

The Infantry **In Defense.**

Course In Organization and Tactics.

Lecture No. 10,

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Every battle, however ancient or modern, has had certain fundamental principles running through it, and the onward steps of civilization have done nothing but enlarge, upon and develop these principles. The introduction of long range guns has had a greater effect upon warfare, probably, than any other thing. Older writers have clung to the idea that troops in close order, alone, can be handled in battle, but the recent wars have shown that there is no surer way to defeat than by the close formation route. Taking Jomini's statement as correct, that: "Infantry is the most important arm of the service, since it forms about four-fifths of the army," a consideration of the defensive is a consideration of the Infantry on the same. In all modern armies, Infantry is, in virtue of its numbers and importance, the principal arm.

"The object of the force on the defensive is to shatter the assailant with its fire, and to inflict upon him such losses that he will either be unable to reach the position at all, or will attain it in such a crippled condition that he may be easily overthrown by a counter-attack."

Nearly all text-books give a list of the requirements of a good defensive position, all of which are similar in general outline, but differ in some minor detail, such as, for example, the way of expressing them. General Baden-Powell, and the new "Field Service Regulations of the U. S. Army" add the following: "Water of good quality in sufficient quantity for the needs of the troops," "Good store of supplies."

All writers agree that the first and most important consideration in taking up a position for defense, is to have a clear field of fire. It is important that such a space exist all around, so that flank and rear attacks will not come unawares. If the enemy creep up among bushes, or rocks and undulations, he can approach close without loss and without being seen, and is then on almost an equal footing with the defender.

The second requirement is "Shelter from the enemy's fire;" this is best accomplished by the use of the natural features of the terrain and by the construction of trenches.

The distribution of troops on the defensive depends upon a number of different factors, namely ; is the defender's object merely a passive defense, action to gain time or delay, or is his object to bring about decisive results by the combination of offensive with the defensive. In the former case, such as the defense of a fortress, the defender only hopes to crush the assailant at long range and thereby avoid close fighting where the advantages are about evenly divided. The proper move, under the conditions just mentioned, is to have as strong a firing line as possible from the very beginning. There is no need of a strong reserve held back for the crisis, but there is need of an unlimited supply of ammunition which will offset the superiority of the offensive, which the assumption of that alternative presupposes. The second case is the rule, the former is the exception. A purely defensive action should never be assumed unless for some reason, such as the unreliability of the troops, its assumption is necessary. At New Orleans a purely passive defense was assumed. When the British were driven back with tremendous loss, General Jackson feared to follow and trust his raw troops to a fight other than from behind breastworks. The object to be attained is to have as many men in the firing line as can use their rifles to the best advantage, and this number is roughly estimated at one per yard of front.

The troops are, then, formed into three lines of varying strength and each line into three parts or echelons. The firing line to open up the fight, the second line to reinforce the first line and make local counter-attacks, and the third line to secure the victory or prevent defeat from being a rout. Under the heading, "The Defense," in the new Infantry Drill Regulations, we have the following:

"Troops on the defensive, like those in attack, are formed in three lines. If the defensive is taken on contact with the enemy, the formation follows very closely the rules laid down for the attack. The first line is placed in position to meet the fire action of the attack, on ground most favorable for the development of fire action and least favorable for the advance of the enemy. The military crest of a uniform slope is chosen when practicable.

"The second line is placed in rear, usually at less distance than in the attack, covered by the reverse slope when practicable. It is used to reinforce portions of the first line that are being subjected to the heaviest attack ; to make short counter-attacks against local flanks of the enemy when by turning in on an advanced position of the defense, such flanks are exposed ; to guard the flanks of the first line; and to reinforce the first line in time to meet the charge.

"The third line is held in rear, under such cover as is available, usually at less distance than in the attack. It is used to protect the flanks of the lines in front, to meet a flank attack by the enemy, to make flank attacks on the same,' and to cover the retreat of the troops in front if they are driven back.

"The distance at which the second and third lines are held depends so largely upon using natural cover that they cannot be definitely fixed."

Paragraph 328 of the "Field Service Regulations," states that, "The defender's Infantry should not be ex-

posed to view or fire until it is necessary to meet the enemy's advance; it will ordinarily be distributed as follows : to hold the position, firing line, support, local reserves ; for the decisive counter-attack, the general reserve."

We will first discuss the firing line:

Whether or not a defense will succeed depends not entirely upon the strength of the army as a whole, but the strength at the point where the blow of the assailant falls.

Naturally the enemy is not going to attack the strongest point, so it is incumbent upon the defender to conceal his dispositions as much as he can. For this reason, the firing line should not at once be placed in full force upon the selected position, which should rather be held by a thin line of scouts, the firing line proper being held back under shelter of some feature of terrain, until it can be used, or until the direction of the enemy's attack has been divined. Col. T. D. Pilcher, in his book on the Boer War, says that, "Nothing that I have seen in South Africa tends to make me doubt the soundness of the rule I have seen practiced at German maneuvers, of preparing a position for defense, but only holding it sufficiently strongly to prevent bodies of cavalry approaching it, and of keeping the remainder of the troops under cover and in reserve. These troops can always be moved up into any part of the firing line, which the enemy has shown that it is his intention to attack, but until actually required can remain in reserve."

