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Friday, May 23, 1884.

LIEUTENANT-GENERAL SIR ARTHUR J. HERBERT, K.O.B.,
Quartermaster-General, in the Chair.

ON SOME CHANGES IN TACTICS CAUSED BY THE INCREASING POWER OF MODERN FIRE:

By Captain W. H. JAMES, P.S.C., late R.E.

TACTICS may be defined as that portion of the art of war which is based on the proper employment of troops, taking into consideration the weapons with which they are armed.

The history of war shows us that since the first introduction of firearms there has been a gradual tendency to replace shock by fire. Efforts have been made—but vain efforts—not to admit this, and keep back troops to the old belief in the *arme blanche*, but the logic of facts has been too much for the advocates of the old system, and it is now universally admitted that it is fire as represented by the modern rifle which decides battles. But time is required before old views are altered by modern fact. I have been much struck from time to time in wandering over some of the battle-fields of the Franco-German war to see how much they have obtained to the detriment of troops bound by them, and I propose to bring forward this afternoon a few points which I trust you will find worthy of your consideration.

It has often been said that victory depends rather on the number of the enemy frightened than on the number killed. No doubt this is somewhat the case, but the frightening itself depends on the number of casualties. Let us suppose that to inflict the loss necessary to produce defeat in a given force 50,000 bullets be required; these will require a certain time to fire off, and the available time will depend—

1. On the rapidity of the arms.

2. The range over which they are effective.

Referring to the diagram, Fig. 1 represents the state of affairs in the days of the Great Frederick. Rigid lines and no skirmishers. Fig. 2 shows the advantage gained under the Napoleonic system of supplementing the fire of the line by skirmishers. We see from a comparison of these two figures that the effect of employment of skirmishers is practically to considerably enlarge the distance over which an enemy would suffer from infantry fire, or in other words, to have the same effect as increasing the range of the weapons. Fig 3 shows the enlarged dangerous zone due to the introduction of rifle-fire, *i.e.*, the time of '54-'66; while Fig. 4 shows the present state of things with the modern small-bore rifle.

Now it is plain that all these improvements which increased the results obtained by fire, while those from shock remained unaffected, tended, and that very additional improvement still tends, to augment the proportion of effect due to fire to that due by shock. We know that now-a-days troops are driven from positions by fire alone, whereas in former times actual collision or shock was needed. This continual change in the relative value of the two parts of the infantry armament has involved in its turn changes in formation and in the method of occupying ground. Frederick the Great fought his battles whenever possible on open ground, to which alone his rigid formations were adapted. Over ground other than even, his processional movements were difficult and dangerous, as witness the Battle of Künersdorf, 12th August, 1759. The early wars with the French Republic showed, too, how in such ground as the fighting then took place in, the rigid line formation was liable to disaster. We see it therefore replaced by the flexible column and skirmisher formation, and later, the Duke of Wellington introduced the still more flexible battalion line covered with skirmishers.

Up to the end of this epoch, however, fire was merely looked upon as preparatory for the shock, and the tactical formations employed were all designed with a view to the ultimate use of the latter. But with the introduction of rifles—and still more of breech-loading rifles—it was soon acknowledged that the days of shock were over, and that fire reigned supreme.

The formation for shock has therefore disappeared, and the object now of all infantry formations, whether on the offensive or defensive, is to maintain a shooting line at its proper strength. This has involved a very important modification in infantry fighting arrangements.

So long as their object was to bring up a formed body to use the bayonet, so long were drill formations used on the battle-field. The men moved forward under the direction, *i.e.*, command of one man, whether the body in question was a battalion—column; or line, or even the huge columns employed by Napoleon in his later wars, and the consequence was that the number of individual actions was limited to the number of attacked points. The issue of the fight then depended on a comparatively few commanders. But now the whole circumstances are changed. Modern fire has dissolved the close formations, and the advance now consists of a number of small units, led each by an Officer, guided by one general idea, but not moving as a coherent whole in the same sense as the closed masses did in former days.

As a consequence, we find a certain tendency to return to the style of fighting which characterized the wars of chivalry—a number of combats directed to one common end, but differing very distinctly from the manœuvre battles of Frederick or of Napoleon.

Whether an army be attacking or defending a given position, it is evident that there are places round which the fight will centre, where the struggle will be severe, and others where the fighting will be of a much more tentative character, and this tentative character will be general along the whole line of battle until the object of either side is

Fig. 11.

clearly visible. This is one of the most strongly-marked features of modern fighting. Lines of battle are drawn up at such long distances from one another, and long-range weapons have so prevented close reconnoitring, that it is not until the action has been begun that it is possible to distinguish the points where the attack must be pressed home. This argument does not apply to strategically direct manœuvres, such as the out-flanking movement of the Guards and Saxons at Gravelotte, but it is well exemplified by the misjudgment of the extent of the French right at the same battle—an error for which the Germans paid dearly in the losses inflicted on the artillery of the IXth Corps.

In the future, then, we may expect battles to be entered on much more cautiously. An endeavour will be made by the offensive to ascertain the disposition of the defensive, first of all by cavalry reconnaissance, secondly, by artillery fire. But as that will be compelled by modern infantry fire to keep at a respectful distance, say 2,500 yards or $1\frac{1}{2}$ miles at the beginning of a fight, its effect will scarcely reveal the detailed arrangements of the defence, more especially as the defenders will usually be in shelter-trenches and behind cover, which will conceal their position. A tentative or reconnoitring infantry attack, therefore, becomes necessary, after the preliminary artillery duel has sufficiently progressed as to render an infantry advance possible.

