

This article was downloaded by: [Tufts University]

On: 14 November 2014, At: 07:59

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered

Number: 1072954 Registered office: Mortimer House, 37-41

Mortimer Street, London W1T 3JH, UK



## Royal United Services Institution. Journal

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rusi19>

### Some Methods of Executing Infantry Fire on the Battlefield

Captain C. B. Mayne R.E.

Published online: 11 Sep 2009.

To cite this article: Captain C. B. Mayne R.E. (1894) Some Methods of Executing Infantry Fire on the Battlefield, Royal United Services Institution. Journal, 38:200, 1025-1042, DOI: [10.1080/03071849409418609](https://doi.org/10.1080/03071849409418609)

To link to this article: <http://dx.doi.org/10.1080/03071849409418609>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness,

or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

**The Journal**  
OF THE  
**Royal United Service Institution.**

---

**VOL. XXXVIII.**

**OCTOBER, 1894.**

**No. 200.**

---

*[Authors alone are responsible for the contents of their respective Papers.]*

---

Friday, April 20, 1894.

LIEUTENANT-GENERAL E. H. CLIVE in the Chair.

---

**SOME METHODS OF EXECUTING INFANTRY FIRE ON  
THE BATTLEFIELD.**

By Captain C. B. MAYNE, R.E.

GENERAL CLIVE AND GENTLEMEN, many of us think that there is no formation for attack laid down in the Drill Book. A standard form for attack is certainly forbidden by the Drill Book; but whether that means the formation adopted for attack, or whether it means the mechanism of the attack, it is a little hard to say; but directly we come to read different pages of the Drill Book, we find that we are there told the relative proportions of the different parts into which a battalion is to be divided. Thus we find laid down the relative proportions of the firing line, supports, and battalion reserves, viz., "at the outset the strength of the supports and firing line should be about the same, and that the men of any unit in the firing line should be supported by men of the same unit." We are also told that the strength of the battalion reserve is to be equal to the strength of those two lines together. In that way we at once flash into a normal battle formation. We are to have one-fourth of the battalion in the firing line, one-fourth as supports, and one-half as battalion reserves. Further on we are told the distances that are to be left between these successive echelons, and we are also told the maximum and minimum frontages.

I shall suppose that Fig. 2 represents the authorised battalion formation. I am now going to offer some views of my own as to how to further carry out the attack when we have once been formed up for attack as shown in Fig. 2. Before, however, venturing to

express my views on this subject, I must ask you to consider for a moment my view of what a battle essentially is. To me the organized, trained, and disciplined collection of individuals, known as an army, represents a certain quantity of moral and mental, as well as of material, force. And I would define a battle as a contest between the variable moral, mental, and material forces possessed by two opposing hostile bodies of men, each of whom is more or less working in the dark, and each of whom is trying to wear down and destroy the moral, mental, and material forces of its opponent while trying to conserve its own similar forces. This is more than our ordinary text books teach, for they seem to be based on the idea of two material forces hammering at one another. But there are other important forces at work as well, especially of a mental and moral nature, which must be considered. The mental forces vary very slowly during a campaign, but the moral and material forces vary constantly, often very considerably, from day to day, and both of these must be fully considered by the G.O.C.

In the destructive effort, already mentioned, the moral, mental, and material forces of both sides suffer. In my own studies I lay the very greatest stress in keeping this view of battle clearly before myself. But, in its practical execution, a battle is, generally speaking, composed of two great acts, viz., (1) the *destructive or preparatory act*, and (2) the *decisive act*. These two acts are called, in the Drill Book, *the attack and the assault*, respectively. The destructive act, or the attack, begins the fight and often lasts some hours. During its execution each side is trying to destroy by fire the moral forces and organization of the other side in order to ensure a successful issue in the final decisive act, or the assault. *The destructive act* is carried out by a more or less thin line of men and guns spread out along the front of the enemy. This long, thin line moves slowly forward, suffering and inflicting losses. It sways backwards and forwards, according to the losses it suffers or reinforcements it receives. As the enemy is approached command gets more and more difficult and disorder increases until, finally, the enemy is approached near enough to force on a decision. *The decisive act* is, unlike the long destructive act, of short duration. In the face of the efficacy of modern fire-arms it is only attempted as soon as the preparatory act has sufficiently paved the way for its successful accomplishment. It is carried out by a more or less compact and deep body of men, advancing on a relatively narrow front, who try and break through the enemy's front with their bayonets at some point which, if captured, will compel him to retreat, or will facilitate his destruction.

Thus it is easily seen that the conditions under which the two acts—the attack and the assault—are made are totally different. *The attack* is a long-drawn-out operation, exhausting to the men taking part in it, and tending to confusion and loss of control. *The assault* is a short, quick operation, and requires for its best execution troops which are not only fresh, but which have not suffered any severe moral or material loss.

What I am going to address you upon to-day deals almost entirely

with the preparatory period up to the time of the assault. The preparatory period is really a period of fire—of artillery fire principally at the beginning, aided subsequently by infantry fire. Our brother officers of the artillery have for many years past been studying very hard the question of how to improve the efficacy of artillery fire, and they have had many opportunities given them, which the infantry have not had, of practically ascertaining the best methods of carrying out artillery fire.

At Okchampton and other places they have had ample means of deliberately finding out what are the best means of carrying out artillery fire by batteries and brigade divisions, in order to secure the maximum result possible with the ammunition available on the battlefield. With regard to infantry fire, no such privileges or opportunities have been accorded, and it seems a great pity that infantry have not also centres of practical instruction and experiment which they can annually visit, just as the artillery batteries visit their centres of instruction, in which to practise and experiment on the best ways of conducting infantry fire under battle conditions, so as to see which are the best methods for securing the highest percentage of hits; for in that way alone can we test the various theories which have been put forward for these so-called methods of carrying out the attack.

I will put one forward this afternoon which I think is feasible, and I have based it very largely on the annual reports on the field firing conducted in India, which have been very kindly sent me by the Adjutant-General for Musketry there. These reports contain a very large number of actual field-firing experiments which were carried out with real powder and shot at, of course, targets; but they have all the conditions which we can possibly show in peace-time; that obtain in time of war, that is, the noise and confusion which are attendant on firing and on advancing over rough ground, excepting the disturbing effect of the enemy's bullets. Anyhow, in this way in India they carry out experiments, and are thus able to see which are the best methods by which the highest percentage of hits can be obtained, and in that way alone should the various proposals put forward be tested.

