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THE TRANSVAAL WAR: ITS LESSONS IN REGARD TO MILITARISM AND ARMY RE-ORGANISATION.

*By His Excellency M. JEAN DE BLOCH,
Russian Councillor of State, author of "The War of the Future."*

Monday, 24th June, 1901.

Major-General Sir J. F. MAURICE, K.C.B., R.A., *p.s.c.* (Commanding
the Woolwich District), in the Chair.

[The lecture is now printed as it was finally read. Owing to the length of the paper, and to save time in reading, it was found necessary, where possible, to transform portions of the text into the form of Notes, which is the reason of their voluminous character.]

PART I.

AT the present moment your country, under the influence of a public opinion created by the South African War, is on the eve of the radical reform and reconstruction of her Army. The study of the lessons which the Transvaal War teaches in regard to a great European War is of immense importance. Firstly, because it is the first time that the perfected fire-arms and smokeless powder have been brought into use on a great scale; and, secondly, because those teachings prove best how far the calling together of the Hague Conference was opportune and in the interests of humanity, in view of the fact that a great war would bring forth terrible catastrophes without solving the questions in dispute, owing to the exhaustion of economic resources; and probably internal revolution would force the conclusion of peace, with the social order of Europe in dissolution, and Europe would find herself faced by complications which it is now impossible to describe.¹

The South African War will serve as a notice to the Governments and people to change their aggressive policies, and it can give certain immediate advantages. It proves that military service as practised to-day is absurd, and that the sacrifices made on the Continent to support conscription, and into which it is proposed to drag England, are unneces-

¹ General von der Goltz, the re-organiser of the Turkish Army, and now chief of the Engineers and Pioneers of the German Army, in his remarkable classic "The Nation in Arms" (5th edition), expresses the same opinion:—"Economic resources will break down before the armies are exhausted; for instance, operations in France must be very long drawn out. A war against Russia will demand several campaigns before arriving at any result. . . . We may predict that wars cannot terminate other than by the complete destruction (*Vernichtung*) of one or the exhaustion of both combatants."

When a German General affirms such a thing as this, he must be very deeply convinced of the gravity of the situation.

sary. It shows that the theatrical spectacles called manœuvres are in no way related to real warfare.¹

It is this reason which forces me, notwithstanding the exceptionally unfavourable conditions in which I am situated, owing to difficulties arising from ignorance of the English language and the condition of my health, to prepare and hand over for your consideration the question of the teachings of the South African War in regard to a great European war, and also in regard to the projected increase of the British Army with the object of participating in a struggle with the Continental Powers. Having devoted twelve years of my life to the study of the questions involved by a future war, it would be unpardonable for me to refrain from taking advantage of the opportunity which your Council has given me to

¹ But, unfortunately, no illusions can be cherished as to the learning of this lesson. The lessons of the Transvaal War are in danger of being lost to humanity. Even England makes no exception to this rule. We find distinguished writers, after summing up the events of the Transvaal War, expressing as their conclusion that, generally speaking, on all the subjects in question, the war confirms and demonstrates to the public what was already known. And this could not be otherwise. For the present situation arises from a veritable nervous disease a perversion resembling the moral epidemics common in the Middle Ages. In place of seeing a danger for the social order, and even for their own existence in the present conditions, the sovereigns and statesmen of Europe attempt to exploit the antagonism of nations among themselves in order to continue their fatal policy. Only a few genuine statesmen and a few true patriots revolt and denounce the fatal consequences of this policy. The force of this re-actionary movement we see best in the way in which the Conventions of the Hague Peace Conference were received. On the eve of the Transvaal War, which, as Lord Curzon declared so justly, has revolutionised the ideas of the whole world on questions relating to armaments, tactics, and the whole science and art of war, scarcely any effort was made to support by proof and scientific argument the important Hague manifestations. Even on the part of the military delegates at the Hague Conference, whose interest and duty it was to support the manifestation of their supreme chief, not a word was uttered concerning those facts which the Transvaal War a few months later proved. And the reason lies not in the bad will of the soldiers, but in the traditions of their Service. From time immemorial the vast majority of soldiers have been attached to routine, troubling nothing in regard to essentials, and, indeed, being without the means for establishing a comparison between the present and past. The technical changes in the mechanism of war are accessible to each in his special sphere. But each expert is confined to his own sphere; and since every effort is made to keep secret the results obtained, only exceptional minds can embrace the whole subject, and appreciate the results of the new conditions. In addition, it must be said that the great majority of soldiers are strangers to the economic questions involved in war, while diplomatists and the chiefs of political parties have not the time to occupy themselves with such questions. The same may be said of statesmen in office, to whom belongs in the last resort the decision of the question of peace and war. Absorbed in their immediate duties, very few attain a height of view sufficient to see all those dangers of the future which the Transvaal War has shown so clearly. Indeed, there is only one country in which full consideration of the questions involved in a great future war is possible, and that country is England, her advantage arising from the comparative independence of the Government of her soldiers, and soldiers from their superiors. English soldiers have shown that they are first of all citizens of their country, and that the interests of the people are dearer to them than their uniforms.

express my views. But it would be absurd self-confidence on my part if I entered into the details of the Transvaal War. Each of you as experts, with opportunities for following more closely than I the events of the war from printed sources, and, what is much more important, by relations with eye-witnesses and participators in the actual events, is much more competent than I to express an opinion as to details.

But, on the other hand, I, standing somewhat farther away, have been able to follow the events of the South African War, not from the point of view of its importance only for England as a State with great Colonies, but in its influence on a future war which might break out between the Great Powers. However, even in this relation I do not pretend to express definite opinions and affirmations; but, being an economist, and, at the same time, not unfamiliar with military questions, as the author of a book on "The War of the Future," which has passed through the criticism of military authorities, I may put forward some facts to show how far the present war justified my predictions.

Lack of time makes it impossible for me to enter into details. Nevertheless the question is one of extreme gravity. For that reason I have set out material on the walls of this room, which enables you to see the question as I see it.¹

¹ These tableaux illustrate:—

THE MECHANISM OF WAR.

To show that the war of the future will resemble hardly at all even the most recent struggles, I have attempted to represent the principal factors of war; the composition of troops, their armament, the possibility of erecting shelter very rapidly; the impossibility with smokeless powder of reconnoitring the enemy's position; finally, the difficulty of attack which will force the combatants if they are to avoid the enormous losses which would result from a hand-to-hand fight, to adopt tactics which will make the struggle very prolonged. I have collected statistics which show, on the one hand, that the military forces of the Great Powers are nowadays practically equal in number, armament, and training, that the obtaining of such results as would force one party to make a disadvantageous peace is therefore impossible; and that, on the other hand, the regular provisioning of the Army with food and munitions of war will form an extremely difficult problem.

NAVAL WARFARE AND COLONIAL INTERESTS.

Naval warfare is represented by a series of tableaux destined to furnish those indispensable elements which will enable us to judge whether naval warfare has not this in common with warfare on land, that it surpasses all practical needs, and whether at the first use in battle it can do more than throw into the sea the millions abstracted from the labour of the people and thousands of human lives. Whether also in order to stop all commercial intercourse the regular cruiser and armed vessels are not enough.

ECONOMIC AND FINANCIAL CONSEQUENCES.

Another series of tableaux shows why the economic resources will come to an end before the armed forces are exhausted. The call to the colours of almost all the civil population capable of bearing arms will produce such internal perturbations that the lack of financial and economic resources will end in terrible misery, the bankruptcy of the belligerents, and even in revolution.

The examination of budgets, an estimate of the cost of a future war—taking into account the differences which exist between this war and the Franco-German and Russo-Turkish Wars of 1877—prove it also.

War not then terminating except by the complete exhaustion of both combatants or by a social cataclysm, it is necessary to show that peace will be hardly

It may be that my conclusions are wrong; but my work is without *arrière-pensée*, and it is the result of profound study. My thesis at least, therefore, merits examination. That is all I ask for. But even if you doubt the accuracy of my views, or find them exaggerated as regards the conditions of to-day, you must assume that the ascensional movement in numbers, technique, and economic factors will continue; and then put yourselves the question, What will happen in a war ten or fifteen years hence, and what will be the consequences? It is necessary to consider this question now, for politics are not made from day to day.

The difficulties of the task being set out, I must beg for your indulgence for the length of my paper. But having to embrace so many different considerations, technical and economic, present and future, by the nature of things it cannot be short. I will, however, attempt to make it easier to understand and discuss by dividing it into several distinct parts; and if I make one request it is that you should be so good in the interest of a possible discussion as to refer all objections to the corresponding sections, adopting the nomenclature used by me. I will first deal with the thesis that—

THE RESULTS OF THE TRANSVAAL WAR ARE NOT DUE TO DEFECTS IN THE BRITISH ARMY.

To this a capital objection rises at once. Military routinists declare that if, in place of the British, another nation under compulsory service had had to fight the Boers, the results would have been different, and the war would have been over long ago.

For different reasons the sympathies of almost the entire masses of the whole world have been on the side of the Boers, and, therefore, there is nothing astonishing in the fact that this view has been generally accepted. As Taine said, the people think not with the head, but with the heart. Yet this popular belief is one of immense importance, for if it be not uprooted it may render null every lesson which the Transvaal war teaches. For this reason I am forced to study this question from two points of view: at first, whether it can really be believed that an European Army, such as that of Germany, which has the best reputation, would have obtained more decisive results than the British Army; and, secondly, whether in case of an invasion, say of Germany by France, the invader would not meet with still greater difficulties than the British Army had to meet in South Africa.

easier to conclude for the victors than the vanquished; that the results obtained by the victors will not compensate them for their sacrifices, and that the disarmament of their troops will present serious difficulties, above all among the beaten side, the conclusion of peace being liable to be followed by internal revolution.