Another writer, in dealing with this question states, that, "If the trenches are occupied in force before hand, heavy losses must be anticipated should the enemy by any means discover their position and pour in an intense shrapnel fire."

We now come to the question: Shall the men be evenly distributed, or not? At the points of probable attack there should be as many men as can use their rifles to the best

effect, while at points where obstacles break up and hinder the attack, the force may be smaller. Long extended lines will usually be necessary to prevent the enemy from out-flanking the line of defense; yet the actual length of the extension, between individuals and groups, will greatly depend on the strength of the position, and the numerical strength of the enemy. It will always be desirable, in defensive operations, to deceive the enemy as much as possible. False works rapidly erected, a row of hats on sticks, an old ruse, may serve to mislead the enemy.

General Baden-Powell suggests that if a naturally weak spot occurs in a line, it might be advisable to purposely leave it unguarded. The enemy may break through ; but, the contingency being anticipated, he may then find himself in a very awkward position. This was practically the case at Mafeking, when Eloff and his party got through the outer defenses, but were then forced to surrender. He further takes the position that it is better to dispose of your force as follows: Divide the force into a number of small groups of twenty to thirty men each, several hundred yards apart. This, he claims, places the men under one head, inspires confidence in the men, and makes the supply of ammunition and supplies easier. Further, should the enemy break through these intervals, he will be subjected to converging fire from the detachments on either side.

On this point the U. S. Army, Field Service Regulations state that, "Some parts of the line are more easily defended than others and will not require as many troops. Ground with much cover should be especially watched even if it be difficult for the enemy's operations."

It will always be desirable, when an attack is expected or is likely, to allot each man to a place which he is to occupy; whether it be for cover behind a particular rock or heap, or to fire through a certain loop-hole in a trench. Then if a sudden alarm is raised, each man knows where to

go? instead of two or three men trying to thrust their rifles through the same loop-hole, or crowding together behind an inadequate bit of cover.

In dealing with the defensive of Infantry, it is well to consider the different kinds of fire, and when and where they are to be used. The first kind of fire likely to be used is naturally long-range fire. While this kind of fire may be used on the offensive, its principal use is found on the defensive. Long-range fire is generally more effectively used by the defenders than the assailants, as the ranges are more accurately known, the distance to certain fixed objects in front of the position being easily ascertained beforehand, the men not being subject to the distracting influences of battle, and the replenishing of the supply of ammunition being more easy. We can cite many cases of the use, to advantage, of long-range fire and then offset them with examples of its use to a disadvantage.

While it is poor policy to open fire at an extreme range with green troops, who are apt to become much shaken, in morale, if they see the enemy continue to advance while under their poorly aimed fire; still can there be any doubt as to whether the defender should look on while the enemy's firing line systematically extends and works its way up to cover at near ranges? Nearly all continental armies advocate the use of long-range fire as soon as a target is offered. We have the excellent examples of its use at St. Privat, Plevna, and Omdurman: We also have good examples of its failure in use at Chagey, on the Lisaine, and in the Russian defense of Shipka Pass. These last cases can very properly be called exceptions which only go to prove the rule.

Colonel Elmslie, R. A., in writing of the Soudan, says : "There is one point about Infantry fire which was, I think, illustrated at the battle of Omdurman, and this was its employment at long range. There are many who advocate

the retention of fire until the enemy has arrived at a moderate range. The reasoning appears to be, that to fire at long ranges involves a very large expenditure of ammunition without adequate result, and also that the men's eyes and muscles will be tired by long-range firing and they will be less fit to produce decisive results at shorter ranges." "On the other hand, it would appear to be of the highest importance to commence producing effect, both moral and physical, on the enemy, at the greatest possible distance. This applies mainly to the defense, who if, as it is most probable, able to lie down and free from the disturbing influences of constant movement, should be able to produce effect at considerable ranges. The Guards, it is stated, at Omdurman, found their volleys effective at 2,700 yards." A writer on the Boer War even goes to the extreme of stating as follows: "The best general policy will, therefore, be to keep up a hail of fire on the position, where the enemy is likely to be, or even where he is lively to come."

It is sometimes of advantage to cease firing on the part of the defense, and to break out anew as soon as the target again becomes visible, or when the advancing troops are in a particularly dangerous place. The attacker will, frequently, especially at the beginning of a campaign, be taken aback by such an intermission of fire, and think that the defender has abandoned the position. On renewing his advance, he will be so taken by the sudden renewal of the defender's fire that he will probably be forced to retire.

Pauses in firing are a useful means of maintaining fire-discipline and preventing the troops from getting out of hand.

