Artillery in Attack

Course In Organization and Tactics.

Lecture No. 8,

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In considering this subject, it is well first to determine a general measure of the tactical value of Artillery in its relation to the other fighting arms of the service. The very essence of this value is clearly stated by von der Goltz, and our own eminent authority on tactical matters, Colonel A. L. Wagner, has used this statement as the text of his able treatise on the subject.

Von der Goltz writes: The "artillery is the indispensable companion of the infantry. It makes room for the latter where it is not able to force its way single-handed. It prepares the way for the battle, shields the foot soldiery from unnecessary losses, when the best forces would be wrecked by too great impediment, and provides it with covering and defense when it is compelled to retire."

Colonel Wagner, in his initial development of the text just given, and with the assumption of conditions, as an illustration, involving an attack by unsupported infantry against an infantry position supported by artillery writes:

"Long before the attacking force reaches a position where it can use its rifles with effect, it is opened upon by the hostile guns, and the shrapnel dropping in the midst of the columns compels a deployment before the requirements of fire action demand such a

movement, and while considerations of mobility make the retention of columns desirable. The advancing troops suffer from a fire which they cannot return; and the instinctive impulse of self-defense causes them to open fire at long range; the enemy is encouraged by the ineffective volleys or wild individual fire of the assailants, and by the time the latter arrive within effective rifle range of the position, they are so shattered by the fire of the artillery, so out-of-hand by the long advance in deployed order, and so demoralized in fire discipline, that they fall an easy prey to the defender's infantry, even if they be not checked by the artillery fire alone. Artillery is, then, primarily necessary to oppose the guns of the defense in order that the infantry may take up, at comparative leisure and in comparative safety, a suitable formation for attack. Afterwards, to protect the infantry from a fire which it cannot effectively return, the artillery must open such a cannonade upon the defender's batteries as to cause them in self-defense to turn their attention from the foot troops to the assailant's guns. This causes a duel between the opposing batteries, which is generally carried on at ranges varying from 3,000 to 2,000 yards, and continued until the guns of the defender are silenced or the assailing batteries find themselves unable to continue the contest. In the former case, the infantry advances as soon as the defender's guns are silenced.

"Even when the assailant's artillery has demonstrated its superiority over that of the defender, a permanent silencing of the latter can hardly be hoped for; and, indeed, the cessation of fire may be due merely to husbanding of ammunition for the more decisive stages of the fight. The infantry must, therefore, still expect in its advance to encounter the fire of hostile guns; and to prepare the way for the attacking troops, the artillery must still be prepared to

crush with a superior fire every hostile battery which opens upon the attacking infantry. But the infantry of the assailant, even if the fire of the defender's guns be entirely diverted from it, is still subjected to the fire of the hostile infantry, which, in a stationary position, protected by intrenchments, and firing at known ranges, can paralyze the advance of its opponents by the superior effectiveness of its fire. It is necessary, then, that the artillery should turn its attention to the infantry of the defenders, which it must endeavor to overwhelm with such a storm of shrapnel as to shake its morale, impair the accuracy of its fire, and neutralize the advantage which it would otherwise have over the infantry of the attack. The latter may thus be enabled to approach within effective rifle range before opening fire."

After the infantry is well committed to the assault, the artillery must continue to lend its aid to the attacking troops, part (when the nature of the terrane renders it practicable) continue to fire upon the enemy over the heads of the advancing infantry, and part pushing ahead with the latter and engaging the enemy at short range, without, however, exposing itself to effective rifle fire. Thus the blows which the defender's guns would deliver upon the attacking infantry are warded off, as it were, by the assailant's artillery; the rain of bullets showered upon the defender is intensified by a storm of shrapnel; and the morale of the advancing infantry is strengthened by the support of its "indispensable companion."

If the attack is repulsed, the lines of artillery furnish a solid support upon which the infantry can rally. If the attack be successful, the batteries are quickly rushed forward to the captured positions, in order that they may check, with their fire, the attempt of the enemy to recover the lost ground."

Thus we see the truth of Von der Goltz's terse statement clearly expounded—the artillery of the attack is called upon to effect the initial damage to the morale, personnel, and materiel of the opposing force, just as soon as contact is made, even in some cases when contact is only foreseen and not yet actually effected. Truly it prepares the way for successful advance of its infantry consort, and ever aids it in the attack until it has been pushed home and the position won, or, if the attack is finally repulsed, protects the infantry in its retreat, even to the extent perhaps of its own destruction or capture.

An equally and perhap more forcible illustration might be drawn of the value of "Artillery in Defense," but, with that phase of the subject, this paper has not to do. With the tactical value of the artillery in offensive action thus fairly presented, it will be proper to proceed to a more detailed examination of the tactics of this arm of the service, under the several heads which are pertinent to this discussion.

Field Tactics of Artillery. The maneuvers and formations of field artillery are in themselves simple. The battery marches in column and deploys therefrom to the front or to either flank; it advances in line, and either from column or line, it may go into action to the front or rear and to the right or left, and in all cases it fights in line, or in slight modifications thereof.

Sight must not be lost however, in conceding the truth of this statement, of the difficulties of terrane which perhaps in the majority of cases render more or less arduous, and often times almost impossible, the execution of these same simple maneuvers and formations; difficulties of terrane which would mean but little to infantry troops; nor should credit be withheld from the artillery for the thorough

and extensive training of the personnel, in matters theoretical and mechanical, which is now necessary to the proper care and preservation of the equipment and for the production of efficiency in the hour of trial.