Naturally, in battle, during the opening period of preparation, the methods of conducting infantry fire must be very important, and I think we have to look to the artillery, which is essentially the arm of fire, to learn from them how we should in many respects conduct infantry fire; just as we should look to the cavalry as to how we should conduct the "assault" or the "shock" which decides the battle at the end; because, although many of you know how much I have written on infantry fire, I am one of those who, personally, believe that the battle is to be decided at the bayonet point, or by the threat of it anyhow. An old instructor of mine used to use the expression that two boys may throw stones at one another all day long, but in order to make the other boy run you have to go at him with your fists as well; and it is the same with infantry on the battlefield.

Uncontrolled fire is out of the question. We do not want to practise it; it will come in of its own accord in time, so that I can only deal with the question of controlled fire. We only have two forms, "volley firing" and—what is an awkward term, but it is one which I have adopted from Continental writers—"mass firing,"<sup>1</sup> which is really controlled individual firing, controlled either by limiting the number of rounds the men are to fire or by training them carefully to stop at the sound of the whistle, while the firing is being conducted in such a way that careful observation can be kept on the men to see that they are using their sights for the proper range, and also are aiming at the objective that has been ordered.

We all know that volleys have a great moral value. Past experiments have shown that mass firing has given rather higher percentages on targets than volley firing. On the other hand, volley firing has undoubtedly the very great advantage of keeping the men in hand. Its moral effects are so great that, as in a battle we have to consider both moral and material conditions, volley fire, in my opinion, should be kept up as long as possible without unduly straining the men's attention; for I believe that if you try to restrain their natural instincts too long a reaction will come, and they will get still more out of hand than if you had allowed them to act on what nature requires at the proper time instead of forcing their instincts into unnatural channels. Anyhow, volley firing for the larger portion of the early part of the fight is, I think, very necessary on account of the moral effect and control it gives you over the men, and, of course, for preserving from waste your ammunition, which will be so valuable towards the end of the action.

Then, again, there is the danger of mass firing degenerating into uncontrolled independent firing if taken up too soon, and therefore it is better to maintain the mass fire for such ranges that if it does degenerate into independent fire some useful effect may be expected from it, provided the men have been trained, as they are being trained largely nowadays, to aim low with fixed sights, and thus we hope that the "second nature" so acquired will help them in action in that direction. But we have to remember that volleys can only be maintained so long as organized units are maintained. As soon as organized units can no longer be maintained there is very little chance of being able to carry out volleys, and it is on this subject that I am going to offer suggestions this afternoon. That is, I am going to offer suggestions which I think may be of value upon this principle of maintaining some kind of organized units during the action as long as possible.

But, before proceeding further, we have other things to consider in the attack formation, viz., the question of reinforcing. We know that losses occur, and the energy and courage that men have will in time ooze out. Consequently they will, after a time, come to a standstill, and then before the firing line can be moved on again a fresh body of men, which has not been so much affected by such demoralizing influences, has to be sent forward in order to propel the line on

<sup>1</sup> See p. 1039 for definition of the term "mass firing," as here intended.

again. This may have to occur several times, and therefore we have to consider this question—What is to be our reinforcing unit? It must be of such a size as will be adequate to carry on the exhausted portion of the firing line, exhausted probably both in its moral qualities and in its physical powers. I am supposing companies to be 100 strong, and that the battalion consists of 800 men. Then the section of about 25 men ought to be the very minimum size for the reinforcing unit that should be used. There is still another point which most of you will, I think, concede, that is, that as you get nearer the enemy the strain on the men, both morally and materially, becomes much greater, and therefore the reinforcing unit may have to be increased in size in order to impel the firing line on further if it gets stopped in any way, and therefore the reinforcing unit, if we begin with a section, must be capable of being increased in size, if occasion demands, as we approach the enemy.

If, after a time, the battalion is unable to advance as a whole, then comes the question of what is to be the advancing unit. I will take an extreme case. It was stated in the old Drill Books that the men in the firing line were to advance by alternate files and fire. At once the men left behind have to cease firing, because it would be utterly impossible for them to fire accurately through the intervals of one or two paces between the men in front. It simply means that while the leading men are advancing the fire of the others has to cease. Again, if the battalion advances in alternate sections it leaves but small gaps, say 50 yards at the outside, through which the men left behind have to fire. Besides this, several of the men left behind on either side of the gap must also cease firing, because they would not be able to fire so accurately as just to miss the men in advance on their right or left. It therefore means the ceasing fire of a number of rifles in addition to those of the advancing men. I am therefore an advocate of advancing as large a unit as possible. To advance the whole battalion as a single unit would be perhaps rather awkward, so that if you have to advance by alternate rushes I advocate an advance by alternate half battalions for the reasons I have stated.

Now, coming to the application or carrying out of these suggestions, let us take the case of an eight company battalion. These eight companies would be first drawn up in their "assembly" formation of line of half battalions, each in quarter column, previous to entering into action. The officer commanding the battalion would then allot to the companies of each half battalion their different positions and duties. Then I would suggest that these companies should be marched up to these positions at once before extending or doing anything else, because, in the majority of cases, it will not be necessary to extend them at once. They will, as a rule, be able to get up, under cover, to less than 1,000 yds. in such closed formations as company columns of sections or half companies; but, taking the case of open ground, we are supposed to begin at, say, 3,000 yds. from the enemy. It would even then be unnecessary to extend in open order at that distance, consequently I would advocate the company columns advancing, anyhow for some distance, in their relative

positions, until the enemy's fire is likely to become so serious as to make even these targets too large to advance with without suffering serious losses.

Then the next step would be this:—The sections of the leading companies would separate, and soon after comes the question of extension. The more men you extend, the more likely the men are to get out of hand, and the great thing at the longer ranges at which infantry fire is not efficacious is to extend as few men as possible at a time; then the question comes—to what extent? If you extend the men too far over the whole front you will probably get them so far extended that you will have very little control over them. At the longer range I do not think there would be any necessity to cover the whole front with a strong firing line, but you might extend the two leading sections of each of the four leading companies to two paces between the men. This should be the maximum extension, and it will cover the whole front of the battalion. When the time came for real, earnest infantry fire, then the other sections of each of the leading companies would be brought up into the firing line, giving one man to every pace, which is pretty well the sign that the real work of infantry fire is about to begin. The firing line is now organized into eight half-company units.

Now comes the method of maintaining these definite divisions, and we may learn from the artillery how to conduct the fire in the best way. Here we have in the battalion eight fire units, each composed of a half company, and each covering probably 40 to 50 yds. If we begin with volley firing it will be as much as the officer can do to command such a front with regard to volley firing, and in these definite half company fronts he has four subsections, with their recognised leaders, to look after the men to see that the men are carrying out the proper orders with regard to rapidity of fire, elevation, and the object to be aimed at and so on. Each company would have two fire units, and I would propose to call them the "right fire unit" and the "left fire unit" respectively, because these units will no longer be definite half companies after a little while, and it would not be advisable to keep constantly changing the name of the unit all the way through the attack. I do not think there will be any confusion between the two fire units of each company in the firing line, because the one will be "right" and the other will be "left," and the men in a "left" fire unit, hearing the word "right fire unit," would know that the order did not apply to them. The command would be "right fire unit," or "left fire unit," with regard to volley firing.