Now, how shall such a tentative advance be carried out? By the modern attack formation? But it seems to me worthy of inquiry how far existing formations are suited to such an advance. Plainly, we must attack more or less along the whole line, and if we have an army which may form a line of battle several miles in length, it would appear difficult to expect an infantry advance to take place under the present ideas of attack formations over such an extended length of country. We know that at the Alma, with troops in close order, and therefore better in hand, that confusion arose; much more would it then with the men in open order. The difficulty which has chiefly to be met with is the fact that troops do not keep their initial direction, but, turned aside by ground or by fire, overlap one another or leave gaps, and that the consequence is a mixing of units, which, even if unavoidable, is nevertheless to be deprecated and put off as long as may be. Where, therefore, the fight is hottest, at the points, that is to say, towards which troops will be most directed, there will the mixing and confusion be the worst. It is, however, precisely at these points that order is of the greatest necessity. I would suggest, as a possible solution of this difficulty, that instead of extending the two companies of a battalion as at present, evenly along the front, they should be divided up into sections in single rank, but kept together or with but very slight distances between the files (see Fig. 11). These groups or fighting units would be better kept in hand by the intervals between them. The men would naturally tend to close on themselves as gaps occurred in the advance, and when it was desired to strengthen any particular part for an attack, the supports and reserves would be easily

brought into the intervals between them. By some such plan as this a commander could settle whether the fight should be tentative or be pressed home; but once the men are in extended order experience shows that all hold is lost. At the points, however, where the attack is to be pushed home, a series of battalions will often have to be thrown one on the other, and these will all tend to converge on the key of the position, and thus produce disorder. It is, therefore, necessary to support the front line of troops by others to hold the positions when won. How shall these be brought up? It seems to me in battalion line, provided intervals are kept between the companies. For experience shows that if the attention of the enemy be rivetted by a sufficiently powerful shooting line, formed bodies can move behind it with comparatively little loss.

With a view also to keeping the men in hand during an advance, which is much more difficult than when a force is stationary, I also venture to suggest that independent firing should be abolished. Troops will at close ranges use it, and no power can stop them; but allowing no one to fire without permission, *i.e.*, using volleys, would certainly tend to put off the evil moment as long as possible.

On the defensive a similar plan to that shadowed forth above might be adopted. During the preliminary stage the position should only be marked, as it were. During the first part of the infantry attack the groups, as suggested, would form the firing line, and only when the enemy's infantry got within about half a mile, should the supports be extended.

I think here is a point worthy of notice, *viz.*, that on the defensive, supports to a shooting line, whenever possible, should, during the close infantry attack at any rate, be close up to the line they are to support; probably in deep shelter-trenches within 50 or 60 yards. It is difficult to get men to cross a shot-swept space if it be not within the limits of a run.

Fair general rules for the use of fire would seem to be as follows:—

During the tentative or first stage of an infantry fight, from 2,000 to 800 yards, the fire should be limited to those objects which are clearly seen, are sufficiently large to present a fair chance of being hit, or against those parts of the enemy's line of which it is wished to know the dispositions. Once the fight comes within the second zone, *viz.*, 800 yards from the adversary, the fire may be strengthened to the utmost. It will, therefore, often be advantageous for both sides to make use of tiers of fire, such as the Turks employed at Plevna. This will usually be easier for the defensive than the offensive, though the latter may be able sometimes to deliver long-range fire from the second line, or even from the supports of the first.

These proposals will no doubt have somewhat a tendency to increase the expenditure of ammunition. This, however, is necessary if the long-range weapon is not to be confined to the old short range, and why it should be thought better to kill your enemy at 200 yards rather than at 800 yards I confess appears to me inexplicable.

The question of long range and ammunition supply are therefore intimately bound up. Probably the simplest plan would be to give

each man entering action 120 rounds. We are, therefore, rapidly coming to the day when kits must be carried for the men to meet the necessity for giving the latter a portable intrenching tool as well as more ammunition. Is it possible to supply ammunition under long-range infantry fire? Neither wagons, carts, nor mules could be brought sufficiently close for the purpose, and if men are relied on to bring up the cartridges, they can only carry a limited amount and may be killed. Better, therefore, give each individual a good supply to start with, and trust to making up deficiencies from the pouches of the men knocked over. This ammunition question is of the highest importance at this moment, when the introduction of magazine rifles seems to be a question of a very short time. When they are brought in, the short rapid fire from them at the closing moment will tend still more to abolish the prospect of a hand-to-hand struggle with the bayonet.