Finally, facts are collected to show that the armed peace as it exists now is nothing more than war disguised, and that the situation become chronic in Europe weighs on it in two ways: it swallows up a great quantity of floating capital, that is to say, the collective natural savings, by transforming them into armaments; on the other hand, it retards the development of commerce and industry, prevents the diminution of taxation, and thus develops socialism and anarchism to such an extent that it must end by destroying social order.

THE REPROACH OF INCAPACITY AND THE NEGLECT OF THE BRITISH
ARMIES TO MAKE SUFFICIENT RECONNAISSANCES.

The most remarkable feature of the war, the feature which has been the greatest cause of British reverse, and which would recur with consequences infinitely more grave in a war between better organised military Powers than the Boers, is the constant impossibility of determining the enemy's positions.

With a unanimity which seems convincing, but which in reality is nothing but a convention, the military routinists reproach the British officers with having neglected to reconnoitre the Boer positions before attacking them. Now, if this difficulty of reconnoitring had never been predicted as one of the features of the war of the future, the reproach might be upheld. But long before the outbreak of the South African war the difficulty of reconnaissance had been announced by military specialists of the first class as one of the inevitable consequences of the employment of smokeless powder and long-range weapons. This being so, it is not to British defects that we must attribute the failure of the reconnaissances, but to the new conditions of war.¹

¹ In my work "The War of the Future," and in my lectures delivered at the Hague, both before the outbreak of the South African War, I pointed out that the chief change arising from the employment of smokeless powder would be the possibility of marksmen in good cover preventing all reconnaissance. I declared that under the new conditions the attacker would see nothing, and would barely hear the rifle shots which would stretch his scouts on the ground. These shots would alone tell him that the enemy was in the neighbourhood. But where exactly? At what point? At what distance?

The routinists tell us that they would send out their squadrons to reconnoitre. Yet Lord Methuen himself declared from personal observation that "it is impossible to sit on horseback at less than 2,000 yards from the enemy." Then the routinists declare that when infantry advance the enemy must disclose his position. But that this would not necessarily be so was seen long before the South African War. General von der Goltz quotes as a characteristic fact that during manœuvres held in Germany in the presence of the Emperor, surrounded by judges, soldiers ambuscaded 400 metres away on the margin of a forest were able to fire for a long time before their adversaries could determine whence came the fire. Therefore this was accepted as a feature of modern war in the German Army. We cannot put it down to the fault of the German commanders in not making proper reconnaissances. For authorities like von der Goltz cite it as a characteristic of the new weapons. Thus, years before the lesson of the Transvaal War was taught, we see it recognised by the best military writers of all nations that smokeless powder had made reconnaissance immensely more difficult than before. In real warfare the difficulty is, of course, infinitely greater. During manœuvres every inhabitant is a source of information. In actual war, on the contrary, the civil inhabitants fly or keep silent. In South Africa the British had numerous auxiliaries in the shape of the English inhabitants of the invaded countries and also the local Kaffirs, but nevertheless they suffered heavy defeats in consequence of the impossibility of obtaining information. What would be the result in the case of an invasion of France by Germany we may predict. As long ago as the war of 1877 Osman Pasha employed rows of marksmen sheltered in holes to prevent the approach of Russian scouts. There is no doubt that this system will be employed in future wars, and that all the roads and approaches to a position will be guarded

ARE THE LOCAL CONDITIONS OF SOUTH AFRICA SO EXCEPTIONAL AS TO DESTROY THE APPLICABILITY OF THE LESSONS TAUGHT?

Before considering the problem which I have set, it is necessary to examine how far the lessons of the Transvaal War are applicable to

by marksmen hidden behind trees, inequalities of the land, and shelter-trenches, and much more systematically organised than were the Boers in South Africa. Nevertheless, the British suffered constant reverse from the invisibility of the Boers. At the battle of Stormberg the British advanced to within a few hundred yards of the Boers without seeing them, with the result that they were totally defeated, leaving a third of their forces in the hands of the enemy. The correspondents declare that even after the Boers had opened fire the British found it quite impossible to locate their position. At Magersfontein the Highland Brigade approached to within 300 yards of the Boers without suspecting that they were within range, and lost a quarter of their effective from a few volleys. The description of the Boer position is worth quoting from the *Daily Mail*:—"The Boers occupied a large kopje, at the foot of which they had sunk trenches to the level of the veldt, and from there they attacked us vigorously. The trenches extended beyond the kopje on the level; they were hidden with brushwood, and those near the kopje were defended with a double wire network. While the Highlanders fought on the right, the Guards marched across the open plain towards the other trenches, and fought for 15 hours against an invisible foe." At the battle of Colenso the same thing occurred. The commander of the British artillery advanced his guns to within 300 yards of the river without seeing that it was filled with Boers, who immediately opened a fire so terrible that two batteries were lost. If such are really the conditions of modern war, what chance would German troops have of succeeding in their reconnaissances any better? None whatever; and facts prove it clearly. Those who are blind to the facts will declare, nevertheless, that Germans would succeed. If the British failed in the Transvaal, it is only proof, they say, that they were badly taught and negligent. That may be. Possibly at the beginning of the war the British did not understand the art of reconnaissance; but after three or four months? The war has now lasted twenty months, and the reconnaissances fail as much as ever. We must then either admit that the conditions of warfare are changed, or that the British officers are deprived of all intelligence. Yet these British officers, who we are told are impenetrable to experience and refractory to all teaching, belong to the aristocracy and upper middle classes—in short, to the most enlightened classes in the country, classes which everywhere, and particularly in England, have produced so many men eminent by energy and intelligence in every department of human activity, scholars, merchants, administrators; and these officers have behind them the practice of thirty years of warfare in every climate. What basis have we then for assuming that the Germans would do better?

The fact is, that it has been established for a long time that it is impossible to effect reconnaissances when the defender has skilfully organised the defence of the approaches. At Plevna the Russians, having taken the advanced Turkish trenches, suddenly discovered two other rows of trenches, until then invisible. All this is recognised in the German Army itself, where dogs are being trained to perform a work which is impossible for human beings. It is hardly necessary to show how even this means is inefficacious. First of all, in order to distinguish enemy from friend, the dog must be very near, and then it is easy for riflemen to kill them. It must be remembered also that the Boers often prevented reconnaissances, so to say, accidentally, for they lacked the regular organisation which the French would employ to form an impenetrable curtain in front of their forces. For instance, we are told, on good authority, that the Boers at Stormberg had no more idea of the proximity of the British than the British had of that of the Boers.

European conditions. The partisans of present conditions, who understand very well the importance which the new phenomena in the Transvaal War present for the future of war, attempt at any cost to explain the results obtained not by changes in the mechanism of war, but by the local conditions. These conditions, they tell us, are very different from those of Europe, both from the point of view of climate, configuration of the soil, and distances. This is very true, but the conclusion must not necessarily be drawn that the difference constitutes a difficulty in the way of an invader greater than could be met with in Europe. The climate of South Africa is in reality one of the best in the world, and it is much more temperate than a great part of Europe, which would be the theatre of a future war.

The same critics explain the long duration of the war by the topographical peculiarities of the country, and the difficulties which they present to an invader. I do not believe this argument has any value. If Northern Natal, the theatre of part of the operations be excepted, the greater part of South Africa is, compared with much of Europe, absolutely flat. Besides, it must be remembered that some of the worst British defeats were inflicted in flat country, such as Magersfontein. The Orange Free State, where the British lost innumerable guerilla actions, is entirely flat, and it is a fact that the Boer defence was often more effective in a flat country than in a hilly one.¹

The best positions nowadays are open lines of heights and undulations of the ground, not standing completely alone, but standing one behind the other, so that infantry and artillery can mutually support each other from front and rear of the position, without one of these arms coming under the fire directed against the other. General Todleben, the defender of Sevastopol, recognised the valuelessness of the argument of difficult country; for when asked what was the best defensive country in the world, replied, "An exercise ground which is perfectly flat."² The same opinions are held to-day by the German General Schlichting.

¹ It is interesting to quote the opinion of von der Goltz as to the value of so-called "difficult country":—"The standard by which the value of ground is now estimated is very different from what it was in the past. Formerly, from the tactical point of view, the main question was whether the ground could be easily traversed. In choosing a position the chief thought was to have some important obstacle in front, which would delay the enemy's advance. Cover against fire was also sought for. Villages, woods, steep heights were regarded as strong points, or, as they were called, the keys of the position, by the seizure or loss of which the struggle was decided. Nowadays the chief point is to have a field of fire. Natural obstacles against the movement of troops are of importance only so far as they retain the enemy under a shower of projectiles. Soft ground, marshes, water meadows which are difficult to pass, vineyards, deeply ploughed fields which can be commanded by fire, are of greater value than any steep precipices difficult to climb. The best of all are wide-extending, bare, and low-lying slopes which can be completely overlooked, for there the enemy, though he finds no obstacle in his way, finds also no cover against the destructive effect of the weapons of the defence."—*Krieg und Heerführung*, 1901.

² What do we see in South Africa? In the first battles the Boers committed the mistake of entrenching themselves on hills, thus losing all the advantages of the level trajectory. Firing from a height they were obliged to estimate the

From all this I draw the conclusion that an European invader must meet with as great difficulties arising from the configuration of the country as did the British in South Africa.

DISTANCES FROM THE SEAT OF WAR.

