, 1917):

"Tank 'Culloden' had her unditching gear carried away by barbed wire near Hell Cottage. Unditching beam was recovered, but again broke loose, until secured with rope. Just west of Frost House shell burst under front of tank. While crossing light railway halfway between Frost House and Square Farm, a second shell hit roof of door and killed one gunner. Tank stopped, and it was found petrol pressure pipe was cut. Time 9:15 A.M. A third shell struck behind right sponson. Crew were withdrawn from tank, and took up a position in shell holes near Square Farm. Tank was still being shelled, undoubtedly by an anti-tank gun, about ten shells being fired at it in five minutes, six of which hit the tank."

In spite of such events, however, prior to Cambrai most casualties to tanks were caused by barrage fire, or interdiction fire on roads which the tanks were forced to use due to weather conditions in Flanders. It remained for Cambrai to vindicate the doctrine of direct fire over open sights. In this battle (November 20, 1917), practically all tank casualties were caused by the direct fire of field guns placed well forward, and not firing until tank targets appeared. One gun, served to the last by a German major, knocked out no less than 16 tanks as they were successively silhouetted against the skyline of a ridge on which the gun was trained. The fight was not entirely one-sided, however, as tanks crushed field guns beneath their ponderous bulk on numerous occasions. Once the steel monsters got to grips, it was all over but the funeral of the gunners.

In the great German drive of March 21, 1918, many tanks were destroyed to prevent their falling into enemy hands. Direct fire still seemed to be the favorite German antidote for the tank in this operation. However, the German now tried his hand at the tank game, and at Villers-Bretonneux, April 23, 1918, the first tank-to-tank battle was fought. Three British machines (one male and two female) engaged three Germans of the A-7-V type, with rather interesting results. The two British females were promptly knocked out by direct hits from the heavier armament of their foe, thus

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demonstrating the helplessness of machine gun fire alone against a tank armed with a light cannon. The British male then got busy, and with its superior gun power soon knocked out one of the Germans, and put the other two to flight. Thus was it proven that the light cannon was the final arbiter in a tank-to-tank action.

At Hamel (July 4, 1918), the new anti-tank rifle made its appearance. Due to its weight and excessive recoil, and the fact that when its bullet did penetrate it did not very often disable the tank, this weapon soon became a standing joke to the personnel of the British Tank Corps, who collected them with great glee for "souvenirs"!

The Germans now concentrated their energies on direct fire, and the result was soon apparent. For example, at Moreuil, on July 23rd, concealed forward guns and batteries, regularly emplaced to fire over open sights, knocked out by direct hits 15 of 36 tanks employed. And again at Amiens, on August 8th, "field batteries firing over open sights" seemed to be the main cause of casualties among the tanks. The effectiveness of this fire may be noted from the following quotation from one of the battalion histories:

"Owing to the French having been held up, the British were subjected to a heavy enfilade fire from the villages of Beaucourt and Le Quesneu and nine of the eleven tanks belonging to 'A' Company received direct hits from a field battery firing over open sights from Le Quesneu. The majority caught fire and were burnt out, and very severe casualties resulted, three out of the four section commanders being killed and the remaining one wounded and captured. This disaster was followed by a particularly heroic action on the part of Second Lieutenant Cassell, who observed the destructive fire of the battery, and, passing through the burning victims of its shells, steered straight on to it, in an attempt to avenge the destruction of his comrades. His heroism was in vain, for before he had proceeded many yards he received a shell through the front of his tank, which put it out of action and killed Second Lieutenant Cassell and most of his crew."

And with another battalion on August 9th:

"The day's operations were especially interesting through the rapidity with which the enemy got his field batteries into action from commanding positions against tanks advancing in broad daylight."

And again on August 10th, of 43 tanks employed, no less than 23 received direct hits, due chiefly to attacking in broad daylight without smoke. In short, throughout the entire battle of Amiens practically every time that tanks attacked in broad daylight without smoke screens or counter-battery support, severe casualties resulted. The answer to the tank seemed to be the mobile field gun.

After the battle of Amiens, the Germans redoubled their efforts

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to neutralize the effect of the British tanks. How elaborate were their plans may be seen from the following quotation from British sources:

"A special artillery was told off and divided into two sections. The first was to provide a few forward silent guns in each divisional sector. They were to remain hidden till the moment of our attack, and then to concentrate upon our tanks. These guns, however, proved apt to be smothered by our barrage, or not to be able to distinguish their prey in the half-light of our dawn attacks. Secondly, there were to be reserve guns whose duty it was to go forward and take up previously reconnoitred positions after the tank attack had been launched. It was generally from these pieces that the tanks had most to fear. Finally, all German batteries, including howitzers, had general instructions to plan their positions in such a way that advancing tanks would be subject to a direct fire at about 500 or 600 yards range. In the event of a tank attack, the engagement of our machines was now to be the first call upon the artillery, to the exclusion of counter-battery or any other work."

From August 8th to the Armistice, the Germans labored frenziedly to offset the weight thrown into the scales by the British tanks. For once German science was at its wits' end, and no counter-measure more effective than the direct fire of field guns was discovered. Of the two thousand tanks employed during that period, roughly 50 per cent, became casualties, and by far the greater part were from the direct fire over open sights of field guns emplaced or brought into action in forward positions.

### *With the French*

The work of artillery against French tanks follows, in general, the outline given above for the British Tank Corps. Casualties averaged about the same from *all* causes, but those caused by gun fire alone were comparatively less, due to the smaller size of the French tanks. The Schneider and St. Chamond, only slightly smaller than the British heavy tank, suffered severely from artillery fire, but the Renault tank, less than half the size of its big brothers, and much handier to manœuvre, got off comparatively lightly. Against the French, as against the British, the best means of defense was not fully exploited until it was too late to matter much.

### *With the Americans*

The operations of the American Tank Corps partake of the character of both French and British, as some of their units had British machines, and some French. The German system of anti-tank defense was generally the same against these units, though their casualties were lighter due to the fact that they did not participate

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in as many serious engagements as their allies. Generally speaking, the light tank units had very few casualties while moving, while the heavy tanks of the British type offered a much easier target for the German gunners.

### PRESENT STATUS OF THE OPERATIONS OF THE TWO ARMS, BASED ON THE ASSUMPTION OF WAR AT AN EARLY DATE

In this discussion, the available weapons of this country and any potential enemy must be considered as in their exact state at present.

Our present type of field gun (75 mm.) is well suited to cope with tanks of the French type. A wider traverse without shifting trail would be advantageous; but it is not difficult to follow the present light tank, moving at its best at six miles per hour, over the open sights of the 75-mm. field gun. Against the British, with their Medium "C" and "D" types, which can probably make ten to twelve miles per hour over average terrain, we would be at a serious disadvantage. This type of tank, while larger than the French light tank, is at least one-third smaller than their old Mark V, and much faster and handier to manoeuvre. Against such a tank we should have practically a free swinging traverse, in order to obtain hits on a rapidly moving, zigzagging target. A gun similar to the present American 75, with a device for disengaging the traversing gear, should answer very nicely.

As for tanks, our present type is about on a par with the French, but, from all we can learn, sadly behind the British. Our heavy type is too big and slow for anything except stabilized warfare, and an easy prey for field guns using direct fire at short range. The light type (six ton) is much smaller and handier, but too slow for modern conditions. It offers a much smaller target, and would at least stand a good chance of coming to grips with the foe, particularly if protected by a smoke screen. Its best chance for safety lies in *movement* and *numbers*.

### FUTURE PROSPECT OF THE OPERATIONS OF THE TWO ARMS, BASED ON THE ASSUMPTION OF WAR AT A MORE DISTANT DATE

In this discussion, as the proposed development of the various powers cannot be discovered, it will be assumed that they at least keep abreast with our own progress.

We now have a type of field gun in course of development by the Ordnance Department which would probably answer all requirements at a future date. It will have about 45 degrees traverse, which will enable it to follow the future type of fast, medium tank with a fair



INFANTRY BEHIND TANKS

107th Infantry, 27th Division, near Beaumesnes, Somme, France, September 13, 1918.



SOMEHOW SUGGESTIVE OF A SWARM OF ANGRY BEES



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degree of accuracy. While the best answer to the tank is another tank carrying a six-pounder or 75-mm. gun, the main reliance of a power lacking tanks must be placed for some time to come in the direct fire of the light field gun at short range, *i.e.*, *one thousand yards or less*.

In the tank field we will have the fast medium tank, carrying a six-pounder and two or more machine guns, and capable of making an average of twelve miles per hour cross-country. These features, combined with pneumatic control and better vision, would furnish a fairly difficult target for the most skilful gunner. Then we would have a light tank, weighing about five tons, and transported on trucks. These would depend upon their numbers and speed to escape destruction, and though a fair mark for the field gun, their employment in large masses would make it as easy as destroying a swarm of angry bees, to try to put them *all* out of action. Some would undoubtedly be hit—but *some* would get through, and then the sharpness of their sting would be felt by infantry and artillery alike.

### COÖPERATION OF ARTILLERY AND TANKS

#### ARTILLERY IN SUPPORT OF TANKS

##### *In the Past*

In the operations of the World War, the chief support contributed by the artillery was counter-battery and screening. In some cases the rolling barrage was employed to put out enemy anti-tank guns, but usually the best support afforded was the smoke screen and the blinding of hostile observation posts.

##### *At Present*

Under existing conditions it is believed that artillery support would centre mostly on the smoke screen for the advancing tanks, and blinding of hostile observation. Counter-battery will also be of some value, though hits suffered from indirect fire are usually few. The tank itself can be counted upon to deal with the hostile anti-tank gun, once it is enabled by the smoke screen to get within striking distance of its deadliest foe.

##### *In the Future*

The development of a faster type of tank may render the use of the smoke screen, except to blind hostile observation posts, inadvisable. Tanks will depend upon their speed to escape being hit, and the chief function of the supporting artillery will be counter-battery, as undoubtedly most of the enemy's light guns will be sited to carry out an eventual anti-tank mission.

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### TANKS IN COÖPERATION WITH ARTILLERY

#### *In the Past*

During the last part of the World War, the tank practically replaced the artillery preparation, or shortened it considerably, thus reviving the almost-forgotten element of surprise. They also played a great part, chiefly with the British, in crushing wire entanglements, thus saving thousands of rounds of ammunition to the artillery. Also, chiefly on the British front, the tank filled the rôle of accompanying artillery.

#### *At Present*

The status of tank coöperation is at present generally the same as during the war, with the added provision, in our service, that the light tank cannot be expected to play the part of accompanying gun, or do much crushing of wire. The heavy tank is capable of doing both, but is much too large and too slow to be used successfully in open warfare. The British, it is believed, have developed a tank which can be counted upon to fill both the rôle of accompanying artillery and wire crusher quite successfully. As usual, they are quite reticent on their tank program, and observers returning from England bring nothing but irritatingly vague reports.

#### *In the Future*

The possibilities of tank coöperation in the future are hard to summarize, as the subject presents almost unlimited opportunities. The least that can be expected from the fast medium tank is that it will entirely replace the demand for accompanying guns and batteries. It will be able to keep up with the infantry at all times, and bring fire of fairly heavy calibre (2.24 inch) to bear upon hostile resistance at the critical moment. With its fairly quiet motor and increased speed it will be proof against anything except a direct hit from a field gun, and thus avoid many of the casualties often suffered by the accompanying battery from shrapnel or shell fragments. It will have sufficient crushing power (15 tons) to deal with any antitank gun it may come to grips with, and sufficient fire power (2 machine guns) to inflict casualties on the hostile infantry encountered. In short, it may be able to settle for all time that ever-present question that dogs the field artillery commander, "Why the accompanying gun?"

#### CONCLUSION

In conclusion, it would appear that the two weapons, while apparently mortal enemies, are really the complement, each of the other. The field gun has fire power, and also mobility, but not the both simultaneously. The tank has both, and can employ both at the

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same time. The field gun shoots from a fairly stable platform, while the tank is on a heaving sea, so to speak. Field guns can be put out of action by machine guns—tanks can laugh at them in safety. When tank and field gun meet, they are deadly enemies—when working together, they each supply the shortcomings of the other. The gun covers the advance of the tank, and the tank gaily cleans up the unclean spots that the gun has overlooked in the general bustle of house-cleaning. It would seem that the time-honored, moth-eaten motto was expressly designed for their use, to wit:

"United we stand—  
Divided we fall!"

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## AUTUMN CAMP FOR FIELD OFFICERS OF THE NATIONAL GUARD

BY CAPTAIN GENNAD A. GREAVES, F.A.

"You can learn them how, better than you can teach them," remarked an old regular army sergeant to me one day in speaking of training the National Guard. By this he meant that he could show them but he could not tell them.

In like manner, it is easier to "learn" an officer by doing and seeing and feeling, than it is to tell him and try to teach him with a mimeograph sheet and a notebook.

In the 111th Field Artillery, Virginia Guard, the summer encampments have been very successful, but there is never enough time for the field officers. They do not have very much opportunity to handle the larger units. Usually one or two, or perhaps three, days have been devoted to manœuvres in which battalions were actually used as the fighting units, and such manœuvres have proved invaluable. The main trouble is that there are not more of them. Many of the more elementary phases of the summer training, which cannot be omitted, crowd the manœuvre to the last few days of the encampment, and rightly so.

But when is the field officer to learn, actually in the field, to do his stuff? He must know many things, and the two weeks of summer training necessarily are occupied with emphasis on the training of the lower units and with the much-needed technical training.

An experiment was tried late in the autumn of 1923, which it is hoped will prove of interest to the field officers of the National Guard, and which has helped the 111th Field Artillery. It is believed that a custom has been started in that regiment which may very profitably be continued.

When the invitation to observe the manœuvres of the First

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Battalion, Second Field Artillery, at Fort Bragg, North Carolina, was received by the Commanding Officer, 111th Field Artillery, at Norfolk, Virginia, only one of the field officers could at that time leave his business. However, the opportunity to visit the Second Field Artillery while engaged in the annual autumnal war between the Reds and Blues could not be lightly overlooked, even by busy business men.

Accordingly, having synchronized with the departure of the regular army battalion from its permanent camp at Fort Bragg, Lieutenant-Colonel William H. Sands, of the Virginia regiment of field artillery and one of the instructors of that regiment, arrived at the scene of hostilities. Major Phillip W. Booker, commanding the Second Field Artillery, hospitably entertained his guests and immediately revealed to them all of the secrets of the campaign and the recent moves of the enemy and the disposition of our own troops. The war between the Reds and the Blues was being waged with great persistence on both sides, and the Blues' field artillery brigade (represented by the Battalion of the 2nd Field Artillery) was almost constantly on the move seeking out new positions and opening fire on the unsuspecting enemy from many hastily occupied positions. Both sides were manœuvring rapidly for the advantage, and the infantry commanders (simulated) must have been greatly perplexed and strained to keep their respective front lines doing a "right wheel" or an "action left" (or whatever they call these movements in the infantry), when the enemy suddenly sprayed them with shrapnel from the flank.

Major Booker, having fully explained the general and special situations, decided suddenly (at 1:00 A.M.) to resume the march at daybreak and the visitors accordingly retired for the night. This first night, though the national guard "detachment" brought bedding rolls, was very cold. All the remainder of the night it was a question—whether it is better to suffer in silence with closed eye and muffled nose, praying for sleep, or to get up and make a fire. A thick, London fog had settled over the land, and the heavy dew dripped from the eaves of tents all night like rain.

The battalion was on the road at an early hour, having been preceded by Company "A" of the 4th Engineers, who built the necessary bridges and made the bogs and marshes fordable. Our infantry advanced, entrenched, retired, manœuvred. Our artillery moved accordingly. Many small engagements took place, and at times there would be a general engagement of a whole division. The visitors (otherwise known as the "Detachment") were constantly with Major Booker, who explained in detail each movement of the troops and the probable effect on the enemy. The members of the "Detachment" were allowed to fire in several engagements. Axial

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observation was rarely obtained, due to the exceedingly difficult terrain in the furthest reaches of the Fort Bragg reservation. Constantly it was necessary to change from shell to shrapnel and back to shell again. This necessitated constant use of the range table.

And so the war progressed to a finish. The unfortunate enemy was driven from the field in a sad plight. And Major Booker, victorious commander, observing the enemy's utter confusion, declined to commit his men to further hardship, and withdrew along the line of least resistance to Fort Bragg.

The column of the battalion on the march, together with 22 wagons and Company "A" of the 4th Engineers, was more than half a mile long, having a total of 400 horses and mules, and 335 enlisted men. All batteries had their quotas of officers. Two thousand rounds of ammunition were fired. The entire manœuvre occupied one week—November 16th to November 23rd.

The visiting officers returned to their home stations well pleased with the trip and fully repaid for the small expense involved. All expenses were borne by the officers themselves, which amounted to about twenty dollars each. The trip had been made partly in the interests of learning more fully the duties of field officers in the field, but more particularly it was an experiment to determine the feasibility of this form of training for field officers. The practicability of this form of instruction for national guard officers was fully demonstrated. A broad view was obtained of what a field officer, thrown on his own resources, does. The way in which camps, marches and shoots are made and done, both under favorable and unfavorable conditions, was observed. Obstacles of terrain, weather, matériel and animals were seen and felt and heard by the visiting officers in such a manner as not to be forgotten. This manner of learning proved both practicable and expedient, and it was throughout very practical. The time was spent mostly on horseback with map and dispatch case and field glass constantly in use.

This idea of establishing contact with a nearby unit of the regular army during the fall manœuvres appears to be worthy of consideration by all national guard officers of higher rank whose business does not prohibit a short vacation in the late autumn. It is true that the vast majority of national guard officers cannot spare the time for this additional vacation. Yet it is also true that there are many officers who have reached that point in business life where they are both able and willing to take the field after the hot summer, and not a few of them will be found eager to improve their health in the open air and to renew once more their acquaintance with a good horse and a field saddle. And such a vacation improves their knowledge of field artillery, and at the same time, contributes to the defense of the Nation.

## A Private's Paradise

The bugle call had sounded taps and out  
went every light,  
So I hit the hay in my two by six to sleep  
throughout the night,  
When suddenly a Heavenly Voice the  
evening stillness rent.  
'Twas good St. Peter's call for me and  
Heavenward I went.  
It took me just one hundred years, I didn't  
journey fast,  
But rather like an Erie freight or a troop  
train going past.  
I wondered why we made no stops, till I  
heard St. Peter say,  
"Side-track all the generals, boys, there's a  
private on the way."

At last I reached the pearly gates, in awe I  
gazed around,  
For there were forty majors all policing up  
the ground,  
While in dismay a colonel stood from early  
until late.  
He'd over stayed his one day pass and  
couldn't pass the gate!  
St. Peter came as I looked on, and held  
within his hand  
My army service record and a red tape  
rubber band.  
He looked it over carefully and shouted  
through the door,  
"You've earned your place in Heaven lad,  
you joined the Ordnance Corps.

"I know you tried to go to France and help  
write history's page.  
"It's not your fault you had to wait till death  
came from old age.  
"Just bide your time, rest all you please,  
for time means nothing now;  
"The noncoms will do all the work and  
captains sling the chow."  
The barracks were of marble made, inside  
were easy chairs,  
And captains fanned my fevered brow while  
corporals swept the stairs.  
The sergeants were the porters there and  
were supplied with mops,  
And all the first lieutenants were St. Peter's  
kitchen kops.

We searched the loots for cigarettes, cigars  
and matches too,  
And made them carry twelve inch shells until  
the day was through  
And when for lack of sunlight they returned  
from all their whirls,  
They stayed in camp to scrub the floors  
while I had all the girls.  
Infirmarys were also there, where doctors  
weak and strong,  
Got three shots every morning and  
inspection all day long.  
One surgeon with a broken leg got salts and  
three black pills;  
I had him marked for duty to cure him of his  
ills.

At last I tired of pleasure; upon a feather  
bed  
I lay, no thought of reveille—I'd sleep till  
noon instead.  
But all at once I heard a noise, into my car  
it spoke,  
"It's four o'clock. Relief outside," and oh  
hell! I awoke.  
I grabbed my trusty rifle and in the  
morning air  
I guarded ammunition for the boys way  
over there.  
I walked my post in earnest until my feet  
were sore,  
And proud to be with Uncle Sam a  
private—nothing more.

—From *The Fifth Corps News*.

# **OPERATIONS OF THE 2ND BATTALION, 10TH FIELD ARTILLERY IN THE SECOND BATTLE OF THE MARNE**

BY MAJOR CASEY HAYES. F.A.

ABOUT July 1st, before the 3rd Field Artillery Brigade had completed its training at Camp Coëtquidan in Brittany, it was ordered into the line in the Château Thierry sector in support of its various infantry units which had arrived there in the latter part of June.

The 10th Field Artillery detrained at la Ferté Gaucher, from which point it marched on the first night into the area of le Grand Forêt *via* Verdelot, Viels Maison and eventually through Courboin. The 2nd Battalion went into position during the nights of July 6th, 7th, 8th, and 9th, by sections, in the vicinity of Grèves Farm. The last gun went into position on the night of July 10th. These positions had been occupied for the previous month or more by French troops and were only partly organized. (Accurate locations are shown on the accompanying map.)

The data which the French turned over to our batteries so far as defensive fires are concerned, is shown on the map. It will be noted that the normal barrage of the 2nd Battalion on the north bank of the Marne between Mont St. Père and Chartèves lay partly in the sector of the 30th Infantry and partly in that of the 38th Infantry. In addition there are shown additional concentrations, eventual barrages and the S. O. S. Barrage which lay entirely in front of the 30th Infantry in the vicinity of Mezy. Only those are shown on the map, of which a part or all was fired by the 2nd Battalion.

The communication system was perfected according to the plan of installation shown on the cover tracing attached to the map. It will be noted that this installation was as complete as could be expected or as could be authorized under the most extreme battle conditions. This is important with respect to later events.

At 11:55 on the night of July 14th, orders were received by telephone from the regiment at Courboin to fire a general offensive counter-preparation for 30 minutes. A few minutes later the German fire, which marked the beginning of their famous "Peace Drive" on Paris, came down. This artillery preparation covered the area from Blesmes (two and one-half kilometres southwest of Fossoy) to the east, and continued at maximum intensity for about 10 hours. The fire extended to a depth of 10 kilometres south of the Marne. All calibres were used up to and including 210

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millimetres. Gas seems to have been generally used throughout the whole area.

In spite of the care with which our communications had been installed all telephones went out at once and could not be re-installed until the next day. In other words, communication, so far as the battalion was concerned, resolved itself entirely into a system of runners. It is not known whether projectors were actually used, although they, with other auxiliary signals, had been installed. The attempt to employ rocket signals and other forms of pyrotechnics was a dismal failure due to the fact that the Germans across the river kept the whole area alight with their own rockets, and it was regarded as unsafe to our own infantry to attempt to fire on pyrotechnic signals under these circumstances. At dawn the enemy shellfire had progressed from the river south into the slopes and wooded hills of the Marne valley, which were occupied by American troops of the 3rd Division.

At this time the enemy made an attempt to lay down a smoke screen under which the Germans succeeded in launching some pontoons and did manage to construct single crossings between Gland and Chartèves. This was before dawn.

During the early hours of the morning and from the time that the attack began, the accompanying map will show the principal fires in which the 2nd Battalion was engaged. At daybreak, or there abouts, the liaison officer of the 2nd Battalion with the 30th Infantry was brought back wounded with a request from the infantry regimental commander for us to fire the S. O. S. Barrage. This was immediately complied with and was continued well into the morning until the counter-offensive was taken by our front-line units. The last of this fire was delivered with unfused ammunition since there were no fuses available at that time. This is interesting only as it indicates the extreme necessity of this fire as regarded by the artillery. In one of his reports the regimental commander of the 30th Infantry states: "Liaison between the Infantry and Artillery was perfect, being by far one of the best features of the battle."