And now I will ask you to revert to my assumption regarding the 50,000 bullets. It is plain that to pour in this number in the case of Fig. 1, either the enemy must be delayed a sufficiently long time in crossing the dangerous zone, *i.e.*, obstacles must be made use of, or means must be taken to increase the length of line from which fire can be delivered, *i.e.*, it must be broken up into salients and re-entrant. Now, in old treatises on fortification and on the occupation of positions, you will find it laid down that the best way to occupy a position is to divide it up, as it were, into a series of bastion fronts, as shown in Fig. 5. By this plan, the salient points of the position, *i.e.*, those most liable to attack, are well held, and the re-entrants serve as convenient positions for artillery to flank them. The line is thus cut up into a number of points which are flanked as strongly as possible. An enemy thus advancing on the salient found himself struck both in front and flank, and the flank fire was of great importance when the time was limited in which the infantry fire could act. It was also of importance to keep the enemy as long as possible under it, and hence ground which checked the enemy was advantageous. At the beginning of this century, therefore, in choosing a position, it was desirable to have the front difficult of approach, and to have means of subjecting the enemy to a flank fire. To do this salients were a necessity, and these salients would often take the form of detached posts, which may be looked on as so many extreme salients. Taking Waterloo as an example, such points were Hougoumont and La Haye Sainte. Now, a salient is of necessity a weak point. Its sides are liable to be enfiladed, and a more powerful fire can be brought to bear on it than it can return. This is shown clearly in Fig. 6, which also shows how much this weakness has been increased by the increased range of modern firearms. The salient was formerly necessary because flanking fire was a necessity, but it was an evil, because it presented a weak point to the enemy. Under modern conditions, however, a flanking fire may be got without actually having a flank. For referring to Fig. 7, the larger triangle shows the fire which can be brought to converge on a point from the line AB under modern conditions, *ab* under the conditions of the beginning of this century. Practically, a force

advancing from C then will be four times as long under fire, and will suffer from four times the length of line it did formerly. This being the case it is plain that a flank is no longer so necessary as formerly.

1. Because direct fire has so much longer range.
2. Because the fire, even from a straight line, by this same quality of long range, is practically a flanking fire, *e.g.*, from *aA* against a force advancing from C.

It seems, therefore, that the modern position should be a straight line with very slight or no salients, which are weak places, and no longer so necessary for flanking purposes.

If this be true, the same argument will apply still more strongly to detached posts in front of the battle line.

A detached post is either so close as to be practically a salient, or else sufficiently far off to be obliged to act independently. In the former case we have seen that it is bad, and I believe it is equally so in the latter, for a detached post must bear the brunt of the attack first, and it is now-a-days exposed to so heavy a concentric fire from afar, that unless so extensive as to form in itself, as it were, a position, will certainly be destroyed by distant fire, or be compelled to yield before the force which can be concentrated against it. One of three things will therefore happen, either the troops in it will retire so early in the struggle that they will not affect its issue, or if they stop they will be surrounded and cut off, or compelled to retreat under the pursuing fire of the enemy. This reasoning does not apply to advanced positions. It may happen that in defending a given portion of ground, it may be desirable to hold a position in front to command ground advantageous to the enemy. Such a position, however, will be held in force, and although a second struggle may take place on the main position behind, it plays during the struggle for its maintenance so important a part in the fight that it may almost be regarded as the main line. Such positions were Hougoumont at Waterloo and St. Hubert at Gravelotte.

These considerations serve to show that unless for some special object, detached posts are a mistake. This I think we have exemplified at the Battle of Gravelotte, by the French holding the village of Ste. Marie-aux-Chênes, which, 2,000 yards from the French line, certainly retarded but very little the German advance.

And now as to the kind of ground in front of a position. In the old days of feeble and slow fire difficult ground in front was the best, but now with modern long-range quick-firing weapons, the most deadly ground we can offer is a smooth glaucis-like slope. Such ground we know the Prussian Guards advanced over in the attack on St. Privat, and we know what their losses were. Fig. 8 gives a section of this ground sloping on an average about $\frac{1}{40}$. Compare this with the ground on the Rotherberg, at the Battle of Spicheren. Here the slope was $\frac{1}{4}$; the Prussians suffered in the crossing leading to it, and when on the top. But we know that at the base the attacking troops found shelter, and that when the attacking force—I allude to the frontal attack—gained the first shelter-trench, it was to the surprise

of the defending troops. What does this mean? Why, that the slopes were so severe that the troops could not fire down them well, *i.e.*, without exposing themselves by standing up. This same Rotherberg illustrates and confirms the danger of acute salients. The French artillery early in the day were driven back from their advanced position. The advanced shelter-trenches were carried, but from the moment the French line was thrust back to Gifert's Wald, the advance was stopped, and was only afterwards pushed on when the flanking movement through the wood was developed. The bastion-like projection of the Rotherberg, which would have been useful under old conditions to flank the Gifert's Wald and the ground to the left towards Stiring Wendel, seems to me to have been positively a source of danger to the French force in the manner it was held. Far better would it have been to have drawn the line across the neck, where the troops, unseen from below, would have received the Germans on mounting with their fire undamaged by that of their adversaries. It would also have acted as a traverse to troops told off to flank the Gifert's Wald, who might have been placed on the eastern slope. Similarly the steepness of the ground at Floing (Battle of Sedan) seems to have sheltered the Germans in their advance.

This last suggestion leads me to another point. Should the edge of a plateau as A, Fig. 9, be occupied, or should the position be taken up farther back as B, say 600 to 700 yards? A large school of French tacticians say the latter, because the portion Aa being towards the middle or highest point of the trajectory of the projectiles fired at A, is so shot-swept, that troops in it (supports and reserves) would suffer equally with the firing line at A. Theoretically this is quite true, and practically it will happen where, as at Spichenen, for example, the edge of the plateau slopes gently up. Those present who have visited this battle-field will have no doubt remarked how from the ground below the Exercir Platz from the Galgen Hohe and from the Folster Hohe, the anterior portion of the Rotherberg is visible. In these three positions successively the German artillery acted with considerable effect against the French. Infantry coming forward to strengthen the force holding the Rotherberg were kept back by its fire; the French guns on the neck were driven back. But here was a totally different state of things to what ordinarily obtains, for it is but seldom that we find such a long intermediate slope as was here the case. In order, then, in cases such as Fig. 9 that the fire should sweep the edge of the plateau, what is required? The edge must occur in the top of the trajectory, *i.e.*, that, roughly speaking, the troops shall be firing with an elevation double that required for the range, so that the point A shall occur in the centre of the trajectory. But as A is above the firing point, in aiming at it, a certain amount of elevation will be given, and it follows therefore that the proper angle of elevation to be used would be that due to double the horizontal range, less the amount obtained by aiming at A instead of p. It seems to me, therefore, with the greatest respect to the theory, that in practice the danger would be less great than is sometimes imagined. On the other hand, by withdrawing from the edge we lose