A third explanation of the British reverses by those who refuse to recognise that the conditions of war have changed, is the distance of England from the scene of operations. But this objection really explains nothing. As mistress of the sea, England had no difficulty in sending troops to South Africa. It was for England merely a matter of money, and the prolongation of transport by some weeks. The difficulties arising from the length of the land communications really played a very small rôle.¹

The difficulties of transport have, of course, been immense, but not comparable with those which an European Army would meet with in Europe, as the number of transport animals required will be much greater. In procuring horses, mules, and cattle, England has had no competition in the markets, and only the difficulty of bringing her purchases by sea to the seat of war, without re-acting in any way on England herself. The conditions in an European war would be very different.²

MISTAKES IN THE CONDUCT OF THE WAR BY BRITISH SOLDIERS.

There is nothing astonishing in the fact that Continental critics, in order to draw their own lessons from the Transvaal War, should insist so

distance almost to a yard. Now on a level plain the distance up to a certain point, say 600 metres, is a matter of indifference, as the ball flies almost parallel to the surface of the ground. At Dundee and Eland's Laagte the Boers made this mistake. In their later battles this was corrected, and they entrenched on the plain, choosing a locality where ravines, brushwood, and dispersed stones made the approach more difficult, thus retarding the British under fire. It may be concluded that the hills sometimes rendered services to the Boers by preventing their inferior numbers being attacked in flank and turned. But, in general, the fact is that a great part of France, Germany, Austria, Italy, and Russia, owing to their forests, mountains, marshes, and sands, present much more favourable defensive positions than South Africa. The walls and hedgerows which border the Continental roads also offer defensive obstacles which did not exist at all in the Transvaal.

¹ Until the recent Boer invasion nearly the whole of Cape Colony was under British control; the British disposed of the railways freely, and when they had passed into the enemy's country they disposed of the railways under exactly the same conditions as the Germans would in case of an invasion of France. Moreover, although the distance from the Orange River to Pretoria was considerable, it was not greater than the length of the German communications in a march to Moscow, that of the French in marching on Berlin, or that of the Germans if they wished to occupy the centre of France. But what it is more important to remember is, that the most serious British defeats took place when their lines of communications were shortest, as from Durban to the Tugela, and from Cape Town to Modder River.

² The German expeditionary force to China had to buy horses in America and Australia, paying for them as much as £80 a head.

strongly upon the defects of the British troops in South Africa; but that a considerable number of English writers and politicians should be of the same opinion is eloquent testimony as to the power of routine. Nevertheless, even these critics must ask themselves the question whether the reverses so much condemned are not the consequences of new conditions of war, and whether the German Army, for example, would have done any better.

To reply to that question, we have no other means than to interrogate the Army Regulations, and study in what consists the famous German superiority. The leading of the British troops was done according to English regulations, which are identical in principle with the German rules. But what, in reality, are these regulations worth? It must be remembered that many authorities have declared the tactical regulations as employed at manœuvres to be absurdly unfitted for actual war.

The Russian General Skugarewsky, the German Generals Pelet-Narbonne, von Janson, Müller, and Rohne, and the French Luzeux and Mignot prove their absurdities.¹

The footnote below indicates a method of attack similar to that employed by the British troops at the beginning of the South African War; and you see the results. At Modder River, at Magersfontein, at Colenso, massed frontal attacks in close formation were undertaken, and failed utterly, although the British largely outnumbered the Boers.

¹ General Luzeux, speaking of France, makes this observation :—"Who has not been struck by the diversity of opinions which we meet in hand-books on questions involved in the essential principles of tactics? There is a chaos of ideas and principles in mutual conflict, and from this conflict there comes not a ray of light. Is it astonishing that officers say, 'What is the use of studying? Let the professors begin by agreeing among themselves.'" Another French author, Colonel Mignot, says that in reality the methods recommended by the official French regulations do not differ essentially from the tactics adopted after the invention of fire-arms and the adoption of the bayonet—that is to say, at a time when these rifles produced an effect about a hundred times less powerful than to-day. In the account rendered of the progress of the military service for the last twenty-five years, edited under the direction of General Pelet-Narbonne, we find this *résumé* of the regulations for attack :—"The firing lines will deploy at 1,600 metres. At the range of about 1,000 metres the fire will become general, volleys still playing a part in it. The advance to the main fire position, about 300 or 400 metres from the enemy, will, as far as possible, be made at the quick step. From the main firing position the firing line, reinforced by the reserves coming up to them, will attempt the decisive assault."

Among the methods of fire employed by the Russian infantry besides deliberate individual firing and rapid bursts of fire, an intermediate kind has now been introduced known as rapid individual firing. The advance is made quickly from a point about 1,000 metres from the enemy; over places swept by a heavy hostile fire the men run forward one by one. The troops advance to the assault without firing, and they rush forward not only with drums and trumpets sounding, but also singing their own war songs. During the advance in quick time in the firing line the rifle is carried at the slope over the shoulder; when moving at the double it is carried at the trail. Intervals of 300 paces are kept between closed lines. In the assault the rush forward with cheering does not begin, as was formerly ordered, at 50 paces, but at 100 or 150. If the firing line makes the assault alone, the men who form it, on the command from the officer "After Me!" close upon him and rush forward.

It is difficult to see wherein lies the boasted superiority of German methods when the essential part of the German method of attack broke down so utterly. The method which succeeded ultimately in South Africa in no way resembled the boasted German methods. It was the method which Lord Roberts devised to meet the new conditions of war—that is, the abandonment of frontal attack in close order, as in his own words:—"When I went to South Africa I laid down the rules that the files are not to be closer than six paces when advancing to the attack. That was very soon altered to ten, and then to twenty." But could, then, the German regulations be carried out in actual war?

FRONTAL ATTACKS.

It needs no words from me to prove that the difficulties of frontal attacks under modern conditions, as illustrated by the South African War, has long been foreseen by the less conservative military writers. Loose formations and the use of cover were declared to be the *sine quâ non*, without which a frontal attack, even with overwhelming numbers, could not succeed. The Prussian General Müller, an authority both in Germany and abroad, has told us that in order to avoid complete extermination soldiers cannot attack otherwise than in loose formation, and avoiding as far as possible the sight of the enemy; they cannot approach except in creeping, and hiding behind inequalities of the ground, digging themselves into it like moles.¹

It may be remarked that this system had been employed also in England. Sir Howard Vincent, in his lecture delivered at this Institution a year ago, said:—"Seven years ago at Aldershot I started with a provisional battalion a 'creeping' advance in column of attack. It was not approved. It was made the subject of good-humoured caricature. The Army in the field is to-day being taught it."

Almost all military authorities were agreed even before the South African War that to approach an enemy established behind solid shelters, firing over distances measured in advance is nowadays one of the most difficult of operations, which will require days, and generals occupying high positions in France, in Russia, in England, in Italy, and in Germany declare that they will remain without results. To obtain a victory will be impossible, all affirmations made to quiet apprehensions, such as that the soldiers will fire badly, that the attackers will find cover, are either insincere or erroneous; and the result of the South African War proves that this objection has good foundation. Then we hear it objected that

¹In 1898 an inquiry was opened in Germany, and the *Militär-Wochenblatt*, published by the German General Staff, gave the results. According to this report, the most favourable conditions had been chosen; a plain covered with herbs and free of stones 500 metres long, and the action of creeping had as result the swelling of the arms, hands and knees, the men being breathless to such an extent that they were unable to fire with the necessary calm.

the Boers are exceptional soldiers. But here again we find a false trail.¹

If we judge by the experiences of the South African War, not a single assailant who marched to the attack in manœuvre formation would arrive alive at the trenches which they are expected to carry by assault. As the German troops have not carried out the war they can boast of their victories obtained at manœuvres, and deify as conquerors their generals, making believe that had they been at war with the Boers they would have gained great victories. But as they have not undergone this experience there is cause for doubt, not only for the reasons I have indicated, but also because if a war break out to-day after 20 months of experience 'in Africa the same mistakes and want of foresight which we have seen among the British would be reproduced by the Germans.

It is impossible to enter into details. I shall cite only one example. The first lesson of the South African War is that the essential is invisibility. Guns, lances, and belts have been painted khaki, the British troops have abandoned their showy uniforms, the officers abandon their swords and carry carbines. But what do we see in Germany? Gorgeous uniforms with showy lace are maintained, and at manœuvres one is stupefied by

¹ The method in which it may be effected is laid down by Janson. The first day the assailant will approach to the limit of the enemy's artillery fire, that is to say, about 5 kilometres, and towards the evening will push forward small bodies, for example, companies to the point where the infantry fire becomes efficacious (then 2 kilometres). These advanced troops will entrench immediately. These *points d'appui* form the line from which on the morrow the attack will start.

And what was to be the result? Favourable only when the defence was timid and inactive, a presumption, which, as General Janson says, it is impossible to make, even of an enemy. The routinists pretend that modern soldiers will fire so badly that the improved rifles will produce less effect than the ancient weapons, and that, in addition, troops taking the offensive will always find cover. The Boers, however, did not do their pleasure by firing badly; and in his report on military progress during the last 25 years General Pelet-Narbonne reduces to zero the argument. "If the great extent of the field of fire is the first condition of its efficacy, we cannot see why the attacked should renounce this first condition unless in order to please the attacker. The latter has not an opportunity for choosing ground offering natural cover, and he will be forced to march across a country exactly determined, thus helping the defender's fire." But it has been replied: Yes; but the Boers are exceptional marksmen, and it is to this rather than to their magazine rifles that they owed their success. This is only a pretext, or rather falsehood. The enormously increased power of the modern rifle was proved admirably in the war in Chili. In this campaign, where some of the Congressional troops had modern and the remainder obsolete rifles, it was shown that 100 men with the new rifle put out of combat 82 men of the Dictator's army, while 100 armed with the ancient rifle, only hit 31. These were not exceptional marksmen; but the fact shows well the immensely greater danger than in the past.

