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# THE PROBLEM OF FIRE SUPERIORITY.<sup>1</sup>

By Lieut.-General H. N. ROHNE.

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(Translated by permission from the *Jahrbücher für die Deutsche Armee und Marine*.)

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The following remarks, by General Rohne, one of the leading German military writers, in which he draws attention to Captain Bernatsky's work, may prove of interest:—

THE fighting regulations of all States lay down as the primary condition for the success of the infantry attack that fire superiority should be acquired. Unfortunately, neither the regulations nor the tactical manuals point out the means by which this superiority should be obtained, so that opinions differ widely on this the most important question of infantry tactics. It is, however, generally agreed that everything must be done to inflict the heaviest possible loss on the enemy, and to avoid, as far as possible, increasing one's own. The observance of this principle is only difficult to follow in that the one condition is frequently only possible at the expense of the other.

Captain Bernatsky, who has already become very favourably known through his recently published study on "The Fight for Prepared Positions," examines first the conditions which influence the efficacy of fire from a purely ballistic point of view, such as, the number of rifles in action, rapidity of fire, probable accuracy of fire (depending on knowledge of the objective, on the ascertaining of the proper sighting, on the size of the vulnerable surface, and on precision), and proves that conditions being equal the advantage lies with the defender over the attacker. How is it possible, in spite of that, for the attacker to obtain fire superiority?

On this subject two completely conflicting opinions are especially noticeable in military literature. The one lays down that the assailant should "always maintain his advanced fighting lines at the same fighting effective by constantly pushing up fresh forces from the rear to the front, so as by continual effort to finally break down the enemy's resistance." In opposition to this the other opinion asserts "that by suitable measure such external conditions of effectiveness should be secured as the entrenched defender already possesses"; the attacking formations could then bring matters to a successful conclusion with a comparatively small numerical superiority over that of the available hostile forces.

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<sup>1</sup> By Cornelius Bernatsky, Captain on the Grand General Staff of the Austro-Hungarian Army. Vienna, 1905.

The author next examines the possibility of carrying out these two methods by applying to them a concrete example. If the attacker and the defender occupy a front of the same length, and have the same number of rifles available for action, the assailant's losses under similar conditions, would, according to the author's calculations, be 3·7 times larger than those of the defender, as the assailant's vulnerable surface which is not covered, is 3·7 times larger than that of the defender, who is protected up to his neck. The distance here is of no importance. He, in consequence, then takes for granted that after ten minutes the assailant has lost 32 and the defender 9 men. These numbers are merely assumed in order to have a fixed basis. The important fact is here less the absolute than the relative value of these figures; the absolute value depends on the distance separating the two lines of skirmishers, the accuracy of the fire, and the depth of the lines; the relative value of the two figures entirely depends on the size of the vulnerable surfaces. If, for example, the defender is not able to cover himself as well as we have assumed, and his vulnerable surface is double, the figures for the assailant's losses do not alter, but the defender's, on the other hand, will be twice as great.

According to the author's assumption the assailant will have made good his losses after 10 minutes, but the defender cannot do so. The effectives, which, at the beginning of the action, were as 100: 100, are henceforth as 100: 91. The result of this is that in the 10 following minutes the assailant no longer loses 32, but only 29 men; the losses of the defender, who has not been able to make them good, also becomes less, not, of course, in the same proportion; he loses in the following ten minutes 8 men. After the assailant has replaced his losses for the second time the proportion of the opposing effectives is 100: 83. This proportion thus continually shifts in favour of the assailant, but it is only after a two hours' fight, during which he has sent 250 fresh rifles into the firing line, that the percentage of losses of the assailant and the defender become equal, and this proportion remains constant if the assailant's fighting line receives no further reinforcements, as every fresh reinforcement gives the balance in his favour. In the two hours' fight the defender lost 70 men; the proportion of the effectives, 100: 30,<sup>1</sup> now almost corresponds to the vulnerable surface; the assailant loses 10 men, and the defender 3 in ten minutes.

It must be conceded that the proportion has been taken on too favourable a basis for the defender, as it is assumed that every one of his marksmen would be completely covered with the exception of the head, whilst, on the other hand, the assailant is supposed to be on an absolutely level plain without cover, which does not in reality exist. If the defender presents a vulnerable surface only half the size of that of the assailant (instead of 3·7 times smaller), the conditions remaining the same as before, the assailant should be able to establish an equality within 40 minutes by only sending 113 fresh rifles into the firing line, and in this case too, the assailant would

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<sup>1</sup> Calculated accurately, the defender can only count on 27 rifles, the assailant must, therefore, once more replace his losses, which would then amount to 260 men.

find himself with 100 rifles as against the defender's 50. This will show how advantageous good cover is.