the advantage of view; we cannot see what the enemy's movements are, and we limit our resistance to the short space between the edge of the plateau and the drawn-back position, which is to a great extent throwing away the advantage of long-range weapons.

As a general rule, therefore, where the front of a position consists of one long slope, the top should be occupied. Where the ground in front is as shown in Fig. 10 the balance of advantages and disadvantages must determine whether *a*, which sweeps the lower part, *b*, which sweeps the intermediate section, or *c*, the retired position, should be chosen. I think that if troops can retire from *a* under cover, for instance, through a wood or hollow road, that this is far the best, as enabling the force holding it to commence stopping the enemy from his first appearance. Failing this *c* is the best, because here the troops are safe from fire, and have a fairly wide zone in front of them. The worst is *b*, because here the enemy can approach pretty close under cover, and because the zone in front is so shallow.

The angle of slope of the ground in front will also affect the question of the position to be held. Where this is steep, as at Spichenen, the men, to fire down it, must stand up. In such a case the withdrawn position is the best, and I am inclined to think should be occupied when the ground in front rises more steeply than 10° , i.e., about 1 in 6.

From what I have said, therefore, I think it is possible to lay down three general rules, viz. :—

1. The position should be as near as possible straight.
2. Detached posts should not as a rule be occupied in front of the line, and the latter should be taken across the neck of sharp salients.
3. The front line should be on the edge of the ground sloping up to it, provided this can be swept by fire, and where this is not the case, it should be drawn back 700 to 800 yards beyond the edge of the plateau.

If these rules be right, it seems to me that at Spichenen, on the central portion of the field of Gravelotte, the French were wrong. In all these cases they seem to have lost sight of the alterations in tactics due to modern weapons, of which the above given rules are the outcome.

Time does not allow me to enter into a detailed inquiry into this question, but I think that anyone who will bear these rules in mind, and will examine into many of the battles of 1870-71, will see that in all cases where they were violated, it was to the detriment of the troops concerned.

And now I must call your attention to one more point connected with the occupation of positions. It is universally admitted that the soul of the defensive lies in the power of assuming the offensive at the right moment. But if the line occupied is to be as far as possible straight, it is plain that any issuing out of it will be difficult, if not impossible, unless in the form of a pursuit after an attack has been driven back. To admit this, however, would be to limit very narrowly

the use of the offensive. On examining the matter more closely, it will be seen that this is again a question of modern alterations in old tactical forms.

In the days of Napoleon usually the most effective point to penetrate the enemy's line was the centre. It is equally so to-day, but an assailant attempting this against a strongly posted defender would, owing to the large amount of fire which could be brought to bear on him, seldom be able to succeed, and he will therefore be limited to frontal attack or to turning one or both flanks, according as numbers allow. Now in attempting this latter manœuvre it is that opportunity for an offensive return will be offered to the defender. For an enemy attempting to turn the defender's flank, himself offers a flank to attack, and it is against this portion of his forces that the counter-attack should be directed. Plainly, therefore, when a flank is liable to attack, troops should be massed behind it, not only as reserves, but also with distinctly offensive views. What might have been the result had the French Guards been on Bazaine's right flank at Gravelotte, and been able to assume the offensive when the Prussian Guards' attack was first brought to a standstill? Issuing out between Roncourt and St. Privat, they would have penetrated between the Prussian Guards and the Saxons, and have placed in deadly peril the already sorely tried IXth Corps.

These considerations, then, lead to the general deduction that, on the defensive, offensive returns should as a rule be made during the fight from the flank threatened by the enemy. This will not of course prevent a general assumption of the offensive such as Wellington always employed at the end of his offensive-defensive battles.

This rule, then, leads to the consideration of the best method of securing the flanks of the defensive position until the offensive is assumed. Looking to the fact that it is from the flank that the counter-attack is to be delivered, it will evidently be desirable to take our defensive measures bearing this end in mind, and for this purpose putting aside the case of a flank resting on an impassable obstacle, it seems to me that a strong point held in extension but not in front forms the most favourable solution of the problem, combined with the massing of troops in rear of the flank, both for offensive and defensive operations.

A defensive position, then, drawn up under these conditions, would consist of a front line, a second line to support it, small reserves to strengthen weak places, and finally general reserves for offensive purposes on one or both flanks. The point held in extension serves a double purpose. Not only does it extend the line held, and therefore forces the enemy to prolong, *i.e.*, attenuate his line, but it forms a *point d'appui* for the counter-stroke, while not being liable to the concentric attack of a post in front, it is nearly as secure as any other point in the line.