During the morning, before daylight, the main line of resistance was withdrawn to the Fossoy-Crezancy road. The Germans never crossed this line. Referring to the German point of view in this particular sector, and with special reference to the effectiveness of American artillery fire, the following quotation from "The Drama of the Marne," by the German officer, Kurt Hesse, 1st. Lieutenant, Grenadier Reg. No. 5, will be of interest\*:

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\* EDITOR'S NOTE: The American Artillery referred to by the author. Lieutenant Hesse, as having played such havoc with the attacking German infantry, was the 3rd Field Artillery Brigade, consisting of the 10th and 76th Field Artillery (75-mm. guns) and 18th Field Artillery (155-mm. howitzers), 3rd Trench Mortar Battery and 3rd Ammunition Train."



## OPERATIONS OF 2ND BATTALION, 10TH FIELD ARTILLERY

Quoting Hesse:

"In the evening of July 14th, shortly after nightfall, the infantry was conducted to the advanced positions of readiness. These were about half a mile from the river, in the middle of the forest, on the slopes toward the Marne. \* \* \* So dark a night as that of July 14th–15th I have seldom experienced. In the woods we could not see our hands before our eyes and we ran into the trees. The ground was smooth and slippery and the air was filled with gas.

"Hour after hour passed. \* \* \*

"Is it never going to commence? We were dozing. At last! A fierce artillery fire begins. I looked at my watch. One o'clock in the morning. Had our artillery made a mistake? Firing of our artillery was not to begin until 1:10 A.M. (This would be 12:10 French time.) I jump out of the hole in which I was sitting, and—as quickly jump back. In front and rear I hear the strike of projectiles.

"The enemy had commenced!

"Ten minutes later our artillery began, not simultaneously as ordered, but here and there, and rose for ten minutes to powerful strength. \* \* \* Then it grew weaker and weaker and often the enemy's artillery fire was more powerful than our own."

At this time the division front was divided into four sub-sectors, each held by one regiment, with one battalion in the front line, one battalion in support and the third battalion in reserve. From west to east the sub-sectors were held by the 4th, 7th, 30th and 38th infantry regiments. The 10th Field Artillery supported the 6th Brigade (30th and 38th); the 76th Field Artillery, the 5th Brigade (7th and 4th). The 18th Field Artillery was just coming into the line when the battle commenced. The last battery was caught on the road by the enemy bombardment.

Referring to the apparent success of the Germans in crossing the river to the south bank, the following is quoted from the report of the operations of the 3rd Division from May 29th to July 31st, 1918 (after the enemy had made his first attempt to cross the river at a little before 5 A.M.).

"The enemy made his first attempt to cross the river at a little before 5:00 A.M. on the morning of July 15th.

"Although the rush of the German troops overwhelmed some of the front-line positions \* \* \* no German soldier crossed the main road from Fossoy to Crezancy, except as a prisoner of war, and by noon of the following day (July 16th) there were no Germans in the foreground of the 3rd Division sector except the dead."

The command post of the 2nd Battalion at Grèves Farm was

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subjected to heavy enfilade fire of the enemy coming from the Bois de Barbillon (northwest of Mont St. Père), from the southern edges of the Forêt de Fère, and from the Forêt de Ris. It was plainly evident that during their occupancy by the French, these battery positions had been accurately registered upon. This was our first experience with the German method of high-burst ranging. However, when the German battery commander came down on his site the first time, a good deal of our curiosity about German methods of high-burst ranging was completely satisfied.

During the morning the infantry wounded drifting back through the battalion dressing station brought word that the right of the division was in the air, and that the French on our east flank had drawn back. This was later verified. It is not known what their strength was, but German wounded were found by men from our batteries in the Bois de la Jute. A reference to the proposed German attack as shown on tracings herewith attached, indicates that Grèves Farm lay directly in the path of their main blow.

There are attached hereto notes in chronological order covering the daily operations of the battalion from July 16th to August 1st. There are in addition actual copies of the pages from a notebook in which were kept accurate notes of all fires delivered by the battalion.† These are interesting from two points of view, first because they were original fires, a good many of which were the offspring of the inventive imagination of the battalion commander. Secondly, they are interesting because the following quotations from Lieutenant Hesse in his "Drama of the Marne" will indicate the effectiveness of some of this particular fire.

Quoting Lieutenant Hesse:

"Finally, at 4:30 A.M., we have a message from the front: 'The Fusileer Battalion, the left of the two advance attack battalions, reports that the preparatory position was under very heavy fire, that two companies have been completely dispersed, and that there is serious doubt as to the success of the attack.' After hours of waiting we receive a more detailed report as follows: 'The First Battalion, which was to attack on the right, was caught by fearful artillery fire in the narrow lane leading down to the river.' (The roads referred to are those leading down from la Tieulerie Farm and la Théoderie, and from Hill 210 down past Min Doly to Mont St. Père and Chartèves.) 'Only parts of the battalion reached the river. The pioneers failed. The pontoons remained on the ground several hundred yards from the Marne; crossing at this point is impossible. \* \* \*'

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† EDITOR'S NOTE: These latter notes are not reproduced here due to their length and detail.

## OPERATIONS OF 2ND BATTALION, 10TH FIELD ARTILLERY

"That is the first picture. The infantry lying without cover in the great Jaulgonne forest (Forêt de Fère), where the brush is so thick that it is impossible to get through, and where, on the other hand, there is scarcely a tree thick enough to afford protection against a rifle bullet. There the projectiles of the enemy's massed artillery are falling. Not a spot is spared. The place is under the continual fire of a heavy battery. The explosions in the forest are frightful, nerve-racking. The clearing nearby comes under the fire of a light battery every five minutes, and in a little while is black with corpses. And the narrow lane to the right is swept by heavy shrapnels pursuing their fiery course like comets. The men run about madly, looking for cover. And again there are rushing sounds with dull reports: 'Gas shells! Put on your masks!' \* \* \*

"More artillery fire. Everybody scatters. Several dead men and a broken machine gun remain lying near the pontoons. 'Forward, away from here! Down below there must be other pontoons.'

"The accompanying artillery—each infantry regiment had one or two batteries; we had a field battery and a mountain battery—came driving up. One gun is put out by a direct hit, a second has a broken tongue. The leaders ask, 'Is it any use to drive further forward?' They receive orders to stop and find a place affording some protection against fire. The mountain battery, however, has already driven into the narrow lane (Mont l'Evêque to Mont St. Père) over which the First Battalion advanced, and is stuck; it can give way neither to the right nor the left, and can move only forward. One shot after another lands among the fine troops. The horses roll on the ground, the ammunition goes up in the air."

Notation from this article shows that during the attack 83 German batteries fired upon the area of the 3rd Division. The article goes on to state that this was the heaviest defeat of the war for the Germans and that the northern slopes of the Marne presented to the author the most frightful scenes of wholesale death during the war. He says that of the troops led into action on July 15th, more than 60 per cent were left, dead or wounded, lying on the field of battle.

On the night of July 18th–19th the Germans withdrew back across the river with the Division in pursuit, which continued through Jaulgonne, Charmel, Ronchères and finally to the Vesle River.

It should be borne in mind that the 3rd Division is the only American division which was required to stand on the defensive

## THE FIELD ARTILLERY JOURNAL

against a prepared German attack of the first magnitude in which their best "shock troops," *i.e.*, the 5th and 6th Grenadier Guards, formed the assault line, and that their artillery fire was of a corresponding quality and quantity.

A statement of the order of events of the 2nd Battalion at Grèves Farm during the night of July 14th–15th is about as follows:

At 11:55 P.M. the three batteries fired a general offensive counter-preparation. (This would be 12:55 A.M. German time.) While the battalion was on this fire the German preparation came down. From this time on the operations resolved themselves into a direct support of the infantry by the artillery, with personal liaison established and maintained by artillery officers and by artillery runners. In all instances the battalion fired at the direct request of the infantry everything that they asked for—in some cases ignoring standing orders of the Division and the Brigade, counting in so doing on the extreme necessity of the case to cover us. In addition to the immediate destruction of our communication net, that with all other units including the Regiment and Brigade, was out most of the night and the following day. In the intervals between firing for the infantry the fire referred to by Lieutenant Hesse was delivered in bursts along the roads and paths leading down to the river from the wooded heights between Mont St. Père and Jaulgonne.

During this period a lieutenant of the battalion took over the guns of a French battery at Grèves Farm and fired it with the help of telephone men, extra runners and borrowed chiefs of section, during the early hours of July 15th along the north bank of the Marne. Before daylight a lieutenant of Battery "F" took one of its guns and crew to the forward slopes above the river, about 1500 metres east of Ru Chailly Farm. This gun fired some 50 rounds with direct laying, on the bridge crossing from the Mezy to Chartèves. The bridge was destroyed but the entire crew with the exception of the lieutenant and one enlisted man was killed by flanking machine gun fire. The breech block was pulled when they left. Later the gun was recovered.

The following extracts from a report of the 3rd Field Artillery Brigade are of interest respecting ammunition supply:

"Report of the 3rd Field Artillery Brigade, December 18, 1918.

"Throughout the morning (July 15th) a continuous fire was being kept up by our artillery, which in addition to the heavy firing of the night before, was causing an abnormal consumption of ammunition, and it became necessary to use every means of available transportation for the purpose of hauling ammunition to our battery positions. By using the trucks of

## OPERATIONS OF 2ND BATTALION, 10TH FIELD ARTILLERY

the trench mortar battery, the train of the 3rd Engineers and the trucks which the Brigade was able to secure from the division \* \* \* it was possible to keep the batteries supplied. \* \* \*

"From noon to noon July 14–15, 1918.

"Scanty and unverified telephonic information indicates severe losses in 10th and 18th Regiments. \* \* \*

"Due to the severe fire of the enemy upon lines of communication, reports from 10th and 18th Regiments have not been received. \* \* \*"

It appears that the Germans had not used their usual skill in preserving the secrecy of their projected attack. The French G-2 section of the 38th Corps learned of the attack sometime early in the evening of July 14th, and this information was promptly distributed to all units, which made it possible to beat the Germans to it. As a result our fire came down on them a few minutes prior to their opening on us. Their artillery was known to have been heavily reënforced for this attack, and the accuracy of their registration just previous to the 14th is attested by the losses sustained by our troops. In addition to their 77-mm. fire they had the fire of their 150's superposed on their rolling barrage, which according to their time schedule was to pass through the battery positions early on the morning of July 15th. It was this fire which caused the heaviest casualties in the battalion.

Under orders from the regimental commander 50 rounds were reserved in each gun position for close defense. It can only be remarked in passing that at one time on the morning of the 15th all indications pointed to the use of this reserve ammunition for the purpose intended.

Several forms of gas were used by the Germans; all forms except mustard being used in the forward area. It appears that while this fire was fairly dense, the actual casualties sustained from gas in the Division were not heavy.

Mention should be made of the enemy airplane activity. Throughout the whole campaign they had the air at all times and we must lay to their observers a large percentage of artillery casualties. In addition to their observing at all times and their bombing of our columns, they machine-gunned us on the open road in broad daylight.

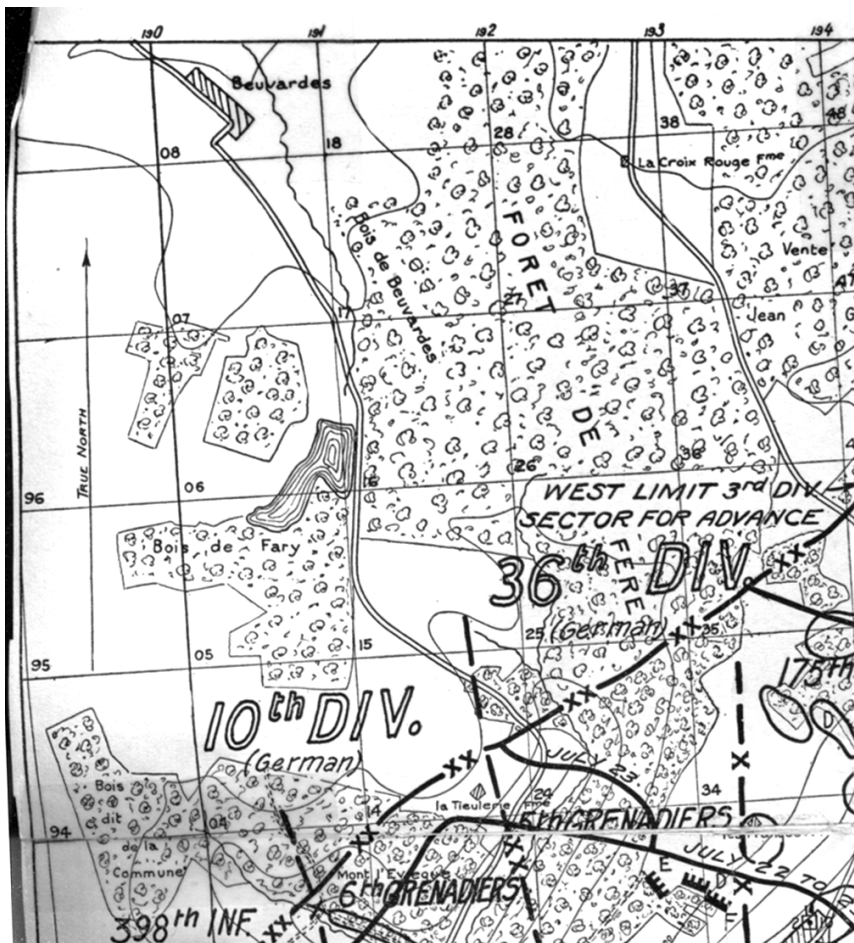
### NOTES

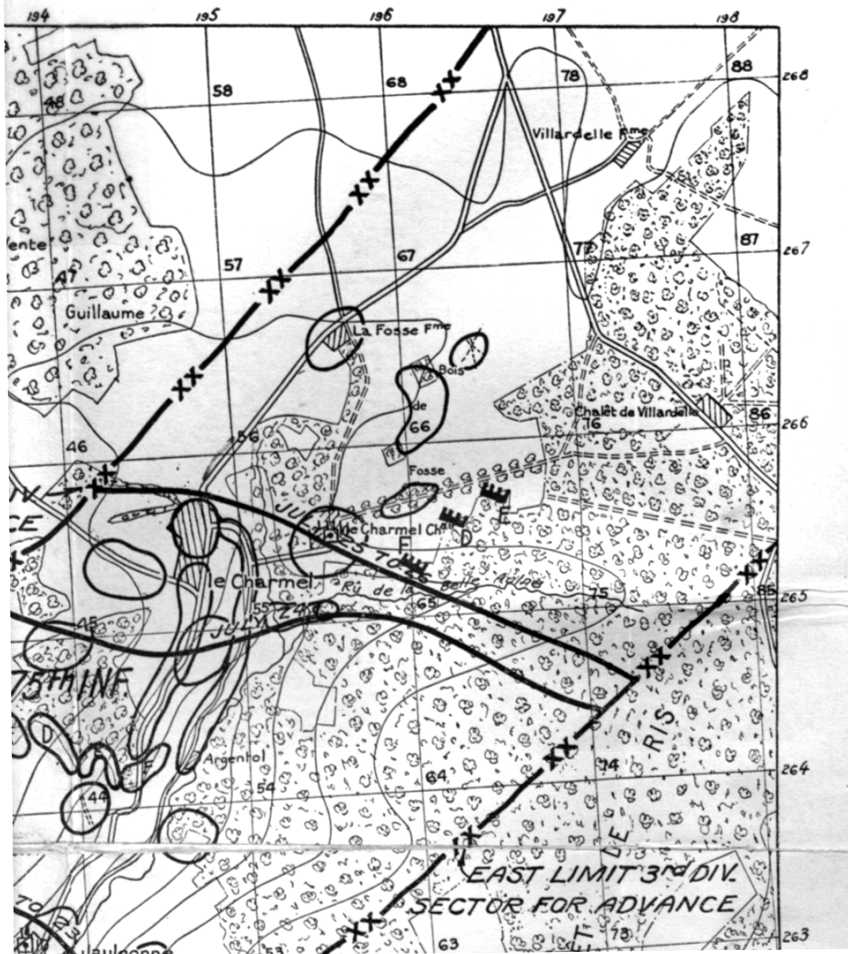
#### *The Brigade Ordered the Following Fires*

|            |   |
|------------|---|
| July 15th, | Morning—North bank from Brasles (west of gland) to Jaulgonne.<br>Afternoon—harassing and concentration for the infantry.<br>Night—offensive counter-preparation, reduced cadence. |
| July 16th, | Same as 15th.   |

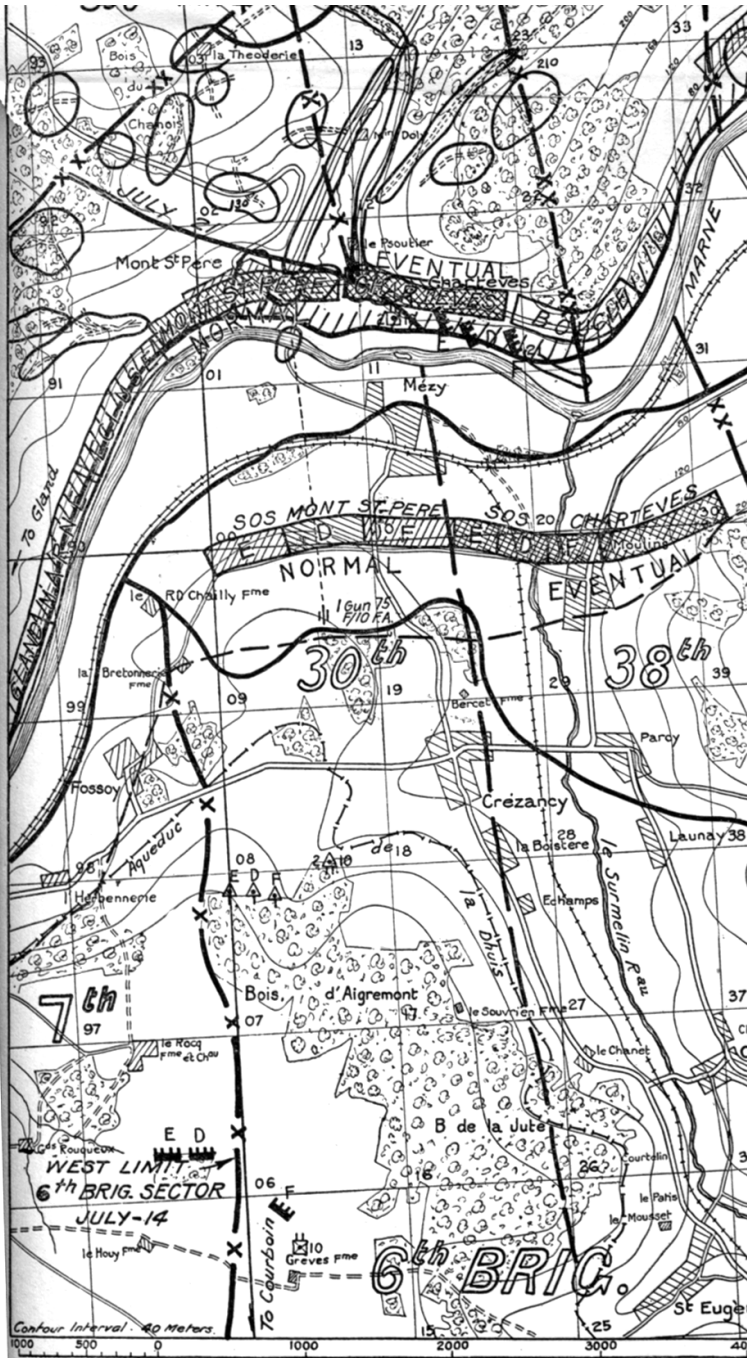
## THE FIELD ARTILLERY JOURNAL

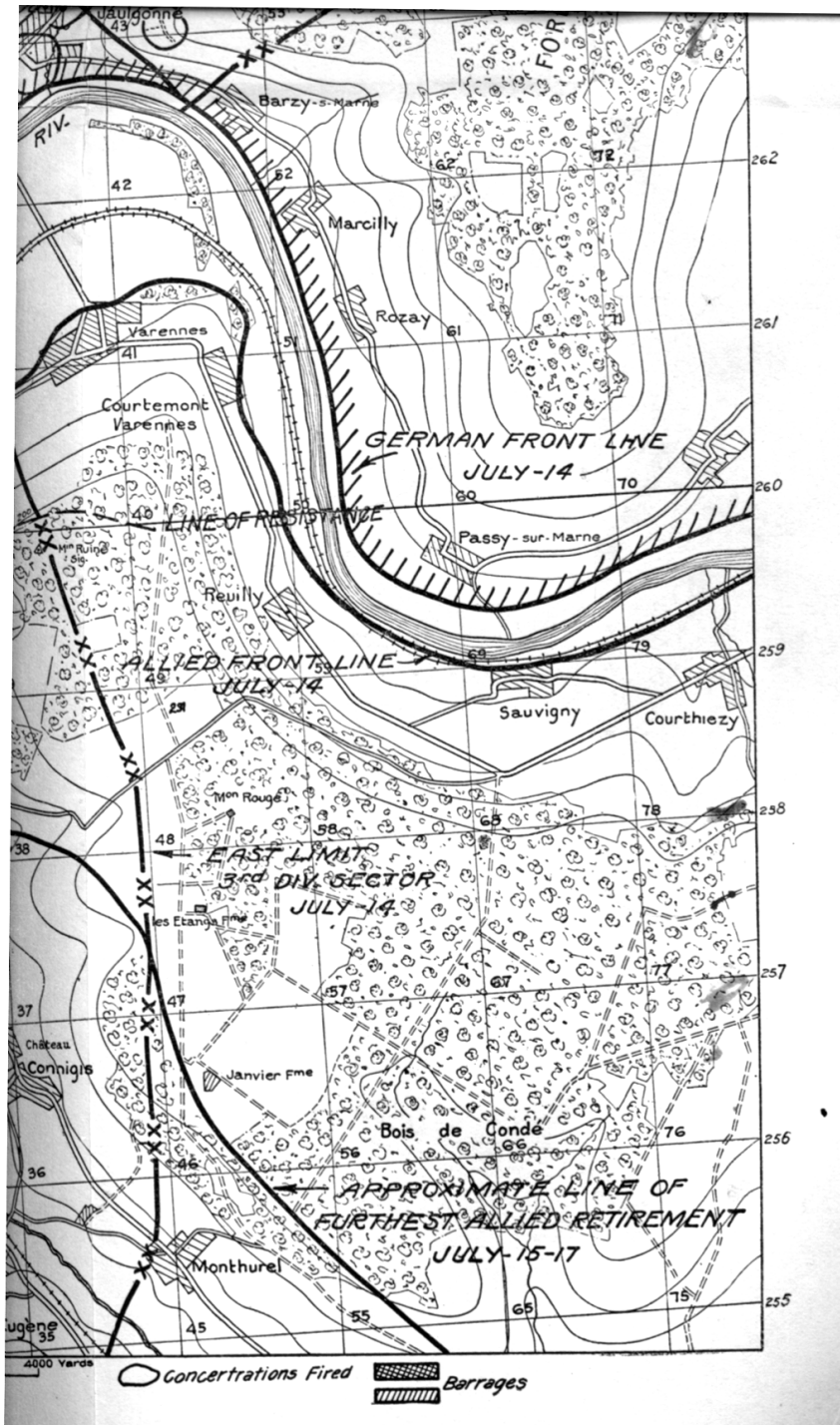
- July 17th, Harassing fire over entire front of the division—lines of passage at the river—all bridges and methods of crossing have disappeared.
- July 18th, Burst of fire at 5:00 A.M. for 8 minutes. Normal barrage. (The operations book shows that the 2nd Battalion then fired offensive counter-preparation for 34½ minutes.)
- July 19th, Thereafter during day usual harassing fire.  
Interdiction on all paths and trails leading down to the river on the north side. Otherwise the usual harassing fire and on call from the infantry.
- July 20th, Usual program.
- July 21st, Ordered pursuit, the 10th Field Artillery to remain in position taking over the mission of the 76th, which was to cross the river the morning of the 22nd. The 10th to cross at Mont St. Père.  
This crossing was never made.
- July 22nd, The 2nd Battalion crossed on the morning of the 22nd on a pontoon bridge constructed by the engineers in the vicinity of Blesmes (two and one half kilometres Southwest of Fossoy) and went into position along the north bank of the Marne just east of Chartèves. At this position the battalion was bombed again and again just after dark by one plane flying very low, dropping flares in the position. Having expended all his ammunition this aviator went back, loaded up and bombed us again this time getting a direct hit on the 4th section of Battery "F," putting out the entire crew.
- July 23rd, Fired along the Jaulgonne—Argentol-Charmel road and the woods in the valley along this road. Also on enemy observation post in Le Charmel Château.
- July 24th, Harassing fire in vicinity of Le Charmel Château.
- July 25th, Same as 24th.
- July 26th, Interdiction on roads and crossroads north of Le Charmel, rolling barrage.
- July 27th, Moved to Jaulgonne.
- July 28th, Moved to vicinity Le Charmel Chau.
- July 29th, Fired on Cièrges and Bois de Cièrges.
- July 30th, Concentrations on sensitive points during the morning. At 2:30 P.M. a rolling barrage in the west edge of the Bois de Grimpettes sweeping through the woods 300 metres to the north of Cièrges. The infantry later reports that again the fire of their artillery (meaning the 3rd Field Artillery Brigade) had been very effective.
- July 31st, Fired another rolling barrage beginning at 5:40 A.M. in same sector as previous day, extending from line where we left off, to Reddy Farm. At this time our infantry was advancing so rapidly that they got out of our range and we displaced forward to a position south of the Bois de Garennes and east of Fresnes.
- Aug. 1st, Night—relieved—marched to Etampes opposite Château Thierry to rest and refit.