In South Africa, it was a custom early adopted by the Boers, to withhold their fire until the British were in a particularly unfavorable place and then to open up with rapid-fire and machine guns. As, says one writer, "The moment to open fire would be just when the enemy is crossing a place

where no natural cover exists." This was one of the great mistakes at the Modder River. There, directly fire was opened, the advancing troops lay down among the scrub and were more or less out of sight.

Had they advanced to a closer and a more open spot, it is difficult to believe that they would have escaped unhurt. This above method was used at Magersfontain and Mafeking with great result. Having, then, decided that, long-range fire should be resorted to at all times when the enemy presents a good target, the supply of ammunition is abundant, and the troops can be kept well in hand, we come to the question of whether that fire shall be individual or by volleys. Experiments have shown that volleys are more effective than rapid independent fire, but hardly as effective as well aimed independent fire. There can be no doubt that volleys keep the men more in hand and enable the commander to observe where the bullets fall. There is this advantage in using volley fire, namely : that one is able to regulate the rate of fire, the expenditure of ammunition, observe the effect of the fire, and can more easily direct it on any object. The Infantry Drill Regulations, U. S. Army, on this subject state the following : "The conditions in the defense are more favorable for control of fire than in the attack. The men are in position and not fatigued by marching, the ranges are more accurately known, and the supply of ammunition is more plentiful. These conditions render the use of volleys practicable during at least the preliminary stages of the battle. The volleys should be executed by as large a front as can be controlled by a single voice, whenever the target justifies such expenditure of ammunition. They are directed against closed bodies whenever practicable."

The intervals between the volleys give the officers time to rearrange the line. Volleys undoubtedly have a great moral effect. A concentrated fire on the spot has a greater

effect than a disseminated fire along the whole line. While men may get accustomed to occasional bullets striking around them, a sudden volley of bullets falling in their midst may just give that shock to their nerves that may cause them to decide not to remain. to experience another such shower. If the enemy appears to be faltering a volley may just settle the matter. The Austrians, Italians, English, and French favor volleys as long as possible and at short and medium ranges. The Russians use volleys at all ranges and are especially directed to use them up to the last moment. The Germans alone favors individual fire. An author on the subject states, that "there was a time when volley firing was considered to be the best, but now independent fire, in extended order, seems to have replaced it. Doubtless, the effect, both moral and physical, of a volley concentrated on one point is very great ; but we must consider what the effect will be of a body of men reverting of their own accord from volleys to independent fire, when their officers are killed or wounded and the enemy's fire begins to tell." However, it is the consensus of opinion that the employment of volleys as long as possible is the better alternative. The position of the Germans presupposes that the force in question is a well drilled and disciplined lot, or rather the ideal soldier, who will act and think for himself as well as if he were commanded by his officer. If the discipline is such, that the soldier will commence firing when ordered and will cease firing when directed or when he has fired the designated number of rounds, then independent fire is better than volley firing.

It is, however, well to have the front of the position, and also the flanks, covered by a number of sharpshooters and marksmen who, in particular at the early stages, can pick off officers and leaders.

Nearly all armies believe in the employment of scouts for the purpose of preventing the enemy from reconnoiter-

ing at the outset of the engagement. Scouts and small posts in front of the line will often be of use in giving the alarm, in puzzling the enemy in their endeavors to ascertain the limits of the position. The infantry regulations on this subject state ; "the line of scouts is sent out from the troops of the first line, covers its front and flanks at about three hundred yards so as to prevent closed bodies being subjected to a fire at short range, drives in the enemy's scouts, gathers information regarding the ground and sends or signals such information back to the first line." When controlled fire is no longer possible, a resort to uncontrolled fire becomes necessary. As soon as the enemy approaches so near that their fire becomes perceptibly felt, the defenders will become a little more nervous, gradually Increasing in degree until, from force of circumstances, firing at will begins. This gradually becomes more rapid, and as the enemy continues to advance, if he does so, firing from the magazine becomes imperative. As a general rule magazine fire should not be employed until the very last, when the bayonet should be adjusted and as hot a fire as possible poured in on the enemy. The magazine should be used in the defense to stop the attacker's charge, against cavalry, when the enemy is suddenly encountered and is surprised, and in the case of the repulse of the enemy when rapid fire is a substitute for a counter-charge. While the bayonet is considered obsolete by some, still it is the only thing that stands between the soldier and helplessness, if his ammunition is gone. The troops now being in the position of the defense and ready to fire, the question arises as to what they will fire upon, and their objective at the different ranges. An engagement of any consequence generally opens with artillery fire. Should the infantry remain silent or take part in this duel? The employment of the infantry in this capacity is the exception not the rule. If the defender is short of artillery something should take its place, and that will of course be infantry. When the artillery takes a faulty

position there can be no question but the infantry can fire very effectively upon him.