I should now like to say one or two words with regard to modern artillery. It is difficult to say what the effect of shrapnel will be. It is an untried projectile in war on any large scale. Again, there is another new projectile, the double skin common shell, which breaks

up into a very much larger number of fragments than the ordinary common shell.¹ Both these will probably tend to bring up the effect of guns to what it was before; that is to say, nearer to the effect produced in the days when grape and case might be looked upon as the main projectiles of artillery. There is one thing that I think we shall see in all future wars, namely, a tendency to handle the artillery as a separate arm, by which alone its proper effect can be obtained. We shall look upon it not as a mere auxiliary, but as acting to a certain extent independently. We shall see it pushed forward early in the action, concentrated in large masses, and also used in the tentative attack which I sketched in the early portion of my lecture. But this independent action will also expose the guns more, for at the commencement of the battle the large masses of guns pushed forward with the advanced guard only as an escort would offer an opportunity to the enemy for an attack which they would not get later in the fight; such as the French had against the artillery of the IXth Corps at Gravelotte. Again, the necessity of pushing home the artillery attack involves the use of shields to provide against the increased effect of the small arms. I would suggest as a possibility that we might work our artillery on rather different principles. We should use the teams to take the guns into action, and then remove all the horses except perhaps the pair of wheelers, just sufficient to move the gun, taking the bulk of the horses and men to the nearest retired position where they can be in tolerable safety, and work the guns by relays. One of the commonest things one comes across in reading military history is the way in which guns are stopped in their movements by the loss of their teams; either you must have reserve teams, or you must separate them somewhat in the way sketched out.

It is too much to say, as is often said, that the days of cavalry on the battle-fields are gone. The elements which have always constituted the strength of cavalry still remain, namely, speed, and the rapidity which this confers of moving a large mass of men from one part of the field to another. This is a very favourable opportunity for the use of cavalry early in the battle, when the large masses of guns are pushed to the front. No doubt the cavalry would suffer heavily in such an action; but cavalry must not expect to go to war without suffering loss, and I am sure that a good dashing cavalry leader would often be able to produce such an effect against the guns as our Union Brigade did against those concentrated against the British left centre at Waterloo.

During an action also, there will be employment for cavalry in wide turning movements. You must remember that we have not seen any pitched battles fought on a large scale under strictly modern conditions, between armies of fairly equal force and organization, and we must therefore guard ourselves against making too many deductions from what happened in past wars. The only really large battle of this description was Gravelotte, where the French had their back to a

¹ See my article on "Modern Field Artillery," vol. xvi, p. 737, of the "Journal."
—W. H. J.

fortress, so there was no opportunity for any very wide turning movement on the part of the Germans. But where two armies are contending in the open country, I think it would be possible to use the cavalry divisions for such a purpose during the course of the battle. A large mass of cavalry directed against the rear of the enemy must produce an effect. It is all very well for a General to say, "Oh, that is only cavalry coming;" but he does not know it: it may be that the cavalry cover the advance of an army. Moreover on such duties cavalry would be used dismounted, and their fire having considerable effect would be an additional weapon in their hands for such an out-flanking movement.

I cannot help thinking also, with regard to this subject, that the mitrailleuse is the proper weapon for horse artillery. Horse artillery acting with cavalry only have to deal with man-killing—they do not want to beat down the cavalry they are opposed to; what they want to do is, the moment the cavalry are about to come into collision, to produce the greatest possible effect with fire, and it appears to me that the mitrailleuse properly mounted on a four-wheeled arrangement, from which it can be fired without unlimbering, would be the proper weapon for horse artillery. I am quite prepared to admit that it would be possibly desirable for certain purposes to supplement these mitrailleurs by guns carrying common shell, but for the actual fight of *cavalry v. cavalry* the mitrailleuse is the weapon. The power of pouring in a tremendous long-range case fire in such a position must produce a great effect on the opposing cavalry.

There is another use for cavalry, namely, for organized raids, such as the mounted infantry, the armed men on horses which the Americans employed. We know at the present moment that the Russians have a very large force of dragoons on the Prusso-Austrian frontier, and these would in all probability be used the moment war was declared for raids into the enemy's country, to cut his communications and to interfere with his mobilization. Similarly the German cavalry division in Lorraine would probably be used for the same purpose against France.

But I must now conclude. I said at commencing that I proposed to bring forward certain ideas for your consideration. I can only hope that you have found them worthy of your attention. I could have wished to have supported my propositions in more detail, but that, as you all know, is impossible within the limits of a lecture.

The CHAIRMAN: At there is no subject probably on which there are more differences of opinion than upon the manner of attack and defence, and upon tactics in general, I have therefore no doubt many Officers here would like to make some remarks upon the very able lecture which Captain James has given us.

Colonel G. MONCRIEFF: I should like to state that in a recent General Order it has been laid down that the attacking line should be fed by the supports in masses where the blanks occurred in that line, and not, as has hitherto been carried out in the "Field Exercises Book," that the supporting company should extend in such a way as to come in file by file between the files of the attacking line. I also might mention that a new valise, the invention of Captain Blakeney, is being tried at the present moment, which is calculated to carry, together with the rounds in the pouch, at least 100 rounds. The valise is only a

sort of cover to a canvas bag which contains the heavier part of a man's kit, and which would be left behind at the base of operations, or in the wagon. Inside this cover there is merely room to carry an extra shirt, &c., and four little pockets, which are easily unfastened; each pocket carries 10 rounds, making 40 rounds, and with 60 in his pouches, 100 rounds of ammunition are carried without any difficulty.