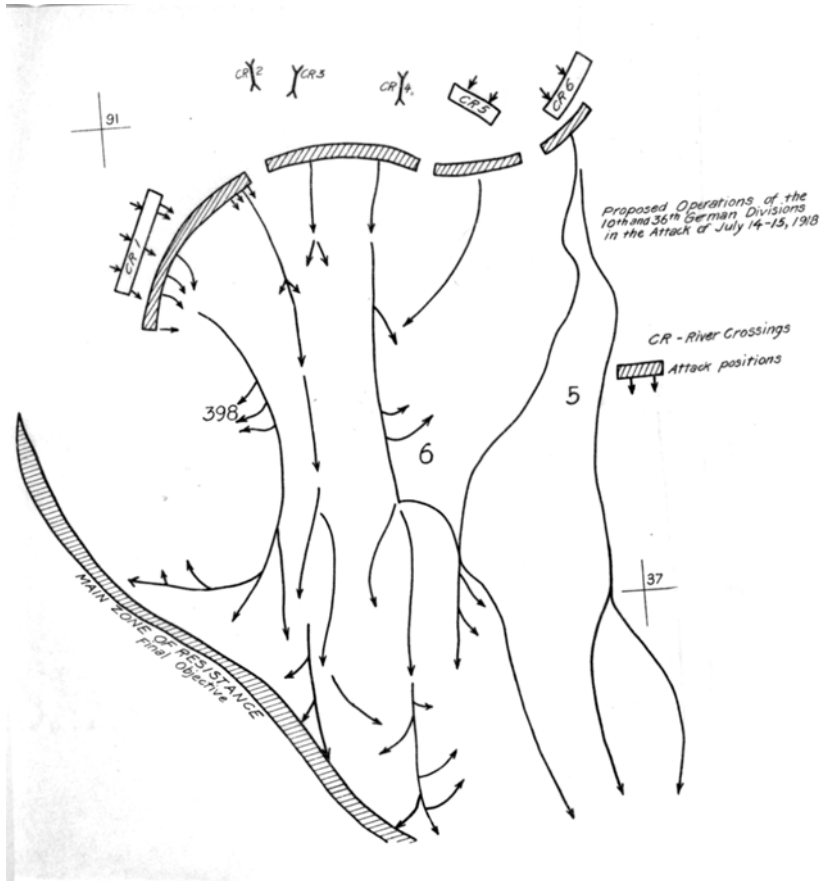


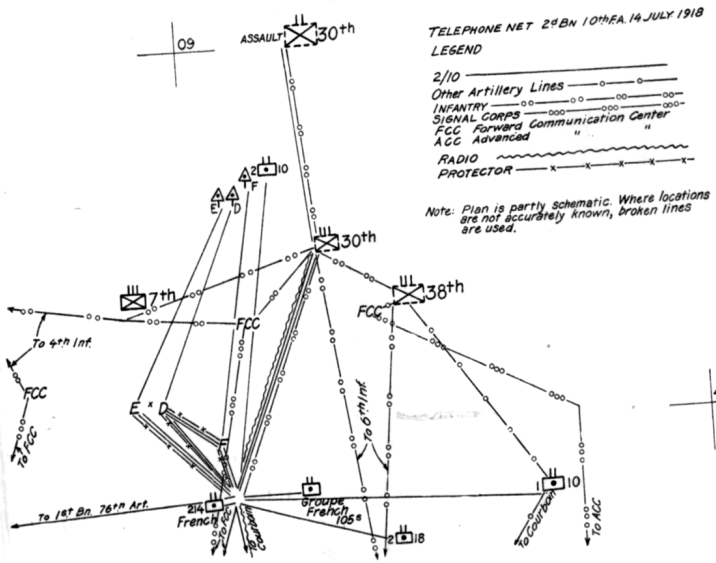












# ARTILLERY STATISTICS FROM THE WORLD WAR

BY LIEUTENANT-GENERAL RHONE IN "ARTILLERISTISCHE  
MONATSHEPTE", JANUARY-FEBRUARY, 1924

TRANSLATED BY COLONEL OLIVER L. SPAULDING, JR., FIELD ARTILLERY

IT IS not to be denied that numbers have great, even if not decisive, influence in war; and knowledge of numbers is necessary to form opinions. The following are a few of the figures that an artilleryman ought to know. Those affecting the French artillery are mostly taken from General Herr's book "L'Artillerie." In so far as possible, the corresponding German figures are given. In comparing them, it should be remembered that the French artillery fought for the most part in the western theatre only, and that it was reënforced by the English, numerically weak at the outset, but rapidly increasing. The German artillery, on the other hand, sent no small part of its force to Russia and Poland. No figures are given as to the Americans, who came in only at the end of the war, nor as to the Belgians and Portuguese.

At the beginning of the war France had, besides the old type guns assigned to defense of the fortresses, the following:

3840 75-mm. guns  
120 65-mm. mountain guns  
308 heavy field guns  
380 heavy siege guns

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4648

Germany had at the same time:

5068 field guns<sup>1</sup>  
1260 light field howitzers<sup>1</sup>  
1024 heavy guns<sup>2</sup>  
18 anti-aircraft guns

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7370

Wastage in guns was very heavy, especially on the French side—not only through losses in battle and on the retreat, but also from their own firing, as results of bursts in the bore or simple wear. The wear was greatly increased through the use of heavy charges to get increased range. In the French Sixth Army, between July 1

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<sup>1</sup>Wrisberg, "Wehr und Waffen." This number includes those used for training replacements.

<sup>2</sup>Schwarte, "Der Grosse Krieg."

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and October 24, 1916, 746 guns were burst or worn out—4.5 per day (so in original—Transl.). One battalion of 155-mm. howitzers had only two out of twelve pieces serviceable on September 10, 1914. According to the *Revue d'Artillerie*, in the 400 days from September 1, 1917, to October 1, 1918, 926 75-mm. guns were destroyed by bursts in the bore; 853 were swelled; 511 were destroyed by hostile fire; 3758 were worn out. No similar German statistics are available; but according to Wrisberg 920 field guns and 280 light field howitzers had to be replaced during the first ten months of the war. Evidently bursts in the bore were much less common in the German artillery than in the French.

Both sides felt a serious shortage of ammunition after the battle of the Marne, because of the great number of engagements and the rapidity of the fire. The French had a much greater initial supply than the Germans. They had on hand 1300 rounds for each 75-mm. gun; after the battle of the Marne there remained 500 rounds, the average expenditure having been 800. The German original supply was 987 per field gun, 973 per light field howitzer, and 4000 per heavy field howitzer—the pieces capable of the most rapid fire had the smallest stock.

France worked with great energy on production of ammunition. During the first weeks of the war 14,000 rounds per day were produced for the 75-mm. gun. On September 15, 1914, the commander-in-chief called for a daily quota of 40,000 rounds, and this was finally increased by order of the minister of war to 100,000 (Herr, p. 63). Results were much smaller in Germany. According to Wrisberg (p. 81), the deliveries demanded during 1914 averaged 200,000 rounds per month for the field gun, or 7000 per day; for the heavier guns, correspondingly less. From October on, the deliveries demanded were 15,000 per day for the field gun; from December 21st, 42,000 rounds per day.

Expenditure, especially on the French side, far exceeded even the high estimates based upon the East Asiatic War. In the six days' battle of Champagne, September 22–27, 1915, the expenditure was as follows:

1,387,370 rounds for 1100 75-mm. guns, or over 200 rounds per gun per day.

295,800 rounds for 872 heavy guns, or over 50 per gun per day.

On July 1, 1916, the day of the main attack on the Somme, the expenditure was:

75-mm., 270,000 rounds, weighing 2700 tons.

Heavy guns, 80,000 rounds, weighing 4000 tons.

Trench mortars, 30,000 rounds, weighing 1200 tons.

To transport this ammunition supply for a single day required

## ARTILLERY STATISTICS FROM THE WORLD WAR

27 trains of 30 cars each. It was in this battle that the great wastage of guns, detailed above, occurred.

At Verdun, July 13–27, 1916, about 3,000,000 rounds of 75-mm. ammunition were fired, and 1,000,000 rounds of heavy shell, weighing in all 120,000 tons, or 6000 kilograms of steel for each running metre of front. For the great attack in the spring of 1917, which the French hoped would decide the war, there were provided 24,000,000 rounds of 75-mm. ammunition, or 12,000 per gun—almost ten times the total stock at the beginning of the war—and 9,000,000 for the heavier calibres, or 4500 per gun (Herr, p. 77). How much of this was fired does not appear.

For the German expenditure, I find statistics only for Verdun. According to Wrisberg (pp. 83, 99), in the 90 days from March 21 to June 20, 1916, the expenditure was:

9,000,000 rounds for light field artillery,  
6,400,000 rounds for heavy field howitzers,  
700,000 rounds for 21-cm. mortars,  
735,000 rounds for 10-cm. guns,  
58,000 rounds for 13-cm. guns,  
64,000 rounds for other calibres.

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Total, 16,957,000 rounds, or about 190,000 per day.

This immense expenditure indicates not only rapid fire, but great number of guns. This number increased steadily during the war. The French figures are as follows:

Champagne, 1915; 1100 75-mm. guns, or 1 per 32 m. front.  
872 heavy guns, or 1 per 40 m. front.  
Artois, 1915; 500 75-mm. guns, or 1 per 30 m. front.  
400 heavy guns, or 1 per 36 m. front.  
Somme, 1916; 444 75-mm. guns, or 1 per 34 m. front.  
645 heavy guns, or 1 per 23 m. front.  
360 tr. mortars, or 1 per 42 m. front.  
Aisne, 1917; 2000 75-mm. guns, or 1 per 20 m. front.  
1947 heavy guns, or 1 per 21 m. front.  
1650 tr. mortars, or 1 per 25 m. front.  
Verdun, Aug. 20–26, 1917:  
948 75-mm. guns, or 1 per 18 m.  
front.  
1384 heavy guns, or 1 per 12 m. front.  
247 tr. mortars, or 1 per 69 m. front.

In all, during the counter-attack from Verdun, there was one gun to each 6.5-metres front. Even stronger in proportion was the artillery at Malmaison in October 23, 1917, where 624 75-mm. guns, 986 heavy guns and 270 trench mortars were employed against a

## THE FIELD ARTILLERY JOURNAL

front of 10 kilometres—one gun or trench mortar for each 5.3 metres front. General Herr calculates that if the carriages—guns, limbers and caissons—had been placed hub to hub they would have covered the entire 10 kilometres front without interval.

On the German side, we have accurate information only for Verdun, February 21, 1916 (*Artilleristische Monatshefte* for May, 1922). On the right bank of the Meuse, on a front of 38 kilometres, there were 338 field guns, or 1 per 113 metres front, and 543 heavy guns, or 1 per 65 metres front. On the left bank, on a front of 21 kilometres, there were 182 field guns, or 1 per 115 metres, and 321 heavy guns, or 1 per 65 metres.<sup>3</sup> Thus the French attacks were always prepared by a greater number of guns.

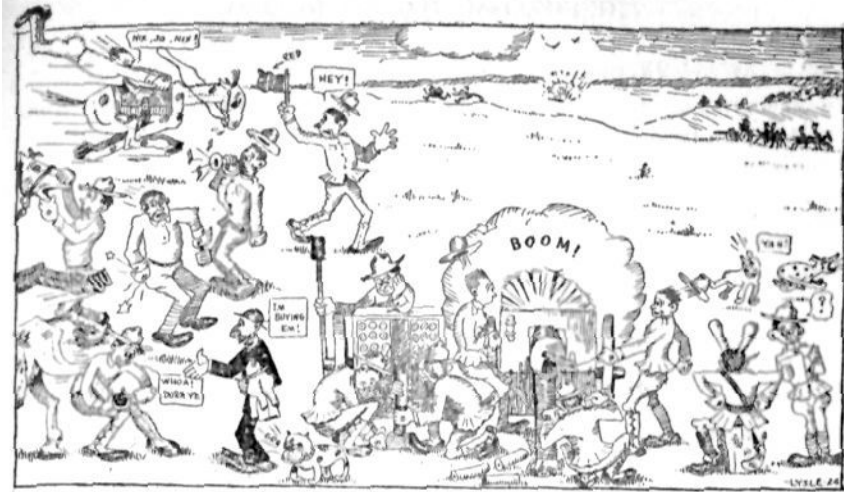
The great ammunition expenditure of the French is explained also by the greater length of their preparations. The Germans counted more upon surprise, and hence made the preparations short. Thus at Riga, September, 1917, their preparation continued 5 hours; on March 21, 1918, 5 hours; May 27, 1918, 2 hours, 40 minutes; June 9, 1918, 3 hours, 45 minutes; July 15, 1918, 4 hours. In the Champagne, 1915, the French preparation was 3 days; Somme, 1916, 7 days; Verdun, October, 1916, 3 days; Verdun, August, 1917, 7 days; Aisne, 1917, 5 days; Flanders, 1917, 16 days; Malmaison, 1917, 6 days.

Unquestionably, in spite of its short duration, the German preparation was the more effective, for none of these attacks could compare for success with those of the spring of 1918. It seems strange, therefore, when General Herr (p. 92) accounts for the difference by saying that the French artillery "disliked the rough, inelegant and wasteful German firing methods, inconsistent with the French preference for moderation and accuracy; besides, these methods could not have been used, on account of the limited capacity of the iron works." I do not know whether this can be taken as an accurate statement of the firing methods on the two sides. If it is, I can only say that in war, effect is more useful than elegance. I have always supposed heretofore that the French contented themselves with a rougher adjustment than the Germans—witness the *tir progressif*. But if the extreme effort of the French for close shooting was really the cause of their poor effect, that can only mean either that they mistook their targets, or else that their adjustment was false. In either case, it warns us not to be too confident of the accuracy of our adjustments.

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<sup>3</sup>It will be noted, however, that this was an enveloping attack, where the front of the batteries was very much greater than the front of the targets.—TRANSLATOR.





## A Comic History of Yale

BY FAIRFAX DOWNEY, '16.

ILLUSTRATED BY J. C. LYSLE, '16 S.

### ELEVENTH CANTO

#### YALE BLUE GOES WELL WITH ARTILLERY RED

##### I.

Since the days when the Maine  
Was remembered by Spain,  
Our campus had not been a warlike  
terrain.  
But came a tall soldier yclept Major  
Danford,  
Who blew on a bugle and ordered each man  
f'ward.  
"To arms! that is, cannon, to quell this  
disorder  
That's being kicked up on the Mexican  
border."  
With issue of ordnance and odd size  
O.D's,  
There sprang into being the Yale  
Batteries.  
Though set like our forebears to chase Santa  
Anna,  
We fought all our battles at Camp  
Tobyhanna.

##### II.

"T was there that we took a post-graduate  
course  
In acting as male chambermaids to a  
horse.  
We groomed noble steeds with the glanders or  
pip—

Such boneracks we'd hang campaign hats on a  
hip,  
And dust between ribs with a long-handled  
brush,  
And fly from their hoofs in a desperate rush.  
A lean Rosinante  
The U. S. would ante,  
Was on its last legs, its remaining days  
scanty.  
Those nightmares would die of a swollen  
esophagus,  
And details would dig them a deep stone  
sarcophagus.

##### III.

We learned in the army, you're sworn in, then  
sworn at,  
And once in the thing, you can't get out, and  
that's that.  
We noted that officers are given to spleen  
And apt to take on like an embryo Dean.  
We found that with cannon, it's well to stand  
clear,  
Since they shoot in the front and kick back in  
the rear.  
Each vowing to kill a  
Companion of Villa,  
We drank his confusion in sarsaparilla.  
Then like the French king with his forty thou'  
men,  
Having marched up the hill, why we marched  
down again.

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### IV.

But in '17,  
Again on the Green,  
Squads east and squads west are the usual  
scene.  
And former Yale gunners, now gladder and  
wiser  
They'd minored in Villa, all major in  
Kaiser.  
School quits. Poor students who'd never  
deserve a  
Diploma get one through old Mars, not  
Minerva.  
Those who through chapel were want to  
sleep heavily,  
Snap out of bed at the first notes of  
reveille.  
Wandering round all the Latin profs go,  
Murmuring, "*Arma virumque cano.*"

### V.

And so when the caissons went rolling  
along.  
There's many a Yale man that knows well the  
song.  
Full oft a barrage  
*On the foe's camouflage*  
Was fired by an Eli, *qui n'a pas grand age.*  
And many at sea,  
Or in infantry,  
Fought on with their buddies in artillery.  
Thus called by a country in need of her  
sons,  
There came—and will ever come—Yale and  
the Guns.

—From *The Yale Alumni Weekly.*

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## TRAINING OF FIELD ARTILLERY C. M. T. C.

BY CAPTAIN WILLIAM P. BLEDSOE. F.A.

THE purpose of this article is to cover the training of a field artillery C. M. T. C. unit as laid down by the General Staff. Certain ideas will be advanced as to how this may best be carried out, these ideas being based on a very limited experience of one year's training as battery commander of a C. M. T. C. battery.

Citizen's Military Training Camps are established under authority of section 47d, National Defense Act, as amended by the Act of June 4, 1920. The objects of these camps are as follows:

To develop closer national and social unity by bringing together young men of all types, both native and foreign born; to teach the privileges, duties, and responsibilities of American citizenship; to stimulate the interest of the youth of this country in the importance of military training as a benefit to the individual taking such training and as an asset vital in the problem of national defense.

To show the public by actual demonstration that camp instruction of the kind contemplated will be to the liking of their sons; will develop them physically, mentally, and morally, and will teach them Americanism in its true sense, thus stimulating patriotism and self-discipline and resulting in greater national strength, both civil and military.

## TRAINING OF FIELD ARTILLERY C.M.T.C.

To better qualify young men for effective service as American citizens and as private soldiers, noncommissioned officers and officers in some component of the Army of the United States without any prerequisite obligation to enter such Army service upon completion of the course.

Young men physically fit, of good moral character and average intelligence are eligible to attend these camps. As far as practicable they are allowed to select the branch of service they desire.

Classification of courses for field artillery are as follows: The Advanced Red Course, the White Course and the Blue Course, each for a period of thirty days. No Basic Red Course is prescribed for the field artillery, as all candidates are required to have completed this course, which is given by the infantry. The advisability of such procedure will be discussed at a later time in this article.

The purpose and qualifications of the three courses in the field artillery are as follows:

The Advanced Red Course is to train the candidate as a private of field artillery. He must have completed the Basic Red Course or have had an equal amount of military training to enter this course.

The White Course is to train candidates as noncommissioned officers capable of training recruits in duties of privates, and of leading them in active service, or as specialists capable of performing the technical duties required of them. They must have completed the Advanced Red Course or have had equal military training to take this course.

The Blue Course is to qualify candidates who have completed the White Course or who have had military training equivalent thereto, for service as second lieutenants of the Officers' Reserve Corps. The candidate must be an enlisted man in one of the components of the Army, must have a high school education, and the personality, appearance, tact, bearing, and general adaptability which will fit him, after further training of one month in the Blue Course, to be an officer. The candidate may be given the opportunity to continue the course for one or more months, successive years, if judged not qualified at the completion of the first course.

Attached herewith is the C. M. T. C. field artillery program for 1924, showing subjects and hours devoted to each, for each course.

Each of the subjects will be discussed in detail and methods suggested which may be helpful in carrying out the training. All instruction is based on the following procedure: 1. Tell Them. 2. Demonstrate to Them. 3. Have Them do It.

# THE FIELD ARTILLERY JOURNAL

C. M. T. C.

## FIELD ARTILLERY PROGRAM FOR 1924

|  | Advanced    |               |              |
|--|-------------|---------------|--------------|
|  | Red<br>Hrs. | White<br>Hrs. | Blue<br>Hrs. |
| Physical Training .....                              | 12          | 12            | 12           |
| Citizenship .....                                    | 3           |               |              |
| Hygiene, First Aid, etc. ....                        | 3           |               |              |
| Battery Dismounted .....                             | 4           | 4             | 4            |
| Instruction of the Gunner and Cannoneer .....        | 20          | 8             |              |
| Pistol Marksmanship .....                            | 8           |               |              |
| Equitation and Horsemanship .....                    | 20          | 20            |              |
| Care of Animals and Matériel, Hippology .....        | 6           | 17            | 12           |
| Motor Transportation .....                           |             | 7             |              |
| Driving and Draft .....                              | 14          | 16            | 8            |
| Field Work and Service Practice .....                | 30          | 30            | 36           |
| Reconnaissance and Communications .....              |             | 10            |              |
| Topography and Orientation .....                     |             |               | 18           |
| Supervised Study .....                               |             | 12            | 20           |
| Administration .....                                 |             |               | 4            |
| Field Gunnery, Firing Data and Conduct of Fire ..... |             |               | 42           |
| Total Hours .....                                    | 120         | 136           | 156          |
| Hours per day .....                                  | 5           | 6             | 7            |

### ADVANCED RED COURSE

*Physical Training.*—The Koehler System gives most satisfactory results. Begin with simple movements, always demanding snap and precision throughout the period. This standard can always be maintained if the periods are short and no one exercise is continued for too long a period.

*Citizenship.*—The ideas to be set forth are laid down in Training Manual Number 2. In addition to this, it is believed that this is an ideal time to give the candidate the proper conception of the Army, what it stands for, and its real cost per capita.

*Hygiene, First Aid and Prevention of Diseases.*—This is a subject for the medical officer. It is covered in T. R. 113–5.