We know with regard to artillery fire, when a battery has to open fire, each gun does not go firing away as it pleases, but they begin to fire in succession from right or left, according to the battery commander's orders, and they fire gun by gun, and then they begin again in succession. I would propose the same method, either by battalion or by half battalions, of firing in succession from the right or the left of the battalion or of the half battalion respectively by these fire units. My reason for suggesting this is an army order which was issued in India in 1888, in which it says, "The concentration of fire by a



particular group or section on a particular object is only a step in the right direction, being but one degree removed from uncontrolled fire." Even sections firing volleys indiscriminately makes an uncontrolled fire for the time being. It gives the battalion commander very little hold over the firing line of his battalion if each section is allowed to fire whenever it pleased. The order then went on to say, "It is the direction of fire on one portion of the position undertaken by widely separated units which constitutes the true essential of concentrated fire," and I think, especially in these days when there is so much uncertainty as to where danger may crop up at any moment, it would be a tremendous power in the hands of any officer commanding an infantry battalion to be able to direct the whole of the fire of his battalion right or left as he pleases on any given objective, and I cannot see any way of doing that except by adopting the method found so advantageous in the case of artillery, of using the proposed fire units in the firing line as guns, and then, just as the gunners use their guns, to let them fire in succession from the right or left of the whole battalion or of each half battalion. One great advantage of such a system would be that you will have only eight voices in the firing line, and, further, as you could not expect the senior officer with each company in the firing line to do much more in the strain of battle than to direct his attention to the front, the battalion commander would have the duty placed on him of looking out right and left to advise each of his eight fire units as to the direction required for the fire, or even to watch the effects of the firing, because when the volleys are delivered one after the other there is some chance of watching the effects of the firing to see which volleys are under-sighted and which are over-sighted.

Now comes the question of reinforcement. I have spoken of the evil of early extension and the necessity of trying to avoid it as much as possible, and of forming a strong fire line only when a real efficacious fire effect is beginning to be wanted. When the first reinforcements come up, i.e., the sections in support, they will move straight into the firing line without any closing taking place. Even if they overlapped to some extent, there would be some officer or non-commissioned officer who would mark the right or left of the reinforced fire unit, which would still be the fire unit to be made use of for fire purposes, however the men come in. In fact, whatever number of men were sent forward to reinforce a definite fire unit, it would still be the fire unit, although they would be stronger than half companies. The fire units are at first sections and then half companies, and you will find in the reports of the Indian field firing that they often speak of volley firing beginning with sections, which later develop into half-company, and then to company, volleys. This is simply due to the reinforcement units arriving into the firing line. As soon as two sections come together, the volleys become half-company volleys; it was really the volley of the fire unit, irrespective of the number of men in it. Consequently, I should measure the fire unit not by the number of men in it, but by the frontage it takes up. In that way, I think, volley firing would be kept up in a

reasonable way to a very much later period in the fight than can be done at present under true battle conditions. We have to remember that this closing to a flank in the firing line to admit of reinforcements coming up is almost impossible to carry out under fire. We see it done in drill, but I fancy that, under a heavy fire, any attempt to get the men deliberately to close to the right or left will be impracticable. It is best to recognise this fact and to make arrangements by which you may still maintain your fire unit, whatever number of men are in it, and to consider your fire unit to be measured by a given frontage, and not by the number of men or sub-units composing it.

In the same way as the reinforcing goes on, the sections of the reserve companies arrive in the firing line, and eventually even whole half-company units may be sent forward. We may assume that as soon as the supports are absorbed, we shall then be coming pretty near the enemy's position, and the moral effect of his presence will be greater. The men will have already moved over a considerable space of ground, and will become physically and morally exhausted. The reinforcements would thus have to be larger than sections, and now you can throw half companies in single rank into the fire unit fronts. Of course, in illustrating theoretical principles, one has to be a little mechanical in the drawing of the figures, and therefore the figures given will not exactly represent the state of things. When you come close to the enemy, the reinforcing would probably be by half companies, for the reinforcing units must be stronger than sections in order to carry that physical and moral weight which becomes so much more necessary as the enemy is approached and the ranges decrease. By the time the reserves are absorbed, the battalion has pretty well done its duty as a battalion in the first line for carrying out the preparation for the final decisive act, and any further advance would probably best be carried out by the successive rushes of half battalions, the men having first ceased firing. By this time probably mass firing would have been adopted.<sup>1</sup> It is a mistake to try and keep up volley firing to such a close range to the enemy as would make it impossible for the men to carry it out from their probable state of excitement, &c. It is much better to watch the instincts of nature, and to guide them into proper channels, than to try and force them against their natural wants, and so make the men very rapidly degenerate into wild license in their firing.

There are one or two points I would like to suggest with regard to reinforcements. The mere fact of the reinforcements being thrown forward is a sign that certain portions of the firing line are exhausted, and I would like to throw out, as a question for discussion, the possibility, on the reinforcement arriving, of allowing the reinforced men to remain behind until such time as they can get pulled together and rested and their pouches refilled with ammunition, and then to be sent forward again as new reinforcements, or with the assaulting body. I am afraid I do not feel personally competent to give a positive opinion on that point, but to me it seems feasible, and if it is

<sup>1</sup> Mass firing may well commence when "fixed sights" are ordered, i.e., at 500 yds.

feasible, I think it will be a very important advantage in preventing the firing line from becoming too crowded and mixed up. Men are often so physically and morally exhausted that they do the most absurd things, firing wildly in the air, and getting utterly out of control, and this only tends to dissipate the control of the firing line and to take it away altogether. If such men could be withdrawn for a while, I do not think it would affect the efficacy of the fire of the firing line, nor the vigour of its advance, in any way, while they might afford valuable assistance at a later period of the battle, for we read in the accounts of the attacks on Plevna by Skobelev, that one of the means by which he absolutely forced his way into the Turkish entrenchments was by collecting the stragglers and sending them on again as fresh reserves.

Another point I would suggest is that every reinforcement should be imbued with the idea that it has to carry the firing line some distance farther on than it has already reached, and that the unit which receives the last reinforcement that has been sent forward should be the one that should make the greatest effort in this respect, because its men are the freshest and least exhausted, morally and physically. If any one part of the firing line goes on, it will have the tendency to draw the others after it.