"Fighting in Line" as construed in its battle sense, is far from meaning the even intervalled, well dressed line of the drill plain; briefly stated the so-called line is governed by the following conditions: First, the intervals must not be so small that two adjacent gun detachments will suffer by the same well placed shell or shrapnel from the enemy, nor should they be so great that the total line of the battery will extend beyond the limits of the personal supervision of the Battery Commander. Second, no unit of the line should be so far advanced to the front as to mask, or otherwise impair, the fire of the other units, nor should any be so far retired as to be itself masked, or by its blast, interfere with the proper service of the adjacent pieces; and third, in so far as is compatible with the foregoing conditions, all pieces should be so placed as to obtain the greatest measure of concealment possible, for in case of "Artillery in Attack" *concealment* is the synonim of *protection* and in most cases, except so called "attack from position" in battles lasting over several days, will be the only measure of protection that can be provided.

Within these general, yet important limits, the artillery fighting line is formed, in accordance with the nature and accidents of the terrane.

Requirements of Position. Under the head of requirements of position may be noted many conditions of greater or less importance which must always be striven for, but which only in rare instances will be found to apply in single cases.

On the side of the defense time is generally had for the purpose of producing, by labor, favorable

conditions, and also for the elimination of defects, but with the artillery in attack such time is rarely granted and the choice of position must be quickly made and that position chosen which affords the maximum of advantage with the minimum of defect.

The ability to unerringly yet quickly select this position is one of the qualifications of an efficient artillery commander, whether he be of a battery acting independently, or the senior officer of the Divisional or Corps Artillery.

The advantages of position to be sought may be briefly enumerated, and approximately in their relative order of importance. First in this order is a position affording "effective command" and "good view" to the limit of the fighting ranges of the guns towards both the front and the flanks. "Effective command" implies a greater or less degree of elevation of the position above the terrane to be fired over. This elevation should be sufficient to prevent cover, or accidents of terrane in the foreground from interfering with the fire to the distant portions of the field, yet not so great as to cause a dead angle, in the immediate front of the guns, to which they cannot be depressed.

This last it may be said, applies only to artillery in defense, but it may often happen that the attacking force is thrown suddenly on the defensive in the event of successful counter-attack and the repulse of the infantry troops which the artillery is supporting.

"Good view" is without question a prime requisite to accurate and effective fire, but it is not absolutely necessary; the use of indirect fire by both field and siege artillery is perfectly feasible, provided a fairly adjacent observing station can be found and time is granted for the determination of the relative position of guns and station.

Theoretically, indirect fire can be made accurate and effective and its employment has much to be urged in its favor; the results obtained by the French service and even the results of the short period of trial of our own new equipment, are very successful illustrations of the efficiency and accuracy of this method and must appeal strongly to all students of the question, but it remains to be seen how greatly the strain and confusion of actual conflict will impede the accomplishment of the desired result.

According to European ideas indirect fire will in future be the method employed in the preliminary deployments of the battle, both on the defensive and the offensive.

"Good view" is however essential in the critical stages of any conflict and in the writer's opinion direct fire, from positions properly concealed, will accomplish the best results at all times provided the morale of the men is not deficient.

"Good view" to the flanks is also of importance to the attacking artillery, for it may frequently happen that it will be necessary to occupy a position with only nominal support and the artillery may be forced to make a change of front of a part, or even all, of the guns in order to repel a flanking counter attack.

Next in order of importance must come considerations of ammunition supply. It may fairly be argued that where the guns can go the caissons can follow. True, but with the field pieces of to-day, properly termed Rapid Fire Guns, the maximum rate of fire in certain stages of the battle will perhaps equal or even exceed twelve shots per gun per minute, and the expenditure of ammunition becomes excessive. This too is a very moderate estimate for the guns are actually capable of eighteen to twenty shots per minute though at the latter rate they are unaimed.

The guns in the first place may have reached their position at a considerable expense of time and effort and unless the conditions of the approach for the caissons can be immediately improved by opening fences or walls, or by a moderate amount of grading, or cutting of timber the position is faulty. It may be noted here that if the means exist for the proper service of ammunition, a line of retreat is also open to the guns in case of the necessity for retirement, but it is not this consideration which gives importance to facility of approach from the rear.

Next in order to facility of approach from the rear, is facility of movement to the front; the word "attack" implies a movement against or towards the object of attack, and the forward movement of the artillery is of almost equal importance to the forward movement of the infantry itself. It is recognized that it may be considered heresy, by some officers, to place the facility of approach from the rear as leading in importance the question of direct forward movement, and it may be well to present an argument in support.

It is self evident that Artillery in Attack must advance from its "reconnoitering position" to one from which it can effectively silence the guns of the defense, and again a portion of it must advance from this position in support of the infantry attack, and finally again, if the attack is successful, to the occupation of the captured lines, but it may be rightly asked, is it absolutely necessary that the guns should move directly to the front from the position in which they are at the time fighting?

If the terrane is such that a forward movement over any portion of it may be equally rapid, and if it were also desired to move all the units of the line forward simultaneously, it would certainly be necessary to move directly to the front, but the latter

movement is not in accord with proven tactical practice, and the former will usually be denied by the nature of the terrane, only rarely will it be allowed.

A rapid advance for 1000 or 1500 yards will usually mean that the guns must seek some more or less defined avenue afforded by the terrane, and often times, in heavily wooded country, roads only will afford the desired route; moreover, as only a portion of the artillery moves forward at a time, a battery or battalion *withdrawn to the rear of the artillery position*, and then sent forward over that route by which it can most quickly and safely attain its new position and open fire therefrom, will probably suffer less loss in men and horses, will acquaint the enemy less as to the actual extent or time of the movement, and will impede the fire of its own lines less, than if it attempted to move directly to the front.

Next in the requirements of a good position is the question of *concealment*. To the attacking artillery *concealment* is practically synonimous to *protection* and usually it will be all that may be afforded unless the battle lasts over several days and the guns are emplaced during the night.