*The Battery Dismounted.*—This covers the normal dismounted battery formations and manœuvres as laid down in drill regulations. Precision and snap must predominate in these drills. It requires an officer well versed in dismounted drill and one who is an excellent drill master. After the battery has become fairly proficient, the Blue candidates should be placed in command, particular attention being given to the manner of giving commands. Great care must be exercised in the time the candidate is allowed to drill the battery. It is best to allow him only short periods in command, followed by the regular officer, in order that the drill may not drag.

*Instruction of the Gunner and Cannoneers.*—This covers all duties of gunner and cannoneers, nomenclature and function of

## TRAINING OF FIELD ARTILLERY C.M.T.C.

matériel, interior guard duty. T. R. 430–15 should be issued to all candidates and every encouragement offered them to study it. It should be gone over and explained very carefully, special emphasis being laid on duties of cannoneers with carriages limbered and unlimbered, also their duties in limbering and unlimbering. The greater part of the time must be devoted to duties of gunner and individual cannoneer. Demonstrations should be given with a well-trained regular gun squad and the duties of each explained as they are performed. Then place them under enlisted instructors until a working knowledge of the duties of all cannoneers is gained. At this time standing gun drill should be begun, having the regular instructor near to see that all duties are accurately performed, as accuracy is of greater importance than speed to begin with. Speed will come with the field work.

The instruction in nomenclature and functioning of matériel must be expressed in simplest terms possible, with the matériel always present so that the parts and their function may always be seen. Special emphasis being placed on oil holes which are oiled daily, proper amount of oil during firing, swabbing the gun during firing and the cleaning of it after the day's firing.

*Pistol Marksmanship.*—Reference, Document 1050. This includes nomenclature, care, functioning and firing. Not more than two hours can be devoted to nomenclature and care of the pistol. Three or more hours should be devoted to the manual of the pistol and trigger squeezing. Men must not be allowed to go on the firing point until they are familiar with the working of the pistol and have been carefully instructed as to the safety precautions necessary to avoid accidents. Very excellent results may be obtained in the three hours left for the firing point, if it is well coördinated. Many men will desire to continue their shooting Saturday afternoons and it should be encouraged and arranged for, as many men have opportunities to continue the work at home, which adds interest to this work.

*Equitation and Horsemanship.*—Reference, T. R. 50–45. The success of this work depends to a large extent on the instructor. His first great mission is to instill a love of the horse into the candidate. Until this is accomplished, he cannot teach the man much about riding. He must adjust the man to the horse, ever mindful of the fact that these men have seldom if ever been on horses and are fearful of the horse or easily made so. As much time as possible should be devoted to saddling and unsaddling, as this enables the man to become acquainted with the horse. The periods, at first, must be short and the requirements simple, never allowing the man to become sore. After they have had sufficient instruction to begin to like it and some show a desire to ride during holidays and Sundays,

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arrangements should be made to send them out under a competent horseman of the battery, either an officer or a noncommissioned officer. If these men are to be of the greatest value to us, the officers must be willing to give their entire time to instruction after hours as well as during hours. This is a very short time to try to teach anything of riding, and all desires on the part of the candidate to learn more should be followed up.

*Care of Animals and Matériel—Hippology.*—The test of a man's love for the mounted service is the care he gives his horse and equipment. We have only twelve thirty-minute periods to devote to this subject. Here the best results may be obtained by devoting the first two periods to demonstrations, by regulars. As they groom by detail, explain each movement and the parts covered. The grooming should always be done by detail, followed by careful inspections. This leaves two hours for care of harness—one hour to devote to demonstration and one hour for them to do the work. The matter of greatest importance to this group is the proper cleaning of the bits and collars.

Hippology can best be taken care of during rest periods at equitation or driving and draft, the main parts of the horse being pointed out to them. Special care is taken to point out the parts that the harness come in contact with and the importance of the proper fitting of the harness.

*Driving and Draft.*—Reference, T. R. 430–75, 430–80. As much time as possible should be devoted to equitation before the work in driving and draft is begun, in order that the man may have confidence in handling one horse. After a couple of demonstrations of harnessing and unharnessing, the candidates should be required to do the work under the close supervision of the regular driver.

The greater part of the instruction should be devoted to the driving of the pair and the team, without the carriage. All the movements of the battery mounted can be gone through during this work. They must be able to handle the pair before they can accomplish much with the carriage; they will get a great deal of experience handling the teams hitched during field exercises. The time devoted to driving with carriages hitched, should include starting and stopping and a few simple turning movements.

*Field Work and Service Practice.*—This includes marches and march discipline; care of animals on the march; camps and bivouacs; occupation of positions; changes of positions. The candidates act as drivers and cannoneers. This period is for putting into practice the theories taught during the greater part of the thirty days' period. By careful supervision and reiteration, the more important ideas will be permanently instilled into their minds.

## TRAINING OF FIELD ARTILLERY C.M.T.C.

### THE WHITE COURSE

The principles applied with the Advanced Red Course are to be followed with this group. I do not believe that these men should be used and specially instructed as noncommissioned officers, until they have had a review of the general duties of a private. During the field work and service practice they should perform the duties of noncommissioned officers.

Since the work of the two groups is so very near the same and it is believed that the principles laid down for the Advanced Reds should be applied with these, only three of the subjects will be taken up here.

*Instruction of Gunner and Cannoneer.*—Reference, T. R. 430–15. The first part of the course should be devoted to a thorough review of the duties of a cannoneer, with a great deal of standing gun drill. This part is followed by teaching the duties of a gunner and chief of section. During the last part of the instruction the candidate fills these places and also on the field exercises. Accuracy is the first principle to teach the gunner, speed will come with practice.

*Reconnaissance and Communication.*—Reference, T. R. 430–155. The purpose of this course is to train noncommissioned officers and specialists for the detail. Much of this time must be taken to teach the members the duties of the specialized personnel of the detail, working of the instruments, simple 100 per cent. test of the telephone, and switchboard, and the repair of wire. One-third of the time is devoted to the actual carrying out of the duties of the detail, in well-planned problems. The first problems should be conducted in a small area, in order that the instructor may keep in touch with what is going on. One or two problems covering the territory usually covered by a battery in war time should be carried out before the field work begins. Every effort must be made to find out which men have had technical training, these men being of especial value on the detail.

The time allotted to motors will, in most cases, be allotted to detail work. This time can well be used in the laying of telephone nets and the more detailed study of the instruments and their working. Also the training of instrument sergeants might be begun.

### THE BLUE COURSE

Before the work of this group is discussed, I shall advance the idea that the field artillery C. M. T. C. should be for the sole purpose of training noncommissioned officers and specialists, all to be enlisted in the Reserve of the Field Artillery. Let the work of the R. O. T. C. be to train reserve officers. It is not possible to train the brightest of these men to be officers, in the time allotted.

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If it were possible to give these candidates four months' consecutive training, then they might be fairly well trained. As it is, the best of them go through with satisfactory grades, yet when they come up to take their examination for commissions they fail, the result being much dissatisfaction. If all the time were devoted to training noncommissioned officers and specialists, a satisfactory completion of the course would be possible. Furthermore, the great majority of these candidates are high school students, and finish the course before they have reached the mature age at which they may be properly judged as to whether they are of officer material or not. By the time they would have completed the R. O. T. C. they would be of sufficient age to allow a fair estimate of their ability.

In the following instruction, physical training, the battery mounted and the battery dismounted, the Blue candidate should be placed in command for short periods. He must be trained to know what to expect in training and how best to accomplish this end. Special attention is given to his method of command and general bearing while conducting the drills. Some time should be devoted to the two above-mentioned subjects before he is allowed to give commands, in order that he may have gained confidence in his ability to conduct the drills.

The following is a discussion of the more important subjects of this course:

*Field Gunnery, Firing Data and Conduct of Fire.*—Reference, T. R. 430–85. In field gunnery, time should be allotted, both for study of the theory and for demonstration of its practical applications. Conduct of fire may best be taught on the blackboard, with the terrain board and smoke bomb and by demonstrations of principles by firing the guns.

If anything is to be accomplished in this work, the instructor must have a thorough knowledge of the subject, be able to pick out the fundamental principles of fire and possess unending patience. Careful study should be made of T. R. 430–70 which should be followed to the letter. Nothing other than axial, time bracket, and percussion bracket should be taught. Problems should be fired by the instructor in which each point that may arise and each step is carefully explained. These candidates have several hours devoted to supervised study and the most of the time must be devoted to the study of T. R. 430–70 and T. R. 430–85.

*Topography and Orientation.*—Reference, T. R. 430–155 and Topography for Field Artillery, to include map reading, making of maps and the topographical work required of the battery and battalion orientation officer. A part of the time must be devoted to theory, though the sooner the practical work is begun the greater will be the accomplishment of the candidate. The most important points to be



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covered are as follows: road sketches, panoramic sketches, location of points, selection of battery positions and observation posts.

*Administration.*—This includes the operation of the battery mess and the handling of and accounting for the battery fund; also the methods of handling men and action allowed by the Manual of Courts Martial. These candidates should be taken on all inspections of the battery, every effort being made to give them the proper conception of a fair standard of efficiency to expect from the different departments of the battery. They should be impressed with the fact that they must always be fair in dealing with men, but firm throughout these dealings.

*Field Work and Service Practice.*—This includes marches and march discipline; supervision and care of animals on the march; camps and bivouacs; reconnaissance and occupation of positions; changes of positions; use of special details; tactical employment of the battery; observation of service practice. Students of this course considered qualified should each be given an opportunity to fire one problem. Throughout this time they should be acting in the capacity of officers, being placed on their own initiative as to solving problems that arise. All this must be under the closest supervision of the regular officers.

### CONCLUSION

It is believed that a higher degree of efficiency would be reached in the training of field artillery C. M. T. C. if (1) those desiring training in field artillery were given to the field artillery for the Basic Red Course. Much of this first month is devoted to the manual of the rifle and movements only applicable to the infantry, which could be used to better advantage with a field artillery unit. Let this month be one of instruction for the recruit of field artillery. (2) There should be one commanding officer for the C. M. T. C. battery and the regular battery, the regular battery being the parent organization. (3) Last but not least the C. M. T. C. should have one idea in view, namely, "training of all candidates as noncommissioned officers and specialists."

# THE SAGE OF THE MOUNTAIN ARTILLERY

BY CAPTAIN RALPH HIRSCH, F.A.

MIDNIGHT and moonlight, and the sentry at the post of the stables was on the far side of the battalion, his lantern moving in and out among the posts of the corral fence, like an elusive fire-fly. A tropical moon, riding high above the venerable head of old Piño Tubo had transformed prosaic sheds of tin and timber into royal stables of marble and silver. The enchantment of the scene held me enthralled, until I was rudely recalled to mundane things by the rattle of halter chains. Thus returned to a realization of my duties, and thinking to intercept the sentry, I slipped through the wires of the fence and on rubber soles, noiselessly made my way along the row of stalls to the passageway which led to the opposite side. While I was yet in the passage there came, above the contented munching of sleepy animals, a cough. A dry rasping cough that called to the mind extended jaws and heaving sides. There was nothing particularly startling in the cough itself, but that which followed caused me to freeze in my tracks. I crouched behind the manger, taking advantage of all the meagre cover it afforded.

As I have said, there was nothing so unusual about the cough as to perturb me, for it was an ordinary picket line cough such as you have heard time after time when some battery mule has tried to gain your sympathy after a bit of rough going. It was not the cough, but four words which pulled me up so short. Four words spoken in English. Rough and hoarse perhaps, but nevertheless easily understood.

"Drat this Filipino chow!" And the cough again.

I peered around the edge of the manger in the direction whence this voice had come. Enough of the light from the moon entered the low stable building to enable me to see all objects. No one; just mules. Mules and perhaps a horse or so, but at least no one who could have made that startling exclamation. Immediately, as in contradiction to this premature conjecture, the same voice repeated a like sentiment, and continued.

"Dern this stuff anyway. As if it ain't enough to soldier over here in these here Islands for twenty years without being made ter eat this outlandish grub."

Another look from my observation post convinced me that I was the only human in the immediate vicinity. Audible exchange of words between animals I had never considered seriously; yet do

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we not have the word of no less an authority than Kipling, that animals do express their thoughts and carry on conversations among themselves? It is not given to every man the chance of being an earwitness to such phenomena, and congratulating myself on my wonderful luck, I crouched still further into my place of concealment and concentrated my every faculty on listening. I was soon rewarded. Being apprehensive of disclosing my presence, I relied almost entirely on my ears, so I can only tell you what I heard.

"Rice and cocoanuts. Huh, I suppose if we had gone to Chiner to chase them bandits, we would have ter eat chop suey with chop-sticks."

Several snickers and much rattling of halter chains followed this remark. And a new voice, rather querulously, said: "Well, don't kick. For my part I would just as soon have it as some other. It isn't the kind I object to, it is the quantity."

"Quantity, what quantity?" a third voice testily asked. "What do you mean, Offset? The quantity that was fed us today, yesterday or last week? This sliding scale of rations has just about ruined my stomach. Not very large at the best, it has had to expand and contract like those toy balloons that are sold at the circus. Just about the time I get used to a small ration the battery commander makes a little longer march than usual and up goes the scale; and my poor old stomach has to work overtime."

"Your own fault, 'Lambre, you don't have to eat it all."

"Well, if I don't eat it all, the stable sergeant comes along and looks at me in surprise and examines my teeth. Maybe he will want to file 'em and you know how I hate that."

From my knowledge of the animals in the battery I knew the principals in the foregoing conversation to be Offset and Alambre, the instrument and wire mules of the special detail.

"Speaking of filing teeth, have you ever observed how these Balugas file their teeth to a point?" asked Offset. Offset, being in the battery commander's detail, had been trained in observation.

"Ugh! Don't talk about them niggeritos to me," lugubriously remarked a voice which up to this time had taken no part in the conversation. "It reminds me of poor old George. Best lad in the battery and so big hearted he would give the aparejo off his back to a friend. It wrings my heart and fills my eyes with tears whenever I think about it. Healthy and happy that morning, he was, when we started out for Pombato. It was certainly a shock to me when the word was passed along the picket line that he was dead. Remember, he fell into that ravine and broke his neck. Wedged in between the sides of the ravine he was. And the next day, when they went back to see him, them niggeritos had stripped him from teeth to tail. Yes sir, nothing left but his bones and mighty few

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of them. It gives us old-timers something to think about when they heat up the IC brand."

A silence broken only by a few sighs was maintained until Alambre, who was by nature and training a most conversational person, could stand it no longer. "Error," he enunciated carefully. "Error-r. It is not niggerito but negrito."

"Why ain't it?" responded Backfire argumentatively. It was Backfire I knew, because he had constantly been the late lamented George's companion. "These here Spanish always put 'ito' on the end of a word when they mean little, and if them niggeritos ain't little niggers I was not born in Mississippi."

A chorus of raucous noises, vulgarly known as horse-laugh, greeted this. Be it as it may, it apparently had given them all food for thought, for they chewed reflectively for a while. I had just decided that the conversation was at an end and started to leave when Offset, the instrument mule, began talking.

"We pack mules might as well be resigned to whatever Fate has in store for us. In a few years there won't be any pack artillery or trains, and some of us will be in front of a calesa siggying up and down some barrio street. Horses, tractors and trucks; mostly tractors. They seem to have the stage today. Not enough pack artillery in the Army today to give the officers a speaking acquaintance with it. Telling the horseshoer to 'change the tire on the right rear' when your off-hind needs shoeing and always referring to us as the 'limbers'."

"Yes," put in Backfire, "I was sore at the battery commander for a long time until Tape, the bugler's horse, who has served in the light artillery, wised me up. I thought he was talking about my ears." Backfire possesses ears of extraordinary length that flap up and down at every step. He was extremely sensitive about his ears.

"As I was saying," pointedly continued Offset, "the sun of pack artillery is setting. The sweet music of the bell along the trail will soon be heard no more. Throwing the diamond is fast becoming a lost art and the pack mule will only be seen in the museum alongside of the stage coach of Buffalo Bill and the others." This seemed to release a long pent-up explosion in the breast of one individual. It manifested itself in a loud "Bah!" It discouraged Offset from further dissertation upon the subject and left the floor to the volcanic one. Such a voice. Deep and vibrating with emotion. At the risk of being seen, I sought to learn the identity of its possessor. Standing apart from the other mules, his dignity and bearing attested to his age and sagacity. It was Old-timer, a veteran in the pack service. He had come to the Islands in the early days of the Empire. Even then, with many years of service to his credit, his actual age had been a much mooted question. The passage of years, and strenuous

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ones they had been, had left no mark upon his shiny black coat. His teeth, although still serviceable, said "over twenty-five." Of late, however, a change had come over him. Eating but little, he would stand quietly on the picket line or in his stall and gaze into the distance. "A touch of the heat," the vet had said and the Scouts showed a decided reluctance to go near him. But let me tell my tale.

Old-timer evidently enjoyed the respect and deference due old age as all became attentive as he remarked: "I do not care to enter your frivolous discussions, and it is only when your remarks show such a profound ignorance of the subject, am I tempted to do so. Perhaps you are not to be censured too severely, for you are but expressing the spirit of the time. There is too much a tendency on the part of the present generation to discard the old and reliable in favor of something modern. 'Off with the old and on with the new' is considered a battle-cry of progress. To say that 'it was used by our fathers' is enough to condemn a thing in the eyes of these disciples of modernity. I do not wish to be recorded as being against progressiveness, or to be called an old foggy. Any one conversant with the history of civilization could not in justice accuse a member of our noble profession of being an obstructionist. The idea I wish to convey is this—too often are the possibilities of the thing in our possession overlooked and this thing discarded in favor of something new, only to find that we must return to the old. I sincerely believe that this is directly to blame for the ever-increasing expenditures of nations and persons; and indirectly responsible for the incompatibility of incomes and the high cost of living. Please pardon me if I appear to be didactic. But let us avoid further generalities and particularize. In this period of one-day cross-country flights and bedtime broadcasting, the unspectacular is liable to be overlooked. Since the beginning of time the mule has carried a load on his back in the service of man. Even in those early days when some prehistoric inventor knocked the corners off of his square stone wheels and discovered that his cart consequently rolled with less effort, it was thought that the pack mule had no further use. But despite this wonderful innovation in transportation, centuries later the use of the pack mule was found to be universal. The subsequent introduction of wagons, railways and trucks has yet left the pack mule something to do. On the mountain trail he is still king. So, therefore, I wish to warn you children against giving utterance to such half-baked theories as our friend Offset has expounded."

Offset, being somewhat of a talker himself, found this rather long and dry discourse tiresome and the use, by Old-timer, of the term children, irritating. He did not consider himself a recruit in any sense of the word.

"What is your age, Ancient?", he asked.

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"Age?" thundered Old-timer. "I am ageless. I was with Alexander the Great when he attempted to knit the world into one empire; I crossed with Cæsar over into Gaul. In the service of France in Canada and of the English in the United States, I carried on my back the tools and supplies that created great nations. In all parts of the world where great works of man have been wrought I have been present at the conception and the realization. Conquest of mountains has been my task down through the ages and by the Shades of Uncle Dick Closter, do not mountains still stand? Boats on the water, airplanes in the air, carts and motors for the highways, but what of the steep, narrow trails that wind and twist themselves through mountain ranges? The field for our activities may be narrowed, but the necessity for those of us who remain is not lessened and some day who knows, who knows——" Old-timer's voice trailed off into a meaningless mumble.

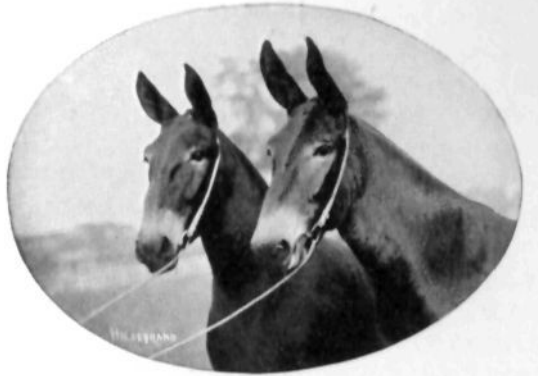
"Tell us, Old-timer, what do you see when you stand and look off into the north?"

In a slow monotone, slightly reminiscent of mediums and palmists, Old-timer answered: "I see a cold, bleak desert of shifting red sand and deep-rutted roads. I see mountains rising above this desert, mountains craggy and cruel. Down through a pass in these mountains rushes a yellow torrent, submerging and destroying as it comes. I see a vast host of our brethren along the steep trails toiling like ants. Their labors are not in vain, for there is seen to rise a stalwart dam of white stone which is slowly throttling the deluge."

"Too many boats," said Backfire flippantly, flashing a meaning look at Offset. The sound of footsteps warned all of the approach of the sentry.

Feeling that I had heard the last of the conversation, I abandoned my hiding place and inspected the sentry.

On the following day the stable sergeant reported that Old-timer was dead. He had been found lying on the floor of his stall by the stable police, his head on a bit of straw. At first, because of his eyes, they had been misled into thinking that he merely rested. Unclosed and unglazed by death, they were looking into the north with a steady and earnest gleam.



ON THE MOUNTAIN TRAIL HE IS STILL KING



MAJOR-GENERAL ERNEST HINDS



# GRADUATION ADDRESS TO THE CLASSES AT THE FIELD ARTILLERY SCHOOL, JUNE 14, 1924

BY MAJOR-GENERAL ERNEST HINDS

GENERAL IRWIN, Members of the graduating classes, Ladies and Gentlemen:

First I desire to express my appreciation of the honor General Irwin has tendered me in asking me to address the graduating classes today. I was so fortunate as to be a member of the first Field Officers' Class of the Field Artillery School in 1911, when it was known as the School of Fire for Field Artillery, and I was stationed here during the first three years of the life of the School, so I saw much of its development before the World War. After the war I was Commandant of the School for nearly four years. So I feel that I have had some part in the building up of the School. I enjoyed this work more than any other service I have ever had—and I am still keenly interested in the magnificent work which is being done at the School.

During these years constant progress has been made, so that now every artillery commander wants to have graduates of the School assigned to his organization. Great advances have been made both in technique and tactics. Due to the training of the field artillery officers here, the training of the officers of other arms at their special service schools, and the training of all arms at Fort Leavenworth, a very marked improvement is evident in the technical and tactical handling of organizations in our manœuvres. So in my judgment, the value of the instruction this school is giving to our field artillery officers cannot be overestimated. Within a few years the Regular Field Artillery will have a corps of officers, graduates of this School, the equal of which in suitability for training other field artillery personnel has never been seen in our country, nor will it be excelled elsewhere.

I want to urge upon the graduates of all classes the importance of continuing their studies. The continuance of your technical studies comes about naturally—you need it daily, and you will, of course, prepare yourselves for each day's work—but the pursuit of tactical studies is attended with more difficulties. You are not forced to study tactics every day, but it is necessary for successful troop leading; and it will help you greatly at the Fort Leavenworth school if you will study, not the tactics of field artillery alone, but that of the combined arms as well.

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Some of you go now to duty with troops, some to duty with the National Guard, the O. R. C. and the R. O. T. C. All of these are important duties. It is vitally important to the nation that we do all in our power to develop the citizen components of our army. Should any major emergency arise the Regular Army, as was the case in 1917, will be dissipated largely in furnishing instructors for the emergency forces. Let us keep in mind therefore that we should bend our utmost energies to the successful accomplishment of this task.