Colonel LONSDALE HALE: Captain James has put before us some rules which certainly are in the highest degree original, and, to say the least, revolutionary. There is no reason, however, that they should not be sound because they are revolutionary; but, at the same time, when rules of this nature are offered for our acceptance, we may fairly ask the gentleman who fathers them to favour us with more full and stronger arguments in their support than those which Captain James has vouchsafed us in his rather superficial treatment of the subject this afternoon. The first rule is, that "a position should be as nearly as possible straight," and he finds fault with the French in not adopting this rule at Spichenen, Wörth, and in the centre portion of the field of Gravelotte. It is impossible, without diagrams before us, fully to discuss the question; and had I known four-and-twenty hours earlier that reference would be made to those particular battle-fields, I would have obtained diagrams for the purpose; but I would ask Captain James to be so good as to append to the lecture, when it appears in the "Journal," reproductions from the official maps, and to indicate on them the exact line he thinks the French should have adopted, so that when we next visit these places we can form an opinion on the subject. It will be most interesting to learn how on the wooded and broken position of Wörth such a line could be selected. Rule 2 is, however, the revolutionary recommendation: it is, "that detached posts should not be occupied in front of the line."¹ In support of the rule the same battle-fields are selected. Captain James, in what I may venture to call rather a sketchy way, brings forward my old friend the Rotherberg, and he seems to have underestimated the effect produced on the attack by the holding of that advanced post. The Rotherberg was held rather as an advanced post than as part of the main line of battle; it seems very doubtful whether the French intended to fight there at all, but rather on the Spichenen heights in rear; when the French General found that the attack was serious, he sent² one battalion into the horseshoe trench which crowned the steep sides of the Rotherberg, and during the further course of the action two battalions of the 40th Regiment were sent there. As to what effect the occupation of the Rotherberg had on the action you will find in the official account, first of all, in its flanking fire (p. 211): A battalion of the 39th Fusiliers "took more the direction of the Rotherberg, from which they were now met by a strong flanking fire." "The 6th Company had also penetrated into the wood further to the right, suffering heavily from the flanking fire of the French Chasseurs on the Rotherberg." This was about 1 P.M. The guns on the advanced posts annoyed the Germans considerably; for we read (p. 213) that the 3rd Company of the 74th Regiment endeavoured "if possible, to approach unobserved the left flank of the enemy's artillery on the Rotherberg, the shells from which had wrought considerable damage to both battalions (of the regiment) when making their first ascent of the heights south of Saarbrücken," upwards of 3,000 paces distant. According to Captain James's account, the attack on the Rotherberg was a very small matter. But turn to the account given by the Germans of this advanced post held by one, or perhaps two, battalions at the most, for there is not room enough on it for more. "The Rotherberg (p. 214), conspicuous at a distance by its glowing red hue, projecting like a bastion from the enemy's front, and flanking all lines of approach along the open ground, must be captured, if it be our object to eject the enemy from his strong position. The difficulty, nay impossibility, of an unaided frontal attack on that point could not be overlooked, and a flank movement to the right and left was therefore resorted to with a view to facilitating the assault." Two battalions of the 74th Regiment moved against it, and the advance of the leading battalion is

¹ By "detached posts" it is presumed that what are ordinarily known as "advanced posts" are indicated. My remarks were based on this assumption, and were not objected to on that account by the lecturer in his reply.

² Official Account, p. 211.

thus described (p. 215): "The fusilier battalion had deployed into line with its companies at 80 paces interval, and the whole of its skirmishing divisions 150 to 200 paces in front." In this formation it traversed the open hollow between the Reppertsberg and the Galgenberg, under a destructive fire from the enemy's batteries and shelter-trenches. With every moment the losses increased, but the attenuated ranks closed again, and without a waver reached the foot of the heights. Major v. d. Mulbe, commanding the battalion, had long recognized the difficulty of the undertaking. He deemed a direct ascent of the steep and rocky slopes impracticable, without a corresponding flanking movement. Restraining the attempts of some of the more foolhardy, he ordered every man to get under cover below the heights, at the same time keeping up a moderate fire on the enemy's riflemen perched above them. As the enemy swept the entire foot of the heights from his shelter-trenches lining the edge of the precipice, cover was only to be obtained by crouching under the rocky walls. The three available companies of the 1st battalion subsequently joined the fusiliers in their shelter. This advance to the Rotherberg had taken place shortly after 1 o'clock, and until about 3 o'clock these troops were held there from advancing further. Thus, when the attention of the French was somewhat diverted to the right, an assault succeeded. Surely this advanced post had well fulfilled one of the objects for which all such posts are held, namely, holding in check attacks by the leading detachments of an assaulting force. So far, then, from the Rotherberg being an instance against such posts, it appears to be in a marked degree in their favour. But the central portion of the field of Gravelotte extending south from Amanvillers is a striking instance of the use which may be made of advanced posts; and the fact that Captain James quotes this central position in support of his view adverse to such posts shows how two people may differ in their interpretation of the facts of a battle. In the course of my work at the Staff College, I remarked the general dislike which the Officers studying there always showed to holding advanced posts in positions; they seemed to lay so much stress on the losing men in these posts that I have over and over again selected this particular case to overcome their prejudices, and from time to time I have on the battle-field of Gravelotte itself pointed out to them the part they played in the battle. Here, about 1,200 paces in advance of the main position, lies the farmstead of Champenois; it was held by the French, and on the hill on its flank, and close to it, the artillery of the IXth Corps opened its attack on the French position. The presence of French troops there in close proximity to the guns was a thorn in the side of the Germans for some hours, as there were no troops here in support of the guns, and an attack on them from the farm might have been disastrous. The fault committed by the French as regards this advanced post was not that of holding it, but that of not holding it strongly enough, so as to be able to attack from it. A little to the south lay the Bois de la Folie, 500 paces in advance of the line, and held all day by a French brigade and protecting an important part of the French line. Had it not been held, it would have afforded extensive cover for the preparation of an attack in this direction. Still further south, and some 800 to 900 paces in front of the margin line, lies the farmstead of St. Hubert, at the head of the only causeway across the Mance Ravine. After some 132 guns had come into action on the other side of the ravine against the main position and the farm, advanced post was carried, and a most valuable acquisition it proved to the Germans, for whence towards 7 p.m., the French made their counter-attack in this direction; the Farm of St. Hubert was the firmest *appui* (p. 113, sec. 6) for the maintenance of the ground already gained. You cannot afford to give up posts which on a battle-field assist so materially in delaying the progress of an enemy, and the possession of which may be of so great use to him. Captain James dislikes salients, but sometimes you cannot from a distance distinguish a salient from the rest of the line. It may be a short salient only, and yet the flanking fire from it may be destructive and of great value; such a salient is to be found in the knoll numbered 1,030, north-west of Amanvillers; from it a severe cross-fire was brought on the German guns and infantry in its vicinity. Perhaps Captain James can name some advantages to compensate for the loss of all those which have hitherto been derived from the occupying advanced posts; but, until he does so, I am afraid I cannot follow his lead in this respect. With regard to the question