Now, as the manœuvre formations adopted in the earlier portions of the Transvaal War failed so utterly, we must conclude that manœuvre tactics in no way correspond to actuality, though they may very well serve the purposes of the great of the earth who wish to play at soldiers with living pieces, and enjoy the spectacle of war without its dangers and fatigues. From the practical point of view they signify nothing, but are even injurious.

the prodigies and aberrations performed by the military tailor with cloth, leather, and steel.

That the German Army manages its undertakings in no better way, may be seen from the fact that when some 15,000 men had to be sent to China the arrangements were absurdly impractical and absolutely defective.¹

It will be objected that the German Army proved its worth in 1870. But that war was made under conditions absolutely exceptional, which will not be repeated.²

When we hear so much of the superior tactical training of the Germans as shown at manœuvres, it is interesting to point out how

¹ It is interesting to read the remarks of the Special Correspondent of the *Frankfurter Zeitung*, an officer of position and a distinguished soldier :—

"Examine the uniforms of the troops sent into the hottest country at the hottest time of the year. The straw hats which were supposed to be modelled on the headgear worn off duty by certain English and American troops, and which, notwithstanding their defects, seem to have cost too much, were all right for a summer walk in Germany, but in no way suitable for a country in which it is necessary to protect the head as much as possible against the penetrating sun rays. The helmets worn in the tropics are an inch thick. The wonder is, therefore, that we have not had to record a great number of sunstrokes, and, indeed, we should not have had such good fortune if the troops arriving in such headgear had had to engage in a really serious campaign. The khaki uniforms with which our men were provided were probably the worst ever seen in China. They were really not khaki, but a yellowish drill, which after a short time rang the changes in all colours, and after being several times washed repentedly returned to their original dirty white, and gave up all pretence of being khaki. . . . At least a part of the disease, so rife among the troops at the outset, must be attributed to the neglect of proper precautions. . . . The Japanese coolie company was got together under absolutely unheard-of conditions. . . . The supply department had work imposed upon them which was absolutely beyond their power. It is a good thing that we have been able to learn this lesson in China without getting it in the first instance in a *European* war."

² "We shall not recognise our ancient enemies the next time," said von der Goltz. And, indeed, in 1870, according to the work of the German General Staff, the Germans put into the field a little more than 1,200,000 men against 336,000 French. The losses of the Germans in this war, nevertheless, reached the figure of 127,097 men, according to their own statistics. Comparing this figure with the effective total of the men in the field, it seems only a small percentage. But this method of test gives absolutely defective results. When we analyse the losses, we see that 180,000 Frenchmen operating in the earlier battles and engagements in a month and a half put out of action 87,000 Germans, principally with their rifles, since the French artillery was ineffective.

At St. Privat there were 280,000 Germans with 760 guns, against 150,000 Frenchmen with 530 guns. At Sedan there were 240,000 Germans with 725 guns, against 124,000 Frenchmen with 330 guns.

I ask, What would have happened if in place of mitrailleuses and defective guns, and even of the Chassepot, the French had employed small-calibre rifles on a smokeless field of battle? And what would have been the result if the French had been properly equipped with spades, and, being inferior in numbers, had raised entrenchments at the first moment of mobilisation, as they would do to-day, and the Germans, instead of advancing rapidly, as in 1870, had been obliged to rest in one place?

"There still remains in our conception of campaigns the idea of rapidly progressing manœuvres, decisive conflicts upon the battle-field following one another in

insignificant was the part played by the trained soldier during the South African War. In the first place, we see that the Boers who defeated the first British attacks had no training, German or otherwise; and, secondly, we see that the British only defeated the Boers when they had sent out enormous reinforcements, the greater part of which had had no manœuvre training at all. The whole of the South African War proves not only that in consequence of the employment of rapid-firing rifles and smokeless powder, and of the universal employment of entrenchments, the methods of offensive warfare employed to-day have become inefficacious, but also that the professional soldier no longer possesses his ancient superiority over the armed civilian who has undergone the shortest course of training. The excellent defence of the Boers is enough to prove that it is not trained soldiers manœuvring with mechanical precision under the direction of commanders bestarred and belaced who are the best. It may be objected to this that the local conditions were so favourable to the Boers that their successes prove nothing in regard to a Continental war. We have tried to prove the contrary, but let us take the point of view of our opponents. We have a still better occasion to compare the merits of the regular soldier with those of the untrained man, gifted with an intelligence which has not been stunted by instruction based upon regulations and absurd manuals, for the British forces in South Africa contained a great number of soldiers belonging to both categories. On the one part, we find the Regular Army rigorously trained, and with a certain experience of war; on the other, we see a heterogeneous collection of Colonials and English Yeomanry, of whom nineteen-twentieths had never before fired a shot at manœuvres. What is the result of comparing these different types? We find that the almost unanimous opinion of competent authorities, of generals, correspondents, and soldiers themselves, is that the civilians were infinitely more useful than the Regulars. But the best proof of this is the fact that the British Government, instead of raising new battalions of Regular troops in order to reinforce the South African Army, prefers to send out Colonials and untrained Englishmen whose only qualification is a certain skill with the rifle and some knowledge of horsemanship—the latter, of course, for specific local reasons. We even find some of the Colonials so convinced of the inferiority of the training of the Regular Army that they have refused to serve under British officers, and public opinion in England has supported their action.

In action these civilians seem to have been superior to Regulars: their shooting was as good, I shall not say better, since at great distances and against an invisible enemy it is the number of rounds fired in a unbroken succession, swift penetration deep into the heart of the enemy's country, and as a result the obtaining of a quickly won and favourable peace. So it was in 1866 and 1870, so it is hoped for in the future. But we must recognise that we had in 1870 in the first period of the war an extraordinary superiority of numbers on our side, and in the second period the marked inefficiency for action of the enemy's armies. But to-day France, Austria, Italy, and Russia have zealously followed up the progress made by Germany in the training of her soldiers. On all sides the actual efficiency of the troops is ever becoming nearer that of our own, and all must finally reach the same state of progress."—VON DER GOLTZ, *Das Volk in Waffen*.

certain time, and not the aim, which tells. They took cover more skilfully, and they displayed a greater individual intelligence; they were more independent than their officers, never falling into the panics which dispersed the Regulars at Stormberg, Magersfontein, and elsewhere. Kimberley and Mafeking were defended chiefly by civilians against forces proportionally much greater than those which attacked Ladysmith, which was defended by Regular troops. Nor did the civilians surrender so easily, or in such great numbers, as the Regulars. Their improvised defence of Wepener was one of the most remarkable exploits of the war; under precisely the same circumstances the Regulars surrendered time after time. At Paardeberg, when the Regular troops had been driven back with enormous losses from Cronje's trenches, it was the Canadians who delivered the final attack which preceded the surrender. In short, the whole history of the war proves that civilians possess all the best qualities of Regular troops, their discipline and courage, and much more intelligence, initiative, and endurance.¹

It is easy to explain this superiority of the civilians over long-service Regulars by the conditions of the modern battle-field. In consequence of the dispersion of the men it is quite impossible to maintain the mechanical dispositions which are taught on parades and manœuvres. Under such circumstances officers cannot direct their men effectively, and as the men are not trained to use their individual judgments they tend to turn into a flock of sheep. The capacity for individual action becomes enfeebled in proportion to the training which the soldier receives. Thus if his officers are too far away to give orders, the Regular is at a loss what to do. But the intelligent civilian, whose capacity for action has been developed by his habits of sportsman, farmer, and artisan, and who is accustomed to use his own faculties independently, fights very well without orders. He is primarily better material, and as on the battle-field the order of the parade ground is dislocated, the question of superiority is decided by the faculty of initiative alone. It is this, we must recognise, which makes the superiority of the Boers over the British. And it is this no less which accounts for the superiority of the British civilian over the British Regular.

All this leads to the conclusion that it is not the mistakes made in the conduct of the war by the British troops nor the qualities of the Boers (who, indeed, have shown an entire lack of rational strategy and tactics), which has produced the results which we see on the theatre of war. It is smokeless powder, and long-range quick-firing rifles, which involve dispersion and invisibility to a degree unheard of formerly, and to the possibility of putting a larger number of cartridges at the disposal of the riflemen. In consequence, there is no reason for supposing that French soldiers, defending their country, would prove inferior to the Boers, their quasi-superiority of fire being only a false scent.

¹ It is quite true that many of the Volunteer Yeomanry lately sent out from England, were complete failures. But this was not because they were Volunteers, but because they were men of bad physique, taken from the wrong class, and primarily bad material.

THE ACCUSATION BROUGHT AGAINST THE BRITISH TROOPS
OF WANT OF FIRMNESS.

But we see the British troops accused of want of endurance, and it is, indeed, a fact that on several occasions after insignificant losses they have retreated and surrendered. We even see an order issued by Lord Roberts to the effect that British soldiers raising the white flag will be court-martialed—an order which has had the effect of increasing the accusations of cowardice brought against the Army. But the fact is, as I pointed out in my book, that the new conditions of warfare are such that although the losses sustained are small when compared to the total number of the troops, these losses are, nevertheless, of such a character that no civilised troops could sustain them without losing *moral*. This fact has been well known for many years past. General Kuropatkin, now Russian Minister of War, who took part in the war of 1877, expressed the opinion that "Troops do not give way so much owing to an inferiority of number, which forbids them holding on (they might resist even after losing 75 per cent. of their effective), or in consequence of the losses which they have sustained, but owing to fear of losses which they expect if they remain where they are, or continue the attack."