"Concealment is of vastly more value to-day with smokeless powder than with the smoke powders of the past; no amount of cover then could hide the position of a battery when once it opened fire, but now the detection of a position at ranges over 2500 yards is a matter of considerable difficulty, provided even only scanty cover exists about it. The success of the Japanese in using the growing corn and millet as cover for their artillery, in attacking the Russian positions, is an apt illustration of its value.

"Concealment," and "protection" as well, is important to the ammunition supply, for unless the caissons can be handled safely in a position quite close to the guns themselves, the ammunition supply

becomes inadequate and the guns lose a large percentage of the effectiveness, which has been gained in their design.

There are many other desirable features which might be mentioned as applying to a good artillery position for attack, but they are too well known to require reference. As before stated a perfect position will rarely, if ever, be found, but if view of the enemy's position, coupled with sufficient concealment to allow full preparation for effective fire, before the position is discovered by the enemy, can be obtained by the artillery commander, he will have chosen his position well.

It will be noted that as compared with defensive positions, which can be prepared and improved to greater or less extent according to the time and labor available, and from which the ranges to the critical points of the field of fire can be ascertained previous to the appearance of any target, and not under the adverse condition of subjection to fire, the positions for attack must be chosen without reference to improvement or preparation.

It must be admitted also by even the most sincere advocates of the old school, that to-day the artillery of the attack can not hope to go into position in the open, and within range of the guns of the defense already in place, without suffering severe and perhaps irreparable loss in men and horses.

Therefore concealment becomes more and more an essential feature in the tactics of to-day.

Successive positions to be occupied in Attack. Colonel Wagner writes:— "To profit fully by the great power of artillery it should be brought into action as early as possible; on the march it is accordingly placed near the head of the column, preceeded only by so much infantry as may be necessary to protect it while marching and in its initial position.

This initial position may be termed the "*reconnoitering position*" and its selection will depend upon many different conditions, but generally between the ranges of six thousand and three thousand yards from the enemy, it will be possible to find suitable positions which may be occupied unseen, especially as the batteries of the assailant will always be favored by distance of view, generally by cover, and sometimes by fog or rain. In general terms, it may be said that the position selected should be as near the enemy as possible without incurring too great danger of an attack by hostile infantry in such force that the guns and thei rescort alone can not repel it. A cannonade at long range should generally be avoided, but if the enemy opens with effect he must be answered.

Preparatory to the occupation of the "reconnoitering position," a *rendezvous position* should be selected, under complete cover, directly in rear of the place where the guns are to come into action and on the flank of the line of advance of the troops so as not to interfere with their deployment.

From the "reconnoitering position" fire is opened by the artillery upon the enemy, under cover of which the infantry deploys, and during which the commander selects his point of attack and matures his plans as the position of the enemy becomes more and more disclosed by the fire of his guns.

Every attempt is made to gain superiority over the hostile guns, and as the enemy endeavors also to crush or silence the batteries opposed to him the artillery duel begins at the reconnoitering position. The decisive duel generally demands however closer ranges and, as soon as infantry detachments can be pushed forward for their protection, the batteries advance to their second position which is generally about 2000 yards from the enemy's artillery and may be termed the *duel position.*

From the duel position fire is kept up against the enemy's artillery until it is silenced. The guns then, generally without changing position, cannonade the selected point of attack to prepare the way for the infantry assault. As the assault progresses part of the guns (generally the corps artillery) remain in the "duel position" and fire over the advancing infantry as long as they can safely do so; the rest (generally the Divisional Artillery) push on to a new position about 1000 yards from the enemy, which may be termed the *supporting position.*"

Thus we may say that there are four general posiations to be occupied by the Field Artillery in attack.

1st. The "Rendezvous position," under the best concealment and cover available, where complete preparation is made and such instruction given that the least possible delay may occur during the "critical period," that is the time consumed from the occupation of the reconnoitering position, until sufficently accurate range is obtained for commencement of an effective fire.

2nd. The "Reconnoitering position," also under cover if possible, from which the effort is made to fully develop the position of the enemy.

3rd. The "Duel position" from which the bulk of the available artillery makes its heaviest attack upon the enemy's lines and endeavours to crush, or at least effectively silence his artillery.

4th. The "Supporting position" occupied under cover of that part of the artillery retained at the "duel position," by the guns attached to, and moving in support of, advancing infantry.

It will be inadvisable to attempt to assign even approximate ranges for these different positions, because the nature of the terrane will govern it to a very wide degree, but in general it may be said that they will be found within the following zones.

The "Rendezvous" and the "Reconnoitering" positions (the former naturally governed by the latter) between the ranges of 6000 and 3000 yards.

The "Duel" position between 3000 and 2000 yards, and the "Supporting" position wherever it can be found inside of the latter zone, and as close to the enemy's lines as possible without subjecting the guns to absolute certainty of capture in case of the repulse of the infantry attack, or even of only a temporary loss of ground.

Nor is the number of different positions an absolute rule by any means; more than those quoted may require occupation by artillery advancing in successive echelons, and oftentimes the "reconnoitering" may be omitted where the terrane renders it safe to ocoupy the "duel" position at once, and make the "reconnoitering" position identical with it.

And again in rugged terrane where contact develops very slowly, and hours and even days are available for preparation the batteries may be pushed forward and entrenched at night, well within dueling range, and fully prepared to open fire with the first available light at dawn, upon decisive points in the enemy's lines.

These latter tactics have been wonderfully exemplified by the Japanese in the present eastern war and the attack from "guns in position" emplaced, concealed and carefully prepared during the hours of darkness, will certainly find frequent place in battles fought over difficult terrane where the successive forward movements of the artillery is practically impossible, and the infantry must go forward alone, though not unsupported by effective friendly fire, when the time is ripe.