These are the chief suggestions which I have to offer with regard to the preliminary period of the attack, that is, for the carrying out the period of preparation up to the period of assault, and I cannot help thinking that some of the suggestions I have offered do give a sound practical solution to this question of carrying out the preparation in such a way as to ensure the greatest efficacy possible for infantry fire under battle conditions. An enormous number of bullets are wasted in action, and nowadays there is likely to be a still greater waste of ammunition, and I think that the acknowledged increase in the destructive power of modern rifles requires a still greater moral control being held over the men. The system of fire units measured by distance will, I fully believe, enable us to do this better than in any other way, because, whatever number of men come into a fire unit, they form part of that fire unit, and will fire by word of command of its commander, and in such a way a far greater control will be held over the men than is the case in some of the systems that I have seen practised by some of the battalions that I have been able to watch. I think this question of fire control is, to a very great extent, a question of organization, and I think we shall have to carry this question of organization into the so-called attack formation, and not trust to mere fire discipline only. My own impression about this matter of fire discipline is that, though it is very necessary, it is not absolutely sufficient. We have also to train the men into habits of reinforcing and of advancing, as much as to habits of firing. We also have to instil into the men the orderly sequence of events by which we gradually prepare the way for the assault by means of advancing lineal formations and firing, and finally bring up for the assault troops formed in column formations of some kind. The men should be prepared for that just as much as they are prepared for

disciplinary purposes by the ordinary drill and fire discipline which they get.

With regard to carrying out the assault, I have supposed that it will be carried out by another body of troops in the rear altogether, and I have assumed here that the battalion is acting in conjunction with other battalions, and that it has no necessity to form any greater reserve than is sufficient for the duty of preparation that the battalion has to carry out. If, however, the battalion is acting alone it would probably begin with a very much smaller front, and here I may refer to what I consider to be an absolute necessity (without exception) for modern war, viz., the provision of ample reserves for all units. This is only an application of the principle of distribution in depth, and if I was asked to choose from among the various principles of tactical procedure for one which should take precedence of all the others, I would choose that which insists on the provision of ample reserves for the use of every leader in his own sphere of action. Every battalion commander should have an ample battalion reserve fitted for the sphere of action that the battalion has to fulfil. And so also every brigade, divisional, and army corps commander should respectively have ample reserves at his beck and call. Every leader is working in the dark. He knows little or nothing of what is in front of him, or of what is going on on each side of him. In this uncertainty mistakes of all kinds are being made. Troops move in wrong directions, orders miscarry, and some commanders act contrary to the orders sent to them; troops ordered to advance or hold a place are driven back; and the most unexpected things occur. Troops drift right and left under fire, or through misapprehension of what is really going on, and gaps occur through which the enemy may penetrate. I know of no better battle to illustrate this than the battle of Beaune-la-Rolande, fought in November, 1870. An account of this battle has just been written by Major Hoenig, who has been allowed every facility of examining the whole of the German archives for all the correspondence and orders that refer to that period of the war, and he has been allowed pretty well to criticise everybody freely all round. He has been given exceptional opportunities of writing the account of that battle, and I do not think there is any battle that illustrates better the value of reserves than that does; in fact, you might say the French attacks on both the right and the left absolutely failed from want of reserves, which caused a fatal hesitation in the French movements when the engaged troops were used up. If they had only had reserves, and had used them opportunely, I fancy that the result of the battle would have been an important victory for the French, but having absolutely no reserves for their right and left attacks they were completely helpless.

Such things as I have enumerated occur in every fight, and will occur in every fight so long as human nature remains what it now is. It would be criminal neglect not to expect nor to provide for them. The best General is he who not only makes the fewest mistakes, but has made provision to rectify those which are made before they become too serious. But how are such mistakes to be rectified, or

their effects minimised? There is only one way that I know of, and that is by the provision of, and use of, ample reserves by every commander in the military hierarchy, each in his own sphere of action. Other reasons for the provision of ample reserves are that men sent into action will, after a certain period, lose their go or offensive energy, and further, that counter-attacks cannot be safely carried out by troops forming the firing line.

These are the reasons why I suggest that should a battalion act alone, it would not extend four companies but would probably extend two only, and hold the others in reserve to meet unexpected eventualities. The primary question is how to prepare the way for convincing your enemy that he has to go. We have in the end to try and assault him at the point of the bayonet, or at any rate to threaten him with such an assault, but in the meantime we have to convince him that it is the best thing for him not to wait for it, and that can only be done by fire. The whole question is, how can we carry out this infantry fire in the most effective way? What is the best method of persuading the enemy to retreat by infantry fire, and of insuring the best effects from this fire? We want to obtain a method which not only gives the best material effects of bullets hitting the enemy, but also the best way of maintaining in your own men that moral courage and offensive spirit which are so necessary to enable them at the last to advance forward to the assault.

Colonel SLADE: I should like, with your permission, to say a few words on one or two points that the lecturer has touched upon, and first I would like to compliment him that, at such very short notice, he has been able to deliver an interesting lecture, and so pave the way for what may be an interesting discussion. There are one or two points in the lecture which I must beg leave to touch upon. The lecturer spoke of two sorts of controlled fire only, viz., "volley firing" and "mass firing." Now, in our Service, there is no such thing known or recognised as "mass firing." We lay down, and we teach the army, that there are three sorts of firing, viz., individual firing, volley firing, and independent firing; the term "mass firing" is not used. Another point is that he regretted that there was no opportunity in England of seeing any description of practical firing. I think there are one or two officers present here who have lately had an opportunity of seeing what we at Hylthe hoped was practical firing at extreme long ranges under as far as possible service conditions. As regards the method of attack, it is quite true it is laid down in the infantry drill book that no normal method of attack is permitted, that is to say, no normal method is prescribed; but we know how the infantry invariably practise the attack, because the field firing reports from every battalion are sent in, and not only is the attack carried out by battalions, but frequently by brigades and divisions, and no such firing as "mass firing" is ever used in the British Service. Volley firing is kept up to within about 200 or 150 yds. from the position, and then independent firing is commenced, and, as far as my experience goes from reading the whole of the reports, every battalion in the Service, either acting alone or in brigade or division, carries out "field firing" in that way. As regards the advance, I must say I agree with the lecturer that attempting to advance with small units is one of the most impractical and dangerous ways in rough and broken ground that can be imagined. With all our care in training, if the infantry are to go on advancing in that way on service in rough and broken ground the sections would overlap one another, and the leading sections would mask the fire of those in rear. The proper method, I conceive, would be to advance in one general line, covered by the fire of large units, that is, the half battalion or the battalion, on either flank. If you let the whole battalion go on in one general line it leaves its casualties

behind, and it has the moral impulse of the whole battalion acting together. As regards two companies only in the front line, advocated by the lecturer, I think that is a mistake. In the first place the amount of fire brought to bear would be very small. It would be infinitely better to extend one section of each company of the right half battalion or the left, as the case may be, at first, and then to feed up with the other sections, and keep two sections in support, the reserve to be four companies. I think one section of each company of the leading half battalion should be extended, and the whole of the other half battalion should be in reserve. As regards the battalion commander exercising influence on the fire, I do not think that would be possible. The battalion commander's place is not in the fire line. I do not think it would be possible for the battalion commander suddenly to direct the fire of the whole battalion to any point he liked. I think that would be possible on the parade ground, but not on service under fire.