When the enemy's infantry begins to advance all possible fire should be turned upon it. The most dangerous place should be the firing line, and that should be very vividly impressed upon the troops advancing? Drive it back and the troops in rear are either thrown into confusion or their fire is masked and they are useless. As each successive echelon , moves forward as heavy a fire as possible should be concentrated upon it. "Fire upon the parts which are in motion." During the early stages of the advance, it is now quite proper? owing to the use of smokeless powder and the fact that the screen of smoke no longer hides the assailant, for the artillery and special bodies of infantry to play upon the rear lines. This was the custom of the Turks in '77 and the Boers in South Africa, they having two, three and sometimes more tiers of trenches. Just before the final assault all fire possible should be poured in on the firing line. The magazine,§ should be used, for if this line be not driven back the defenders will have to retire. There are many examples of the failure to pay proper attention' to the firing line. The Germans in 1870 learnt by experience that the attacker suffered heavily at long range but that the losses did not increase as he got nearer. In the Russo-Turkish War, losses were always less at short ranges than at long and also in the Servia-Bulgarian War of '85, the Bulgarians always tried to close in as quickly as possible. As the assailant advances he will continually be feeding his firing line from the rear, therefore, it will be incumbent upon the defender to do likewise. For this reason, a support should be in rear of the threatened point to be gradually sent forward into the firing line to maintain its strength and to keep up the superiority of fire so necessary to a successful defense. Some believe that it is better to have all the troops in firing line from the start. On this subject Gen'l Baden-

Powell says : "Supports and local reserves are even less necessary in the defense than in the attack." "If at one place the garrison suffered very severely, it would not be advisable to push more men to the exact spot; Such an act as reinforcing the firing line under fire is most undesirable." He also suggests, that if the line be well extended it will be just as easy to withdraw the men from another section of the line and send them to assist the threatened part. Gen'l Von Der Goltz states that, "the fact observed in South Africa that the troops, which should reinforce the firing line in front, hardly ever reached them in open country, points to the abandonment of the ordinary system."

When the ground offers cover for the supports, they can conceal themselves until they are wanted ; otherwise they are better in the firing line." The French and Russians have abolished the support in their defense formations, and the disposition of the Germans is to follow suit. Summing it up, it is better to have all possible troops in the firing line if a purely passive resistance is contemplated and it is desired to check the enemy at a distance, but if cover is available and it is desired to overpower the enemy at the point of attack and then fall upon him in a sharp local counter-attack, a support placed under cover in rear of the most probable point of attack is imperative.

We now come to the question of whether a third force is necessary. As the assailant advances, his rear echelons are gradually absorbed, he suffers losses and so does the defender, probably in the same ratio. The assailant will in all probability pick out the most vulnerable section of the defender's line and hurl his troops upon it. The defender's support has probably been absorbed by this time, so another body is necessary' to be thrown forward to increase the strength of the firing line at this point. This will be the reserve and it will vary in strength according to conditions. If the firing line is well

sheltered and strongly posted, the reserve may be weak. It should be centrally located, but the question of cover and the weakness of any one point should be questions to be given first consideration. Should the enemy break through at any point, or should there be a disposition on the part of any section of the line to waver, a body of fresh troops thrown in at this time and place may save the day. The necessity for this reserve force is as imperative now, as it ever has been. One writer states, that "It will be usual, with the proper dispositions, to have ample warning of an impending attack, its general direction will be apparent, and the force can then be disposed of according to circumstances. It will, nevertheless, generally be desirable to have a body of troops in reserve to meet emergencies. Such reserves might occasionally aid the general defense with long-range fire and ^{would} preferably be in rear of the intervals in the front line."

Having dealt with the first line as such, we come to the question of a second line. The two lines, as given in "Organization and Tactics" are made up as follows : The first line consisting of the firing line, support, and reserve, and a second line to support the first line and usurp most of the duties of the reserve of the first line. A writer, in dealing with this subject as late as 1903 states that, "The first line should consist of a firing line with supports, the next force in rear to be the reserve, local, to assist in local counter-attacks and protect the flanks ; and a third line, called the general reserve, to make the general counter-attack." There can be no question, but a succession of blows falling upon the same spot, or practically the same, brings about better results in the defense than anything else. The reserve should be used to check any temporary advantage that the assailant might gain, but we want something more than that; we want a considerable force to be held back under cover, to be gradually worked forward and when the point where the enemy's attack is to fall be-

comes known, to fix bayonets and rush forward and strike him just at the instant he is thrown into confusion by his own action. This force can also be used to make local counter-attacks, when it is impossible for the reserve to do it, and also thwart any attempt of the enemy on the flanks.

We will then conclude that a second line is necessary to support the exposed parts of the first line; to aid in local counter-attacks ; and to provide protection for the flanks. It should be posted behind weak points, and at the proper moment fall upon the enemy with bayonets fixed and, for the time being, turn the defensive into the the offensive and give the assailant a taste of his own medicine.