The great range of the new rapid fire guns, the increased accuracy at the longest ranges due to telescopic sights, and the increased rate of fire due to re-

coil on the carriage, and fixed ammunition, render it more and more possible to adopt these tactics.

Improvements in Field Equipment. It will be well at this point to refer to the improvement in the new Field Artillery Material with which it is the present purpose of the War Department to re-arm our service.

The principle changes to be noted in the new material as compared with the present equipment are briefly as follows:

1. Recoil on the carriage (long type) replaces recoil over the ground.

2. Telescopic sights replace the present open ones.

3. The co-operation of the first improvement mentioned, with that of fixed ammunition, increases the rapidity of aimed fire practically 500 per cent, in other words from a present possible rate of two shots per minute to one of twelve per minute.

4. The number of guns in a battery is decreased from six to four, and the number of caissons is increased from nine to twelve.

5. The total number of rounds per gun (fixed ammunition) to be carried by the complete battery, not including the wagon train, will be 358, as compared with 260 with the present equipment; the apparent disproportion between the increase in the number of caissons and of the rounds per gun to be carried, is due to the reason that fixed ammunition is heavier and more bulky than the present, so that only about thirty-six rounds per chest of limber or caisson can be packed.

6. A new shrapnel, with base bursting charge, containing nearly three hundred hardened steel balls, and in which the balls constitute 53 per cent of the total weight of the shrapnel, replaces the present shrapnel with head bursting charge, which produces

less than 250 effective fragments, 35 per cent by weight of which, are lead bullets incapable of piercing the present steel gun shields.

It may also be noted that the base bursting charge increases the final velocity of the steel balls from 200 to 300 foot seconds, while the effect of the head bursting charge is to decrease the final velocity by 50 to 100 foot seconds.

7. A new shell filled with high explosive which gives approximately 600 fragments on burst, as against the forty or fifty fragments from the present shell filled with black powder, is to be issued.

These are but the principle changes to be effected in the new equipment, now nearly ready for issue, but it is easily seen that a marked influence will be felt upon the *details* of artillery tactics in the field.

The gun and hence the battery become far more efficient units, effective ranges are greater, accuracy and volume of fire is increased, and the extent of the artillery position decreased, thereby affording a smaller target to the enemy.

The fact must not be lost sight of however, that the general principles of the value and use of artillery are unchanged, the details of range, view, accuracy and volume of fire have been increased, adding greatly to the power of the gun, but the wise artillery commander of the future will consider this increase of power in the nature of a reserve under his control, to be used in the moment of necessity to its fullest extent, but not to be dissipated during the early developments of an engagement by efforts to produce a maximum effect prematurely.

It is also contended by many officers of artillery that although this great reserve of power exists in the hands of the Artillery commander, he should not be expected, with a smaller number of guns, to afford the same and even a greater measure of protection to

the advancing infantry, than is now considered possible with the guns assigned to an army corps, under our present organization.

What advantage can we hope to ultimately possess, if while re-arming with an equipment 50 to 100 per cent more powerful than the old, we decrease the number of our guns 33 per cent, as is suggested by the change from a six to a four gun battery? Plainly we derive none at all.

I do not mean to condemn the four gun battery with the new equipment, for the changes made in this connection are based upon perfectly sound reasoning. The new four gun equipment, on account of necessities of ammunition supply, will require a personnel and animals, slightly in excess of that now necessary for the six gun battery, and it must be admitted by all students of this question, that the present organization is as large as can be efficiently controlled by the Battery Commander, especially in time of action.

What then is the proper remedy? The answer is self evident, the number of batteries must be increased. In the French service seven years ago when the Rapid Fire Guns were adopted, the batteries were reduced from six to four guns, and two very genuine reasons existed. First, that the other powers of Europe were still equipped with the old material and the French superiority in artillery was sufficient even with a third less guns. Second, the French government found the expense of re-aramiment excessive and adopted the above as a measure of economy. Now the other governments of Europe are rearming with an equal number of guns to that of the old material, and the French superiority has become a negative quantity.

Let us examine the present strength of artillery assigned to the Army Corps and then suppose an

application of an equal number of guns of the Rapid Fire type:—

PRESENT ASSIGNMENT OF ARTILLERY TO THE CORPS.		PROPOSED ASSIGNMENT OF ARTILLERY WITH NEW EQUIPMENT.	
ARMY CORPS.	1. DIVISION.	ARMY CORPS.	1st DIVISION.
CORPS ARTY.	Div. Artillery. One Battalion of four batteries; each battery of six guns. Total 24 guns.	CORPS ARTY.	Div. Arty. Two Battalions of three batteries. Each battery of four guns. Total 24 guns.
Two battalions of four batteries; each battery of 6 guns. Total 48 guns.	2nd Division. (same) 24 guns.	Four battalions of three batteries. Each battery of four guns. Total 48 guns.	2nd DIVISION. (same) 24 guns.
	3rd Division. (same) 24 guns.		3rd DIVISION. (same) 24 guns.
	Div. Arty. 72 guns. Corps Arty. 48 guns.		Div. Arty. 72 guns. Corps Arty. 48 guns.
	Total 120 guns. 20 Batteries.		Total 120 guns 30 Batteries.

It is urged that the above tabulation is not in excess of the future needs of our service, The quota of 120 guns to the corps is actually less than 4 per 1000 men, and this is a smaller proportion than exists in any of the larger organizations abroad, even Switzerland, which is smaller in population and area than many of our single states, is preparing to re-arm on a basis of 75 batteries, of four guns each, for an army of 150,000 men.

In the present eastern war, although no official reports from our attaches have been allowed to contain the actual number of troops and guns in action at any point, it is very evident that the Japanese, at least, have constantly possessed, with their armies, an artillery on a basis of 6 guns to 1,000 men and indications point to an even larger proportion.