To the officers who go to duty with organization of the Regular Army, I would ask you to keep in mind that you have both officers and men to train. In order to have a well-trained organization, you must carefully train your men; but the training of the officers, your subordinates, goes far beyond the organization in its influence. They are our future commanders and instructors of other officers. So do not take over their work because you think they may not do it as well as you, and therefore might not build up as well trained an organization as you can build up yourself. The most successful organizer, the most successful executive, the most successful commander is he who works his subordinates up to the limit of their proper authority. This does not mean that you delegate your authority and exercise no supervision over their work. On the contrary, it is your duty to see that they do their work, and do it thoroughly and efficiently. If you think it could have been done in a better way, point that way out to them. But do not find fault with them for not doing it your way so long as their way will accomplish the purpose. If you do this you will destroy their initiative. In the development of maximum efficiency in the commissioned personnel, it is of vital importance to *develop* initiative, rather than to impair it.

About two years ago I had a most disagreeable duty to perform as a member of the so-called Dickman Board, assisting in the reduction of the commissioned personnel of the Army. In going over the records of the officers—about 12,500 in all—the members of the Board were surprised at the large number of officers who were rated as "below average" in initiative. Of the 16 qualifications listed on the efficiency reports, the average rating in this particular qualification was notably lower than that of any other. Initiative is one of the indispensable requisites for a successful commander. It is consequently clearly our duty to do everything within our power to develop and encourage initiative in both our commissioned and noncommissioned officers. One way to accomplish this is by encouraging suggestion from subordinates as to better ways of securing results. Occasionally a subordinate may make suggestions in a tactless way—and it may become necessary to give him a word of advice as to the proper manner of making

## GRADUATION ADDRESS TO THE CLASSES AT THE F.A. SCHOOL

suggestions. He must keep in mind, of course, that suggestions are welcome but not advice. If the commander possesses the art of managing men, a hint from him will usually be sufficient. The manner of the commander must be such as to create a feeling in the subordinate that suggestions on his part, made in the proper spirit, will not be harshly criticized even though the commander may not always agree with him. In matters of judgment the superior should point out what he considers to be errors and suggest the better solution. But the commander who uses a bludgeon where the subordinate is exercising his best judgment, will never get the best results from his officers. It is better to lead men than to attempt to drive them. The world has advanced beyond men-drivers; we now need men-teachers and men-leaders. A club should be used only where the subordinate knows that a certain thing should or should not be done—and deliberately fails in his duty. Even then it is frequently not best to be harsh when it is the culprit's first offense.

I do not want to be misunderstood in this. In the case of the execution of clearly expressed orders or compliance with well-known standing orders or regulations, the subordinate must be held to a rigid responsibility. In that case, generally speaking, no question of initiative arises—it is merely a question of obedience to orders.

For the most efficient training—and "training" means "teaching"—an indispensable qualification is the ability to exercise patience. Whether those under instruction be officers or enlisted men, whether the work be in the classroom or on the drill ground, makes no difference. Although seemingly paradoxical, there are men of considerable ability who are not quick, and others who are mentally quick who have no real ability. It is our duty to make the most of the talents of each individual—this requires patience. The instructor must consider the slowest, not the quickest, thinker.

Training men in the best possible manner means teaching them in the best possible manner. Teaching means iteration and reiteration—and yet the manner of presenting the various things taught must be varied in order not to weary the men by monotonous repetition. For example, to keep close order drills from becoming monotonous they must be made short and snappy.

Our officers should be expert in teaching. This requires study. Teachers in our schools have their normal schools whose object is to teach them the art of teaching. There is an art in training men and we should study it just as we study other subjects. This should be a continuous study during our entire service. We must be on the lookout for any new ideas that results show us are good.

I suggest to you the following:

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Divide the work among your subordinates, and rotate them in the various duties. Place definite responsibility upon each of them. Inculcate discipline. Usually it can be taught. Every organization commander should give an occasional talk to the members of his command on this subject. Tell them that discipline is the life blood of the military body, and tell them why this is so. Nothing can be accomplished in any coöperative activity without teamwork. That means that there must be a head; whether the work is in a military organization, or in a business or professional office or on the farm, there must be a head and he must be obeyed. Explain to them that the decisions of the commander relieve all others from responsibility—he may not be as able a man as his subordinates, his decisions may not be the best, they may even be poor, but he is charged with the responsibility and the subordinate must loyally and conscientiously carry out the orders he receives. Teach them patriotism, and a high sense of duty. If you have these two things highly developed in your subordinates you will have discipline.

To those who go on duty with the National Guard, the R. O. T. C. and the O. R. C., I recommend that you cultivate the acquaintance of the best citizens of the communities in which you live—and I mean best in its highest sense—the man who has a high sense of duty, who is ready and willing to do whatever lies in his power for his community, his state, his country. Such a man is a patriot, and you need not worry about pacifism in his case. But there are many good people in this great country of ours who have not profoundly studied the questions of national defense and who are being misled by specious arguments. By studying these questions thoroughly yourselves, and by a tactful presentation of logical reasons, you can become an influence for preparedness in the communities to which you are sent.

But this influence must be exercised with tact and judgment or not much good will be accomplished. A short while ago I was asked to make a short talk to a Reserve Officers' Association at a luncheon they were having. I was to speak on any subject that I cared to except National Defense. The delegation who called on me to extend the invitation told me that this was not because they were any less interested than they had been in such questions, but simply, to quote them exactly, "We are fed up on it." So it will not do to talk always on one theme. Quail is good food, but it is claimed that no one can keep up a diet on that alone for thirty days.

As opportunity offers you should call attention to the defects of our National Defense Act. It is far better than anything we ever have had before, but it still has its defects. The Selective Draft Law is no longer on our statute books. It should be made permanent so that when war does come, we can call for men at once without

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having to wait for the reënactment of the Draft Law. There can be no logical objection to its being made permanent because Congress alone can authorize our entry into war and that body will never declare war unless it is overwhelmingly demanded by the sentiment of the nation. Furthermore, provision should be made not alone for drafting men for military service, but for the conscription of labor and national resources as well. A campaign of education is needed to place these questions before the people in the proper light, and the officers of the Army—Regular, National Guard and Reserve Corps—should make it their duty to do so.

There is abundant evidence that a pacifist propaganda is being put forward in this country most energetically. As an example, I saw in a recent press publication a statement that a very prominent official of "The Women's International League for Peace and Freedom"—said in a conference held in Washington, D. C.,—"Women are going to repeal the Army Reorganization Law \* \* \* Act as mugwumps, ladies, vote the Democratic, the Republican, or the Socialist ticket to gain our ends, and do away with the Army and Navy, the National Guard, and every other form of militarism \* \* \*." She was also quoted as saying that there are three ways to accomplish this: "The ballot, passive resistance, and education of public opinion through our propaganda. There is much for us pacifists to do. We must get into all sorts of clubs—women's clubs, farmers' granges, welfare associations. We must get into religious organizations wherever and whenever possible, Chautauquas, schools—everything, and we must send our propaganda everywhere."

Many of these people—probably the majority, are honest in their views, which are based upon a hatred of war. But they do not reason logically. They would resent being told that they are helping the Reds—but I have no doubt there are shrewd, able Reds in this country, who completely under cover, are suggesting pacifist arguments.

Your attention has been called no doubt to a recent movement among our colleges, churches, and certain civic associations which appears to me to be growing to such an alarming extent as to menace the life of the nation. This movement seems to be crystallizing into an effort to influence our churches to take a neutral attitude in case our country should become involved in war, and to induce their members and our young men generally to pledge themselves not to support the government in prosecuting war, however just our cause may be, but to remain neutral and supine in the defense of our country in her hour of need. I am not informed as to the origin of this movement, but my attention has been called to a recent book entitled: "War—Its Causes, Consequences and Cure," by Kirby Page, which has had a large circulation among our clergy, college authorities, women's clubs and peace organizations generally—and

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this book has at least encouraged this movement. In it the author proposes the following action: "Let the churches of America say to their own government and to the people of the earth: We feel so certain that war is now unchristian, futile and suicidal that we renounce completely the whole war system. We will never again sanction or participate in any war. We will not allow our pulpits and classrooms to be used as recruiting stations. We will not again give our financial or moral support to any war. We will seek security and justice in other ways."

Action along these general lines was proposed recently by a committee of over 100 members of the general conference of one of our great churches, our largest protestant body. It was recommended that the church should adopt the policy of taking no part, as a church, in any war, no matter what may be the circumstances. The individual members were to be free to take such action as their consciences dictated; but if a great religious body takes a neutral stand, can it be doubted that its members will be greatly influenced by such action? I am happy to say that this proposition was overwhelmingly defeated by the conference.

In spite of the fact that I abhor war—all men who have seen it do—I sincerely hope that none of our great religious bodies will agree to such a proposition. It would in my opinion be most dangerous to the welfare of our country for any body of people to take a solemn vow that, "we will never again sanction or participate in any war \* \* \* we will not again give our financial or moral support to any war. We will seek security and justice in other ways."

We should seek security and justice in other ways, but we may not thus obtain them, and the issues may be such as to jeopardize our civilization. If other means fail must we supinely submit to injustice and oppression? Had the Belgians and the French sought security in other ways alone, would the invading armies have stopped at the frontiers? Not so, and France and Belgium would have disappeared from among the nations; and a menace to our national life would be threatening us today.

As the nations become more democratic in their forms of government, I believe they are becoming more sensitive to the opinion of the world—and this tends to restrain them from undertaking wars which universal opinion stamps as unjust. But that such opinion will always control the action of governments cannot be hoped for at the present stage of civilization.

Our officers who are on duty with the National Guard, the O. R. C. and the R. O. T. C., and the national guard and reserve officers themselves can exert a wide influence in opposition to this movement. All our combined influence should be brought to bear upon the membership of our great churches, our women's clubs and our civic organizations generally to induce them not to agree to

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a policy of inaction in case of war. There is little probability of our entering upon an unjust war—and if it be just, certainly our churches should not stand aloof, and thus encourage injustice and the oppression that would be enforced by the victorious nation. It seems to me that the downfall of our civilization might be brought about by such a course.

The leadership of our best, our most thoughtful, judicially minded men and women is needed to combat this dangerous and insidious propaganda. Under such leadership we need have no fear that the better judgment of the American people will not prevail. Should the time again come when the question is actually brought home to us as to whether we shall array ourselves against injustice and oppression, or whether we shall go to war in defense of our homes, our women, our children, we can not doubt what the answer will be, no matter how inadequate our preparation may be.

In conclusion I wish to say a word to the ladies:—Men think they govern the world, and in a sense they do, but they do not do all the governing. Since the days of Eve it has been true that women are the power behind the throne. In all ages her influence for good or for evil has been much greater than men have been willing to acknowledge. Fortunately that influence has been exercised mainly for good. The record of older organizations of the Regular Army is one in which we justly take pride. The influence of the women who in the years gone by shared the discomforts and trials of army life on the outposts of civilization, who made homes for their husbands, encouraged and cheered them through the monotony and routine of garrison life, played no small part in the making of that record and in developing the fine spirit of the old army. In no profession, except perhaps in that of the Diplomatic Corps, is the influence of the wife so marked as in the army. She can help her husband tremendously in attaining success or she can impair his usefulness and thus injure his career. In future the influence of the army wife will be more marked than it has been heretofore, because the greater part of the time our officers will be on duty at colleges, or with the National Guard and Organized Reserves, where her tact and adaptability will be even more essential than in an army post. The impression we make upon our civilian associates while on such duty will make friends or perhaps enemies for the Regular Army. The time will doubtless come again when we shall need to be in some state of preparedness for national defense. Without an adequate Regular Army to train the other components we cannot even be partially prepared, and our country will suffer.

So I ask of the ladies their continued hearty coöperation, without which our greatest power of accomplishment is not possible. With their help we can attain it.

# COUNTER-BATTERY IN THE ITALIAN ARMY DURING THE WORLD WAR

BY MAJOR J. M. EAGER, F.A.

WHEN Italy entered the World War in May, 1915, her drill and combat regulations covered the subject of counter-battery both from a tactical and technical point of view. The then existing doctrines and regulations concerning the tactical part of counter-battery work were well known to most artillery officers, but the technical training along these lines was possessed by only a very few officers who had had occasion to study and apply the regulations while actually serving with siege artillery.

At the beginning of hostilities the Italian Army was not well prepared to deliver effective fire on the hostile artillery. This was chiefly because nobody thoroughly realized how difficult it would be accurately to locate and paralyze the enemy's batteries.

Naturally the need of efficient counter-battery was first felt by the infantry, which constituted the chief and almost the only targets of the skilful Austrian artillery. The headquarters of the Italian large units were soon hard at work trying to devise remedies for this situation. By August of 1915 the VI Corps had reached the conclusion that the solution of the counter-battery problem lay in applying the instructions given in the Siege Artillery Regulations and in increasing aerial observation. From this point on, the methodical organization and training in counter-battery along correct lines extended throughout the army, but often with deplorable slowness.

The initiative and push behind counter-battery work came from the various corps and army commands rather than from the "Commando Supremo," as the Italian General Headquarters is called. The latter, in fact, was somewhat of a hindrance to proper counter-battery organization until the end of 1917. However, in the reorganization after Caporetto, the Commando Supremo built up a counter-battery organization which not only won the struggle of artillery supremacy from the Austrians, but which also enabled the Italian infantry to capture and hold whatever positions they needed.

An examination of the orders, war diaries and other documents of the Italian Armies in 1915 discloses several interesting points in the counter-battery situation during the battles along the Isonzo. It was found that the Italian infantry by paying an exorbitant price with its blood was always able to capture, or at least partially capture,



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its objectives. Very frequently, however, it had to abandon the positions for which it had paid so dearly, even without being counterattacked, because these positions were swept by violent and carefully adjusted fire from the Austrian artillery. Thus it was not the defender's infantry behind wire entanglements, but it was the attacker's inexpert counter-battery work which made war of movement impossible.

In 1915 all the higher Italian headquarters clearly understood that the greatest obstacle to their infantry was the enemy's artillery. Army and corps headquarters constantly published orders to neutralize or destroy the hostile artillery, but as a rule they gave little heed to whether their subordinates had the material means or the technical preparation necessary to carry out their orders. Counter-battery missions failed because of a lack of technical counter-battery training, of inappropriate and too numerous missions being assigned, too few guns, too little ammunition, hostile positions indefinitely located, fire improperly directed and conducted, etc.

Little by little everybody understood that the locating of hostile batteries was one of the greatest problems of the war. Many higher headquarters, not realizing that the problem was an entirely technical one, tried to solve the problem by ordering observers and battery and battalion commanders up to the front trenches where they found it most difficult, if not impossible, to locate hostile batteries or to use their goniometers and other instruments of precision necessary accurately to locate the enemy emplacements.

During 1915 a real service of observation was started by establishing special observation posts and "firing offices" in the various corps. Good results were thus obtained even if the work was sometimes inexpertly done.

In the beginning a scanty knowledge of the methods of accurately plotting targets, or at least a strange reluctance in applying such knowledge, was shown by many artillery officers and not only light artillerymen.

During the first year of the war much was said about aerial observation in circulars and literature from higher headquarters. But the air service did not help much in definitely locating hostile batteries or adjusting fire, chiefly because the planes were few and many of them without wireless; furthermore, the artillery officers as a rule had little faith in the work of either airplanes or observation balloons.

Among the factors which were certainly detrimental to efficient counter-battery work in 1915 were lack of employment of sufficiently heavy concentrations against the hostile batteries; the excessive centralization of the siege artillery, which was considered so sacred that

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not even the corps commanders were allowed to handle it, and last but not least the expertness of the Austrian artillerymen in taking advantage of the special situations which arose on all parts of the front.

In August of 1915 the VI Corps started a methodical study of the artillery facing it. Accurate intersections and profiles were made and detailed information about hostile batteries was carefully collected, digested and published at frequent intervals. But good results were to some extent sterile because the sector of the VI Corps was frequently fired upon by hostile artillery located opposite adjoining sectors, in which accurate methods of locating the Austrian batteries had not been instituted.

A few extracts from corps and army orders, war diaries and correspondence are given in order to illustrate the counter-battery situation in 1915:

A communication from the commanding general, 2nd Army, to the commanding general, II Corps, dated May 29, 1915, reads:

"I have approved Your Excellency's recommendation that our troops be withdrawn from Mount Sabotino and that a methodical fire program be started against the hostile artillery. The attack we made against Mount Sabotino has had the effect of revealing the positions of the hostile batteries. It should now be less difficult to obtain more decisive effects."

Operations orders of the Commando Supremo, dated June 3rd, direct:

"The advance of the infantry in the first stages of the action will consist of only enough men to induce the enemy to reveal his positions, especially those of the artillery."

An operations order of the 2nd Army, under the same date, directs:

"The attack will begin with an advance of the infantry for the purpose of causing the enemy to disclose his artillery positions. When this purpose is accomplished, the infantry will halt and reënforce itself while all our artillery will go into action against the enemy batteries."

The war diary of the VI Corps, under date of June 5th, reads:

"At 1:15 P.M. the corps commander, seeing that the artillery was not sufficiently prepared to support the further advance of the infantry, ordered the troops to halt at the positions they had reached, reënforce themselves and perfect liaison, while the artillery continued to prepare for the advance. However, the difficulty of locating the hostile batteries prevented the artillery from accomplishing its mission."

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The war diary of the 3rd Army, under date of June 5th, reads:

"At about 11:00 A.M. the VI Corps ordered its 3rd Group of heavy field howitzers to the right bank of the Isonzo, where it went into action against the hostile artillery on Mount Sei Busi, which was firing on our infantry at Pieris. The hostile artillery positions had been located by a captive balloon."

The commanding general, 3rd Army, in a memorandum dated June 20, 1915, ordered:

"The Chief of Artillery will immediately arrange to use the three 152-mm. guns and the eight 149-mm. guns of the Royal Navy, which, from the vicinity of Morosini Island, can be used in counter-battery against the hostile artillery at Duino and on the Carso Platian at a range of ten kilometres."

The same diary, under date of June 27th, reads:

"The 1st Group of pack artillery furnished reports of locations of several enemy batteries; our heavy field batteries fired effectively with the information thus furnished."

After the middle of June, 1915, the Italian war records begin to contain numerous statements of hostile batteries which had been silenced.

In a communication from the commanding general, II Corps, to the commanding general, 2nd Army, the former says:

"The failure of the attack was due to the inability of the artillery to silence the hostile batteries. The artillery should not be blamed for this, however, because the enemy also, with his carefully prepared fire and excellent observation posts, was unable to silence any of our batteries or to damage them to any great extent. To be sure the enemy did get some direct hits and he inflicted some severe losses on our artillery personnel, but this only happened to light batteries, which were well to the front and had often to fire with big negative angles of site and thus were obliged to expose themselves to hostile observation."

Under date of August 22, 1915, the commanding general, VI Corps, in a circular about artillery, stated in part:

"The present war is dominated by the cannon; every success to be lasting must be based on artillery superiority. \* \* \* The hostile artillery has so far paralyzed our every offensive. We must, therefore, above all else, locate the hostile artillery in order to combat it. I intrust to the corps chief of artillery the organization of the technical means necessary to accomplish this result; the service will consist of a service of information,

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a service of observation and communications, a directorate of fire and economy of fire. The organization will make use of continuous observation from all available points, not only to identify and record the positions of enemy batteries, but also to determine the results of our fire upon them. Special counter-battery observation posts will be few in numbers but will be located so as to have good field of observation, and will be well provided with instruments of precision and charts; the net of special observation posts to have communication with the net of observations posts in the front lines; specialized personnel to man the observations posts; service day and night; arrangements between observation posts to coordinate all angular measurements and to locate targets by intersection."

Under date of August 20, 1915, a bulletin from General Headquarters in referring to the attack made by the Bersaglieri Division of the IV Corps, reads:

"Because our medium calibre artillery and our 305-mm. howitzers in the vicinity of Corporetto were not sufficiently effective against the enemy's batteries in the Kal and Svenjak woods, our attack on the Ravelaz trenches was ordered suspended."

From September 9th to September 15th the VI Corps accurately located 16 Austrian batteries. These were located by means of twenty-four accurate observations, ten of which were credited to the Mount Quarin special observation post, which was the most distant from the enemy lines. The observatory on Hill 507, although higher, only contributed one observation, because it was located in the front lines and had a limited field of view.

From September 15th to 24th, 1915, the same corps plotted 30 hostile batteries with 71 observations. Of these 39 were made by observation posts in the front lines, 31 by two rear observatories on Mount Quarin and Subida Hill and one by a captive balloon.

In a circular from General Headquarters under date of October 2, 1915, the following caution is given:

"When positions include the tops of hills or mountains, the peaks will not be occupied in strength, because the hostile artillery soon converges on these and makes it impossible for our infantry to remain. This happened at Mount San Michele, Sei Busi and Hill 121."

The records of the offensive of the last of October, 1915, abound with references to divisions, brigades, regiments and battalions driving the enemy from his trenches only later to be compelled to withdraw on account of withering artillery concentrations; for example,

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on October 29th, the 28th Division throughout the morning held the ground it had gained by repulsing determined counter-attacks, but at 1:00 P.M. a violent concentration of all calibres of artillery came down on the division and the positions had to be abandoned with grave losses.

Under date of October 30, 1915, the Chief of Artillery, 2nd Army, commented:

"One still sees batteries shooting short, violent concentrations, then ceasing their fire against hostile batteries whose positions are uncertain or only approximately located by flashes. It should be remembered that artillery, especially in this theatre of operations, cannot easily change position. Against the heavier types of artillery accuracy of fire is most important. Fire should be carefully adjusted, then prolonged so as to get some effect on matériel. It should be remembered that a simple neutralization, unless excellently adjusted, will not prevent an artillery, which is as able and as loyal to its duty as is the artillery which faces us, from firing against our infantry when the tactical situation requires it. A prolonged, carefully adjusted fire, even if very slow, prevents movement and is very detrimental to the morale of those who must endure it."

On December 26th the VI Corps published its last Artillery Information Service Bulletin of the year, in which the locations of 40 enemy batteries were given. The coördinates, the dates when observed, when fire was delivered, the batteries which could reach them, and the observatories which had spotted them were all given. The 40 battery positions were located by 148 observations, none of which were credited to aircraft. High observation posts located well to the rear furnished much of the data.

### 1916

Heretofore only the counter-battery development during the year 1915 has been considered. During 1916 the following points are especially worthy of note:

A service of observation was established by all the corps and was constantly being improved.

Counter-battery shoots were better coördinated both as to fire direction and as to timeliness.

The counter-battery work of this year was frequently sufficiently efficient to cover the infantry while it held and organized captured positions.

The principle that counter-battery groups should be used for "manoeuvre of fire" was beginning to be applied.

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Airplane and balloon observation became more proficient both in locating hostile batteries and in adjusting fire.

The higher commands gave great attention to careful counter-battery preparation, but also too much attention to attempts to fire for demolition on hostile artillery. Later experience showed this to be a wasteful practice.

The necessity of dividing the hostile zones into areas of observation became evident. The lower artillery commands were permitted to act on their own initiative within their areas of observation, but at the same time all batteries with counter-battery missions were under centralized control.

The importance of locating hostile observation posts and shelling them prior to and during the infantry attack was frequently referred to in orders.

By June 20, 1916, the 3rd Army had installed sound-ranging stations and was gaining considerable counter-battery information from prisoners, deserters and informers. In addition to the regular battery and battalion observations posts, this army had 19 "principal observatories," 8 balloons and three groups of airplanes for counter-battery work. The air service of the 3rd Army had by that date accurately spotted 74 hostile batteries.

In a report to the Chief of Artillery, 2nd Army, dated August 20, 1916, one finds that twenty light batteries, one 149-mm. gun battery, some 149-mm. howitzer batteries and a few heavy field pieces were using gas shell. This new projectile played an important part in the capture of the Sabotino position by contributing a very effective fire against the Austrian batteries in the Slatna-Voidice Zone.