Having dealt with the first two lines and, we will assume shaken the enemy, we now come to the most important part of the defense, without which a repulse is devoid of results and virtually amounts to nothing at all. Had a vigorous counter-attack been made at Gettysburg, what the fate of the Confederate Army would have been is highly problematic. It is then, necessary to have a large force in reserve to make this counter-attack. This force is called the third line, the main or general reserve. It is called the maneuvering line and its chief duty is to clinch the advantage gained by the fire of the defenders, by falling upon the flank or making a frontal attack on the assailant. The counter-attack may be frontal or flank, it may be local or general, or it may be premeditated or unpremeditated. The best counter-attack is the one made against the flank of the assailant while the firing line pelts him with fire in front. This duty falls to the general reserve. It should be assembled at the point from whence it can, in conformity with the general situation and the configuration of the ground, best assume the offensive ; as a rule behind a flank, thus constituting the best safeguard against envelopment, that most dangerous enemy to a strong position. Since it is essential that the

counter-stroke take the enemy by surprise,, the position of the general reserve must be concealed. The ground over which the counter-attack will pass should be free from obstacles.

In considering the question of the counter attack, it is important to know when it should be made. It should be made when the enemy is within the most effective distance for magazine fire, at short range. If the enemy has been punished by the fire from the lines in his front, the counter-attack should fall upon his flank, the most vulnerable point. If the counter-attack is a frontal affair, there is danger of the troops advancing masking the fire of the main line. At Magersfontain, the Boers were criticised for not following up the repulse of the Highland Brigade with an advance. Had they issued from their trenches for a forward move, they would most certainly have suffered a severe defeat coming under the fire of all the British troops in rear. The best form of a counter-attack, when ammunition is plentiful, and the troops are well organized, would be a steady, ceaseless musketry fire. A bayonet charge would only produce local results, but if the supply of ammunition were low, it would be preferable to inaction. It is apparent that a bayonet charge does not, at the present time, pay for the loss of life and effort in material results gained. We have, however, many examples of successful frontal counter-attacks, dating clown to the present time. The fact that the Russian drill regulations favor a counter-stroke against the enemy's center may account for some of their tremendous losses in Manchuria. There is no question as to the effect of a sudden advance of a force upon a long line of retreating infantry, but if the attacker recovers his presence of mind and opens fire with the magazine and then advances anew, where will the defender be ? The retreat may be used merely as ruse. The Prussians in the woods at Elsasshausen retreated and the French left their trenches to follow, whereupon the Prussians turned, drove back the French and

took the position without difficulty.

We have examples of successful frontal counter-strokes by the British at Vimero Maida, Busaco, and especially at Waterloo ; also by the Russians in the Russo-Turkish War. The attack on the enemy's flank is unquestionably the best, for the reason that the enemy has used up all his reserves by this time and cannot form front to flank under any considerations. The general reserve should be placed in a position well out to the flank, the larger the force on the defensive, the further out it should be pushed. If this be not done, the force detailed to make this attack will be enveloped in the confusion or unsettledness of the main line. The more the general reserve is out on the flank the better it will take the enemy in the flank.

We cannot look to South Africa for any examples of counter-attacks by the Boers, still we have many examples of it in other wars almost as recent and are confronted with it in every phase in the present Russo-Japanese war. The battles of the Franco-Prussian War give evidence of counter-attacks on both sides, and where they failed it was not due to the fact that they were counter-attacks, but because, as such, they were not played to a finish or were played too soon. We have examples at Loigny, Gouy, Orleans, Spicheren and many other places.

We now come to the question of the local and general counter-attack. The local counter-attack may be termed as a dangerous instrumentality that may be used, if used properly, to a great advantage, but which will result in damage if pushed too far or not at just the right time. History cites many cases of counter-attacks of a purely local nature that resulted in damage and were transformed from partial successes into sanguinary failures because they were pushed too far. Such was Lourmel's Brigade at Sebastopol and the Brigades of Maire and Lherillier at Froeschwiller. Also

the First Turco regiment at Worth. Local counter-attacks are weakening,, and should only be resorted to when it is necessary to drive the enemy from some position in which he is beginning to establish superiority of fire, or to capture some post in, or lost portion, of the line. The general counter-attack is the vigorous assumption of the offensive by the defensive at the proper time, and takes from the assailant all the advantage that superior numbers may give. Such was the advance of Wellington at Waterloo, of Longstreet in the Wilderness, and the French and Germans at Spicheren.

The counter-attack may be a part of the original plan or may be unpremeditated and on the spur of the moment. Austerlitz was one grand premeditated counter-attack. Napoleon took up a defensive position and waited for the Austrians to do just what he thought they would do. As soon as they were in the position that the Emperor desired, he threw his main force, which had been in reserve, against their center and crushed it. At Salamanca and Waterloo, Wellington showed that he fully appreciated the value of the general counter-attack. It is repeatedly stated by some, that a night advance or counter-attack is a hazardous undertaking even more so than in the day time. Probably it is, but it is well worth the attempt. In the Franco-Prussian war at Servigny and many other places we had, and in the war going on in Manchuria, we are continually hearing of, night attacks and counter-attacks between the opposing forces.