With the 25 Batteries of Field Artillery (this is exclusive of the two siege trains and the three Mountain Batteries) re-armed with the new rapid fire gun, the Army will have as its "Indispensable Companion"

a total of 100 guns, or 33 guns to the corps, a figure so small in the light of every development of modern warfare, as to become pitifully absurd.

Preparation for Action and Occupation of Positon. When contact with the enemy has been developed to the extent of committing the Division or Corps to an engagement, the Chief of Artillery, or the senior artillery officer present for duty, acting under the instructions of the General Commanding, selects the preliminary or "reconnoitering position" for the artillery, and gives his orders accordingly to the battalion or battery commanders.

He also selects the "Rendezvous position", which should be under good protective cover and as closely adjacent to the fighting position, as circumstances of terrane will permit.

The batteries are ordered to this latter point and preparation for action is immediately begun. The individual battery is divided, when in action, into three parts which may be called respectively the "Fighting Battery," the "Reserve" and the "Train".

The "Fighting Battery", with the new equipment, will consist of four guns and six out of the twelve caissons.

The "Reserve" will consist of the remaining six caissons and the spare men and horses. The "Train" will consist of the Battery and Forge truck, the Ammunition Carts, and the allowed escort wagons,

The battalion would prepare in a similar manner and simply consolidate the Battery Reserves and Trains into a battalion formation.

When the artillery is first ordered up to position, from its line of march, the train remains in the rear, under charge of an officer, who keeps it in communication with his chief, follows the batteries as closely as circumstances will permit, without undue exposure to fire or interference with the movements of troops,

and rejoins the command as soon as possible after the close of operations.

At the Rendezvous Position the subdivision of the batteries proper into "Fighting Line" and "Reserve" is effected. The Reserve will remain at the Rendezvous Position, provided the cover is protective as well as concealing, otherwise it must proceed to the first good protective cover towards the rear, not however more than half a mile from the fighting position.

Care must be exercised that a good line of communication exists between these two portions of the batteries, for the Reserve is charged with the duty of supplying promptly the ammunition to be needed at the guns, and to make good the loss in men and horses.

In the meantime the battalion and battery commanders have reported to the chief at the "Reconnoitering Position", and have received instructions as to the general alignment of the position, the targets to be covered, the rate and kind of fire and a brief outline of the results desired.

They then reconnoiter the respective gun positions, send for the chiefs of sections and gunners in the various batteries and give them careful instructions as to target, range, ammunition and rate of fire.

The "Fighting Batteries", at this time, are preparing and when fully inspected and ready are so reported to the chief. When all are reported the order to advance to the fighting position is given and the batteries move forward and occupy their respective stations as nearly as possible at a common moment, and even if only scanty cover exists about the position the initial occupation will propably be undetected by the enemy.

Ranging fire is now opened under the direction of the battalion commanders and as soon as the range

has been determined to the degree of accuracy desired by the chief the fire for effect begins.

This period, it will be conceded, is the *critical moment for artillery in attack.* The guns of the defense are supposedly already in place, and only waiting to detect the position of the attack, to cover it with a hail of shell or shrapnel.

Usually until the first ranging shot is fired the position has remained undetected, but afterwards the enemy's reply must be expected, and of a character more or less destructive in accordance with the time that has probably been allowed the Defense for study of the terrane.

It will therefore be seen that it is most desirable to shorten as far as possible this critical period between the first ranging shot and the development of an effective fire. Every effort must be made to eliminate all causes of delay, and among these causes, none will be so productive as the task of imparting the necessary instructions to an extended line after the hubbub and confusion of the action has begun.

Captain W. L. White, Royal Artillery, in his article on Field Artillery Fire, writes:

"The eight or ten minutes employed in giving these instructions is but a small per centage of the time taken up by the artillery duel, and is really a saving of time, since, as all ranks come into position with a full knowledge of what is required of them, they are enabled to proceed to work more quickly and with greater confidence, and are thus likely to arrive at an effective fire much sooner than if they were hustled into position without being aware of the business before them."

The position of the Artillery Relative to the Infantry. In dealing with the question, of the proper po-

sition of artillery, in relation to the infantry it supports, Colonel Wagner, writes:-

"The center is almost invariably the best place for the divisional artillery when the division is operating alone. A position on the flank would require more maneuvering and would be taken up with greater difficulty. If, moreover, the divisional artillery on coming up to the front were sent to some distance to the flank of the advance guard, it could at first be protected only by cavalry, and its flanks would be exposed to attack before the main body could arrive. To take up such a position with the object of turning the enemy's flank would be to expose the artillery to flank attack in turn. By placing the artillery in the center of the line, the batteries reach their position by the shortest road without flank marches, and as quickly as possible. The guns are more secure, being protected by the other arms in their proper positions, and special escorts are, therefore, unnecessary. Above all, they can direct their fire with equal effect to either flank."

In the case of an army corps, the positions of the artillery may vary between wide limits.

The most logical distribution of the Divisional and Corps Artillery would seem to be, to mass the corps artillery with that of the center division, sending only such part of the former into action as necessity dictates, and to dispose the artillery of the right and left divisions towards their outer flanks, in such position that they can, when desired, concentrate their fire with that of the center upon any designated target, yet at the same time be able to effectively cover the flanks of the whole position.

It may be good tactics under certain conditions to concentrate the whole of the divisional and corps artillery in one extended position, but sufficient reason for so doing will rarely, if ever, occur.

But the groups of divisional and corps artillery, though actually separated, should be placed, so as to afford concentration of fire and mutual support when required, and with the present long ranges this will be practicable across a front of 4000 to 5000 yards, unless accidents of terrane interfere.