Captain JAMES: I am in the unfortunate position of having come in very late, and although I have had the advantage of reading the printed lecture, I know that it has not been given this afternoon. The remarks I have to make will be limited strictly to one question, and that is this: assuming we are attacking a position we must look upon our attack formation from this point of view, that we have got a line of rifles going on to the front, and that we want a continuous stream coming from behind to feed that line. The question is how, mechanically speaking, we can best do that. Now, I am very sorry to differ from my friend Colonel Slade, and I do so with the greatest diffidence, but I take it, on the battlefield the thing you have to deal with is mass firing, and for this reason, that on the battlefield, although you aim at one man you often hit another. You very often shoot at A and you hit B, but the effect is practically the same; that is to say, that the fire that produces effect on the battlefield is not fire that I aim at Colonel Hale, or that he aims at me, but the fact that somebody is knocked over, and that is what I call the result of mass firing. This seems to me, therefore, to be the very foundation on which we must build any practical theory of advancing to the attack. If you have a number of men going forward, from among them a certain number will be knocked over, and their places in the firing line must be maintained, that is to say, it is our object and desire to keep the number of rifles in the attacking line complete. What is the best way to do this? Englishmen are all alike in one respect, that is, that we have had no experience of Continental warfare for 80 years. We therefore must go for our information to those who have had such experience. One thing that has struck me, both by reading and by conversation with those who have been under this kind of fire, is this—that the great difficulty is to keep the men in hand, for, on the whole, human beings, whether German, French, or Englishmen, have an objection to being shot, and you have to overcome this tendency by discipline, and the only way to do that is by keeping as many men in hand as possible. Now, the essential feature in the attack is the wave which you have to send to the front, and the only way of keeping the wave going is by having supports or reserves, that is to say, bodies of men who are in hand behind the wave. Now we come to what is detail, but an essential point to be considered. Is it best, taking our own eight company battalions, to have these men in the front line sent in by sections, that is to say, a number of parts of companies in the firing line, or is it better to have certain companies extended in the firing line, and to feed those companies by companies from behind? It seems to me, if my assumption be true, as to the necessity of keeping men in hand, it is far better to have the companies in front and companies behind than to have a number of small items behind the firing line, representing no particular reserve and no particular moral force. I am an advocate, it goes without saying, of having your command extending back in depth, but I do believe as long as we maintain the eight company battalion, it is far better to have the actual supports in the form of separate companies, than to have parts of companies in the firing line and other parts supporting them. I believe this, because you have units which are better in hand, and more capable of being moved hither and thither, and more under the influence of the officers leading them. It further seems to me, in considering this question of command of the firing line, we have two things, essentially different things to think of. One is European warfare, in which, in all probability, we shall never be

engaged; and the other is savage warfare, and we are too apt in discussing theoretical questions to put aside what is the thing we have most to deal with, viz., *savage warfare*. If my reasoning is true as to the value of forming the reserve behind the firing line in European warfare, ten times more is it true in the case of *savage warfare*. The whole history of an experience in fighting savages, who are generally numerically superior and inferior in tactics to us, is in favour of having numerous small reserves under the command of men who thoroughly understand how to lead them. I do not hesitate to say, therefore, that in any case, the whole secret of successful leading under fire lies in keeping intact behind the firing line a sufficient force to support it. It always seems to me Englishmen particularly have very little to learn in this respect from the foreigner. The old English line has been an extremely successful attack formation. I remember talking some years ago to Sir Daniel Jysons, and he spoke to me words which I think recent tendencies have proved to be absolutely true. He said: "James, I see no earthly reason why the British line should not still be used." I go absolutely with him in that respect; that is to say, I believe in the line, single rank, properly organized and divided up into units. You cannot command a battalion under fire, I admit, extended in single rank, but you can command sections of it by your company leaders or your fighting unit leaders, and if you adopt the English national tendency to use line, I can see no reason why we should be required to make any very great tactical change in the method of attack that we have always pursued. We in England are always too apt to follow some particular foreign cult. Yesterday we fell down and worshipped the official account of the Prussian war; to-day we are rather apt to despise that and go in for the regimental history. I personally would advise those who think about these matters to study both, but never to forget this fact, that you cannot lay down for any particular nation a line of behaviour which is not suited to the national requirements and national feeling when at war. We Englishmen have distinctly certain proclivities in the way of fighting, and I think we should follow them out, and if we do I can see no reason why we should not be successful in the future as we have been in the past.

**Major CAPPEN:** It rather struck me, as purely a company officer, that the lecturer in making a sort of geographical fire unit strikes at the root of everything that the company officer is taught to value: that is, you take your recruit from the day he joins and train him; he has to look to you as his company commander, you launch him out into the battle, and there you put him under some geographical commander, a man with a certain number of yards, or feet, or inches of the fire line to command. I fancy they would get their heads in the air.

**The CHAIRMAN:** The section leaders, I imagine, would have the same companies.

**Major CAPPEN:** But I understood the lecturer to state that as the supports came up, and the reinforcements came up into the line, he put that portion of the line which is reinforced under some local fire commander, a commander who had a certain portion of the length of the firing line given to him to fight, and that everybody who tumbled into that was under that officer.