Having in a general way discussed the infantry on the defensive against infantry, we come to the question of what change, if any, would the defense make were they opposed to cavalry and what would be their line of action if subjected to a preponderance of artillery. The individual soldier who has filled the magazine of his rifle and knows how to use his bayonet, is more than a match for

the individual cavalry soldier, even on open ground ; and if he keeps his presence of mind and fires with steadiness and accuracy, while keeping an eye on his opponents, he has nothing to fear from several cavalry soldiers. Similarly, bodies of infantry which keep cool and collected, have nothing to fear when outnumbered by cavalry. The defensive power of a foot soldier as opposed to a mounted soldier, has been vastly increased by the introduction of the magazine rifle. While the small bullet does not have the stopping power that the larger one had, still the rapidity with which the bullets can be fired, offsets this apparent disadvantage. Unless the cavalry can surprise the infantry and catch it without ammunition, the infantry is absolutely safe. While the infantry has nothing to fear; still the repulse of the cavalry, as to extent, greatly depends on the formation the infantry adopts. When a cavalry charge is imminent, it is hardly ever advisable to form square or any solid formation. Of course when the infantry is falling back over open ground and is badly shaken in morale, it may be necessary to rally by platoons or companies. The formal assumption of the squares, as was done at the Battle of the Pyramids by the French, to check the charges of the Mamelukes or by the British at Waterloo, to check the repeated charges of the French cuirassiers, would at present result in disaster. The enemy's artillery would surely wreck the squares at once. The appearance of the cavalry might be expressly for the purpose of causing the assumption of this formation, The U. S. Infantry Drill Regulations on this subject state: "The advance or attack of infantry should not be checked by the appearance of cavalry. The latter should be kept at a distance by the fire of sub-divisions designated for this purpose. If attacked in front the charge should be received without any change of formation. If attacked in flank the designated subdivisions change front to face the attack. If in battle formation, and cavalry attack as foragers or in mass, it is better to receive the attack than to rally. Only

such dispositions are made as will quickly develop the greatest intensity of fire. If attacked in front the firing line opens fire, the supports, and if necessary the reserves are placed in rear of the flanks to guard the latter and fire upon cavalry endeavoring to envelop them. If attacked in flank the supports and reserves face so as to form echelon ready to protect the threatened flanks by fire. If attacked by echelon, fire is not directed upon a fraction already repulsed, but upon the one following it. In a personal encounter the foot soldier should endeavor to gain the left flank of the mounted man."

We look to South Africa for examples bearing out our ideas of the use of infantry against cavalry and expect to find not only the old principles borne out, but new ideas developed. Nothing new, of any material use, is to be learned from the so-called Boer War. The repeated disasters first on one side then on the other were caused by the violation of strategical and tactical principles well known to any military man now living or who has lived during the past century. As one writer states it, "As regards the shock action of cavalry, instances in the late Boer War are few and far between. It may be urged that this is no criterion of what may occur in future wars, since the Boers had no cavalry proper to operate against us, and no infantry for us to operate against ; but, on the other hand, the country was particularly suited to cavalry tactics, being open. With the great increase in the rapidity of fire, infantry would now depend more upon fire action than on their bayonets, for warding off cavalry, and if they will only lie still when threatened, and shoot at the advancing horsemen, they need have no fear of the result. They may even have to fire over the heads of their comrades, but so long as all are lying down, no harm need come from that.

It would be a waste of precious time to run in to form groups and the latter, moreover, would form targets for ar-

tillery. SUCH was the case at Scheinovo when the Turkish cavalry forced the Russians to form square and then the squares were wrecked with artillery fire. The formation of the square, so prevalent in the wars of Napoleon, and in all the small wars against the savage tribes in Africa, is now practically obsolete. In England, Austria, Russia and Switzerland, the square has been abolished, but it is still retained in some form in France and Germany. With the modern rifle there is no need, in the slightest degree, for forming square or even rallying at all when infantry is assailed by cavalry. All the infantry need do is merely open fire and the cavalry will sooner or later retire. At Woerth, Beaumont and Sedan, the infantry had no trouble in repulsing cavalry. At the present time, unless the cavalry is in greatly superior numbers, or is supported with artillery or infantry, with our modern rifle and the magazine, the same can easily be done.

We now come to the question of the infantry in defense against artillery. Owing to the extreme ranges of the rifle, at the present time, this has become quite an important subject. On the subject, the U. S. Infantry Drill Regulations state, "if the artillery of the enemy is in the firing line, especially selected sharpshooters should be detailed to work their way to the front as far as practicable and fire upon the cannoniers. When not practicable to push these sharpshooters to the front, subdivisions, posted on high ground, should fire over the heads of the firing line upon the cannoniers. If the artillery of the enemy occupies a detached advanced position, the attack should be directed against one or both flanks, its infantry support being held in place by a frontal attack. The skirmishers should be widely extended and all closed bodies of troops kept under cover. Fire against artillery in motion is directed against the horses."