In a circular of this year the following statement is made:

"The most important time for counter-battery firing is the moment when our infantry is most exposed to the fire of hostile batteries; and in general not the time when the enemy artillery is firing on our guns. The old idea of the artillery duel must be forgotten. The very short period immediately preceding the advance of our infantry is also a propitious time for counter-battery activity because the enemy's batteries thus may be prevented from getting into action."

1917

The following ideas about counter-battery appear in the records of the Italian Army in 1917:

Large masses of Italian artillery were ordered by General Headquarters to concentrate on counter-battery missions. The results

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were in some cases disappointing. This was due principally to the increased number of Austrian batteries facing the Italians.

The system of assigning temporary counter-battery missions to batteries engaged in other work gave poor results.

Opening counter-battery fire just prior to the attack was often successful in reducing the activity of the hostile batteries. In a few cases where counter-battery was vigorously continued after the infantry had reached hostile position, good results were obtained in protecting the infantry against artillery concentrations.

Carefully planned and executed systems of terrestrial observation were very successful in mountainous areas. Special counter-battery observation posts at high points in rear areas continued to give good results.

The chief factors which were detrimental to Italian counter-battery efficiency were the ever-increasing number of Austrian batteries and the too frequent adjustments on hostile batteries, which caused them to take adequate protective measures.

In planning the great offensive from Tolmino to Vipacco, it was decided that no less than 1396 heavy and medium calibre guns would be required by the 2nd Army, 798 of which were to be used for counter-battery missions. Of the latter number, 360 were to be used for this purpose from the beginning of operations and 438 were to be used as soon as the infantry advance started.

Great stress was laid on the importance of carefully weighing the importance from a tactical point of view of counter-battery missions and of properly timing them. The proper use of gas and smoke shell was also greatly stressed.

Fire was preferably delivered on batteries whose positions were most accurately known and which were most likely to be dangerous to the infantry.

Centralization of counter-battery direction was advocated for offensive operations in order that the necessary coördinating might be done by higher commanders who were in a position to understand the situation, and to know which hostile batteries were most dangerous, at what time, by which units and how much ammunition was to be fired.

On the defensive, however, there was a greater decentralization of counter-battery work and more chance given to the lower commanders to use their initiative and discretion. The doctrine that on the defensive counter-battery work was to be subordinated to interdiction and defensive barrages began to be felt. However, if a necessity for answering the enemy's demolition fire became apparent, then the artillery would react by shoots against the enemy's vital points such as command posts, observation posts, connecting trenches and communications.

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1918

The counter-battery lessons learned in previous years were of the greatest benefit to the Italians in their decisive battles of 1918, namely the Austrian offensive on the Altipiano, the battle of the Piave and the battle of Vittorio Veneto. The efficiency of their counter-battery in the final stages of the struggle played a great part in crushing Austria.

The most noteworthy features of this year were as follows:

Neutralization accomplished by single batteries or by concentrations of small groups at appropriate times rather than by masses of artillery.

Organization of counter-battery commands in each corps whose only function was to perform the technical work necessary for counter-battery firing.

Mobility of counter-battery fire developed greatly. Armies were provided with "manœuvre units" which could be brought up quickly where counter-battery reënforcement was needed.

Definite arrangements for lateral counter-battery support between corps and armies were perfected. These arrangements were reduced to writing and all the necessary details were agreed upon.

The counter-battery work of the Italian artillery enabled the Italian infantry successfully to cross the Piave River and resort to war of movement. In this most difficult river crossing not only were the enemy's batteries silenced, but his searchlights which lit up the river at night were blinded. In the battle of the Piave 250 pieces of Austrian artillery were put out of commission and during the last fifteen days the Italian artillery hit about 400 Austrian guns.

NOTE: The information given above was extracted from a series of articles by Colonel Ettore Ascoli, G. S., Royal Italian Artillery, which appeared in the 1923 and 1924 numbers of the *Rivista di Artiglieria e Genio*.



## BOOK REVIEWS

MR. ARCHER, U. S. A.—By R. H. Platt, Jr. Published by Doubleday, Page and Company, Garden City, New York. 326 pages. Price, \$2.50.

This story has a special appeal for field artillerymen. Mr. Platt is, or at least pretends to be, merely the reporter who translates Archer's verbal story into writing. And unless Mr. Platt has had far more real, old army experience than we think he has had, we know he only acts as reporter. For nobody but an old soldier, buck private to sergeant, can carry the true old soldier's viewpoint through the manifold incidents of a whole book.

We say the book has a special appeal to field artillerymen. Starting from Duck Creek, Ohio, Archer was introduced to Battery "F," 2nd F. A., at the Chicago World's Fair. A few years later he enlisted in the Field Artillery to which he devoted his life. In his own words it was Hirambsburg—Archer's Ridge—Crabapple, and after Crabapple comes Fort Riley, then Santiago, Manila, Pekin, Honduras, Verdun.

Those names will call up sufficient associations in a red-leg's mind. They include the old Second Field Artillery at Fort Riley; Capron's, Grime's and Parkhurst's batteries at Santiago; the old Fifth Field Artillery and Reilly's Battery in the Islands, and up through the gates of Pekin. After those days we journey through a Central American revolution, and still later see Archer in action as a commissioned officer in the World War.

Our hero appears at his best as an artillery enlisted man. Without pride—with the peculiar naiveté of the enlisted man—he reveals in garrison and field, the glorious strength of the old army, American soldier, along with his concurrent weaknesses so well known to those of the Army. Two extracts might not be out of place.

"So Reilly came back and ordered us up the side of the cut! I suppose it was a forty-degree slope, but it *looked* like a perpendicular cliff. 'Are these horses like flies that can go up the side of a wall, or ain't they?' was what crossed my mind. 'Well, here's finding out!' I turned my team into the bank and gave the order to march."

And another one.

"The Court asked me the question straight. 'Have you been buying canteen checks?' I said, 'Yes.' Next came the question I was waiting for, and that I had looked up before coming to court: 'Don't you know that's against the Regulations?'

"I said: 'No, sir, I did not know that it's against the Regulations,

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and I do not know it yet. Show me where the Regulations say anything about it.'

"Well, they couldn't find a period or a comma in the Regulations, which said anything about buying canteen checks."

He had been buying the privates' canteen checks for cash at half face value; bought cigars at the canteen with the checks; sold the cigars in town (San Antonio) for a strangely low price but a secretly great profit! Such are the times of peace.

A FIELD ARTILLERY GROUP IN BATTLE.—By Colonel W. H. F. Weber, C.M.G., D.S.O., p.s.c. Published by the Royal Artillery Institution, Woolwich, England, Price, 10/6 cloth bound, 7/6 paper bound.

The contents of this book appeared originally in serial form in the *Royal Artillery Journals* of November and December, 1919; January, February and March, 1920; October and November, 1922, and July, 1923. A few of the earlier articles were reproduced in the FIELD ARTILLERY JOURNAL in 1921.

The book is a tactical study based on the action of an artillery battalion during the German and Allied Offensives of 1918 and the British Offensive at Cambrai in 1917. Written by the commanding officer of the battalion, the book is colored by the vivid touch of personal experience and is an entertaining story, easy to read. Unfortunately a thorough grasp of the action of the battalion with relation to its supported infantry is hard, and in some cases, impossible to dig out because infantry zones of action, objectives, missions, etc., are incompletely described. It is natural that this should be the case as the research required to fill those omissions would be enormous. The JOURNAL recommends the book as well worth reading.

MILITARY INTELLIGENCE.—By Lieutenant Colonel Walter Sweeney, Infantry, U. S. Army. Published by Frederick A. Stokes Company, 443 Fourth Ave., New York. 259 pages. Price, \$2.50.

The author was executive officer of the Military Intelligence Division, A. E. F, during its organization and a considerable part of its functioning during the war.

While this book deals only with military intelligence, still military intelligence has such extensive ramifications that many interesting subjects are touched, which might at first glance be termed side issues, though really not. Before mentioning these, it is well to say that the subject indicated by the title is clearly, logically and interestingly covered. Some of the side lights above referred to are staff, army, and national organization; military policy, international relations, the duties of the War Department, commander, staff, etc., etc., all

## BOOK REVIEWS

well told in order to give a conception of the position and mission of military intelligence.

Few technical terms are forced on the reader and one value of the book is its understandability to one not particularly a student of military affairs. We recommend it as very worthwhile, general reading for any officer.

THE PROFESSION OF ARMS.—By Elbridge Colby, Ph.D., Capt. Inf., U. S. Army. Published by D. Appleton and Company, 35 West 32nd Street, New York. 183 pages. Price, \$1.50.

The book opens with an outline of our Army today—the Regular Army, the National Guard and the Reserves—short and not too hackneyed, even for those of us who follow the current pronouncements on national defense. After this comes chapters on the raw material (for officers), the military educational systems, duty with troops, battle, each arm of the service, the ideal of national service and last comes appendices on organizing under the law, a position in readiness, and the function of the R. O. T. C.

The professional soldier must not expect details on his profession in this book. In fact, if there is a criticism to make, it is that the book deals too much in generalities. For the field artilleryman, a quotation from the chapter on "Artillery" may illustrate:

"Artillery is technical; it is mathematical; and yet it is intensely practical. It depends upon observation, upon circumstances, upon accurate judgment, upon promptness and directness in decision. The artilleryman is not a theorist in uniform or mere operator of a machine. However complicated his portion of the art of war may be, he is still a fighter on the field."

The book should appeal to the civilian soldier or the pure civilian, especially the civilian who may be thinking of choosing arms as his profession. Its value to such men, and indeed the greatest merit of the book, lies in its revelation of the high ideals of unselfish service found in military life, a subject of which perhaps too few of our civilians have any conception. In this respect it is excellent.

L'ARTILLERIE, CE QU'ELLE A ETÉ, CE QU'ELLE EST, CE QU'ELLE DOIT ETRE.—By General Herr. Published by Berger-Levrault, 136 Boulevard Saint-Germain, Paris; 344 pages. Price, 18 Francs.

"Artillery, What it was, What it is, What it should be" is to our mind the most valuable book of the post-war artillery literature. General Herr was in succession an artillery brigade commander, an infantry division commander, an army corps commander, the commander of an army detachment, and Inspector General of Artillery. He thus had the opportunity to gain a first-hand insight into artillery

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from the standpoint of the combat troops, the service of supply, and of industrial production. He saw the problem from all sides.

The book was not published until after General Herr retired from active service. The opinions and ideas contained in it can be accepted as unprejudiced by personal interest and as the calm expression of what is believed to be best for the French Army.

We believe that the study of this book while of particular interest to the artilleryman will benefit any officer, any person interested in national defense. We know of no English translation.

A synopsis of the contents follows:

### PART I

- Chapter I. Situation of the French and German artilleries at the beginning of the War.
- Chapter II. Artillery during the War.
  - 1. Operations before Stabilization, 1914
  - 2. Stabilization 1915
  - 3. Stabilization 1916
    - a. Verdun
    - b. The French offensives
  - 4. Stabilization 1917
    - a. The attempted "break through"
    - b. Limited objective attacks
  - 5. War of movement, 1918
    - a. The great German offensives
    - b. The French offensive
- Chapter III. The French Artillery at the armistice.
  - 1. Organization
  - 2. Matériel
  - 3. Technical and tactical employment.
- Chapter IV. Evolution of German Artillery during the War.

### SECOND PART

#### WHAT ARTILLERY SHOULD BE FOR A FUTURE WAR

- Chapter I. Material, tactical requirements.
- Chapter II. Cannons and ammunition.
- Chapter III. Employment of artillery.
- Chapter IV. The problem of the quantity of artillery in comparison with other arms.
- Chapter V. Organization and command.

### THIRD PART

#### ARTILLERY IN PEACE

### FOURTH PART

- Chapter I. What has been done since the War (Germany, England, United States, Italy, France).
- Chapter II. Conclusion.

THE HISTORY OF THE UNITED STATES ARMY.—By William A. Ganoë, Major of Infantry. Published by D. Appleton and Company, 38 West 32nd Street, New York. 609 pages. Price, \$5.

This might be characterized as a narrative account of the Army. It is not a book on our military policy, evolution of tactics, evolution of armament, military history as to battles, campaigns, etc. But it is a source book on every one of these subjects in that it tells *what happened* in the Army. And you cannot tell what happened without

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telling who the leaders were, what sort of uniform they wore, what their ideas were, what their relations with the civil authorities were, what arms the soldiers used, what tactics they used, how the battles were won and lost, what their peace-time occupation was and what the Army is today. That is what the author does.

The book is long as perforce it must be when one considers the subject. The busy reader can scarcely hope to gather much by a hasty perusal. But the author's style is very readable and his statements are backed up by authorities in an ample bibliography. If you do not want to cover the whole book, you will find this a valuable reference on any stage of the Army's development.

**MILITARY LAW.**—By Major F. G. Munson, Judge Advocate General's Department. Published by the New Military Library, Annapolis, Md. 133 pages. Price, \$1.50.

This is a text-book. It follows closely the subject matter of the Court Martial Manual with informal assistance by way of test questions and illustrative cases.

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## FOREIGN MILITARY JOURNALS A CURRENT RÉSUMÉ

FRANCE

### "Revue Militaire Générale," April and May, 1924

IN the leading article in the April issue, with the second installment appearing in the following number, Commandant Grasset studies Napoleon's strategy against the *levée en masse* of the Spanish in 1808 under the title "The War with Spain." The author believes that a study of this campaign is of interest because of the lessons one can draw as to a possible future situation, in which a European standing army occupies a country which has not effected its mobilization; but, which is animated by a live national feeling and a ferocious hatred of the invaders. Plenty of weapons are available, and a considerable number of trained reservists or militiamen to use them. Military training societies of all kinds are also in existence.

A history of this War has never been written; and it is not usually realized that with its militia, the Spain of 1808 had something analogous to universal military training. All the advantages were with the invaders, however. With the assent of Charles IV, the government was in the hands of Napoleon's lieutenant at Madrid, Murat. The greater part of the French troops occupied the capital and the surrounding region. Others were stationed in Portugal and Catalonia. San Sebastian and Pampeluna had French garrisons, and the

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Corps of Marshal Bessières was echeloned on the route to Madrid from Bayonne to the Tagus. The Spanish Regular Army had been exiled to Denmark and relegated to Galicia and Andalusia, and the battalions of militia were dispersed and reduced in strength.

In all of Spain, the population arose, between May 24th and 31st, and grouped themselves under self-appointed leaders spurred on by the clergy and monks. Asturias, Santander, Léon, Galicia, Old Castille, and Aragon were centres of the uprising. Napoleon, at Bayonne, attempted at first to direct the campaign through Murat at Madrid. With the communications of those days, confusion resulted and, about June 7th, the Emperor realized that he himself could not plan the moves to suppress the uprising but could only indicate the ends to be attained. The French forces were dispatched in every direction to the supposed centres of the insurrection and news from none of them had been received up to June 7th.

In the earlier number, Captain Kunz replies to Colonel Nuyten's defense of the Belgian retreat on Antwerp and also calls on Napoleon to uphold his thesis. Giving as one of the Emperor's maxims "to be the strongest at one point"—which the writer considers the alpha of the military art—he points out that the manœuvre of the Belgians certainly was contrary to this fundamental principle of war.

General Debeney, Chief of the French General Staff, has introduced into the program of instruction of the *École de Guerre* (General Staff School) courses on the manufacture of war matériel and the supply of raw materials, and has instituted visits by the student officers to private works and factories. He has in view the mobilization of the entire nation for war.

Across the Rhine, the Chief of the Reichswehr, General von Seckt, turns his attention to German finances, realizing that the Army needs the support of a restored economic life and a sound financial system. He also understands the necessity for the mobilization of the whole nation.

A most interesting article entitled "Infantry in Trench Warfare," by Commandant Padovani, leads the May issue of the *Revue*. Under the heading of the "defensive" appear the following: organization of the terrain, normal routine in the sector, the hostile attack, and an outline of the plan of defense of a regiment; under the "offensive," character of the attack over a fortified terrain, preparation of the terrain, preparation of the troops, infantry dispositions for the attack, attack orders, and the execution of the attack.

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Position warfare is not sought by one of the combatants, but it is imposed on both for different reasons—fatigue of the troops, lack of matériel, ammunition, or other resources or supplies, or the impossibility of flank manœuvres.

The infantry does not fight for a line of trenches; but it defends a zone through which the units are distributed in depth and breadth, supporting each other's flanks. This zone may be divided into a sub-zone of outposts and another of resistance. The high command fixes the period that the infantry should resist.

In open warfare, infantry on the defensive simply occupies the terrain. If there is sufficient time and material available, the terrain is organized and fortified to increase the power of the infantry fire and to protect the infantry from the hostile fire. The terrain is, therefore, not organized for itself but to assist the infantry which occupies it.

The location of a combat group—the smallest infantry fighting element consisting of an automatic weapon, grenadiers and riflemen with trenches protected by wire, dugouts, a protected lookout post, and communicating trenches to the flanks and rear—is determined by the emplacement of the automatic weapon which, of course, is ruled in turn by the mission of the group. The mission of both grenadiers and riflemen is to protect this rapid-fire arm.

The fires of the machine guns form the skeleton of the system of fires and insures in front of the infantry, enfilade bands of fire forming a barrage which can be instantly fired at need. These fires may be considered as completing the artillery standing barrage, but being more quickly fired and with other advantages, may even replace it. Location of the wire is determined by the fires of the infantry—especially those of the automatic weapons—so that the attack will be held up under the fire of the latter.

Before raids, breaches in the wire must be cut by the artillery. The raid may then be made without further artillery aid—if surprise is of first importance—or with an artillery preparation and support.

In the first phase of the attack against a zone defense, in order to facilitate the jump-off and to keep the enemy in his dugouts until our troops reach the first enemy trenches, a rolling barrage is necessary. Then, the enemy has not time to man his defenses before the arrival of the first elements of the attack. Consequently a barrage is fired up to the first objective. After the taking of the latter the hostile dispositions are shaken and their infantry-artillery liaison is disorganized. The attacking infantry can therefore advance with ease; and its supporting artillery is released to exploit any opportunities. Thereafter, the infantry will only call on the artillery when it is stopped in its advance by objectives with which its accompanying weapons cannot cope. These calls will be answered by the firing

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of concentration of great density on the target in question. The artillery will have been prepared before H-hour to fire these concentrations from the information available as to the hostile dispositions. Experience in the World War proved that usually, on some points, the rolling barrage ran away from the infantry and, on others, held it up. The rolling barrage from the beginning to the end of the attack must therefore not be considered.

The preparation of the attack by the artillery has as its object the destruction of the hostile weapons and defensive works or the neutralization of the personnel. This preparation can in general be confined to heavy tanks, in which case, the preparation is no longer a distinct phase. The tanks precede the infantry from the jump-off line under the protection of special artillery fire—especially the blinding of observation posts with smoke. But, the author believes that heavy tanks have had their day and that the preparation will usually be made by the artillery.

In order to escape the enemy standing barrage, the leading elements of the attack are closed up until the first hostile trench is taken, after which a formation in depth is taken.

### **"Revue d'Artillerie," May, 1924**

"Heavy Artillery Training Centres," by Major L. André, describes the system of instruction centres by which the great mass of modern heavy artillery matériel was assimilated efficiently in 1917. These centres handled the re-equipment and instruction of units formerly using old matériel, and also the training of newly organized units. The system evolved was similar to that by which all American units were trained in France—instruction in the mechanical and tactical handling of the matériel, and in the improved and refined methods of fire which were impossible in the older types of matériel. The author shows the necessity of establishing such centres during the first months of any war, and gives the requirements in personnel and matériel for such an establishment.

"Range Tables, and Their Precision" is a description, by Major C. Dufrenois, of the methods employed in making a range table, and the accuracy which may be expected from each of the elements given. In this installment of the article are discussed the general considerations affecting the movement of a projectile in the atmosphere, and the methods of determining what this movement is; the calculation of the trajectories on which the range tables are based; and the ballistic firings which tie in the theoretical with the practical results. The various differential corrections are described, as well as most of



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the data relating to the trajectory. The author summarizes his article as follows: the range tables issued to troops combine a simplified theory of the movement of the projectile with practical tests. The combination is satisfactory, as proving ground tests accord sufficiently well with the theory.

"Scientific Methods of Fire," by Lieutenant M. Morin, deals particularly with the adjustment by the tangent reticule method. The errors which may be expected in the various operations of preparation of fire are enumerated, and from these is deduced the accuracy and speed to be expected in establishing the necessary stations for tangent reticule adjustment.

"A Method of Determining the Topographical Elements of Fire," by Major A. Benoist. This method is a variation of the prepared firing map. Instead of drawing on the firing map, radii from the battery position, to give deflection, and concentric circles, to give map range, these are drawn on a plain gridded sheet. The radii are drawn at intervals of 10 decigrades (16 mils) and the concentric circles are drawn at every hundred metres. A celluloid "translator" is used to refer the battery position and the target to the origin of measurement, and the deflection and the map range may be taken from the sheet.

"Theoretical Studies on the Life of Gun Tubes" continues Captain Justrow's very detailed examination of this subject. In this installment he considers the friction in the rifled part of the tube; the resistance opposed to the centring of the projectile; the work done in deforming the rotating band, and the friction in the forcing cone. He goes very carefully into the forces acting in all these cases, and deduces formulæ to give the work done. A sample calculation is made to show the manner in which these formulæ are used to determine the work done to overcome deformation and friction.

### **"Revue d'Artillerie," June, 1924**

"Concentrations of Fire" is a reply, by General Dedieu-Anglade, to an article of the same title appearing in the April issue. The General does not agree that a combination of heavy concentrations and continuous fire would be as effective as concentrations put down by all the means available. He points out that if a concentration is ineffective when well adjusted, it is not worthy of the name concentration; and if ineffective due to poor adjustment, continuous fire would only waste more ammunition.

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"High-burst Ranging," by General H. Lebel, cites instances in warfare of movement as well as in manœuvres, where the effectiveness of artillery has been much increased by the use of high-burst ranging. A description of the general procedure employed in the Ferrier method is given, and the advantages and limitations of the method stated. The author concludes that all types of artillery, even divisional, should be prepared to use this type of adjustment whenever circumstances are favorable.

"Range Tables and Their Precision" concludes Major Dufrenois' study by examining the accuracy of all the elements given in the range tables, and the degree of precision to be expected in a complete preparation of fire. The author states that while fire so prepared is less effective than observed fire, uses more ammunition, and effect is never certain, still occasions arise when it is necessary. He recommends that, due to errors in meteorological data, the direction of fire be checked by means of high bursts, visible from the gun.

"The Tangent Reticule Method," by Lieutenant G. Ferrier, is an examination of the procedure employed, and the accuracy which may be expected from this type of adjustment. Forms for the calculations are given, as well as suggestions for establishing observing stations and systems of communications.

"A Note on Bilateral Observation," by Major L. Camps, gives a graphical construction, to be used when the positions of the observing stations and the guns are not known accurately, which obtains accurate results in range as well as direction.

"New German Artillery Combat Regulations" are extracts from the 1922 edition. In general the principles laid down are similar to the post-war regulations of most of the allies. An infantry gun is prescribed, *in principle*, it being forbidden by the terms of the peace treaty. It is of the same calibre as the field gun, lighter and not so powerful, and is manned by the infantry. The moral effect of artillery is stressed. "The moral effect of the artillery is due to the heavy detonation of the projectiles. This effect increases with the explosive charge, and with the number of projectiles fired. . . . The moral effect may shatter the nervous system, and paralyze the spirit of decision and capacity for resistance to such an extent that it alone gives the desired results." Another statement of interest is "The principles of the employment of artillery in combat are the same in warfare of movement and in stabilized situations. In the latter case, preparation of fire can and should be more complete."