of positions generally, the treatment of selection of positions is very unsatisfactory. It is very easy to coach up young gentlemen with regard to positions by book, and to tell them what is right and what is wrong, but when you come to have to deal with positions on the ground, all accepted rules will have to be modified to such an extent as to be hardly recognizable. So far as Officers are concerned, the only way in which they can learn how to take up positions is by working out occupation on the ground itself, on various kinds of ground. When our Generals take out the Colonels, the Colonels the Captains, and the Captains the subalterns, and teach the work practically, then, and not till then, will the Officers of all ranks, teachers as well as taught, become proficient in this necessary part of a soldier's work.

Captain JAMES, in reply, said: With regard to what Colonel Moncrieff stated as to the General Order, I do not think that quite meets the point for which I contended, namely, that infantry should never be extended absolutely in the way that companies are extended in the front line, but that it would be better at first to keep your men in groups. And now with regard to Colonel Hale's criticisms. I feel very great diffidence in replying to them, because I feel, after the very strong attack that he has made in opposition to myself, that it is I who ought to have been the listener and he the lecturer. But, at all events, I will try to meet his statements as far as I can, so that you may be able to follow me, because it is of very little use to mention a mass of names and positions, as Colonel Hale has done, unless you are all in possession, as he, of sufficiently accurate knowledge of the facts, or have a *précis* of the movements and maps of the ground before you. Now, first, with regard to detached posts, Colonel Hale says the Rotherberg was a detached post. This I deny, and any one who reads the official account of the war of 1870-71 will see that it was in reality part of the main position of the French. It was a salient, and a salient which, although it had a great influence on the action, did not affect it so very strongly as Colonel Hale appears to think. Colonel Hale read some extracts from the official account, but he did not allude to the point which I alluded to. I have brought the book with me, and I think he will find at page 219 that when the men did get up there the French were surprised at seeing them. Now, if they had seen the Prussians coming up the slope, how was it that they were surprised when they got there?

Colonel HALE: I have the book in my pocket too, and I find it says, "The moment for assault was happily chosen, in so far as at this time the firing from the enemy's shelter-trench was on the wane. The adversary's attention was turned more to the right." That is the nature of the surprise.

Captain JAMES: It would not have been a surprise if it had been all open ground over which their advance could have been seen. The reason that enabled them to surprise the French was that the ground was so steep the latter did not see them coming up.¹ Colonel Hale said that in all probability the French intended to have fought the action further back. If they had done so they would certainly have avoided the Rotherberg, and had a much stronger position without this weak point to let the Germans in at. The Rotherberg is of use to afford flanking fire to the Gifert's Wald, but it suffers from the faults to which all narrow salients are liable, viz., that they are swept by fire, front and flanks. This is shown by the fact that the French guns there were taken in flank by the German artillery on the Winterberg

¹ Colonel Hale's quotation was admirably chosen to support his argument; but he did not read sufficiently far on the page indicated, which runs as follows, and clearly proves the point I was aiming at, viz., that the steepness of the slopes of the Rotherberg prevented the French firing down them. Readers will kindly remember that I have not quoted the Rothenberg as a detached post, which it plainly was not, but only as having too steep slopes and being too salient. The further quotation is (see p. 219, vol. I, Official Account): "Leaving a small detachment in rear, the fusiliers of the 74th Regt. . . . commenced scaling the steep and rocky slopes," at the foot of which they had previously taken shelter after the loss sustained in crossing the open ground leading to the bottom of the Rotherberg (see p. 216, *ibid.*), "after a few minutes the foremost shelter-trench skirting the edge was reached to the evident *surprise* of the French riflemen." The italics are mine.—W. H. J.