We have thus touched upon the positions of artillery in attack, relative to the infantry it supports, and upon the maximum concentration of the guns in those positions, but on the other hand what limit does experience suggest as to the subdivision or *dispersion of the artillery* along the front occupied by the attacking troops. Is the battalion the *proper tactical unit,* or should we consider the battery in this connection as the better of the two?

The answer is strictly dependent upon the conditions existent at the time.

With the *Division acting separately,* the battery may be considered as an effective tactical unit; it is complete in equipment, and efficient in its position in line whether immediately flanked by other batteries or not. The battalion organization would be as strongly necessary as ever, for the purpose of administration and supply, but its subdivision at proper times into batteries acting independently would be tactically correct.

But beyond this point, and except under these or similar conditions, the subdivision or dispersion of the artillery is vicious and *can lead only to the impairment of its efficiency.*

Conditions on the side of the defense may make it mandatory to subdivide its artillery into independent batteries, sometimes even platoons, but with the Attack never.

The choice of the point and hour of attack is ordinarily theirs, and battles are most often decided by the result at the point of heaviest contact, and

not by the average result over the whole field, at any given time. It can not be too strongly urged that the division of a battery, or even of a battalion, in attack is wrong, tactically and otherwise.

If it is tactically correct to mass infantry for assault under the guidance of one mind, so also must the artillery be massed. With the corps deployed for attack the divisional artillery must be under control of the battalion commanders, ready to respond rapidly and effectively to the demands of the infantry for support; and the corps artillery, under its chief, must extend over both the protection of its fire from positions which dominate the designated point of decisive attack, and if possible, the whole field of operations of the corps.

We will thus find that the probable sequence in the task of artillery supporting an army corps, will be as follows:—The artillery of the leading division will accomplish the "Reconnaissance"; the corps arsillery, with one, or perhaps two, battallions of divisional artillery, will occupy the "Duel position" as soon as the infantry have formed and advanced so as to protect it; and finally, the divisional artillery will push forward, under cover of the corps artillery, to the actual and close support of the infantry in the final effort to carry the enemy's position.

Only under the carefull controll of one mind will the guns of the battalion accomplish their most effective work, and afford the fullest measure of protection to the infantry struggling in its advance. The captains of the batteries will be fully occupied with technical mattes pertaining the fire direction of their guns, and it is the battalion commander's task to watch the complexion of the struggle and to afford his side the profit of advantage quickly taken. If he finds it necessary, at any time, to send a single battery to act independently at a given point,

it is but a feature of the control he should possess, and is exercised advisedly.

Captain C. Holmes Wilson, of the R. F. A., in the United Service Magazine of May, 1904, writes:—

"No regulations can deal adequately with every situation that is likely to occur in war. The tendency of the age is to decentralize responsibility. When a great battle is likely to become a series of small actions it is impossible to say the artillery should do this or that when the front involved may be a matter of several miles. The adoption of rapid fire guns and extension of the line of battle has however led t a cry for the dispersion of the artillery. As we hav already said the increase in the rapidity of the fire of the guns can not be made an excuse for the distribution of its fire over an area of which it can not possibly have any increased effect. The fact that it has become necessary to extend the infantry over a wide front can not be made an excuse for a similar distribution of the artillery. Such action presumes the adoption of a semi-defensive attitude. Then if we recommend the scattering of our guns, where we know that the enemy may concentrate his, we expose them to the risk of being beaten in detail. It may of course be necessary to hold one portion of a long line, while the remainder is pushed forward to make a decisive attack; but under no other circumstances, should preparations be made for the adoption of a purely defensive attitude, such as dispersion infers.

If we wish to produce a decisive effect we must aim at obtaining a concentrated fire. Is the primary principle then at variance with the dispersion of the guns? In the 18th century, battalion guns were used in intervals between brigades. The artillery so employed produced no effect, because, on account of the short range of its guns, its fire could not be concentrated on any particular part of the field. Now the

range of the gun has been increased, and the line of battle has been extended, but the extension of the firing line has increased out of all proportion to the range of the gun. Consequently the conditions remain the same. And the following conclusions may thus be reached:

1. The degree of dispersion must depend upon the nature of the ground.

2. The artillery must, however, retain the power of concentrating its fire on a given spot for the decisive attack, and no cry for dispersion should interfere with this."

In this connection the study of the Boer War in South Africa brings out some interesting facts, but fails to produce conclusive evidence on account of the surprising conditions which existed in the Boer Army.

In the first six months of the conflict the Boers assumed the offensive and carried the scene of operations rapidly into Natal and the Orange Free State. The effective use they made of the artillery in their possession, coupled with the orders known to have been previously placed abroad for equipment, gave rise to reports to the British War office, that the Boers had from 220 to 250 guns with their troops.

Investigation after the war, however, showed that the sum total of the Boer's artillery, in Natal and the Orange Free State consisted only as follows:—

Eight siege and thirty-six field pieces.

Three mountain, nine pompom, and sixteen machine guns.

At the beginning of the war England had sixty pieces of artillery in South Africa and this was increased by April of the following year to 250 pieces and 150 machine guns.

Naturally under these conditions the Boer Artillery was frequently dispersed until the fighting units became the individual guns themselves, and attempts

have been made to prove the value of the "dispersion of artillery" as shown in this peculiar situation. But arguments based upon these facts are untenable, for the Boers lacked organization as well as material and that they accomplished what they did may be credited to their courage and patriotism and to a hardy physical training for a struggle in a familiar terrane, and not because they evolved any meritorious tactics.

French Theories in Artillery in the Field. It will be well to turn for a moment to the theories of the French Artillery on the subject of tactics as altered by the introduction of the Rapid Fire gun, which they have had in the service now for several years, and for which they have evolved many elaborate regulations, both as to movement and to fire control.