It is questionable, whether it is good policy,

for infantry to fire on artillery at all. We can safely say that if the infantry knows the range? and a fairly good target is offered, and the infantry has plenty of ammunition, it will be safe to fire upon the artillery. While infantry fire should not be used to replace artillery, still, as very often happens, the artillery in moving to, and from position, and in taking up a position puts itself in a very unfavorable place; then it would be absolutely foolish not to pick off the horses at least. Such was the case at the battle of Colenso. By firing on the artillery one of the three following results may be caused : the artillery may be forced to turn its fire from a more important object to a less important one ; as for example, the artillery of the Prussian Guard, which was firing upon St. Privat and the French artillery near that village, was greatly annoyed by French skirmishers, and was obliged from time to time to turn its fire upon' them ; second, the nerves of the gunners may be so shaken by the fire from the infantry and the continual dropping of men that their aim will be bad and their firing wild ; third, the artillery will lose its means of locomotion if its teams are killed off, and it will be helpless. "The disaster which overtook Trautman's battery near St. Hubert, at the battle of Gravelotte well shows how difficult it is to unlimber on open ground under effective infantry and artillery fire." Two batteries near the same spot suffered equally as hard. Trautman's battery lost 37 horses, Hasse's battery lost 77 horses, and Gnugge's battery lost 40 horses.

We now come to the question of the strength of the three lines. There is no definite rule as to the strength of the respective lines, A great deal depends upon the plans of the general officer commanding. If he decides to take up a purely passive defense, the third line may be entirely done away with, but if he determines to promptly assume the aggressive, whenever the opportunity presents itself, he should unquestionably have a strong third line. The strength of the three lines

will greatly depend upon the nature of the position with reference to whether there is good cover afforded or not, and the natural features of the terrain which may greatly strengthen or weaken the position. Nearly all European countries have the strength of the three lines in accordance with their own drill books and determined according to their own particular attack and defense formations. For the purpose of this paper it may be just as well to refer to the new U. S. Infantry Drill Regulations for an idea and a suggestion. "The company acting alone is in three echelons : firing line, support, and reserve. One platoon habitually forms the firing line; one section, the support; one section the reserve. This division of the company is varied according to circumstances." In the battalion "the second and third companies form the firing line; the other two companies form the support and reserve, one company in each. The number of companies in and their assignment to the different echelons may be varied at the will of the major." "When the regiment is in three lines the leading battalion furnishes its own support and reserve ; the second and third battalions form the second and third lines respectively at six hundred and sixteen hundred yards in rear of the reserve of the leading battalion. When the regiment is in two lines, two battalions constitute the fighting line; the other is posted as regimental reserve about six hundred yards in rear of the battalion reserves of the first echelon. When in brigade the regiment may also be extended in one echelon, each battalion furnishing its own support and reserve." "The formation depends upon whether the brigade is acting alone or with other troops, and varies in each case to suit the extent and character of the front occupied. The regiments may all be formed side by side, each with two battalions in the fighting line and one as regimental reserve ; the battalion in the line of regimental reserves performing the functions of the second line and following the reserves of the preceding battalions at six

hundred yards. In this case there is no brigade reserve unless furnished by another brigade. Two regiments may be placed abreast, formed as above, and the third regiment placed about one thousand yards in rear of the preceding regimental reserves ; being used as a brigade reserve and forming the third line. The regiments may be formed side by side, each regiment in three lines." "The division may be formed with one or two brigades in the fighting line and the others in reserve, or the three brigades may be placed in the fighting line." "The reserve is not centrally united; the regiments and battalions composing it may be posted in rear of the different parts of the first line." "The principles described for the evolutions of the division apply to the corps or a larger command."

Having discussed the defense on the assumption that it would prevail, it may be well to discuss it at this point, assuming that the defenders have been forced to withdraw or have been driven from their position. The withdrawal from a position is a matter very delicate of performance. The conduct of it will depend upon the extent to which the attack has advanced. The defender will, in general, be forced to fall back on a line perpendicular to his original front and look to the bodies of formed troops in his rear to cover his withdrawal. "The withdrawal of defeated troops, whether consisting of assailants driven back, or defenders thrust out of position, should, whenever possible, be delayed until night. When this is impossible the withdrawal should be covered by fire from alternate portions of the line if not too badly demoralized ; or, from the reserve, which takes position and opens fire on the enemy as soon as the retreating remnants are far enough to the rear to permit such fire."

In case the support has not reinforced the firing line, the latter falls back upon the support forming on the flanks or in the intervals. The rear subdivisions open fire as soon

as uncovered, and the companies now formed, fall back in successive echelons, each covering the other's withdrawal by fire. If the enemy is not aggressive, the reserve and other troops in rear, if not already in the firing line, withdraw independently without waiting for the firing line ; if, however, the enemy follows the retreat vigorously, the reserve awaits the arrival of the firing line and support, and these forces forming battalion fall back in half battalions, first two companies in the right wing or the left, and then the others or vice versa. If, however, the support has been absorbed in the firing line, the reserve takes a position on one of the flanks, so as not to have their fire masked by the retreating line, and opens fire. The firing line forms in rear of the reserve and also in a position so that its fire may not be masked and opens fire, whereupon the reserve falls back and in this alternate order the withdrawal is conducted until the retreat can be formed and the enemy has been checked or driven off.