I expressly emphasise the fact that here only the purely material efficacy of fire is considered, and that the psychological moment is entirely left out of account. People may rightly object that no defender could maintain so long a fight where the assailant appeared to be immortal, as he was always able to make good all his losses; the defender would be compelled to give in sooner. Quite right, if we only allow the psychological moment to operate on the defender, and assume that the assailant is in no way affected by it. The latter, however, suffers far greater losses from the very commencement, and even if he is able to replace them, the men in the firing line are liable to become disheartened, and this must disadvantageously affect the quality of their fire. It has also been assumed, in the assailant's favour, that it is possible for him to bring up his reinforcement regularly into the firing line, whilst it is evident that he must suffer very considerable losses while doing so, as they present twice as large a vulnerable surface as the firing skirmishing line. It is rarely true, too, as a matter of fact, that the defender is absolutely incapable of making good his losses. I therefore consider that, according to this calculation, the lights and shadows are distributed too greatly in the assailant's favour, and that the chances are very unfavourable to him if both parties are equal at the commencement of the action. That method, of continually sending fresh reinforcements into the firing line, must, therefore, fail in reality, and would only cause immense loss to the assailant. No single instance can be cited in the history of war where this method has been crowned with success. On the contrary, a whole series of abortive infantry attacks may be pointed to, in which it was found impossible by that means to obtain fire superiority.

This examination may be considered dry and pedantic—a favourite method when one is not able to demonstrate its faults—but the author may at least claim for himself the merit of having gone into this difficult problem without prejudice and without circumlocution. He has, moreover, with this object, made use of the same method which I adopted in a previous article, "How is fire superiority to be attained in the infantry attack?"<sup>1</sup>

He then devotes himself to the other opinion, which requires that the assailant "should enter on the inevitable conflict for fire superiority under similar, and, if possible, under more favourable conditions of efficiency than those possessed by the defender." As such he cites in the first place; as superior a number of rifles as possible, and an attention to a plentiful supply of ammunition; then an accurate reconnaissance of the enemy's position, correct sighting, masking one's own firing line, and diminishing one's own vulnerable surface from the enemy's fire. The method of bringing a superior number of rifles to bear is frequently found in the disposal of one's firing line in *échelons*, where there is not sufficient space to deploy into line, and by enveloping where the assailant has full liberty for deploying, viz., against isolated or salient points, and more especially on the flanks.

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<sup>1</sup> *Militär-Wochenblatt*, No. 71, 1899, p. 1786. Translated in *JOURNAL* for March, 1900, p. 258.

The assailant thereby possesses a great advantage, viz., that he does not require to obtain fire superiority along the whole front, but only at one point. It suffices to retain the enemy's forces extended along this front by units under good cover, capable of keeping up a well-sustained fire, so as to be able to act against the various positions with the greater force. The defender, who can never know where he is most threatened, dare not weaken certain portions of his position to strengthen others.

As regards the question of ammunition supply for the assailant, the author treats it with, I might almost term, an enviable optimism. He is of opinion that when the firing line has been established on the limit, where the ground covering it changes into open country, there will be no longer any question of the difficulty, still less of the impossibility, of the supply of ammunition during the action; "the whole problem of reserve ammunition shrinks to a technical problem of properly regulating the supply. But the attack on prepared positions renders it necessary, in one form or another, to make, in regard to the firing positions, certain technical preparations, amongst which the supply of cartridges to the position must certainly be included." I cannot regard this question as such an exceedingly simple one. It has frequently occurred that the defender has amply provided his firing line with cartridges, but I know of no example where the assailant has similarly furnished the "position." I have naturally no intention of contesting the possibility of distributing the contents of the ammunition wagons to the men before the advance.

The introduction of smokeless powder has greatly increased the difficulty of reconnoitring a hostile position; the author, therefore, demands a special reconnaissance of the objective by infantry. As is well known, French skirmishing lines are preceded by special scouts; opinions on this subject, however, differ greatly even in France.

He further demands the adoption of a first-rate range-finder, because the defender will probably endeavour, by long range fire, to prevent the assailant from coming to decisive ranges. The greater the distance so much the more are errors in judging it felt. In order to diminish the vulnerable surface, resort must be made to the spade, and, if necessary, similar methods to those used in siege warfare employed.