**The CHAIRMAN:** He meant the company officers who were in command of the sections.

**Major LLOYD:** There is one point which the lecturer observed upon, and that was that when the firing line is reinforced he should like the reinforced portion to fall to the rear. I think the whole tendency of the teaching of the present day is that our great difficulty as company leaders will be to get our men on, and I think if you allow anybody to fall to the rear the general tendency will be for all the men who have less heart than perhaps the others to fall to the rear also. Thus the company leader's difficulties would not only be increased but would be more than doubled; as it is you would have sufficient difficulty in looking after the fire discipline and getting the men on, you would also have to look after those men who fall to the rear in the ordinary course, and to try to get them on. No doubt Skobelev, in the attack at Plerna, succeeded in bringing on the men left behind, but in all probability he brought on those men who were left behind through necessity and not those who had been left behind on purpose. Had he been obliged to bring on both together he would, I think, have found that the firing line had become extremely thin. There is one other small point I would like to allude

to, and that is about this battalion extending. The Drill Book is my bible, and the Drill Book says that we are to extend in a shallow formation when we prepare for attack. When the battalion is brought up and it is found necessary to extend, it is presumable that it is not under cover, and therefore the four leading companies are sent out, and I imagine that the Drill Book does not intend them to be in section columns. If they are in section columns they are in a deep formation, and a deep formation is much more liable to suffer from a heavy fire than a shallow formation. If it is necessary to extend at all, I think that it should be to line or at an interval of one or more paces. If, however, the force in question could be brought up in a deep formation it would be better for the battalion, half battalion, two companies, or whatever it may be, to advance in the deep formation, and then, when the time came for extending, to extend at once into line, or into an extended line or single rank, as the case may be, and not into the deep formation of section columns.

Lieutenant-Colonel E. GUNTER: I do not quite see the point of the lecture, but there is a question in it on which I should like to support most strongly the speaker who has just sat down. It is not a question of formation, but it is a question of main principle, that the men in the firing line should certainly not lie down, and should not be allowed to retire at all with a view of getting replenished ammunition. The lecturer has quoted the case of Skobeleff on his attack, I think, on the Green Hill. I think that clearly showed the skill of Skobeleff in collecting men who *had* so retired, and is not an argument for their being *allowed* to retire. I think Major Lloyd has well said it is the greatest difficulty to get forward men who will lag behind, but do not let us reproduce it as a matter of drill for attack that the men are to do so. Let them, by all means, go on to their death (and most of them will die in the first line), and let it be understood that that is their duty, and that reinforcements must come up from the rear in the second line afterwards.

Captain JOHNSTONE, R.E.: I should like to ask one or two questions. In the first place as to the command of the firing line. Colonel Slade has told us that it is impossible for the battalion commander to exercise a control over the whole firing line. If I rightly understood the lecturer, he suggested that it should be done by a half battalion, and I should like to ask him who is the officer who he intends to take charge of the half battalion firing line? Is it to be the major of the half battalion?

Captain MAYNE: I meant the second in command should take command of the whole battalion firing line, both with regard to the firing and reinforcing.

Captain JOHNSTONE: Then there is another question. He has spoken of the commanders of the fire units. In the first place we were extending one section of each company, then a second section; the commanders of these sections would be, at all events in the first instance, commanders of the fire units. Was it intended that these same officers (or in most cases non-commissioned officers) were to continue to be the fire commander of that unit, or was it intended that as the reinforcements came up the senior officer, if he happened to be the senior of the first fire unit commander, was to take over that fire unit; in other words, was the fire unit to go the whole way under one commander, or was it to be changed from time to time? That seems to have a bearing upon whether you should extend by companies and reinforce by companies, because if we have one section extended in the first instance, we are reinforcing with men of the same company, and going on with officers of the same company. If we have a company extended reinforced with another company, we at once have the officers of the two companies more or less mixed up. I know in ordinary peace manœuvres sometimes a little confusion used to occur in that way.

Colonel TROTTER: As I understand the lecturer that he would only have two companies in the firing line, I should like to ask whether if that is the case—

Captain MAYNE: I was referring to the formation of each half battalion.<sup>1</sup>

<sup>1</sup> The diagrams were drawn on the blackboard, and to save time only the right half of the battalion formation was drawn.



Colonel TROTTER: I want to ask whether he thinks it is advantageous that the second line should be formed by the same battalion. It always appears to me, if the first line carries a position and then has to give it up to the second line, that it would be very much better, to prevent any sort of ill-feeling or difference between battalions, the second line should be formed by the same battalion.

Captain MAYNE: I have asked General Clive's permission to make a few short replies to the queries raised before he makes his concluding remarks. As you all know, I am not an infantry officer, and I have purposely avoided laying down any strong opinion about some questions, owing that I do not feel myself fully competent to deal with them from practical experience. I therefore asked General Clive to follow me in my remarks, and to correct anything wrong that I may now state, as I am rather having the last say, and I do not want that if I do say anything wrong. I must offer my apologies to Colonel Slade with regard to the use of the term "mass firing." I know that it is not an authorized expression, but I have used it in a different sense to what he thought I meant by it; I also used it in a different sense to what Captain James used it. I have used it in this sense: Volley firing is an organized fire by organized units; mass firing is general and unorganized, though controlled, firing. It is the whole line firing as one huge unit, instead of firing by organized units in the line firing. I know it is controlled individual firing, and I meant it in that sense. With regard to the field firing, to which Colonel Slade has referred, I contemplated in my remarks it being carried out on a very much bigger scale, a regular camp of instruction on some ground where you are not limited to range. There surely must be some bits of waste land in England, with a sea or mountain backing, on which real imitation battles may take place, and where artillery may also play its part with real live shot and shell, as is done so often in India, so as to make it a thoroughly instructive practical imitation of a battle, so far as it may be carried out in peace-time. With regard to changing the direction of the fire of a battalion by the officer commanding the battalion, I know that it would not be done on many occasions, but suppose for an instant a battalion was advancing, and some distance off to a flank there was another battalion also advancing, and the officer commanding one of these battalions saw coming out of some wood or ravine in front an attacking party of the enemy, which proceeds to advance against the flank of his neighbouring battalion, but which was unseen by the latter at present, it would be a great advantage to have some system by which he might send word to his firing line to direct the whole of the fire of his battalion on to this body which was seen going to attack the neighbouring unit, but which the neighbouring unit was unable to see. Then as to the system I have suggested of letting the different fire units fire in succession, like the guns of a battery; I believe the result would be that you would get a higher percentage of hits than at present, while obtaining an ample quantity of fire, and yet you would leave the whole battalion in the hands of the commanding officer, so that he could, should occasion require, be able to direct the fire of his battalion on to any point. With regard to Captain James's remarks about the stream to the front of men being required to keep up the firing line to its full efficacy, of course that is a general principle with which we all agree. But what I was endeavouring to arrive at is how to organize that line at the outset, and, as the stream arrives into it, how to keep it organized for the purpose of maintaining an organized fire. That is the difficulty, and I have tried to suggest the best manner in which the stream of men who are coming up are to be organized in the firing line, because we do not want the men to fire wildly; we not only want to get the men there, but also, when they are there, to have their fire under control, to be used to the most effective purpose. Whether one company extended in the firing line with another company in support is the best way or not is, I fancy, a matter of pure practical experience, and that is one reason why it would be such an advantage for infantry to have a camp of practical instruction, in order that these various proposals may be tested against targets, so arranged as to represent an enemy, while using real bullets, shot, and shell, so that we may actually see which are the best ways of carrying out the fire preparation and an attack. We may argue for days and days as to what is best theoretically, but what we want is a practical test, and I do not see any other way of testing which is the best without some such practical advantages as the artillery