As soon as the commander decides to withdraw, he should place his reserve or third line or whatever troops he may have in the rallying position. Inasmuch as beaten troops invariably retreat straight to the rear, the rallying position should be on one of the flanks and it should be far enough to the rear to compel the enemy to emerge from their cover in order to continue the attack. It should not, however, be so far in the rear that the retreating troops will be annihilated before gaining protection. The troops in the rallying position should hang on until the retiring troops can reform and cover their retreat. When the defenders are repulsed at short range, a withdrawal is a very delicate matter and if not carefully guarded against may turn into a rout. The presence of a strong reserve is not a sure preventive against rout, for at Waterloo, Napoleon had a reserve of a number of troops formed into squares, but the onflow of Prussians was too strong and the complete rout of the

French, so well known resulted. At the present time more than in the past, the fruits of the battle go almost solely to the victor, for retreat under the present conditions is bound to be disastrous if the enemy follows up his advantage. As one writer said, in regard to his observations in South Africa, "As a general rule to retire when under fire is a fatal move. It is a natural desire, when the bullets are coming thickly from the front, to run back to get away from them; but one cannot so easily get away from long-range fire. If the position is well chosen it is better to stand fast and try to strengthen the position more by trenches. If they hang on there is a chance that the assailant may be driven back even at the last moment. At Nicholzen's Nek, a company which had occupied a sangar for many hours, without much loss, when they felt the fire coming a little too fast, attempted to retire and lost about one-third of their men doing so. When, however, the front line is forced to withdraw it should retire in a body. It would be a mistake to withdraw by installments for that would only enable the enemy to annihilate the portions which remain. Such a maneuver was executed by the Boers repeatedly in Natal. The withdrawal by successive echelons should be continued until the retreat can be arranged and its safety insured. It is not well to take advantage of every position and halt; halts should be made long enough to allow the rear-guard to get into formation and then all the troops should take part in the orderly retreat.

WILLIAM K. NAYLOR.

Captain 9th Infantry.

Dec. 7, 1904.

QUESTION SHEET.

LECTURE No. 10.

1. What are the general objects of the defense?
2. What is the first and most important consideration in taking up a position for defense?
3. What consideration is second in importance-how is this best accomplished?
4. The distribution of troops on the defense depends upon what factors?
5. In regard to the strength of the firing line, what object is to be attained ?
6. How many men should there be at the most probable point of attack-how should the position be occupied by the firing line at first?
7. Why is long-range fire generally more effective on the defense than in the attack?
8. What particular advantage is it to cease firing from time to time?
9. State the advantages in the use of volley firing.
10. When is independent fire better than volley firing on the defense?
11. What are the duties of the line of scouts sent out from the first line?
12. When should magazine fire be used on the defensive ?
13. When, and upon what part of the assailant's infantry, should fire be concentrated ?
14. When should all possible troops be in the firing line-when should there be a support?
15. When may the reserve be weak-where should it be located-what are its duties?

16. What are the duties of the second line—where should it be posted—when and how should it rush forward and strike the enemy?

17. What are the different names applied to the third line—what are its chief duties—where should it be assembled or located—why should its position be concealed?

18. How is the counter-attack divided—which kind is considered the best, having reference to where it falls—what is the objection to a frontal counter-attack—when it is not possible to strike a flank, what would be the best kind of a counter-attack ?

19. What is the objection to a local counter-attack—when only should it be resorted to—define the general counter-attack.

20. When only can cavalry hope to succeed should it attack infantry—when only may it be necessary to rally into groups to meet a cavalry attack—if the infantry is attacked in front how should it meet cavalry—if attacked in flank—if attacked while in battle formation and the cavalry are “as foragers” or in mass ?

21. If the infantry is attacked in front by cavalry explain how the firing line, support, and reserve are conducted—if attacked in flank—if attacked by cavalry in echelon, upon what part should fire of the infantry be directed?

22. If artillery is in the firing line, how should it be attacked by the infantry on the defense—if the artillery occupies a detached post—if the artillery is moving, upon what should fire be directed—generally, under what conditions should infantry fire upon artillery?

23. By firing upon artillery, what three results may be obtained ?

24. What should be the formation and strength of the infantry in the following cases: When the company acts alone—when the force consists of a battalion—when the

force consists of a regiment and is formed in two or three lines-when the force consists of a brigade, of a division, or of a corps?

25. In case of defeat, until when should withdrawal be delayed-how should it be conducted; in case the support has not reinforced the firing line; if the enemy follows the retreat vigorously ; if the support has been absorbed?

26. Where should the rallying position be located and why-what troops occupy it?

“Whatever arguments may be drawn from particular examples, superficially viewed, a thorough examination of the subject will evince that the art of war is both comprehensive and complicated; that it demands much previous study, and that the possession of it in its most approved and perfect state is always of great moment to the security of a nation.”

WASHINGTON'S LAST ANNUAL MESSAGE.