I am still less in accord, for different reasons, with what is said about accuracy of fire. The author makes use of a very unusual scale for the measure of accuracy, viz.: "the mean quadratic deviation," and thus renders the study of his work in the highest degree difficult, even to readers familiar with questions of ballistics.

He has, in addition, a totally false conception of the value of errors of sighting, etc., on the part of the skirmishers. According to him average shots have a deviation only about half as great as that of marksmen, as demonstrated by the trials made by the Experimental Rifle Commission at Spandau, to which Captain Krause refers in his book, "The Form of the Cone of Dispersion of Infantry Projectiles." As, however, no further conclusions regarding it are arrived at, the subject need not be pursued.

On the other hand, the chapter by the author, entitled "Retrospect and Prospect" is a most remarkable one. The experiences of the English in the Boer War confirm everything that has been said on the difficulty of obtaining fire superiority; he very rightly recognises as typical many phenomena which appear surprising

at first sight, viz., especially the checking of greatly numerically superior frontal attacks, very shortly after the opening of fire by the defenders, at distances from 600 to 1,200 yards; the persistent clinging to prone positions by the attacking lines for hours at a time under the defender's superior fire; the cautious utilisation of even the slenderest cover, which explains the small loss suffered during these halts enforced by the enemy's fire. How great was the defender's fire superiority is shown by the danger to which individual officers, etc., were exposed who showed themselves above cover (at the Modder River the English Guards remained lying down for 12 hours at 700 yards from the enemy, and 29 ammunition carriers were shot down). No attempt was made to extricate themselves by aimed fire, or to obtain fire superiority by means of reinforcements from the rear. On the contrary, frequently an unaimed and undisciplined fire was opened until the ammunition was completely exhausted, and not infrequently English troops laid down their arms in the open because they were not in a position to extricate themselves by flight from their difficult situation. During the second period, which came later, the author observes a slackening of energy in the attack in various actions—loose skirmishing lines remaining at long ranges, of from 1,200 to 2,000 yards, from the Boer's firing lines.

Captain Bernatsky is of opinion that in future the fight for fire superiority will not be conducted in the same manner as hitherto, that the firing lines will establish themselves at great distances from one another, where there is likely to be no immediate decisive result, that the infantry of both sides will cling to and fight upon the ground, as in the battles on the Sha-ho; but, on the other hand, they will seize every favourable opportunity of directing a hot fire on the enemy whenever he advances without cover, attempts to bring up reinforcements, or when he offers a good target by changes of position or retirements. That is also, in my opinion, the idea which led to the adoption of *rafale* firing in the French Manœuvre Regulations, a method of firing which I, contrary to most critics, consider to be absolutely correct. I will not hazard any opinion as to whether, as Bernatsky supposes, the final result will be unfavourable to the side which has first expended its ammunition. The envelopment of a flank, too, will frequently play a great rôle, and the author rightly observes:—"There, where mutual support does not extend to important extended bodies, and where forces remain available, even in the final operations, for employment at will on the flanks, a threat of envelopment of the enemy's flank will cause a crumbling away, which will gradually communicate itself to the whole of the enemy's line, so that a decisive result may be very rapidly achieved." In any case, however, success will depend on a thorough mastery of the technique of musketry, and also by its intuitive application free from all prescribed canons. Theory cannot dispense with the purely technical, that is to say, the practical, in the art of shooting, for the latter only can take the place of, or can properly apply, the experiences gained, which are either altogether lacking, or which only exist to a limited extent, in peace time.

The author then enters into considerations regarding "The Object and Nature of Musketry Instruction." Here, too, according to him, there exist two divergent opinions; the one relies on salvation by means of an iron fire-discipline, the other on the individuality of the marksman carried to its utmost extent. The training of the marks-

man, according to the former method, depends on a thorough subservience on the part of the marksman, which guarantees the prompt and strict execution of every order. This is only possible if the commands are of the utmost simplicity, and where their execution has become so much a matter of habit that they will not be disobeyed even in the most difficult situations. The different sorts of fire, such as volley and individual—the latter, too, may be slow, quick, or rapid—must be abandoned because they utterly fail in practice; the author, therefore, requires an individual fire of a uniform rate of rapidity. “Short commands to open and cease firing will let loose a *rafale* fire of terrible intensity.” The discontinuance of fire can be safely and rapidly effected, as experience has proved, by the repetition of the command from unit to unit.

In order to assign a firmer basis for these propositions, it should be observed that the accuracy of the modern rifle can only be realised by means of individual fire, that a great rapidity of fire gives a considerable prospect of success, that a uniform rate of fire ensures the control of the supply of ammunition, and that, finally, a marksman accustomed to this method of firing, finds in it a strong moral support which enables him to continue to fire with accuracy and without hurry.