Major Thionville of the French Artillery, in the Revue d'Artillerie for January, 1904, writes

"Since the adoption of the rapid-fire fieldgun, the tactics of the artillery have been oriented anew. While the old regulations laid down that the first duty of artillery was to seek out the enemy's guns and endeavor to secure, as quickly as possible, superiority of fire, our present book tells us that, in the preparatory engagement, that is to say in the beginning of the battle, we should facilitate the advance of the infantry, support its partial attack, *and that we shall in this manner be led into a series of successive struggles with the enemy's artillery.*

"In the past, as in the present, artillery has but one object; to support the infantry. The infantry bears the brunt of the battle, the artillery is there only to help it accomplish its task; to arrive at the result it must engage the enemy's artillery and infantry. Of these two objectives it is naturally led to select the one upon which it has the greatest effect; and the

entire change in its tactics results from the fact that it is at present infinitely better prepared than formerly to act against infantry, while its effect upon artillery has become much more uncertain.

"Formerly during the first part of the battle, we had but one object; to seek out the enemy's artillery, engage it and obtain against it a superiority of fire.

"The duel once begun was fought to a finish; the finish generally came when one side was made to realize its inferiority, and partially to suspend its fire. Thus the artillery duel went on, furnishing for a long time a particular phase considered indispensable in every battle.

"Let us consider what conditions we should have to meet to day, supposing of course, that our adversary is equipped with a material similar to ours. Since in the new equipment we are independent of the line of sight and hence can always use indifferent fire, a battery of 75 mm guns, if skillfully handled, will be completely masked, and so it will be very difficult to locate the enemy's artillery. This artillery reveals its presence only when it begins to fire.

"Since the fire will be necessarily intermittent, we can not conclude that a battery has been put out of action because it is silenced; it has ceased to fire only temporarily because it wishes to do so, and it can reenter the action at any moment. Having with more or less difficulty obtained the range of the battery, thus concealed, we begin our zone fire; the hostile battery remains silent. Are we to increase to infinity the intensity of our zone fire, in the hope of destroying it? Evidently not. The personnel is safe behind the shields, and has not much to fear from our rafales;* we should be emptying our chests without producing any great results. Consequently we follow their example; we remain silent, ready to resume the

*Literally "Squall".

fire if they begin again. Thus it appears how difficult it is to mark the end of the artillery duel, and in what an uncertain state we find ourselves as to results produced. This is true, of course, only when the enemy's batteries make the fullest use of the advantages peculiar to their material and remain completely concealed; for if one of them becomes visible, we encounter the same conditions as prevailed in the past. It is plain, then, that we cannot consider the artillery duel under the same aspect as formerly, that we can no longer invite the enemy's battery to this strange combat, to this preliminary struggle, from which one or the other came forth completely victorious.

"To day the opposing batteries will feel around for each other, will deliver attacks short and violent, but never decisive. The most skillful of the two will soon succed in paralizing its adversary, for the time being, by keeping it under the menace of the rafales; but to do this it must watch the other unceasingly, and consequently cannot take advantage of its superiority to devote itself to other work. We thus get a much more sensible idea of the artillery struggle.

"It is no longer a distant and particular phase of the battle consecrated to the artillery alone; it is an episode, a consequence of the infantry combat, which we must follow step by step from the preliminaries of the struggle up to the final act. And as a matter of fact, since the hostile artillery is sheltered in a measure from our view and our projectiles, is it not natural for us to concentrate all our attention on the infantry, against which we are powerfully armed?

"But the enemy's artillery will not remain inactive; it will do exactly as we have done, and open fire either upon our own infantry, or upon the batteries that are accompanying it. It is then that we shall

engage it, and endeavor, if not to destroy it, at least to neutralize it and keep it quiet under our rafales.

"The artillery, then, has two roles to fulfill, to fight the hostile artillery and support its own infantry. And these two roles, which are no longer successive as before, but simultaneous, cannot be filled by the same batteries and so arises the necessity of dividing the artillery into groups, one to hold in check the enemy's batteries, the other to accompany the infantry.

"What is meant by this division of the artillery into groups and this role of accompanying the infantry?

"The name of "crest artillery" has often been given to the batteries whose duty it is to engage the enemy's guns, while those detailed to accompany the troops are called "infantry-artillery". Taking literally the theoretical distinction, some officers seem to think that the technical use of the arm will be confined to the "crest artillery" alone, which remains massed under the control of its chief, while the rest of the artillery will be split up into completely independent fractions, without any tactical cohesion, and scattered among the different fighting units of the infantry, so as to fill the role of machine guns, or separate pieces attached to battalions. This artillery, divided into small groups, or platoons, or even of single pieces, it is claimed, will easily find protected routes of approach, and can thus follow the infantry step by step in its forward movement, giving it the moral and material support so much needed.

"If this moral and material support for the foot soldier consists in seeing the gunners march alongside them, it is certain that this method of employing artillery will furnish it; but if, on the contrary, it consists in constant intervention by sudden and timely rafales, we fear very much that the manner of using the guns will not give the desired support.

"How are we to admit that these little groups, constantly moving, will be able always to find emplacements from which they can see what is happening on the skirmish line? And even supposing that they do find such places, is it probable that their chiefs, who often will be officers of the reserve, and even non-commissioned officers, will be sufficiently familiar with the necessities of the battle to intervene at the proper moment?

"Now in order to take advantage of these different phases of the battle and be able to intervene in an effective way, should the artillery be on the heels of the skirmishers, or rather behind on a position dominating the field, from which it can see the entire scene of the struggle? Must we use platoons or isolated pieces, or rather batteries held well in hand by their chief? And finally is it possible for the battery commanders to look after their men and their firing and at the same time give their attention to a surveillance of the battlefield?

"There is no doubt about the answer. The role can be filled only by batteries so placed as to cover the ground over which the attack takes place, and by *group commanders*, watching attentively the progress of the battle, and indicating to their captains the proper moment to intervene, and the time when this intervention should cease."