have. Major Capper spoke of my suggestion of fixed fronts for fire units. He used an admirable expression for describing my views, namely, "geographical units" and "geographical commanders." This just hits off the idea which I had. The only other question I would like to ask is this: the units have to be mixed somehow; we may try and prevent the mixing of large units or small units at the beginning of the fight, we may try and prevent companies mixing up to a certain period, but after that we find that they do become mixed. We often read in accounts of battles of battalions being piled on battalions, and even taking the case of Tel El Kebir, even at the short distance over which the assault did take place—I think I am right in saying that it was only 300 or 400 yds. from the entrenchments—actually when the men got inside it was not a question of the companies being mixed, but it was a question of battalions being mixed. I remember reading an account by Colonel Maurice, R.A., in which he said that the mixture of men in the redoubt was a mixture not only of companies but of battalions over that short distance. Therefore, in the stress of battle we have to deal with the mixing of large units, and my proposal simply was a suggestion by which to try and control, in some way or other, these bodies of men when the units are mixed, and if maintenance of command by geographical units will secure it, surely that is an advantage; but here again I say these proposals are of very little value until put to the test. With regard to what was said by Major Lloyd and Colonel Gunter as to the original firing line falling to the rear, I did not mean for them actually to retire, but to remain lying or standing where they were. I would like to ask infantry officers one question for their consideration: the mere fact of reinforcements being sent into the firing line is an indication that the firing line is more or less exhausted, both physically and morally. What good are those men? Is it any good their going on in this exhausted condition when they are probably so morally disorganized and their fire has become so wild that in the one or two small actions in which I have had the honour of being under fire I have actually seen officers take away their men's rifles in order to steady them down again? When that kind of thing takes place, what good is it allowing these men to go on? Would not it be better to let them remain behind and get steady? A little repose will steady them, and will allow of their ammunition pouches being refilled. I do not say, however, that I am really capable of giving a decisive opinion about it. Another of Major Lloyd's objections is to the extension of these companies. I think he has misunderstood me. When the battalion comes near enough to the enemy's artillery in its quarter column formation to become a dangerous target, I do not think there is any necessity to go on until it does become a target which suffers. As soon as danger comes it is better to break it up into smaller targets which are not so dangerous, and then I say, as soon as these targets are in danger of suffering much, then let them extend. I think you will agree with me that extension is only a dodge to avoid losses. At the same time it brings in the difficulty of control over the men, and the great advantage of keeping men in close order formation, or even in column formation where possible, is the better control you have over them; you have them better in hand, and you keep a stronger moral tie and force over them until such time comes as you have to let them go. When the solid battalion formation becomes too dangerous, break up the battalion into smaller units without waiting for it to be proved. After this you can advance the smaller bodies, and when they become dangerous or likely to suffer, then extend them in such a way that you will keep your men as much in hand as possible, until the full extension has to take place. With regard to Captain Johnstone's objection, saying that the non-commissioned officer might be commanding in a fire unit, I do not see any reason why the non-commissioned officer should not continue to command. Naturally the officers who arrive would take care that the words of command were correct. The men have got accustomed to his voice as they advance, but he is acting under the control of the officers in the firing line, who, I think, are much better employed in watching and looking out than in giving words of command of that nature. And I think most non-commissioned officers have rather better voices for command than officers, so perhaps it would be better for them to do this, while the officers devote their attention to the higher duties of observing the enemy and seeing that the men obey the orders that have been given. The officers would pass all words

of command to the non-commissioned officers, who would give the executive command as to what is to be done. I can see no objection to change of command, because, as soon as units get mixed up, and as officers are shot down, changes of command will take place, and there is always a larger percentage of British officers shot down than in any other nation. As officers get shot down, changes of command must take place. Then as to the question asked by Colonel Trotter; there, again, I can only offer a tentative opinion as to whether the second line is best formed by the battalion itself or by a second battalion. The only answer I would suggest is that it would be better to be formed by a separate battalion, for this reason, that it is just possible that the second line may not be required to assist in the fire preparation. The first line, through the fortuitous concurrence of circumstances, may be able to carry out the duty assigned to it without calling on the second line in any way to take part, and, that being so, there is the second line battalion remaining for any subsequent duty that may be required, such as to begin the pursuit until some organized body can take it up, or to assist in covering the retreat; whereas, with one half of a battalion in the second line, you would not like to detach it from the half battalion already engaged in front. By having a free second battalion in the second line you can march it away in any direction without breaking up the battalion unit.

The CHAIRMAN: Gentlemen,—I have not many remarks to make, but I feel certain that, one and all, we have come here with the intention of trying to solve the problem how a battalion is to be enabled to advance over a fire-swept zone with the least loss, and in the best order for continuing the advance. Captain Mayne is of opinion that, although the accidents of the surface and the cover of broken ground may prescribe the order, whether of columns, half columns, or sections, in which the attack is to be made, the problem yet awaits solution. What is the best order of attack, and how can troops be advanced with the smallest amount of loss? We appear to be all agreed that the attack order of the New Field Exercise is the best, i.e., that the attack shall be made in three successive lines; the first or firing line, consisting of firing line, supports, and reserves, followed by two others. The object of the movement being progress, it is believed that the entry of the supports into the firing line will carry that line farther in advance, and the entry of the reserves will continue that movement, so that the whole attack may arrive at a point from which an assault may be made, as the final act of the manœuvre. In my opinion, the danger lies in not appreciating at its true value the effort which will be necessary. We talk and read in books of getting up to within 800 or 500 yds., or to some point from which the assault may be delivered, without considering that the wave or waves of troops we have sent up may be quite insufficient for the purpose, if the enemy's fire be strong enough or his position sufficiently good. The point we have to consider is, how, in the face of an unknown force of fire, and a position possibly not exactly reconnoitred, we can bring our men up in the best heart and condition to continue the advance. Sections will be mixed, companies mixed, battalions, and, in great battles, brigades mixed, and the best must be made of it to restore order and cohesion at the first halt. Colonel Hale, and plenty of officers in this hall, can tell you how many men per yard at St. Privat it took, not

---

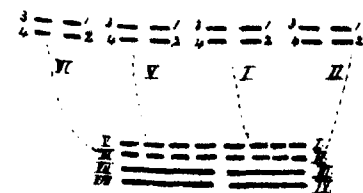
*Note.*—Since the above lecture was delivered, the attack, conducted on the principles laid down in it, has been put into practice by one battalion, and has given every satisfaction as regards giving control over the men and over their fire, individually and collectively. The advance by rushes was conducted by the successive advance of fire units, the adjacent fire unit only ceasing fire to prevent the advancing men being fired into. In this way every fire unit (except one) can keep up its fire in its turn, and thus prevent any serious cessation of the fire of the battalion. The reinforcements were directed right and left at the fancy of the battalion commander, so that the company units became mixed, and in spite of this the control over the men and over their fire, individually and collectively, was exceedingly well maintained, orders were easily circulated, and the fire of the battalion, as a whole, was without difficulty directed on different named objectives.