I will pass over what is said further with regard to the training of the marksmen, and merely draw attention to one point. The author demands a restriction of the exaggerated safety regulations for field-firing practices, so that, for example, the movements of the skirmishing lines should be carried out with loaded rifles; that the men remaining behind should keep up their fire, whilst the others are rushing forward; and finally, that firing over their own troops should be practised at manœuvres by both artillery and infantry—this, of course, in only a limited fashion, and where the ground permitted of it.

On the other hand he expresses himself against a musketry training, by which a soldier may be taught to direct his fire himself, as this threatens the very foundations of fire discipline. That is absolutely conceded, especially as is urged on many sides that a man firing in a group should be permitted to change his aim and alter the already ordered distance on his sights on his own initiative. It is here a question of finding a good medium course; for, under certain circumstances, the individual soldier should be able to make independent use of his weapon.

The practical supervision of the firing should be taken altogether from the company commander, so that he may devote himself entirely to the tactical leading. The former should be relegated to the senior subaltern of the company, who should be responsible for the sighting, the objective and the commencement of the firing. He should observe the effect of the fire and regulate its cessation. I permit myself to express no opinion on this proposition, nor on the discussion following regarding details of the conduct of fire, as well as propositions for the arrangement and carrying out battle plans by means of fire-action.

From the above the reader will be convinced that we have here to do with a most remarkable work. The author has not only the courage to express his opinions, differing as they do from current views, and frequently even quite opposed to them; but he has also the ability to give good grounds for his opinions. One cannot ignore this work, which I regard as one of the most important on infantry

action in the fight; one is compelled to respect it. But I may be here permitted to make a few more remarks of a general character.

According to the generally accepted conception of the progress of the modern battle, the latter consists of several consecutive actions. During the first, after the preliminary contact, the artillery of both sides struggle for fire superiority; during which time the infantry completes its deployment. Then follows on the part of the victorious artillery, the preparation for the infantry assault at the place decided on, whilst on the other side, broods the "silence of the churchyard." The infantry now advance, also struggle for fire superiority, after which follows the assault.

This picture, which has, naturally, merely been sketched in rough outline, has undergone a considerable dislocation through the introduction of shield-protected, barrel-recoiling quick-firing guns. Many, it is true, will not allow this, but believe that the two great acts of the drama of the battle, viz., the artillery fight and the preparation for the assault, remain constant, whilst others, of whom I am one, are of opinion that after the introduction of protecting shields, there can no longer be any talk of an artillery duel ending in the complete defeat of one of the adversaries. To thoroughly crush armoured artillery would necessitate such enormous expenditure of both ammunition and time, that in future one will have to content oneself with reducing the hostile artillery to temporary inaction. It will, however, be always necessary to keep him occupied, and to watch him carefully, so as, when possible, to prevent him from changing position and from drawing on his reserve ammunition. A prolonged artillery conflict, with infantry looking on inactive, is no longer possible. Artillery fire will, as the French regulations say, be intermittent, that is to say, long pauses will be broken by *rafale* fire, which will seize favourable opportunities offered by an incautious enemy. The artillery of both sides will, so to speak, lie in wait and profit by every opportunity to damage the enemy. The picture, which Bernatsky draws, of the infantry fight, is precisely similar. Here, too, the taking thorough advantage of cover makes it impossible to completely crush the enemy in a long fire action; to attempt it would be equivalent to a useless waste of ammunition; here, too, it will be necessary to profit by favourable occasions, to do the enemy damage by means of *rafale* fire. To the side which best succeeds in holding the enemy fast to his position, and surprises him with superior forces against a weak point in his position (the flanks), will the victory belong.

It is with a certain satisfaction that I am able to state that I myself expressed similar ideas more than five years ago, especially as regards intermittent infantry fire.<sup>1</sup> Precisely the same idea has found expression in the last French Infantry Regulations. An intermittent fire of this description, which is only directed against favourable objectives, and is of short duration, will, in spite of the greater rapidity of the fire, permit of a far better husbanding of the ammunition, than a prolonged fire of less rapidity on unfavourable objectives.

I can emphatically recommend the thorough study, without prejudice, of "The Problem of Fire Superiority"; on its solution the whole infantry fight entirely depends.

<sup>1</sup> "Das gefechtsmässige Abteilungsschiessen der Infanterie," 3rd Edition, 1899. Page 31.