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"The Baranoff Apparatus for Instruction in Fire" is a description of a very ingenious machine which simulates with great accuracy the various functions of artillery fire. It is a precision instrument, built in the laboratories of Huet and Company. The machine, which works in conjunction with a miniature range built to scale from a plan directeur, places the bursts according to the data given by the officer conducting the fire. The effects of meteorological data, as well as dispersion in all dimensions, are applied accurately. Periscopes in the miniature terrain simulate observatories, and an apparatus has been developed which allows a number of students to observe from the same point. The apparatus gives such a close approximation of actual firing that officers trained with it will find little difficulty in handling service fire.

### ENGLAND

#### **"The Journal of the Royal Artillery," May, 1924**

THE MINOR TACTICS OF "CLOSE SUPPORT" BY ARTILLERY IN THE ATTACK  
(ANONYMOUS)

The writer starts out by explaining that "close" means "intimate" and not "locally near." The supporting guns do not need to be in physical proximity to the infantry that they are supporting; on the contrary, artillery fire has obvious disadvantages to the troops it covers when the guns in action are very near.

Minor tactics in this article includes all the details that have to be taken account of during a small offensive operation conducted by infantry supported by artillery and with or without tanks. It will usually be about a battalion of infantry supported by six or eight guns. Artillery fire will be observed and map shooting will be impossible.

The object of the artillery support is to open up a hole for the infantry. This can be done only with rapid and accurate fire. Good communications with the infantry and with the guns are both essential. There must be coöperation between the infantry and the artillery commanders. They should make combined reconnaissances. They should consult. They must have a knowledge of the tactics of each others arms.

All of the principles of war are applied in this minor offensive. Coöperation is one of these and has just been mentioned. Surprise is applied by the selection and rapid occupation of a covered position, using a line of advance concealed from the enemy's ground observation and as far as possible from that of his airplanes, and by reserving fire until the last minute. Concentration will occur when the fire is accurate and well sustained. Economy of force means that no more guns and no more ammunition will be used than is necessary.

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The objects of the artillery are these: First, to silence the enemy's small arm fire and not lift off the objective until the attacking troops are so close to it that they can go no further without serious danger from their own guns. To judge this moment is one of the main difficulties in a minor operation. Second, to repel counter-attacks. Third, to neutralize hostile artillery fire.

When the plan has been decided on, the duties of the artillery commander should follow in a logical sequence. The guns should be ordered forward to a rendezvous, if possible off the road and concealed from air observation. Time would be saved by sending this order early. Subordinate commanders must be sent for. The artillery commander points out objectives and explains his plan. Then he gives his orders, always in the same sequence.

The orders by the artillery commander will cover the following: allotment of objectives; areas for positions and observation posts and routes for advance into action; assignment of particular guns to particular parts of the infantry; organization of the support which includes time to open fire, how long maintained, how to fire after capture of objective, rate of fire, kinds and quantity of ammunition, coöperation with the air; intercommunication with other arms and headquarters; the hour of attack.

There must be personal touch between the infantry commander and the artillery commander. The above points must be understood by each. The success of the operation will depend upon the tactical skill of the commanders and the amount of coöperation. The following points must be agreed on by both parties: the objective of infantry and artillery; the line of advance of the infantry from their forming up place; the moment of opening fire and the time it will take to reach the objective which will govern also the rate of fire; signalling arrangements; use of smoke; artillery support after the capture of the objective.

### MODERN DEVELOPMENTS IN FOREIGN ARTILLERIES OF THE FIELD ARMY (BY MAJOR DRAKE-BROCKMAN)

The author of this article shows, by illustrations from different countries, what the effect of the war has been upon the development of light and heavy artillery, mountain artillery, and mechanicalized artillery. He shows that experimentation has progressed rapidly in every country but that there has not been actual re-armament anywhere on account of the cost.

The period up to 1897 was that of the recoiling carriage. A variety of methods were tried to partially limit the movement of the carriage in action. In 1897 came the French 75-mm. and everything else was at once out of date. The other countries tried different recuperator systems such as india rubber and spring systems, but

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the true value of the long recoil and the air recuperator of the French 75-mm. was not appreciated. During the war these systems were in use, but the are of fire and the elevations were limited and the maximum range of the light field artillery was about 6500 yards.

Since the war enormous strides have been made in range, are of fire (traverse), ballistics and mobility. In America the Westervelt board recommended for the light field gun a maximum range of 15,000 yards, elevation of  $80^\circ$  and traverse of  $360^\circ$ . The howitzer was to have a maximum range of 12,000 yards, elevation of  $65^\circ$  and traverse of  $360^\circ$ . These conditions were ideal. The carriage was to be interchangeable for 75-mm. gun and 105-mm. howitzer. In 1920 it was found that interchangeability of the gun and howitzer was a difficult problem. The box trail has been tried, also the split trail. Rear trunnions, independent line of sight (angle of site), and cross-axle traverse are under trial. The shield of the American 1921 equipment is well in rear of the axletree. There is still considerable difference in opinion as to whether the advantages of the split trail compensate for the additional weight.

In France the Puteaux model recuperator of the 1897 75-mm. is famous. This Deport gun suffers from lack of range and of traverse. The recoil mechanism is a little too complicated. The other French models are of the Schneider type. The French are designing a 75-mm. gun and a 105-mm. howitzer of the Schneider type of recoil, rear trunnions and counter-weight, non-independent line of site, and axle traverse. The split trail has not found favor.

In Italy has been developed a valuable accompanying gun in their 70-mm. pack artillery which fires a light projectile with a comparatively heavy charge, made possible by using a thin-walled shell and having a low muzzle velocity. The equipment breaks up into five loads and when assembled can be dragged by one man. The maximum range is 1900 yards.

Medium and heavy artillery can hardly be said to have existed in any well-defined degree prior to the war. It is true that the Germans had their 105-mm. and 150-mm. guns and the 150-mm. howitzer which were well improved during hostilities; the French had very few. The Americans had the 1906, 4.7 gun. In view of the present development, it is undoubted that the most notable advance in design was that of the G. P. F. type. Its notable features comprise: A split trail; spring suspension of the weight on front and rear axles for travelling; a pressure-fed buffer tank; rubber-tired motor transport wheels of small diameter; excellent packing arrangements in buffer and recuperator and a very neat and compact form of reciprocating sight.

In America the lines followed very closely the G. P. F., with improvements in the axle suspension and a reduction of time to get

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into action. It also included pneumatic balancers, quick-loading gear and roller-bearing trunnions. With a view to the reduction in weight it was decided to forego the interchangeability of gun and howitzer, limit the elevation to 45 degrees, and do away with the variable recoil gear. In the 8-inch howitzer the variable recoil has been retained.

Italy seems to have discarded the idea of long-range artillery and is relying more on bombing aircraft.

Mechanical transport is proceeding rapidly. For hauling field artillery a tractor of weight three tons will attain a speed of from 12 to 16 miles per hour. For medium artillery the tractor will weigh 7 tons and will travel at 12 miles an hour. For heavy artillery the tractor weighs 15 tons and will also travel at 12 miles an hour.

As to the self-propelled mount, there is an interchangeable carriage for the 75-mm. gun and the 105-mm. howitzer. It has a maximum speed of 30 miles per hour on a 45-degree slope and weighs complete  $5\frac{3}{4}$  tons. The firing tests are satisfactory. Self-propelled mounts for heavier calibres are also being tried.

In these types an effort is being made to render them amphibious either by separately proofing certain vital parts or by completely enclosing the engine in a waterproof casing. The first method has proved to be a failure due to the vibration on the road, which breaks down the tightness of the waterproof joints.

Weight will always be of importance in field artillery guns and howitzers. Great strides have been made in range and arc of fire and the weight not increased too much. Quick-loading gears and independent angle of site, etc., all add weight. The advent of mechanized field artillery has not done away with this old-time weight factor, except possibly in the self-propelled mounts.

# CURRENT FIELD ARTILLERY NOTES

## Back Numbers of the Journal

MEMBERS of the Association can render an appreciated favor by sending in to the Secretary, used copies of the January–February, March–April, or May–June JOURNAL. Current demand has exhausted the supply of the first two named and the May–June number promises soon to be out of print also. We have standing requests for these issues which we desire very much to supply, as a favor to interested field artillerymen. Can you help out?

## Work of the Field Artillery Board

*Variation in the Effect of Shell Bursts Due to the Change in Angle of Fall.*—The report on this subject was forwarded in the early part of July. So far as the Field Artillery in general is concerned, however, work along this line will continue. In the past we have investigated, and studied every phase of what happens at the gun end of the trajectory and devoted considerable attention to the projectile in flight; but we have scant information on the practical behavior of our modern projectiles at the end of their flight, and much of what we have has been accepted from the British and French. This test is one step to establish our own store of information.

*Old and New Boosters in the 155-mm. Howitzer Shell.*—The test proved conclusively the greatly increased efficiency of the shell equipped with the new booster. A much larger proportion of high detonations were received from these than from the shell equipped with the old booster.

*New Reserve Rations.*—The purpose of this test was to determine whether this new ration should replace the one heretofore used. The new ration is put up in a single package containing two separate individual meals. The components are packed in four hermetically sealed, tin containers inside a cardboard box  $8\frac{1}{4}$  inches long by  $7\frac{1}{4}$  inches wide. The cardboard box is in turn encased by waxed paper, making the whole package fairly water and bug proof.

Except for variation in the meat component, all rations are identical. Approximately one-third of the rations contain eight ounces of veal loaf, with pork added; one-third contain eight ounces of pork and beans; one-third contain eight ounces of dried beef. The other components are exactly the same for all rations and consist, in addition to the above, of the following: 8 ounces corned beef, 3 ounces sweet chocolate, .6 ounces soluble coffee, 2.4 ounces sugar,

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12 ounces hard bread. The entire weight of the ration and its container is three pounds, ten ounces.

In hot weather the chocolate used melted somewhat, but this is not a serious fault and can be easily remedied. The cost of the experimental issues was considered much too high, but there is promise of relief from this handicap in wholesale issues. The tests have shown this ration far superior to anything the army has had in this line.

*German Observation Periscope.*—This periscope was found unsatisfactory, being very heavy and cumbersome. It had other disqualifications, also, being easily clouded by rain, and too delicate in some of its parts.

*Unkles Deviation Board.*—This board is the best of this type of equipment yet submitted. However, it does not do away with the range tables, since it does not carry all of the information that the range tables do, nor do all the work that is possible with the range table. It is not accurate in certain respects. In other words, it is an extra piece of equipment which has not sufficient value to overcome that disadvantage. The tendency is to overload the units with a lot of equipment, irrespective of its value. Because of this the Board did not recommend this piece of equipment.

*Signalling Panels.*—The panels were found unsatisfactory due to the almost complete fading out of the colors on one side of them. The report is going forward at the end of August.

*Artillery Firing by Means of Airplane Photographs.*—The tests on this means of firing were very unsatisfactory, due to the inability to keep a reliable photographer on the work. The results reached were not especially good, but again, this was due principally to the intermittent character of the tests. The report recommended further experiment and this has been approved. The tests will be continued, starting in next October.

*Wire Pikes.*—The pike tested had an excellent head or picking-up device, but the pole was very heavy, much too heavy for a man on horseback to handle except with the greatest effort. It was recommended that further tests be made of a similar pike with a shorter and lighter handle. It is believed that such would be satisfactory.

*Airplane Spotting Instruments.*—Two types were tested. The first proved hard to operate and gave inaccurate results. The second gave promise of good results, but was so delicate that the aviator practicing with it prior to the tests, damaged it so that it could not be used. Certain recommendations were made looking to further test, but nothing further has been heard.

*Puljack.*—This apparatus is a sort of a hand winch to be operated by one man. It proved unsatisfactory for field artillery service. It



## CURRENT FIELD ARTILLERY NOTES

was not strong enough to pull heavy vehicles out of bad places and too heavy to carry with the lighter equipment.

*Portable Battery Charging Sets.*—As their names indicate, these are a device for use in the field where a convenient charging station is not available. The tests showed the sets were satisfactory, though certain modifications were recommended. Ten of these sets are to be sent out to ten different regular army, field artillery units during the coming year for further service test. This should reveal their serviceability with motorized units, horse artillery units, light horse-drawn units, etc., etc.

*Replacement of Doubletree Chains with Cables on the 75-mm. Gun-caisson Limber.*—The cables proved better than the chains and the report was satisfactory. Where the chains have frequently kinked and broken when subjected to sudden loads, the cables stood up well. Trial sets of these cables are being sent out to three regular army units for further service test.

*Rolling Kitchen, Taylor 31.*—This kitchen was sent down for test with motorized equipment. It proved unsatisfactory, being too heavy for the F. W. D. to pull in any kind of heavy going. There are several mechanical weaknesses in it also. Finally it is not of the limbered type which the Board believes to be essential for the field artillery service.

The Board's work on the above tests is completed. There are eleven new ones now received and under way or to be taken up as follows:

*Raincoats.*—The ideal raincoat should be light, cool, waterproof, serviceable, etc., while in service. It should be capable of storage with the least deterioration or damage and have other obvious qualities. The tests on hand look toward the discovery of the nearest approach to the ideal that we can obtain.

*Monocord Switchboard, 4-line.*—This is a modification of present types.

*Ford Reconnaissance Car.*—A Ford chassis with balloon tires and an open, touring body is under test. The work is not completed, but informal reports indicate that it will "go anywhere" and is something of a revelation in its line.

*Test of Carrying Case for the French Aiming Circle.*—This is a leather case designed to replace the old cardboard affair known to most officers.

*Test of Plotting Scales.*—This is to determine if our present metallic scale cannot be replaced by a cheaper, boxwood scale of commercial type.

*Test of Indian Motorcycle.*—The outstanding feature which interests us, in the machine being tested, is its low-gear possibility.

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It may furnish a solution for the problem of accompanying the slow-moving motor columns with this light, passenger-carrying vehicle.

*Test of Cargo Carts.*—A question of cross-country transportation.

*Black Powder Charges for Smoke Puff Outfits.*—The old and well-known sets have always required special care for safety in operation due especially to the use of loose black powder. The present endeavor is to develop a self-contained cartridge or similar, more or less accident-proof device.

*Test of 155-mm. Howitzer, Model 1921.*—A service test.

*Test of Steel Helmets.*—This looks to the field adaptability of the samples furnished, by way of comfort, practicability, etc.

*Correction of the Moment Computers.*—This is a test of devices invented by various officers to automatically compute the corrections we have heretofore calculated on the old computation blank, using the range tables.

### **First Cavalry Division Horse Show**

The horse show held by the 1st Cavalry Division at Fort Bliss, Texas, July 10th, 11th, 12th, proved a great success. All classes were large and many excellent horses were shown. Major W. H. Rucker, 82nd F. A. Battalion (Horse), was executive of the show and kept the classes going so that little if any delay was noticeable in the three days of the show.

The 8th Cavalry stood at the top with the largest number of points scored, followed by the 82nd F. A. Battalion (Horse), 7th Cavalry, 1st Cavalry, 2nd Machine-gun Squadron and Division Trains in order named. The showing made by the 82nd F. A. Battalion was mainly due to the preparation and training of the individual entries well in advance of the show, under the supervision of the commanding officer, Major Rucker. It was extremely gratifying to all artillerymen and will undoubtedly serve to intensify the interest in horses and horsemanship in the battalion.

The artillery sections, one from each battery, were excellent. The First Section, Battery "C," under Sergeant Barter, won the *El Paso Times* Cup. Battery "A" took second place and Battery "B" third.

In the two-horse reel-cart class the artillery made a clean sweep, taking all three places. The reel cart from Battery "B," shown by Private Johnson, taking first, Battery "A" second and Battery "C" third. Battery "C" took first and third in the best artillery horse class and Battery "B" second place. In the best pack-horse class, Battery "A" placed second with a fine bay gelding, "Bob," shown by Private Powers.

The blue ribbon in the best cavalry horse class went to "Sky



DEWEY

First Prize in Best Artillery Horse Class, First Cavalry Division Horse Show.



SKY ROCKET

First Place in Best Cavalry Mount Class, First Cavalry Division Horse Show. Owned by Major William H. Rucker, 82nd F. A.



**CAPTAIN BEN M. SAWBRIDGE, 82ND F. A., ON RED BOY**  
First Place in Championship Jump, in the First Cavalry Division Horse Show.



**FIRST SECTION, BATTERY "C", 82ND F. A.**  
First Prize, First Cavalry Division Horse Show.

## CURRENT FIELD ARTILLERY NOTES

Rocket," a chestnut thoroughbred owned by Major Rucker, shown by Corporal Hesp, 82nd F. A. Battalion.

The polo mounts class was quite large, well-bred horses predominating, and another ribbon was secured by the Battalion when "Miss Bridges," a thoroughbred mare, Major Rucker up, took third place. Mrs. Chaffee riding "Miss Bridges" secured second place in the ladies' saddle class against strong competition. The green polo mount class was won by "H. L. C.", an 82nd F. A. prospect with Major Rucker up. In the Bending Race, Captain Lattimore, 82nd F. A., added a red ribbon, riding "Commander."

The jumping classes were all large and competition very keen. Here the artillery battalion was badly handicapped by the lack of suitable entries, but made a creditable showing with the few available. Captain Sawbridge on "Red Boy" secured third place in the open jumping class and on the following day won the Championship Cup for jumpers over a stiff course from a very large field. The 82nd F. A. Battalion team, consisting of Captain Sawbridge, Lieutenant Kastner, Sergeant Williams, Privates first class Todd and Conley, took third place in the championship team jumping, with five teams entered.

Private Glasscock, Battery "A," riding "Mickey," took third place in the 1924 enlistment class. This class had about twenty entries and was limited to men enlisting since December 31, 1923.

The mule stake race was won by Corporal Groeschner, Headquarters Detachment and Combat Train, on "Queen"; start slow; finish, driving; track, dry—very dry.

One of the most interesting features of the show was the pairs of saddle horses shown at the walk, trot and canter, and judged as a pair on matching, conformation, manners, and way of going together. The 82nd scored again in this event when Mrs. Chaffee and Major Rucker, riding "Paint Rock" and "Sky Rocket," both owned by Major Rucker, took the blue ribbon from a very fine field.

### **Ohio National Guard Field Artillery**

Can the second lone line in our national defense scheme function? Monday morning, August 11th, Brigadier General Bush saw his 62nd Ohio Field Artillery Brigade completely assembled at Camp Knox under his own command. This unit took over all the conduct of the normal affairs of a brigade for its two weeks' active duty and did it well. General Bush has a comprehensive plan of training and development extending over a term of years. The unforeseen problems solved in the practical work just completed is a fine example of progress and accomplishment.

The normal units of the Brigade were all represented. Colonel Clarence F. Bluem commanded the 125th Field Artillery. His field

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officers were Lieutenant Colonel William F. Spieth, Jr., Major Curtis M. Harsh and Major William H. Crawford. The 134th Field Artillery was under command of Colonel Edward S. Thatcher with field officers, Lieutenant Colonel Thomas R. Leahy, Major Roy D. Prushing and Major Robert B. Smallwood. Major Frederick L. Purdy is brigade executive.

### **One-Hundred-Eighteenth Field Artillery, Georgia National Guard**

On June 1st, June 29th, and July 20th, three Sundays, the 118th Field Artillery, Georgia National Guard, fired 594 rounds of shrapnel on the state range, which is only ten miles from the armories of the regiment. On the first two days enlisted men, as well as officers, attended the shoots, and there was the customary camp cooking. On the third day officers manned the guns, strung the more than a mile of wire necessary for safety observation and attended to all the details of the observation post, which is a twenty-foot tower.

The range has been used heretofore only for rifle and pistol practice. The observation post and the guns are at the 1200-yard mark, and the targets used were old rifle target frames, at distances varying from 1400 to 3000 yards in palmetto clumps and marsh grass. Also there is a river bank which has served frequently as an infantry trench. A range of 4500 yards is possible. A great variety of types of problems were fired, the conspicuous exception being lateral observation.

On June 1st, ten problems were fired, using 210 rounds; on June 29th, ten problems were fired, using 190 rounds; on July 1st, nine problems were fired, using 194 rounds. The range is reached by an excellent road, most of which is concrete. Every Sunday for the last six months, with the three shoot days excepted, the regimental officers have attended a two-hour school in the field, simulating fire or putting in battalion and battery wire nets.

Four officers, two at each school, attended the Field Artillery Schools at Fort Sill this year. Brigadier General Travis, former Commander of the 118th Field Artillery and now commanding officer of the 55th Field Artillery Brigade which includes the field artillery of Georgia, South Carolina and Tennessee, attended the recent Command and Staff School at Fort Leavenworth.

The brigade went to Fort Bragg, N. C., on August 17th, for two weeks' field training. Its horses were sent ahead to the fort. The present commanding officer of the 118th is Colonel J. H. Thompson. Its federal instructors are Major Ronald D. Johnson and Captain Marvin C. Heyser. The whole regiment is stationed in Savannah, Georgia, a city slightly less than 100,000 population, the only city of this size in the country that has a complete field artillery national

## CURRENT FIELD ARTILLERY NOTES

guard regiment. The morale of the regiment is high. Enlistments in the last forty days have numbered fifty.

### **Message from Major General Grote Hutcheson to the Eleventh Field Artillery Brigade**

Headquarters Eleventh Field Artillery Brigade,  
Schofield Barracks, Hawaii,  
July 29, 1924.

#### General Orders

##### No. 7

To the soldiers and officers of the Eleventh Field Artillery Brigade.

You constitute my last command—I retire tomorrow. After more than forty-five years with the colors I lay aside the responsibilities of active service. My duties have been varied, my experience broad, my burdens often heavy.

In the sunset of my service it has been my fortune to command you—FIELD ARTILLERYMEN. As a cavalryman for more than thirty-three years I felt strongly that the cavalry spirit was the finest military asset of our Army. During the past twenty months I have learned to know the spirit of the field artillery as well. It is the finest thing in this brigade. It is a jewel each of you possesses; intangible, it cannot be bought nor sold nor traded; it is a personal possession without price. Guard it carefully; preserve it faithfully; pass it on, each one to his successor. I have absorbed it from you and take it with me to freshen the memory of my service with the Field Artillery.

GROTE HUTCHESON,  
Major General,  
U. S. Army.

### **Road Test of T-35 Tractors**

Battery "A," 83rd Field Artillery, equipped with Holt T-35 tractors pulling one-axle and two-axle loads as mentioned in our last issue, has successfully completed their march from Fort Benning, Georgia, to Fort Bragg, North Carolina. They are now on the return march to Fort Benning. Informal reports indicate that the T-35 has so far demonstrated its ability to handle the two-axle loads.

### **Forage Allowance for this Fiscal Year**

Congress has just appropriated sufficient funds to purchase enough animals to approximately relieve the present shortages in the regular army. At the same time, due to a decided rise in the price of forage, there is an apparent shortage in the appropriation for the purchase of feed during the current fiscal year. In this situation

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the War Department has found itself confronted with the problem of not being able to purchase the animals authorized in the present appropriation act, due to the inability to feed them.

It has been decided better to buy the animals while we may, and by saving forage, eke out enough to feed them. There will be excepted cases, but in general the Cavalry and Field Artillery will be required to save seven per cent., and all other organizations, posts and stations (not excepted) ten per cent, of the regular forage allowance prescribed in Army Regulations 30-480.

The saving prescribed will be made by judiciously regulating the feeding of animals so that during the time of light work, the percentage of cut will be increased to make available the forage required during times of hard training or field service. The War Department is inviting attention to the necessity for closest supervision of feeding; to the importance of grazing; to the prevention of waste and accumulation of forage in stable store rooms, and the improper use of forage. The expeditious disposal of condemned animals is also being recommended.