The space of time in which the losses were inflicted is also a most important factor, and we know that in most of the cases in which the British gave way in South Africa the losses were inflicted very suddenly and in a very few minutes.¹

¹ In the second volume of my book I dealt especially with this subject. I set the question: What will be the moral state of armed masses in the present new conditions of war, in the event of defeat, and even in case of victory, if the battle be a long one, as must be expected? I attempted to search for statistics elucidating this problem, and took separately the constituent elements of the different nations, regarding also the modifications which have taken place in the composition of troops, armaments, and tactics. But I came to the conclusion that while it is possible to deduce from these statistics a comparison of the different qualities possessed by one or another armed nation, it is difficult, and even impossible, to formulate with any simplicity, an appreciation of the whole; all the more so as these moral conditions will be different in a defensive and an offensive war.

For the sake of simplicity I tried to determine in approximate figures the different characteristics of the troops of the various Powers from the double point of view of their employment in attack and defence. I used here a procedure applied in the statistics relating to the morals, education, and sanitary condition of the various countries, and made comparisons expressed in figures which represent the comparative value of the different armies in attack and defence. For unity of comparison, I took the figure 100 to express the maximum of each quality which goes to make up what is generally called the *moral* of an army. These qualities are:—1. Capacity to adopt oneself to a new situation. 2. Composition and recruitment of officers. 3. Faculty of initiative. 4. Endurance under fatigue and privation. 5. Discipline. 6. Absence of egoistical tendencies dangerous to the general good. 7. Confidence in commanders and comrades. 8. Age, spiritual condition, and manner of recruiting of men. 9. Confidence in the value of their armament. 10. Courage.

I did not at that time occupy myself with the British and Boer armies, having then no motive for doing so. If I made such a comparison to-day I should say that in all cases the British Army was infinitely superior to the Boers, who have no discipline, and for the offensive were almost useless. But it is that which made their success.

The opinion of the Austrian Attaché, Captain Trimmel, shows the *moral* of the British soldier in the most favourable light. He says:—"In face of the Boers, soldiers by birth, the British soldier was evidently in a difficult position. But it would be a mistake to think the latter mediocre. Calm, insensible to danger, gifted with great *sang-froid*, strong in moments of reverse, sustaining privations bravely, obeying his officers blindly—such was the British soldier, and to a great extent the Colonial. The high moral qualities of the British officers have never been denied by the greatest enemy of England. They possess a great firmness of character and a profound practical sense. Their moral value was shown most in the day of defeat."

And I may say also that this testimony was given after a year and a half of warfare, and it is an incontestable fact that the longer a campaign lasts the more a disciplined army deteriorates, and, on the contrary, a guerilla army, like that of the Boers, improves.¹

An English general expressed the opinion that, in order to develop courage, it was necessary to have spectators. But the soldier in a modern battle must perform his act of courage far from the eye of his commander, and sacrifice himself without being seen and without any other motive than patriotism. Of course, when it is a matter of defending the country from invasion, as, for example, in an invasion of France by Germany, the French soldiers would be marvellous. But can we count upon such manifestations of courage for a secondary object? And there exists no serious motive for war, as I should in the sixth volume of my work, while showing the possibility of resolving the questions by an arbitral tribunal. For in an offensive war there will be no other objects. There certainly exists no Army with men braver, and more contemptuous of death, than the Russians. Yet what do we see? M. Botkine, the celebrated professor and physician of the Emperor Alexander II., during the war of 1877, at a time when rifles and artillery were much less murderous than to-day, and smokeless powder did not exist, wrote:—"The heroes have had their day, they have lost their prestige, since each knows that heroism has no longer any importance."² Botkine wrote later, after the unfortunate assaults on Plevna, as follows:—

¹ "The commander of an army can alone protect it from that greatest enemy of civilised soldiers—weariness of war, and indifference as to its results. . . . It is worth bearing in mind the teaching of history that the Armies of modern military States, well disciplined though they may be, but trained in the systematic school of peace, gradually depreciate in a lengthy war, while hastily assembled levies, if successful in the field, improve with time. We see examples of this not only in the case of the armies raised by the first French Republic against the Coalition, but also in the American War of Secession, and in a special degree in the levies of the French after Sedan. . . . In such case field experience provides the training. . . . They begin as volunteers and conscripts, but in the end they become soldiers who are often proved victorious over their better trained adversaries. But the soldiers of a Regular Army, accustomed to quite another state of things, do not easily find themselves at home in dealing with such national levies."—VON DER GOLTZ, *Krieg und Heerführung*.

² Letters from the theatre of war, 1877-78.

"Sklifassovski (Surgeon-in-Chief of the Russian Army before Plevna) says that one could form a whole regiment of men who have simulated wounds, or have wounded themselves in the fingers, after the example of the Servian soldiers. In this there is no cause for astonishment: the soldier sees in the Turk a stronger enemy than himself; the Turks are sheltered behind earthworks and their arms are superior to ours. . . . But one dare not speak of these false wounded in the reports any more than one can speak of deserters. Each officer thinks it his duty to say that, in spite of the great losses, the *moral* of the troops is excellent, that they reformed in good order and singing. However courageous men may be, however excellent their *moral*, these qualities need to be fed by success. But under present conditions where we are beaten everywhere, these qualities are exhausted, and the bravery and power of resistance of the men have disappeared."

In the Transvaal War, and for the reasons already enumerated, the British have been in much greater difficulties than were the Russians before Plevna. We remember that the Highlanders lost 670 in three minutes. In my pamphlet on "The Transvaal War and its Problems," I said:—"It may very well be that less cultured soldiers and officers than the English could stand even more than they, but in the course of the shortest time all, to the very last man, would be killed. Therefore, before bringing accusations, it would be wise to consider every separate occasion, and in the great majority of cases I am convinced that, instead of condemning those who have surrendered, it would appear to military men worthier to cry 'honour and glory!' and to express gratitude for the moral courage which refuses to sacrifice innocent men in vain. Once it is impossible to obtain results, every man lost means simply murder, which is all the more shameful since such murder is not only unpunished, but glorified as heroism." And I have not changed my opinion.

THE PRETENDED DEFECTS OF THE BRITISH ARTILLERY.

Still another subterfuge is used to explain the results of the battles of the South African War; that is, the pretended defects of the British artillery and of its service. Now, as it is admitted that without the support of artillery, infantry, even in inferior numbers, cannot be dislodged from a strong position, and as the Boers fought almost always behind shelter, a sufficient reason for the British reverses is found in this.

Owing to the English practice of carrying out the artillery preparation by itself, and holding the infantry back, the Boers were never forced to leave their cover and show themselves. If, as is directed by the new German Regulations for Field Artillery, the British had felt their way by pushing forward and engaging their own infantry simultaneously with their artillery preparation, they would have compelled the defenders to man their works and show their troops. Thus many serious disasters would have been avoided.—*Militärische Jahresberichte*, 1900.

Let us examine how far the reproach against the British artillery is well founded. The first thing to be noted in this respect is that the British in the majority of the actions in which they suffered reverse had infinitely

more numerous and powerful artillery than the Boers; so that when the British defects are explained by the insufficiency of their artillery we are reminded of the answer given by the huntsman to his son, who asked what he wanted the shot for. "To kill the bird," answered the father. "But the bullet?" "To kill it deader still." The fact is that in most of the battles of the war it was not the deficiency of the British artillery which led to reverse, but the absolute impossibility of employing that artillery, which as far as numbers and weights go, was plentiful. The British artillery in South Africa was more than sufficient to destroy all the Boers in the field several times over. But, in fact, it seems to have caused scarcely any loss to the Boers at all. The reason of this is obviously the perfection of the entrenchments employed, and the fact that artillery fire against entrenchments has practically no effect. If the failure of the British artillery was due to its inferior quality or defective service we should have expected the Boer artillery, at least, to have caused heavy loss to the British. In fact, however, the Boer guns when turned against British entrenchments caused absurdly small loss. The losses of the 4 months' bombardment of Ladysmith amounted to no more than 250 killed and wounded. The artillery on both sides was indeed sufficiently powerful. But the whole course of the war shows that the first effect of smokeless powder is to make it impossible to determine the exact position of the enemy's entrenched riflemen.

Two facts prove in the most decisive fashion the destructive power of modern artillery, and at the same time its absolute powerlessness against good entrenchments—that is to say, the siege of Cronje at Paardeberg, and the attack carried on by the Boer artillery against Spion Kop.¹

¹ These two attacks offer certain points of resemblance. At Paardeberg the Boers had 4,000 men; the British on Spion Kop were about equal in numbers. In both cases the defenders were narrowly packed into a very limited space. But the Boers fortified Paardeberg, whereas the British, owing to the rocky nature of the ground and other circumstances, found it impossible to raise entrenchments at Spion Kop. During ten days the Boers at Paardeberg were exposed to the bombardment of from 50 to 100 guns. They lost only 179 men, the greater part of whom must have been wounded during the abortive infantry attack. They were thus perfectly protected by their entrenchments, which were inaccessible to projectiles. At Spion Kop, on the contrary, the British were subjected to the fire of only 7 guns, and they were not bombarded for more than 24 hours, yet they lost nearly 1,500 men, mostly from this artillery bombardment. At Paardeberg the British had ten times more guns than the Boers had at Spion Kop, and their bombardment lasted ten times longer. By taking each cannon and each hour as a unit, we find the British bombarded the Boers with 18,000 hours' cannon, and the Boers only 168, yet the Boers lost only 179 men and the British 1,500—that is to say, the British bombardment was 900 times less effective.

Calculated mathematically, the British had 100 times more chance of destroying the Boers at Paardeberg than the Boers had of destroying the British at Spion Kop. Calculating on the experience of Spion Kop, the British artillery at Paardeberg ought to have destroyed 150,000 Boers.