In the foregoing we find the following striking situations; first the authors premise that artillery tactics are all changed by the advent of the new rapid fire gun, and second, his own final argument that we must continue with the present day principles, of taking some punishment in order to be able to effect more of it on the adversary, if we wish to do other than play hide and seek at long ranges. The article is in accordance with the enthusiasm, in French

military circles, over the qualities of their new Field Artillery Arm.

Major Stappearts of the Royal Belgian Artillery makes some apt criticism upon the foregoing theories; he writes:—

"The Fire Tactics of the new French Regulations can be summarized as follows: 1st. Prepare the fire, under cover as much as possible, and act by surprise. 2nd. Make a wide ranging by salvos, so as to produce a bracket of 100 to 200 meters. 3rd. Fire one or several rafales; after which, fire is interrupted until a new target appears, or it is found necessary to fire again upon the first one.

"The prescription to prepare fire under cover as much as possible, and to open it by surprise, is to be approved without reserve. It is certain that a careful preparation of the fire can contribute much to shorten the period of regulation, which is evidently the critical period for the artillery.

"But many French officers of the extreme school do not attach sufficient importance to the necessity of accurate ranging and advocate the shortening of this period to the smallest limits; some even go farther, they want at any cost, to get an effect immediately from the moment of opening fire and to accomplish the destruction of the target in the shortest possible time. For them the ranging causes too great loss of time, even the determination of a bracket delays too much the furious storm of iron and lead which should beat down the enemy at the moment he least expects it, and destroy him before he has time to see anything.

"But it must not be forgotten that the weight of ammunition for the field gun has not diminished, and that the total weight to be transported can be increased but little, and there is no good reason why we should be more prodigal than before in the expen-

diture of ammunition *when the conditions of the battle do not exact a great rapidity of fire.* If it is necessary to expend much ammunition in the decisive moments of a fight, at short range, it is necessary to be very saving of it at ranges over 3000 yards, and never to fire with maximum rapidity at those ranges.

"If the fire is well regulated and effective it will disorganize the enemy whether it be 6 or 12 shots per minute. If it is inaccurate or ineffective, from any cause whatever, its rapidity is of little value; on the contrary the most rapid fire will be the most disadvantageous because of waste of ammunion.

"It is impossible to see any progress in this systematic employment of rapid fire with the field gun. No supply of ammunition would permit the application of such fire to all the zones where an enemy may be supposed to exist, where, even if present they would not have to wait long before the exhaustion of ammunition would bring an end to the rafales.

"The non effect of such cannonades on invisible targets has been seen to the uttermost in the Transvaal. True, in the fights of the future it is probable that the two adverseries will try to hide themselves as much as possible, which will be faciliated by smokeless powder; but it will be necessary in the end for the assailant to show himself, if he wishes to advance, and for the defender to let his emplacements at least be seen, if he wants to repulse an attack; he then will be the stronger, who will have reserved his ammunition for this moment, instead of expending it raining shrapnel over those zones where the presence of the enemy is hypothetical."

It may be seen from these extracts from military writers abroad, that widely variant views exist as to the exact effect which the introduction of the Rapid Fire equipment will have on the offensive tactics of

artillery, and undoubtedly many officers in our own service will entertain equally divergent opinions.

One conclusion must however be drawn by all: *the principles of the value and use of artillery are the same as before, details only are changed.*

A more advanced training of the personnel is necessary, greater ranges are possible, greater concentration of fire from widely separated positions can be successfully effected, greater accuracy of fire and increased destructive effect with both shell and shrapnel are attained, but the underlying principles have suffered no distortion or transformation.

Human nature has in the end to be reckoned with, and no more startling lesson can be presented us than that of the present Eastern War, where we find the Japanese artillery, outclassed in rate of fire in the ratio of three to one, outranged in proportion of six to five, and superior to the Russian Equipment only in the accuracy of its shrapnel, entering continually into apparently unequal contests with the Russian batteries and constantly holding their own, and often winning in the end, on account of a magnificent training and morale, which produces under the most severe service conditions the requisite accurate work.

R. H. C. KELTON,
Captain, Artillery Corps.

December 5th, 1904.

QUESTION SHEET

Lecture No. 8.

1. State, in general terms, the value and use of Artillery in its relation to the other arms of the service.
2. Give briefly, the simple movements necessary for the maneuvering of a battery in the field.
3. Give the general limitations which govern the formation of a battery or battalion line in action.
4. Give the requirements of position for Artillery in attack.
5. What is meant by "effective command"?
6. What is meant by "good view" and how is it affected by any system of indirect fire?
7. State generally the requirements of position as regard ammunition supply.
8. Same as to "Forward Movements".
9. State generally the meaning of concealment and methods of obtaining it. What is the difference between concealment and protective concealment?
10. What are in general the successive positions to be occupied by Artillery in attack?
11. Give briefly the work to be done and the results desired at these various positions.
12. Give the possible or probable modifications of the above positions.
13. State briefly the elements of increase of power in the new rapid fire field piece over the old material.
14. How should this increase of power be considered by the Artillery Commander?
15. How is the battery divided when preparing for action and what are the parts called?
16. What is meant by the "critical period" for artillery going into action?
17. State the efforts made to shorten this period and what causes of delay may exist?
18. Give briefly the best position of artillery in relation to the infantry it supports, and the reasons therefor.

19. How will the position of artillery in this sense differ when considering the corps in action or the division acting independently.

20. What is meant by concentration or dispersion of artillery in attack?

21. How far may the former be carried?

22. To what extent must the latter be limited to secure efficiency, supposing the division acting alone? Supposing the corps in action as a whole?

23. What element of efficiency must always in the end be considered, apart from any question of equipment or power of material?