—C.B.M.

to carry the position, but to fail to carry it; and, if the defence is strong enough, this is what we must prepare for. This is so important that I feel sure we should all have welcomed Captain Mayne's suggestions for solving this problem: (1) how to get the men up with the least loss, and (2) the best order of attack. Captain Mayne is an officer of great ability; he has studied the subject and written upon it, his "Fire Tactics" being a standard work, and I am sure his suggestions would have been valuable. However, as we have been deprived of them, I will ask you to let me be your spokesman in giving a vote of thanks to him for the lecture he has delivered, and another in anticipation for the lecture which we still hope to hear.

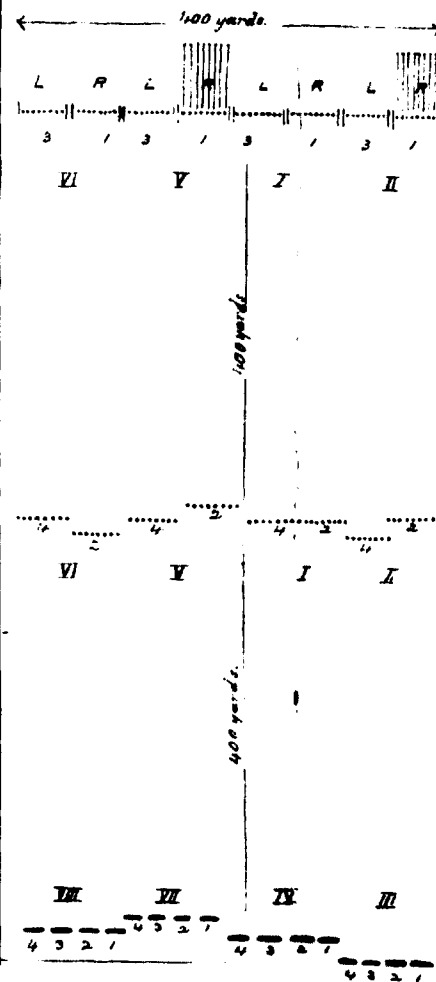
1<sup>st</sup> Deployment.

Fig. 1.



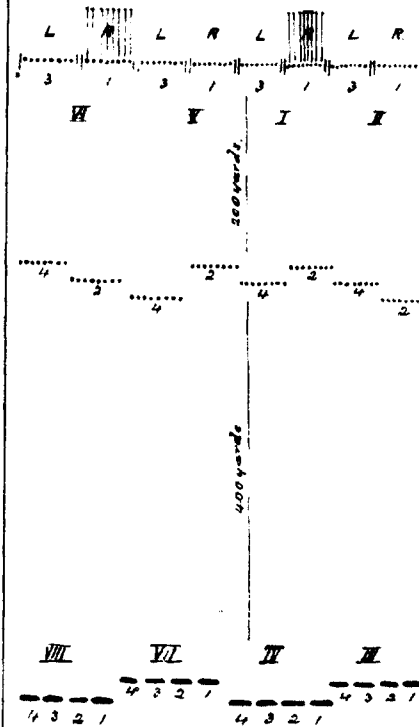
1<sup>st</sup> Extension. 1000 yards. Firing line extended to 2 paces intervals. Vol'ny firing in succession by R. and L. fire units from right of battalions. Battalion advances as a whole.

Fig. 2.



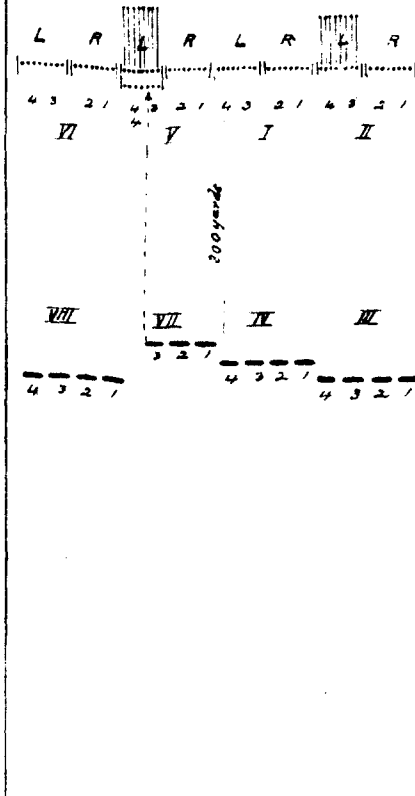
900 yards. Firing line, firing, and advancing as before.

Fig. 3.



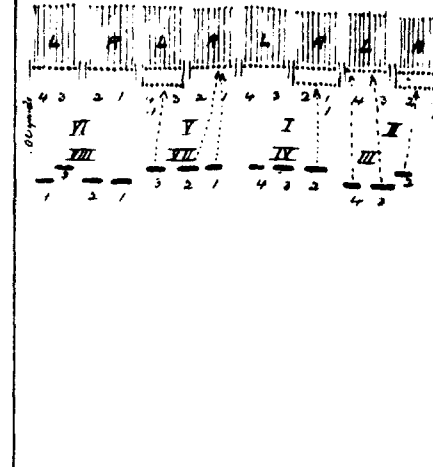
700 yards. Firing line firing, and advancing as before. Left fire unit of V Company reinforced. Firing line has a strength of one man per pace.

Fig. 4.



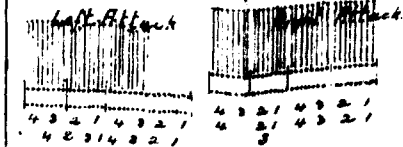
500 yards. Individual firing with limited rounds or controlled by whistles begun, and with fixed sights. Advancing as before except that the company front as a whole is the advancing unit.

Fig. 5.



300 yards. Individual firing with fixed sights and fixed bayonets. Advances by successive rushes of alternate battalions. The men nearest the advancing battalion cease firing.

Fig. 6.



200 yards. Individual firing with fixed sights and fixed bayonets. Line waiting for assaulting troops (coming up in rear) to carry it forward.

Fig. 7.



The troops in rear will advance to carry out the assault, when the firing line can no longer advance.