### **Increase in Noncommissioned Instructors for the National Guard**

Under recent authorization for increase of regular army, noncommissioned officer strength, the national guard field artillery of the Fourth Corps Area received two more noncommissioned instructors; the Fifth Corps Area one more; the Sixth Corps Area one more; the Seventh Corps Area five more.

The number and grades of noncommissioned, field artillery instructors in the various corps areas, as now allocated, is shown in the following table:

|                                   | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Master sergeants .....            |     |     |     |     |     |     | 1   | 1   |     |
| Technical or first sergeants..... | 1   | 1   | 2   | 2   | 2   | 2   | 2   | 1   | 1   |
| Staff sergeants .....             | 4   | 4   | 4   | 4   | 4   | 4   | 5   | 5   | 3   |
| Sergeants .....                   | 6   | 7   | 7   | 6   | 6   | 6   | 9   | 7   | 5   |
| Corporals .....                   |     |     |     |     |     |     |     |     |     |
| Totals .....                      | 11  | 12  | 13  | 12  | 12  | 12  | 17  | 14  | 9   |

The Infantry have a total of 278; the Cavalry 52; the Coast Artillery 46.

### **Thirty-Eighth Division, National Guard**

During the week of August 17th to 24th the whole Thirty-eighth Division, Indiana and Kentucky National Guard, was on active duty at Camp Knox. Field Artillerymen take pride in the work of the commanding general who was built up this splendid organization,



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Major General Robert H. Tyndall. His experience as a national guardsman extends back to prewar days when he was a junior officer of field artillery.

Brigadier General Ellerby W. Carter commands the 63rd Field Artillery Brigade of the division; Colonel Daniel M. Carrel, the 138th F. A., and Colonel John S. Fishback the 139th F. A.

### **National Guard Regimental Publication**

We have received the *Parallax*, a mimeographed, regimental monthly of the 160th F. A., Oklahoma National Guard, which is worthy of special praise. The July number contains very full instructions for preparation for and moving to camp, including equipment to be taken (personal and organization), entraining, detraining, disposition of animals, etc., etc. Colonel Key, the commanding officer, and Major McCormick, the editor, are to be complimented on the treatment of the subject.

### **Field Artillerymen of the Seventy-Sixth Division**

For the third consecutive summer, officers of the 302nd Field Artillery conducted fire at the South County Artillery Ranges during the annual tour of duty of the Rhode Island National Guard batteries. The first day of problems for the reserve officers was Saturday, June 21st. Assembling at the old Benefit Street Arsenal at 6:45 A.M., the journey to the southern shore of the state was made *via* automobile. The party included Lieutenant Colonel Barker, Major Harwood, Captain Albrecht and Lieutenants Pretat, O'Rourke, Lutz and Freeman.

Upon arrival at the Perryville Church about 9:15 A.M., a guide was found waiting to conduct the reserve officers to the camp. Problems for the day were all on the old range immediately adjoining the camp. During the period from 9:50 A.M. to 1:00 P.M., each of the officers fired two problems apiece. Critique was made by Captain Bryan of the regular army. Colonel Chaffee was an interested observer of the firing, and his comments *pro* and *con* were very much to the point and were very helpful to the officers.

After luncheon with the battery officers—a very much enjoyed repast, due to the appetites of all present after six hours in the open air—the officers listened to instructions as to telephone communications, operation and maintenance by men from the special detail of the battery. This instruction was accompanied by the setting up of instruments, connecting up of switch-board, etc.

The next work on the day's program consisted of instruction and practice on the fire control instruments. Captain Albrecht took charge of one group and Lieutenant Colonel Barker the other group. Each officer was given opportunity to calculate deflections and angles

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of site. This concluded the day's service and every man present voted the day a big success.

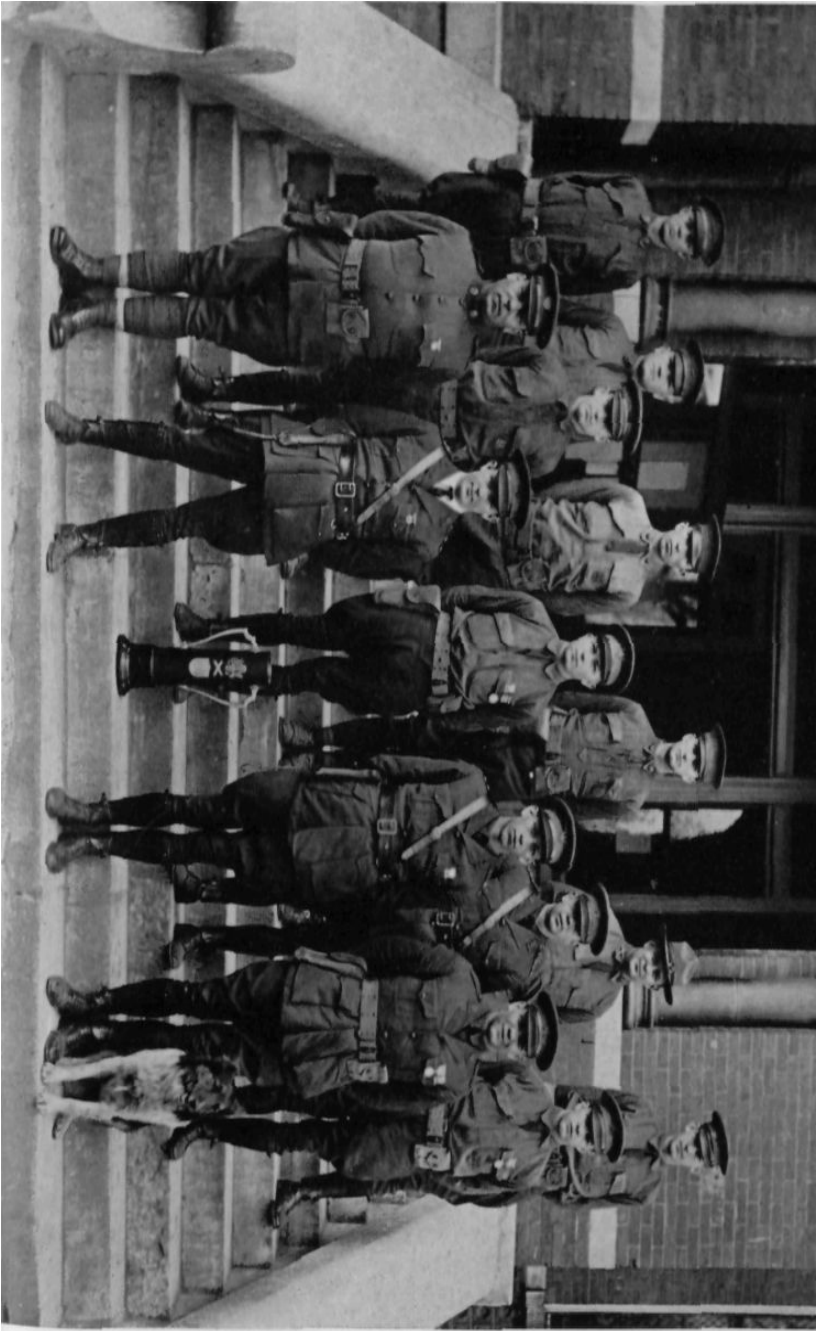
The second day of field service for the 302nd was July 12th. Officers present included Colonel Barker, Captains Hartwell and Quinham, and Lieutenants Veaudry, O'Rourke, Dana, Burton, Coward and Freeman. The firing was conducted on the new range, five miles west of the old one. Visibility was much better than on June 21st. At ranges of about 2200 yards each man conducted two problems, and after the critique by Colonel Barker and Captain Bryan, Colonel Chaffee announced that he had seen a decided improvement in the morning's firing over previous days in the field. The afternoon was given over to instruction by Colonel Barker on the complete calculation of deflections on the French aiming circle, applying the target offset and aiming point offset mechanically instead of on paper, as formerly. After each officer had calculated several deflections correctly, all agreed that this method was better. At the close, the officers expressed to Colonel Barker their desire to have him thank Colonel Chaffee in their behalf for his many courtesies to the 302nd.

### **Distinguished Colleges and Honor Schools, 1924**

The list below shows the colleges and schools at which field artillery units of the R. O. T. C. are maintained, which attained the "Distinguished College" or "Honor Military School" rating.

- Agricultural and Mechanical College of Texas.
- Alabama Polytechnic Institute.
- Colorado Agricultural College.
- Cornell University.
- Culver Military Academy.
- Ohio State University.
- Oregon Agricultural College.
- Purdue University.
- University of Illinois.
- University of Missouri.
- University of Oklahoma.
- Virginia Military Institute.

The Field Artillery has a total of twenty (all senior) R. O. T. C. units. That twelve out of twenty should attain this rating is a good showing. It is 60 per cent., whereas but thirty-four senior units of all branches out of the total of one-hundred-and-thirty-five, or 24 per cent., were given this mark of recognition. Furthermore, of the eight field artillery units not listed, six have only voluntary attendance at military drill or instruction.



**FIELD ARTILLERY PISTOL TEAM OF THE ALABAMA POLYTECHNIC INSTITUTE**

Winners of the R. O. T. C. Cup 1922-1923 and 1923-1924.

Front Row, left to right: Staff Sergeant George Morham-Coach, H. Cobb, A. R. Swanson-Captain, J.H. Reeves

Middle Row: Earl Barfs, W. B. Wood, C. A. Smith, J. A. Melotosh,

Top Row: Rodney Nelson, C.B. Miller, M.B. Smith, C.C. Smith, T.B. Wilder



LIEUTENANT WILLIAM A. BURNS

## CURRENT FIELD ARTILLERY NOTES

### Enlisted Strength of Regular Regiments

About the end of the last fiscal year, June 30, 1924, the enlisted strength of the Regular Army rose above the average which the War Department considered we could not exceed, and still remain within the numbers authorized by Congress. In this situation first enlistments in those arms of the service already over strength, were stopped. However, the Field Artillery still finds itself below peace strength and seeking recruits. This shortage has worked a hardship on nearly all our regular units since the war. At present most of the regiments in the Eastern United States are now up to strength, but in general the units in the West are still far short. The greater shortages on June 30th are indicated below:

|                           |                            |     |
|---------------------------|----------------------------|-----|
| 4th F. A. (less 1st Bn.)  | Fort Sam Houston .....     | 227 |
| 5th F. A. (less 3rd Bn.)  | Fort Bragg .....           | 253 |
| 8th F. A.                 | Hawaii .....               | 370 |
| 10th F. A.                | Camp Lewis .....           | 595 |
| 12th F. A.                | Fort Sam Houston .....     | 345 |
| 13th F. A.                | Hawaii .....               | 389 |
| 15th F. A.                | Fort Sam Houston .....     | 361 |
| 17th F. A. (less 3rd Bn.) | Fort Bragg .....           | 268 |
| 76th F. A. (2nd Bn. only) | Presidio of Monterey ..... | 114 |
| 82nd F. A. (one Bn. only) | Fort Bliss .....           | 107 |

The shortages are being filled and we can only look forward to an amelioration of the conditions of training and morale, which in so many of our units have been serious.

### Death of Lieutenant William A. Burns

Second Lieutenant William A. Burns, Jr., 82nd F. A. Battalion, died at William Beaumont General Hospital, El Paso, Texas, July 19, 1924, as a result of injuries sustained in falling from a horse, while preparing a jumping entry for the annual Fort Bliss horse show. The horse tripped on a brush hurdle of medium stiffness and fell to the ground. Lieutenant Burns, unable to free himself, was pinned beneath the horse, his chest being badly crushed.

Lieutenant Burns was born at Brooklyn, New York, July 2, 1900, but moved early in his life to Rockville Centre, L. I., where his family resides at present. He entered the Army at Syracuse University October 1, 1918, where he was a member of the Student Army Training Corps. He entered the United States Military Academy November 4, 1918, and graduated June 12, 1922. His first assignment was with the 12th F. A. at Fort Sam Houston, Texas, where he served until September, 1923, when he was transferred to the 82nd F. A. at Fort Bliss, Texas.

Lieutenant Burns was a prominent all-round athlete, being a

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member of the baseball team at West Point and taking an active part in all forms of athletics since his graduation. His many friends in the army, gained during his short service, will be grieved to learn of his sad misfortune.

### **Fifth Field Artillery Qualifications in Pistol Firing and Gunnery**

The Fifth is located at Fort Bragg and has been subject to the demands of the Field Artillery Board and heavy calls for post maintenance during the training work. To obviate the loss of time and man power necessary to open a pistol range, a small, protected range requiring no special guards was selected within a few hundred yards of the post. Six targets were installed by the middle of April and firing commenced. Later four more targets were added.

Two lieutenants were placed in charge. To avoid interference with pistol firing, small numbers of men were instructed and allowed to fire record as they became available. Out of a firing strength of 563 there were 38 experts, 119 sharpshooters, 188 marksmen—a total of 61 per cent. qualified, with 218 unqualified. Under a less organized system under the same handicaps last year a total of 17 per cent. were qualified.

Gunners instruction was begun early in January. For this purpose guns were placed in the battery areas. Competent noncommissioned officers were placed in charge of each gun. The men were instructed when they could be obtained. As a result of the reduced personnel of the regiment and the large number of men necessary for the maintenance of matériel and quarters, the greater part of this instruction was done at noon time, after drill periods, Saturdays and holidays. The examinations were begun the first week in March and completed the first week in June. Out of 531 men available there were 263 experts, 90 first-class gunners, 31 second-class gunners, 40 unqualified and 107 not examined. This is 72 per cent. qualifications.

### **One-Hundred Per Cent. Membership in the Association**

We are glad to mention the fact that the 118th F. A., Georgia National Guard, has one-hundred per cent. of its officers, members of our Association. Not only is this true for the coming year, but this is the second successive year that this has been the case.

During the past quarter the Fifth, Tenth, Eighty-second and Eighty-third regiments of the regulars have also reached the one-hundred per cent. mark and a considerable number of regular regiments are over ninety per cent. These figures are encouraging to those to whom the active management of our affairs fall, and the

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thanks of the whole Association are due to those whose interest has produced these results.

### **Polo**

#### *Polo at Madison Barracks*

Madison Barracks and Pine Plains Camp have become this year the joint centre of increasing field artillery training activities in the Second Corps Area. In consequence, interest in polo has largely increased. The Second Battalion, Seventh Field Artillery team, has been lining up as follows: Lieutenant Blakeney, No. 1; Lieutenant Smith, No. 2; Lieutenant Conrad, No. 3; and Lieutenant Robertson, No. 4.

A series of games have been played with a team from the 105th Field Artillery, New York National Guard, a team of students from the Princeton, R. O. T. C. Unit, and a freebooter team. Among the officers playing were Colonel Wm. W. Harts, Commanding Seventh Field Artillery, Major J. N. Greely, Commanding Second Battalion, Seventh Field Artillery, Captain Ralph Heard and Captain Rumbough, the latter two detailed with the New York National Guard, Captain McAuslin of the New York National Guard, Captain Maraist and Lieutenant Sibert with the Cornell R. O. T. C. Unit and Captain Dash, Lieutenants Corridon, Carm, Harris and Covey of the Seventh Field Artillery. The quality of polo is lowered by a shortage of suitable ponies. The two best games were played in July with the 105th F. A., which sent in their own ponies twenty-five miles from Pine Plains Camp. The 7th F. A. won the first game 3-1 and tied the second 3-3. All other games were won by the 7th F. A. Major General R. L. Bullard, Commanding the corps area, witnessed one game, as did Brigadier General Richardson, Commanding 52nd F. A. Brigade, N. Y. National Guard. These games are popular locally and a hundred or so automobiles are parked along the sideboards every Sunday. The Thousand Islands Polo Tournament will probably not be held this year. But a series of games between the Second Battalion, 7th F. A., and the Cornell R. O. T. C. Unit is being planned at Syracuse or elsewhere.

#### *Junior Polo Championship*

The Junior Polo Championship was won by the Midwick Club from California. Though for two years the Army has held this title, its loss to us is accompanied by compensating gains. We are on the way to defend the International Military Polo Championship against England next year. This season has tried out new players and ponies for us; it has given our players a share of that fast experience, necessary to a world's military championship, which we intend to retain. We played to win the Junior Championship

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this year; but victory in this contest was not a necessary item in our greater polo strategy.

The final army squad which defended our Junior Title was composed of Major Louie A. Beard, Remount Service (captain), Major Jacob L. Devers, F. A., Major Arthur H. Wilson, Cav., Captain Charles H. Gerhardt, Cav., Captain Candler A. Wilkinson, Cav., and Lieutenant John A. Smith, F. A. Beard and Wilson are veterans of previous years; the rest are new to the Army's team.

The entries in the Junior Championship tournament are limited to teams of not more than twenty goals handicap. With this restriction, the games in the championship series are played without handicaps. As finally entered this year, the various teams were rated as follows: Meadowbrook, 20 goals; Bryn Mawr, 20 goals; Rockaway, 18 goals; Army, 17 goals; Midwick, 20 goals; Rumson, 18 goals.

Here are the results of the play.

|                   |     |   |                   |     |                  |
|-------------------|-----|---|-------------------|-----|------------------|
| Meadowbrook ..... | 9}  | } |                   |     |                  |
| Bryn Mawr .....   | 8}  |   |                   |     |                  |
|                   |     |   | Meadowbrook ..... | 2}  |                  |
|                   |     |   | Midwick .....     | 14} |                  |
| Midwick .....     | 12} | } |                   |     |                  |
| Rumson .....      | 17} |   |                   |     |                  |
|                   |     |   |                   |     | Midwick ..... 16 |
|                   |     |   |                   |     | Rockaway ..... 3 |
| Army .....        | 8}  |   |                   |     |                  |
| Rockaway .....    | 10} |   |                   |     |                  |

The following account of the Army-Rockaway game is quoted from the *New York Times*:

"Coming from behind after the United States Army team, favorite in today's polo match, had gained a lead of seven goals to four in the first half and appeared to be sure winners, the Rockaway four braced and, converting loose play into real teamwork, outplayed the officers throughout the second half, overcame the lead and won in a garrison finish by the score of 10 to 8. By today's victory on Herbert Field at the Rumson Country Club, the Rockaway four earned the right to meet the Midwicks of California in the final match for the National Junior Championship Saturday afternoon at 4 o'clock.

"Rockaway, which did not get going in the first half, held its opponents to a single goal in the last four chukkers, 'Jingles' Wilson being the only player able to score. This was made shortly after the opening of the fifth period. The Army advanced several attacks during the second half, but was repulsed by the better-mounted Rockaway horsemen, who broke the offense of the Army and went through the badly shattered defense. The officers were so badly harassed that when they did have an opportunity to score, their shots went wide of the mark.

"Rockaway tallied the first goal in the initial chukker when Doctor



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Richards received a back pass from Raymond Belmont and shot the ball through. A half minute later Cowdin made an easy goal Two minutes later Major Devers had a clear field after a pass from Major Beard and scored. Captain Gerhardt took a pass from Major Wilson and made a pretty near-side angle shot for the Army's second tally and made the third a minute later with a curved ball.

"Dribbling the ball away from the bunch, Cowdin shot his first goal in the third chukker from the 60-yard line. Beard followed with an easy shot. In the third period Smith, mounted on a fast pony, sped over three-quarters of the field and shot a pretty goal before the soldiers were able to catch him.

"The Army seemed to be hitting harder than their opponents at this point. Gerhardt added another goal from a difficult angle. After three attacks that went wide of the goal posts, Devers finally put it through, and the first half ended with the Army in the lead at 7 to 4.

"Rockaway started the second half with a rush, but all the shots for goals went wild. Getting the ball at midfield, Wilson took it down for a goal. From then on Rockaway got together and showed some real polo. Smith tallied the only goal in the sixth. A half minute after the start of the seventh chukker Belmont got away and shot an easy goal. Less than a minute later this aggressive player, whose ponies seemed the fastest on the field, sped down the field alone and shot another pretty one.

"The soldiers were fighting hard but were being outplayed and held scoreless. There was great applause when Cowdin tied the score with a straight shot to a goal soon after the opening of the final chukker. Smith made it 9 to 8 and Cowdin clinched the game a minute later with the tenth and final goal of a thrilling game."

### **Polo Do's and Don'ts**

The following points in polo extracted from Forbes' "As to Polo" (J. M. Forbes & Co., 614 Sears Building, Boston—Price \$3) have been sent in by Major J. W. Downer, 10th F. A. They have proved of value in improving play in the regimental team of the Tenth:

#### DON'TS

- Do not take the ball around the field except when saving goal.
- Do not knock out or over.
- Do not hit long strokes toward the sides in the offensive half of the field or hit into the offensive corners.
- Do not try for goal from too great a distance or from too sharp an angle. Play approach shots.
- Do not two of one side ride for the ball at the same time. This is an inexcusable blunder.
- Do not two of one side ride out the same opponent.
- Do not two of one side gallop parallel to each other. Either one or both are inexcusably out of place.
- Do not gallop parallel to the ball.
- Do not support your own man from too close.

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Do not let your corresponding opponent, when in position, ride clear.  
Do not carry your stick anywhere but in the perpendicular.  
Do not back the ball into a rush of oncoming ponies.  
Do not hit the ball across when a back shot will do.  
Do not call "Go on" when you mean "Leave it."  
Do not ride across the line of play too close to oncoming opponents.  
Do not knock directly in front of goal.  
Do not play for your opponent's misses.  
Do not leave an opponent whom you have covered, to get the ball when it was last hit by one of your side who is clear behind you.  
Do not hit to an opponent who is clear.  
Do not play in circles. Play up and down.  
Do not try to do the work for another player of your side who is in position, in the belief that you can do it better.  
Do not jerk your pony's mouth at the moment of hitting.  
Do not stop the pony by turning him. Pull him up and turn him afterwards, otherwise you ruin your play and his legs.  
Do not hit the pony with the mallet.  
Do not gallop when a chance comes to pull up and wait.  
Do not use a sharper bit or more harness than a horse absolutely needs.  
Do not hold yourself in the saddle with the reins.  
Do not ride into the play at a dangerous angle.  
Do not turn to get into the line of play from too close to a pony that is riding straight. The ponies may trip.

### Do's

Turn your horse to the new direction before reaching the ball if it is going slow or standing still, and if you have time.  
Call "Turn" or some equivalent if you back the ball or miss it and it changes direction.  
Call "Go on" if you take the ball along.  
Hustle your corresponding opponent even if you can't reach him.  
Reach out and try to crook your opponent's mallet when he is hitting, even if it looks as though you couldn't reach it.  
When on the right of way and headed to goal, put on the greatest possible speed at the earliest possible moment.  
Know where your corresponding opponent is all the time, and play so as to cover him.  
Hit short strokes and play for a second chance, when there is an opponent in front who is clear.  
Manœuvre to place yourself on the mallet or right side of your corresponding opponent.  
Say the same thing always in the same way in calling to your side.  
Make the line of play straight up and down the field except when defending goal.  
Use your voice constantly to tell your side what is going on.  
Look where you are sending the ball before hitting and avoid putting it within reach of an uncovered opponent.  
Wear a helmet to protect the hand and face from getting hit by mallet and ball.  
Do not leave your position except when taking out an opponent.  
Let the ball roll over your back line, if it will, when hit by an opponent.  
Watch the eyes of your corresponding opponent and manœuvre to cover or leave him when he is watching the ball.  
Use the voice before the rein, and both sparingly.  
Sit well back in the saddle and let the horse do the hustling.  
Bring the horse up almost to a standstill before turning him when the direction of the play is reversed.  
Save your pony's head from being struck by opponent's stick by fending with your mallet.  
Save your pony in every possible way. Don't gallop an unnecessary inch.  
Stop your horse by the alternate system of pull and let go, never by steady pulling.