Yet the result of the employment of this vast machinery of destruction, being employed against well-built entrenchments, was to cause the Boers a loss of about 40 men. For it may be assumed that the rest of the Boer losses were suffered, as I have said, during the infantry attack which preceded the investment.

The hope cherished by soldiers of shaking the defenders by the use of explosive shells has also been proved to be a deception, not only in consequence of the difficulties in determining the enemy's position, but still more to the ingenuity of the Boers,¹ which will certainly be emulated in a future Continental War.

But, in fact, the experience of the Russo-Turkish War was such as to make this result foreseen, but as it was not convenient for soldiers to admit that infantry attack had become immensely difficult, and that, therefore, war was practically impossible, it was paid no attention to. "At Plevna," says General Todleben, "we fired on the entrenchments for a whole day in order to kill a single Turk." We find the same phenomenon repeated in the South African War, in spite of all the improvements in artillery and the employment of explosive shells. All combinations founded on the efficacy of artillery for shaking men on the defence broke down before this cardinal feature of the war—the invisibility of the enemy. The Austrian *attaché*, Captain Trimmel, in his lecture on the South African War, says that at a certain moment at the battle of Waterwaalsdrift he stood with the American *attaché* between the lines of the two armies. He could see nothing either of the British or of the Boers, and had it not been for the noise of the firing he would not have believed himself to be on the field of battle.²

These facts upset the explanations which are given of British reverses by attributing them to the insufficiency of the artillery. The material was more than sufficient, and the tactical principles of the British field artillery are in general the same as those accepted in all the Armies of Europe. Employment of masses of guns, unity of fire command, employment of the ground to bring the batteries into action under cover, co-operation and mutual support of the various arms—these are the maxims that hold the chief place in British tactical exercises.

¹ From the reports written in South Africa we find the Boers using the following devices in their entrenchments:—They constructed traverses at short intervals to prevent enfilading, and to limit the effect of explosive shells. Their bomb-proof shelters were constructed after the model of a bottle with a narrow opening, so that a shell could enter only by chance. Other trenches were constructed in a sinuous line, and a shell bursting in such a trench could wound only the two or three men in the section in which it fell. In addition, they dug caves in the fore parts of the trenches which were completely bomb-proof. These trenches were invisible, and masked by brushwood and other objects, so that there were 1,000 chances to 1 against any shell falling in them. Even when a shell did fall, the method of construction was such that its effects were confined to the actual point of fall.

² Captain Trimmel says:—"The fire of the British was generally inefficacious, owing to the difficulty of appreciating distances, for it was never possible to see the enemy's fire (except at night). This want of effect arose also from too high bursting of the shells, sometimes at from 80 to 100 metres, the fragments being then no more dangerous than stones. The lyddite shells were of little use against troops in loose formation, and the murderous effects expected were not realised. The artillery fire was generally opened by the naval guns at between 9,000 and 11,000 paces, and then continued by field guns up to about 4,000 paces, then ceasing. Experience shows that guns which approached closer were too exposed."

The British artilleryists were professionals, and thanks to their national aptitude for mechanics they ought to have been better able to serve their guns than the soldiers of other nationalities. And the military authorities who have devoted themselves to the study of this question declare that three months are sufficient to make excellent artilleryists.

THE SUBTERFUGE OF CONDEMNING THE BRITISH COMMANDERS FOR NOT EMPLOYING TURNING MOVEMENTS.

Still another reproach brought against the British commanders is that they did not employ till too late the tactics afterwards adopted by Lord Roberts of turning the enemy's position. The routinists, who wish to explain the failures of the British by the defects in their training, say that the Boers held themselves upon an absolutely passive defensive, based exclusively upon their fire and material obstacles. They filled their trenches with riflemen, and used their arms with a veritable mastery; but they remained fixed to their posts, had no reserve to send to the counter-attack, no men to repair local defections, such as that which took place at Modder River. All was preconceived in their defence, which consisted merely in barring the road to the enemy, and not in beating him. Any Continental Army, we are told, would have beaten the Boers long before, and the war would have been over long ago, and never have taken the character which it actually did. But it is a great question whether the mistakes of the Boers were not really a part of their safety. First, if instead of putting in action all their rifles, they had kept reserves, they would have diminished the strength of their firing line, and it is the number of shots fired, their *rasance*, and penetration which tell. The Chilian War, moreover, showed the danger to which reserves are exposed from shots fired too high, sometimes more than the attackers. All past theories as to the employment of reserves must undergo a change. As concerns turning movements, even admitting, what I do not wish for the moment to dispute, that there is a certain amount of truth, still the methods recommended have no importance for the war of the future. No European Army would follow literally the tactics of the Boers. By the force of things, having armies composed of millions of men, they will have reserves; only I must repeat that they will be unable to use them in battle, though they will be used to oppose turning movements. General von der Goltz, in his last work ("Krieg und Heerführung"), which appeared only a few weeks ago, and who, therefore, had the consequences of the Transvaal War under his eyes, says that "of a hundred attacks intended for turning movements, experience goes to show that eighty end by coming upon the enemy's front." We see this already at the great peace manœuvres, but it will happen more generally in war.

The South African War furnished us with examples of this situation before the superiority of the British became overwhelming to a degree

impossible in Europe.¹ But if both frontal attacks and turning movements are impossible in Europe, how can aggressive war be carried out?

RÉSUMÉ OF THE LESSONS OF THE SOUTH AFRICAN WAR AS TOUCHING UPON THE PROBLEM OF A GREAT EUROPEAN WAR.

From what I have already said, it seems to me evident that the lessons of the Transvaal War are applicable to a war in Europe—that is,

¹ In Natal, General Buller had a great numerical superiority. Nevertheless he failed twice in his attempts to turn the Boer flanks in consequence of the presence of strong natural fortresses on their flanks, and in consequence also of the rapidity with which the Boers, on interior lines, changed front, and turned what ought to have been a flank attack into a frontal attack. For Lord Roberts' turning movements to succeed it was necessary to have a force which at the beginning the British did not possess.

After deducting 40,000 men for the line of communications, and making allowance for corps that were under full strength and men in hospital, Lord Roberts had 134,000 men fit for the line of battle. But Lord Roberts, before attempting a movement against Cronje's camp at Magersfontein, which was defended by 6,000 or 7,000 men, had to create an army of 70,000 men, or 10 to 1. All the battles on the road to Bloemfontein and Pretoria were of the same character; the superiority of the attack was always 4 or 6 to 1. The method of attack was always the same. The Boers were bombarded or attacked in front by infantry, and enormously superior forces of cavalry, or, more correctly, mounted infantry, were marched round their flanks to menace their line of retreat and to cut them off, as they had cut off Cronje at Paardeberg. In this fashion the Boer were obliged to evacuate their positions one after the other, after slight losses on both sides. Nevertheless they invariably retired in good order, carrying away their transport and guns, though the latter were heavier than the British guns.

Now, it is clear that such methods could not be employed in a Continental war. In the first place, no Army will possess the enormous numerical superiority which such a method demands, and if, thanks to more rapid mobilisation, a Continental Army enjoyed for a few days a considerable numerical superiority, even if it could turn the flanks of its adversary and surround him, it would be impossible to starve him into surrender or destroy him. At the end of a few days it would find itself in the position of the Boers at last before Ladysmith, who found themselves forced to raise the siege and decamp before the threat of the British forces marching to the relief. But this change of situation in Europe would take place in a few days, instead of, as in Natal, a few months. Another difficulty also stands in the way of turning movements in Europe. If Lord Roberts was able to turn his great numerical superiority to profit in order to turn the Boer positions, it was because he operated on territory where the defensive found no protection for their flanks. In Europe the situation will be very different; the fortresses established on all the frontiers, and the natural obstacles, constructions, hedgerows, and walls will permit an army numerically inferior to occupy positions which it will be impossible to turn. Thus, just as the South African War proves that frontal attacks without an impossible superiority of numbers are impracticable, it proves no less that successful turning movements can be made only under conditions which are rarely found in Europe, that is to say, a large initial numerical superiority, and the absence of fortresses or strong natural defences on the defenders' flank. The resources and conditions of which Lord Roberts availed himself in order to turn the Boer positions do not exist in Europe.

of course, if they are applied with due prudence. The local conditions, whether climatic or topographical, and the great distance from the base do not prohibit this. None of the explanations given of the long duration of the war and the serious consequences which it has entailed for England—that is to say, the supposed imperfections of the British soldiers in the conduct of the war, want of endurance and of courage, insufficiency of material, defects of the artillery, and the too late employment of turning movements—are in any way justified. I do not believe that any other Army in the same condition of inexperience, guided by philosophical speculations drawn from manœuvres and the wars of the past, would have done any better; on the contrary, it is probable it would have entirely failed. It required the great experience acquired in foreign campaigns, as well as the immense material resources of England (and let me say, also, the moral qualities of the English people in supporting difficulties without murmuring and without internal revolution) to arrive at even the point at which England is at the present moment.

But whatever be the opinion upon this question, it is evident that the main lesson to be drawn from the Transvaal War is that it is absurd to suppose that, whatever combinations be formed by any State or alliance of States, the results of a war of aggression can be regarded as hopeful against any great Power, or still more so against an alliance of Powers. That this lesson has been appreciated at any rate in some quarters in England is shown by Mr. Brodrick's declaration, that the result of the Transvaal War showed that troops holding themselves on the defensive, and armed with modern weapons, can resist a long time an enemy much more numerous, and inflict upon them terrible losses.