(see p. 210, Official Account). I think it would be rather out of place on my part to detain you while refuting in detail all Colonel Hale's statements; but I distinctly join issue with him in what are apparently his views with regard to the central portion of the field of Gravelotte, from Amanvillers to the Bois de la Folie. I am perfectly aware of the losses of the IXth Corps Artillery. But they suffered because they were pushed too close to the enemy without infantry support, which rendered it possible for the French to occupy the farm of Champenois as a species of counter-attack. This is clearly shown by reference to the map (Official Account, 6th section; also p. 37, *ibid.*, and p. 181, Hoffbauer's German Artillery). The farms of L'Envie and Chantrenne, which the French held in the same part of the field at the commencement of the fight, were carried with ease (see pp. 26 and 28, Official Account). When infantry was available Champenois was also captured (see p. 37, Official Account). The occupation therefore of this farm, possible and desirable as it was after the German error, cannot be quoted as an argument in favour of detached posts.¹ But I do think that the instance I have given of Ste. Marie-aux-Chênes bears out most fully what I have stated with regard to such positions. It did not materially check the advance of the Prussians. The official account (p. 59, Sec. VI) says most distinctly that the actual resistance in the village was slight. Now we know that the defenders were driven out with very considerable loss—in prisoners alone several hundreds. I am perfectly well aware, with regard to a place like St. Hubert, that it was absolutely necessary to hold it, but I am inclined again to regard this, not as a detached post, but rather as an advanced position. Everyone who knows the ground, or who reads the official account carefully, will see that it was more useful to the Prussians than to the French. To them it was a work to protect the bridge-like road over the Mance valley. I quite agree with what Colonel Hale says about using rules for occupying positions. You must occupy your position according to circumstances, and according to the nature of the ground. But having ascertained those circumstances, and seen what is the nature of the ground, you must then start on some foundation in theory, otherwise you could have no guide for anything whatever in war. I think that general rules are distinctly of use in occupying positions. As the greater portion of Colonel Hale's military career was passed in teaching, I quite understand his views when he says that it is very easy to lay down rules in coaching young gentlemen (casier, I think, than to do so with old gentlemen), but that they are very difficult to apply when you actually go on the ground. So they are; but what are you to do if you have not any rules to start with; if you have no idea whether you want one man or a battalion, whether you want two guns or twenty guns, whether your line should extend 1 mile or 10 miles, whether you want two men per yard or 2,000? Therefore, I say most distinctly that rules are a necessity. It is their wooden application which is the ruin of the people who apply them. The men who say, "I did it according to the book," are the men who suffer. Colonel Hale has vouchsafed no arguments to show that my proposed rough rules for occupying positions are, as he

¹ The possession of La Folie copee was doubtless advantageous to the French. Flanked from the main position in rear, and strongly held, it stopped the advance of the right of the IXth Corps. Still the position behind about the farm of La Folie is very strong; approached in front by a long glacis-like slope, so that even if the wood had not been occupied, it is doubtful if the Germans would have made much progress here, for there is no ground from which they could have prepared their attack by artillery fire. With the hither edge of La Folie wood entangled, and so rendered impassable, the open space between it and the Bois des Genivaux, swept as it was from the ground occupied by the right of Frossard's corps, the main position in rear would still have been as difficult to capture, although the Germans would have been somewhat closer to it. But La Folie wood, held in the strength it was, can scarcely be regarded as an "advanced post." It was in reality the main position here, differing, therefore, very materially from the cases of Champenois, L'Envie, and Chantrenne. Moreover a force of six battalions, the French strength here, possesses so much greater inherent capability of resistance than the garrisons of such small posts as the three last named, that Colonel Hale's argument as to the value of advanced or detached posts does not apply.

states, unsatisfactory, beyond his opinion that such is the case. I venture to think that this destructive kind of criticism, which enables anyone to say that no rules are necessary, is of a very easy character to begin with, and also that such a theory would be a very poor aid to any man who in actual service was called upon to carry out the occupation of a position, or any other military movement.

The CHAIRMAN: We have had a discussion between two very able Officers on the advanced and detached posts, and I think that if we establish ourselves as a jury we shall come to the conclusion that the theory of the abolition of advanced posts is scarcely sufficiently developed to enable any General to give up occupying them. General rules for tactics of course must be studied, and the Officer who understands all rules, and who is able to adapt those rules, is more likely to be a good and useful Officer than one who has never studied them. This is self-evident, it appears to me. All who have read about the late engagements must be of opinion that independent firing ought not to be allowed, except with skirmishers. As Captain James very truly remarks, in future wars probably kits will have to be carried, or left behind. They are not likely to be carried in carts, because no nation will be able to have transport sufficient. The men will have to carry the few articles they require on their backs, and to make them last for the short wars. The men will have in their packs merely their ammunition and the rations they require, with perhaps a very few other articles. The Prussian Government is so alive to this matter that it has offered a very large reward to anyone who will bring forward by December next a new equipment of a lighter description, and it lays down as a basis that there ought to be two packs, or two valises, or two bags, one in which the clothes of the man can be carried (which will be left behind before he goes into action in some store, or some railway station, or some place from whence it can be forwarded afterwards); and the other to carry the ammunition and rations I have alluded to just now. I am sure we ought to be very much obliged to Captain James, whatever difference of opinion there may be between him and my friend Colonel Hale as to the merits of the different actions they have described, with both of which they are intimately acquainted. Although I have been over the ground three times, I am perfectly certain that I am not competent to decide between them. I may, however, say that I do not think an elevated position is at all a good one to defend. We had a specimen of that at Majuba Hill, where the ground was so steep that it was totally impossible to see the enemy until they got quite close. Any skyline where men are placed is the worst position to defend. Whatever other differences of opinion which may exist, I am sure you will all agree with me in thanking Captain James for the very able lecture he has given us, and I am sure we have all been very much interested in it.