I will attempt briefly to indicate the reasons which have led to this state of things. At first there are the improvements in armaments, the introduction of smokeless powder, all turning to the advantage of the defence.¹ The consequence of this increase of the power of the

¹ The Transvaal War furnishes lessons very precious in all its phases: first, when the British forces were numerically inferior, and the Boers took the offensive; secondly, after the stoppage of the Natal invasion, when the British with superior forces attempted a counter-attack; and, thirdly, at the time when the British forces were ten times greater, and the war took the character of a national struggle. In fact, what have we seen? When the war broke out in October, 1899, the British forces in South Africa did not amount to more than 22,000 men. These troops were scattered over the whole surface of an immense semi-circle, extending from Northern Natal along the frontier of Cape Colony to Mafeking on the western border of the Transvaal. Strategically, the Boers had the advantage of holding the inner line, and they were able to concentrate their forces in order to attack the British. The exact number of their forces to this day is not known, but they reached at least 35,000—that is to say, 60 per cent. more than the British, and probably were 45,000, or 100 per cent. more. Most of these men had been mobilised and sent to the frontier before the beginning of operations. According to the ancient conditions of war, they had therefore every advantage. Nevertheless, their invasion of the British colonies failed utterly. They, indeed, gained many tactical advantages, but these were only in isolated battles where the British took the offensive. Strategically, the Boer invasion was stopped everywhere

defence is that the duration of a war must be very great. It must be foreseen that any attempt at invasion would fail infallibly in con-

when it came into contact with inferior numbers of British behind entrenchments. The invasion of Natal was stopped at Ladysmith by an inferior British army. In the west the Boers were stopped at Mafeking and Kimberley. In Cape Colony they were stopped at Colesberg and in the Stormberg district; and yet on each of these theatres of war they had at first superior numbers. This check to the Boers must be attributed to one of two causes: either the inferiority of the Boers as soldiers, or to the inherent difficulty of attack under modern conditions. Now the fact that the Boers were not on the whole inferior to any disciplined Army is attested not only by the British themselves, but also by the disastrous reverses suffered by the British when they took the offensive. We are, therefore, compelled to conclude that the first period of the war confirms my thesis that modern arms have rendered attack much more difficult than it was formerly.

But if the failure of the Boer invasion proves this difficulty of the offensive, the second period of the war is a still better proof. While the Boer invasion was being stayed by inferior British forces, considerable reinforcements were arriving from England, and a few weeks after the outbreak of war the Boers were largely outnumbered. Convinced of the impossibility of continuing their invasion they took up strong defensive positions to the south of the besieged towns. In these positions they were attacked again and again by British forces much superior, and, nevertheless, they not only maintained their positions, but repulsed the British with heavy losses. In Cape Colony they drove back General Gatacre, and stopped the British advance for three months. At Magersfontein they defeated superior British forces in such a way that no further operations were undertaken in the district until the arrival of reinforcements had given the British a superiority of 10 to 1. In Natal they repeatedly repulsed General Buller on the Tugela. At Colenso the British had 20,000 men, and the total number of Boers in Natal does not seem to have been more than 15,000, of whom a large number were engaged in watching Ladysmith. According to Boer reports the British had a superiority of 3 to 1. Yet three times they drove much superior British forces back over the Tugela, and it was only when a large number of Boers had been withdrawn to the assistance of General Cronje that the British advance was continued successfully. On 6th January the Boers made a desperate and well-prepared attack on Ladysmith, which failed, as all frontal attacks failed in this war. But everywhere they defeated the efforts of superior British forces to dislodge them from their positions.

The first two periods of the war teach, therefore, the same lesson. In the first period the Boers, with a numerical superiority, attacked inferior numbers of British, and failed entirely. In the second period the British, with a considerable numerical superiority, counter-attacked with the same result.

All these facts taken together point only to one conclusion, and that is that the difficulties arising from the improvements in modern arms have rendered attack almost impossible even with a great superiority of forces. This superiority the British possessed, but the conditions could never be repeated in a great European war between Great Powers. In fact, while the Boers at once sent all their men into the field the British, thanks to the resources of their vast Empire, were able to augment their forces, so as to ensure a superiority in numbers far greater than would be possessed if all the Great Powers of Europe were to form a coalition against a single one. Towards the middle of February, 1900, when the Boer forces were probably reduced to 30,000 men, the British had in South Africa an army of 200,000, that is to say, in the proportion of 7 to 1. Yet incredible as it may seem to one who has confined his study to the wars of the past, it is, nevertheless, true that in spite of desperate efforts the British never occupied a foot of Boer territory until they possessed this superiority of 7 to 1. Then only they were able to advance with success; and they required 60,000 more men to complete the

sequence of the economic and financial perturbations which would follow in its train. The invader, while still having enough men and arms, must

invasion and to begin the third period of the war. But this period is not less instructive than the two preceding as to the advantages of the defensive. The British, though they lost several isolated detachments, seemed to triumph everywhere. An army of 60,000 men was able to deliver Kimberley and to capture Cronje's force, though, indeed, only because Cronje had committed unpardonable mistakes. From Kimberley the march was continued to Bloemfontein and then to Pretoria, which was occupied in June nine months after the opening of hostilities. During this advance the Boers were always in enormously inferior numbers, and they were forced to evacuate position after position; but they succeeded in inflicting some loss upon the invaders, and always managed to withdraw their men and guns in safety. After Cronje's surrender the British never succeeded in making at one time a large number of prisoners or in inflicting heavy losses upon the Boers. The war, therefore, we see never entered upon the decisive path expected by military men, who judged simply by the experience of past wars in which a serious defeat or the loss of a fortress changed the face of affairs, and allowed the victor to march straight into the enemy's country. Four or five times, notably after the capture of Cronje, the occupation of Bloemfontein, the entry into Pretoria, and finally after the successful march of the British to Komati Poort, the British critics announced confidently that the war was over. But these critics neglected two factors of the new situation, the one a military and the other a psychological factor. The military error was the more excusable. For judging by the past the critics thought that a beaten army and occupied capitals must lead to the submission of the enemy. They left out of view completely the fact foreseen by those who had studied the effect of improved armaments that these weapons not only make the defensive much easier than before, but are extremely favourable to the carrying on of partisan warfare, making the nation *en masse* much more redoubtable than formerly. Thus a year after the occupation of Pretoria we see the Boer army, which does not now number more than 15,000 men, holding the field against 250 000 soldiers, in a country which is called conquered, but is actually unconquered outside the railway lines, and these handful of Boers have made it impossible to set up any kind of civil administration in the country.

Such was the military delusion. But there is a perfect analogy between the military and psychological delusions. For while the military experts ignored the fact that smokeless powder and improved fire-arms had rendered the defence much easier than before, the political experts ignored a prime factor in the social development of the last century—that is, that the increased spirit of nationality which is shown everywhere makes an armed nation much more dangerous than before. The political experts ought to have foreseen from a moment's study of this factor that the Boers would display the highest ardour in defending their independence. Now the refusal to treat with the Boers, as ought to have been done after the occupation of Pretoria, changed the character of the war entirely, and gave birth to the new period of defence, the fourth of the war. The national war had begun.

The advantages of the defensive are still more manifest in this period than in those which preceded it. Everywhere we see handfuls of Boers capturing isolated British detachments, seizing convoys, cutting railways and telegraphs, and making the provisioning of the British so difficult that many have been on half rations for a great part of the time.

The British, as the *Times* correspondent expressed it a few months ago, can no longer expect a single movement or even a great victory to put an end to the war. Individuals may surrender, but there will always remain a certain number of Boer commandoes who will evade defeat. But they will nevertheless continue to harry the British forces until worn out or exterminated.

conclude peace. In my book on "The War of the Future" I pointed out the reason why this must be, and no serious refutation has yet been attempted. On the contrary, military men in some quarters have begun to declare the same thing. Thus, in the fifth edition of his remarkable book, "The Nation in Arms," General von der Goltz adopts this view, saying:—"We may predict that wars can only terminate by the complete destruction of one, or the exhaustion of both combatants." In 1897, another high authority, the Austrian General von Kotié, expressed the same opinion, saying:—"Is it possible to keep for a long time such great numbers of men under arms without plunging the civil population into misery?"

If we witness nothing of this kind in England, it is, of course, that the conditions are exceptional. It must be said that no country with conscription could carry on such a struggle. England sends Volunteers; very different would be the situation of a country with conscription. The despatch of troops fresh to Africa does not influence appreciably England's economic state. Production and circulation follow their paths. But in a conscript country, on the contrary, a great war, which should last as long as many writers like Moltke, Leer, Blume, and von der Goltz have predicted, would probably produce revolution; and it may, indeed, be asked whether England would have not met with other, but still greater, difficulties if she had possessed a Conscript Army.

I cannot pretend to dictate to you concerning the details of the South African War, which you know much better than I. But what do they prove when taken together? That the progress in the art of war which has taken place in the last ten years is greater than that which had taken place since the invention of powder, and that these improvements have tended to stultify themselves by producing a deadlock in the realisation of the objects of war. The circular convoking the Hague Conference contains an affirmation of this fact, which it would require great levity to contest:—"Millions are spent on the construction of engines of war of an unheard-of power. These engines which pass to-day for the last word of science will be put aside to-morrow as the consequence of some new discovery in this domain."

The further object of my lecture will be to attempt to prove to you that even to-day, putting aside probable improvements in the future, no results can be obtained in a great European War, and in consequence war has become impossible to wage decisively, and can only lead to fatal cataclysms and provoke revolution. And that England, while creating the most formidable army for interference in a Continental war, would obtain absolutely opposite results. England has no need for a formidable army that would be nothing but a criminal toy, which would waste the savings of the classes who are the most necessitous of the country, and would awaken a different spirit in the nation. The spirit of independence and initiative which has made the greatness of England would be weakened and diminished. England would only be in the position of playing the game of Germany which, as Lord Rosebery has justly said, after her military victories of 1870 prepares for a more

important victory in the commercial domain. In such a war the army put into the field by England would not weigh an ounce in the scale. The *folie des nombres*, as Count Caprivi expressed it, which has made armies numbering millions of men which can never be employed. But as economic resources must decide a war, England would weaken herself by creating a great army, and by that very fact would diminish her importance. For a defensive war England has no need of an army in the old sense of the word and for Colonial purposes her army must be specialised.

So far I have only attempted to show how far the lessons of the South African struggle might be taken as applying to the case of a great war in Europe, the chief lesson being that the improvements in arms, and the corresponding changes which have taken place in tactics, have given a great advantage to the defence. I deal now with the much more important question of the consequence of this fact, my conclusion being that, although any of the great Powers on the defensive should mobilise only a part of the forces which compulsory service puts at its disposal, the attacker could not attain his object. But this question, primarily a military one, involves also the most important economic problems, because if it can be shown that war will be long and indecisive, we must consider its effect upon civil life. The chief phenomena of this condition of things would be a rise in the price of all the necessaries of life, a consequent panic among the population, the loss of private incomes and public credit. But as this internal disorganisation is incompatible with military endurance, we are driven to the conclusion that before military successes can be gained which will be sufficient to impose peace on the conquered, the bankruptcy of internal resources must put a stop to the war.

I have already dealt with this question at length in Germany, one of the countries most directly interested. In the *Deutsche Revue* I published an article entitled "The Lesson of the Transvaal War for Germany," pointing out these facts. In one of the following numbers an officer of the General Staff published an article in which he called my arguments "Trugschlüsse" (false conclusions), in view of the fact that the lesson of the Transvaal War cannot be applied to Germany.¹ I have already given

¹ It is worth quoting a characteristic passage from this reply :—

"No one will accept as a model the ill-advised attack formations of the British, and the reverses they suffered therein were actually foretold in advance by military experts who knew their tactics.

"A further deduction made by M. de Bloch is, that the guerilla warfare now in progress in South Africa would, if adapted to the circumstances of an European country, make a decisive result impossible. But the action of the French *franc-tireurs* in 1870 did not make a decisive result impossible. And improved weapons cannot make much difference in this matter, as I hold it to be impossible for the whole of a highly civilised nation like the French to carry on a guerilla war. There is a difference between the simple conditions of life in the Transvaal, and the highly developed social organisation of Europe, where we cannot find a nation able to endure patiently the burdens, privations, and sacrifices of such a war. The longing for peace becomes at last so strong that it outweighs everything else. . . . For the unprejudiced observer

what seem to me good reasons why the lessons of South Africa do apply, and in due time I shall point this out to my German critic; but seeing to what a degree the Continental soldiers try to disfigure the facts of the South African War, and to forge arguments which have absolutely no other use than to misrepresent the facts, as, for instance, by citing German efficiency in China, and also in view of the fact that in England articles have been published by eminent soldiers and politicians declaring that the South African War teaches nothing, I hope, in view of the gravity of the subject, you will pardon me for casting a general glance at the real way in which the lessons of the South African War will apply in the case of an European struggle.

THE CAVALRY QUESTION.

The question of the use of cavalry for irruptions and reconnaissances rises first. Three-quarters of European cavalry forces will be on the frontiers for the purpose of making incursions into the enemy's country. Two hours after the declaration of war the cavalry will have taken the field, and, on the other hand, measures will be taken in order to prevent destruction by cavalry. But whatever be the result, there is no doubt that the hatred unchained by such incursions will have an effect upon operations, as one of the best means for the better preparing of the ground for a national war. At present we see many military authorities declaring that the sacrifices made in order to increase the number of cavalry are not well founded.¹ The South African War confirms entirely this opinion. For reconnaissances they failed, and for charges they were found useless. Reconnaissances such as those projected by von Moltke in his plan of campaign seem absurd nowadays, when the effect of rifle fire is so great that Lord Roberts, as he lately told us, had to increase the distance between the files in infantry attack from 6 paces to 10 and then to 20.

In regard to reconnaissance, the Transvaal War shows that the thorough reconnaissance of the enemy's position can only be the business

only one deduction can be made from the Transvaal War, the *complete unfitness of the English military system*, witnessed years ago by military authorities, who predicted what would happen if it were seriously tested. But when M. de Bloch, completely mistaking the difference between the English and German Armies, utters the opinion that 'There will be a decline of stamping about the drill ground, which is usual in the German Army,' we may remind him that life in the German Army gives something else to the men, namely, *training*, which is not to be had in the English Army. Drill and training have made our Fatherland great, and have just brilliantly stood the test in China. And, if need be, in the future they will gloriously endure still more serious tests."

¹ The German official *Jahresbericht*, for 1900, tells us that "The idea is gaining ground with regard to the proposed incursions of great masses of cavalry into the enemy's country during the first stage of mobilisation, that the gain would not be equal to the price paid. With a well-organised and active frontier guard, flying columns could succeed in drawing hostile cavalry into positions where it would be enveloped and broken up, by depriving it of rest and food, so that the cavalry thus sacrificed would be lost for subsequent operations."

of scouts working on foot, who will by a stealthy approach obtain the information which is indispensable for the arrangement of an attack that is to have any certainty of success. For reconnaissance, cavalry has undoubtedly lost its old rôle. But attacks of cavalry in mass belong no less to the past if we may judge by South African experience. Before that war broke out calculations had been made that if a cavalry attack by 2,600 horsemen was made against a battalion of infantry from a distance of 800 metres, they would be destroyed by the time they got to within 100 metres. In South Africa, the British cavalry were never able to make such attacks; and since troops on the defensive in a future war will be, as the Boers were, always entrenched, we must eliminate all cavalry charges, as far as the scheme of attack is concerned.

Against artillery, cavalry attacks seem equally impossible. To be effective, they must be in the ancient formation, and in such formations shell fire, shrapnel, and machine guns must cause such losses that the remnant will be forced to retire, if any remain. Meetings of cavalry with cavalry will also probably take place no more. As to the use of cavalry by the defenders, it may be asked why, when having put his troops under good cover the defender is certain of victory, will he expose his cavalry in counter-attack?

It seems also that cavalry has lost its rôle in the pursuit of a flying enemy. In South Africa battles were practically never decisive in the ancient sense of the word, and the British cavalry, which is certainly among the best, was never able to carry out movements which would oblige the Boers to abandon their guns and surrender *en masse*. It cannot be doubted that the same phenomenon will be repeated in the future, since it arises from a permanent feature of modern battles, the great distances between the combatants. Cavalry, indeed, rendered great services in South Africa in the carrying out of rapid movements in turning the enemy's position, but the actual fighting was almost always the work of men on foot.

And since neither reconnaissances nor cavalry attacks are feasible, and the principal use of cavalry is the making of quick marches, the long service and present methods of drill exacted from cavalry are useless, if only measures are taken to enlist for cavalry regiments men who are accustomed to horsemanship.

From all this the conclusion must be drawn that neither the training nor education of the German or any other Army can change these facts as to the new condition of cavalry in warfare.

ARTILLERY.

In the use of artillery the Transvaal War furnishes the most important lessons. Before that war it was axiomatically admitted that without the concurrence of artillery, good infantry even very inferior in number could not be dislodged from a strong entrenched position. But South Africa in this respect has taught a lesson. It tells us first that it would be absurd not to assume that infantry on the defensive will always *entrench*, from which

we must conclude that the conduct of the battle depends largely upon the artillery. But the action of artillery in South Africa has been, in general, absolutely contemptible against an entrenched enemy. It never caused heavy losses, obliged the enemy to disclose his position, or shook his *moral*. Yet in these battles the attackers had from four to twenty times as much artillery as the defenders, a superiority which no European Army would possess:

All through the South African War the only example of heavy loss from artillery was at Spion Kop. There, indeed, the British suffered terribly from the fire of the Boer shrapnel. But that battle is itself the best confirmation of the lesson I have drawn as to the valuelessness of artillery against entrenchments. For at Spion Kop the British did not entrench, and were crowded together on a small hill-top without any protection. Therefore they lost enormously. But in every other battle artillery was almost without effect, being used against good entrenchments.

The old theory that a great superiority in artillery is sufficient to silence the fire of entrenched men, and prepare the way for infantry attack seems to be an illusion. There is no exaggeration in saying that British batteries were often engaged against separate Boer guns without succeeding, after a cannonade lasting hours, in silencing one of them permanently, or even appreciably improving the conditions of the infantry attack. The tactics adopted by the Boers of shifting the position of their guns, and the slight effect of explosive shells, seem to explain the powerlessness of artillery in engagements.¹

The CHAIRMAN:—It is our usual practice to carry on a discussion after the lecture, but as we have not completed what M. Jean de Bloch is going to tell us, as it is rather late in the afternoon, and as, further, those of you who have followed the paper will have noticed that some of the most valuable matter is in the notes, which it has not been possible to read in connection with the text, we propose, unless anybody is ready at this moment to say something that may be of value, to postpone the further part of the lecture and the discussion till next Monday.

¹ As for the use of shrapnel, the British had excellent conditions at Paardeberg. They had 100 guns in commanding positions, and were unopposed by the enemy's artillery; the ranges were exactly known, and the fire directed from a balloon. Yet the entrenched Boers lost no more than 179. The accuracy of the fire is certain, for shrapnel cases were found scattered freely within from five to ten paces of the Boer works. Shell fire was equally ineffective, as shown by the losses, and the ease with which the Boers held to their entrenchments.