

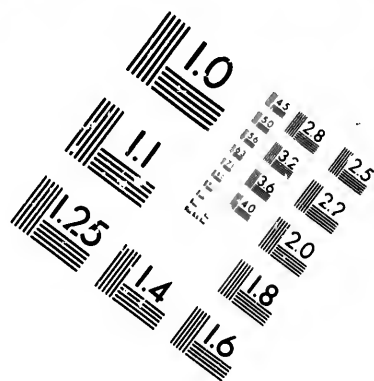
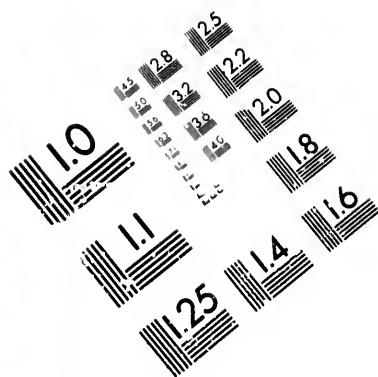
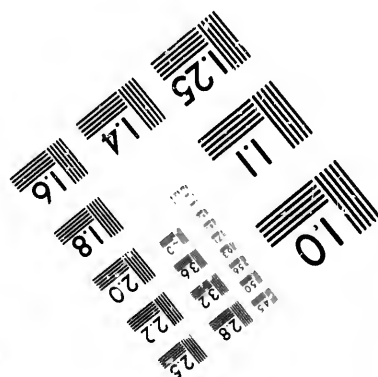
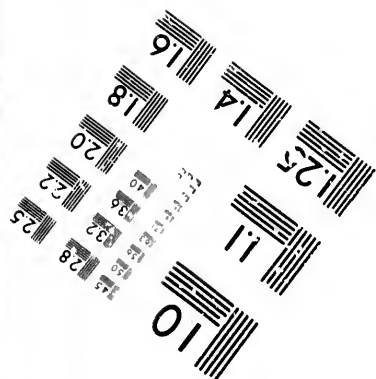
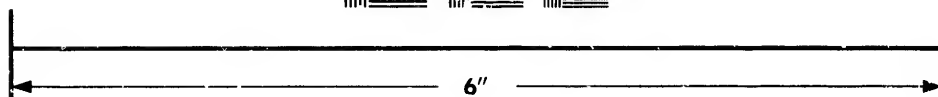
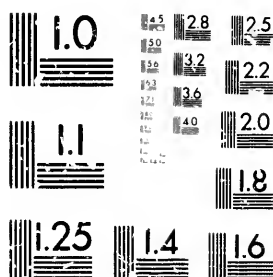


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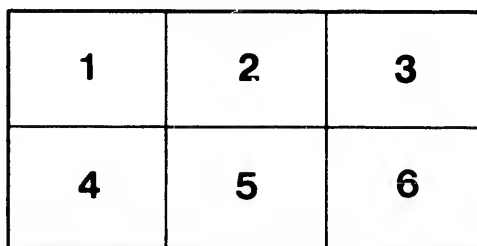
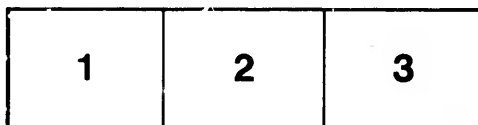
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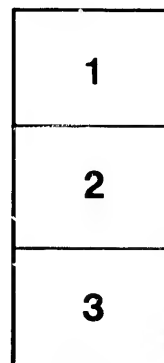
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MODERN WAR.

REMARKS OF ABLE OFFICERS.

MAJOR DE L. DE S^t-H. D'ENTRAGUES.

Major (Mott.) H. M. Reserve Forces Canada

GENEVA.

PRINTED AT THE OFFICES OF THE SWISS TIMES COMPANY (LIMITED).

1873

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Instead of centralizing military administration, Prussia has worked out the principle of decentralization and definite responsibility of individuals; and instead of leaving all to be done at the last moment, in a hurried and perfunctory manner, there is not a single step in the mobilization of her forces which has not been arranged beforehand. There is nothing new or startling in the Prussian idea. It is but the principle of division of labour carried out in the organization of an army as Adam Smith described it to be in a pin manufactory. Each official has a definite duty to perform and definite instructions how to perform it, so that no meddling is required from Berlin, and no uncertainty exists in the various districts. The War Office knows to an hour when each *corps d'armée* will be ready, and where each Division and Brigade will be with its General who knows his officers and soldiers, and who is served by a Staff equally well informed.

Recruits in Prussia have to serve three years in the active Army, though, for economical reasons, they are generally sent home some months before the expiration of their term; then four years in the Reserve, after which they fall for five years into the Landwehr, and need no longer expect to be put into the first line in war except under extraordinary circumstances. The Landwehr, together with young untrained

men, have generally enough to do on the lines of communications, where they are being taught all things necessary to enable them to take their place in the front line should their help become necessary. The great fact is that the active regiments are always associated with their Landwehr battalions, their reserves, their depots of troops, arms, clothing, transport, and supplies of all kinds. Not an article of equipment has to be sent from Berlin or elsewhere. Everything they need is to be found close at hand in their own districts. There is no choking of railways with men hurrying to and fro before they can be equipped. Every commander of a district Landwehr battalion knows who are the men to be called up instantly from the Reserve to complete the active regiments, and if any of them are not close at hand there are letters already written to recall them, enclosing railway orders for their use. Their clothes and arms are ready for them when they join, and they are then within a short distance of their regiments. All the transport of each Corps is present in its district. There is a definite plan to supply the extra horses required. In a given number of days, known beforehand, each Corps is certain to be perfectly ready for active service and in possession of every requisite for a campaign; while arrangements have been made for the supply from its districts of all things likely to be expended during a war, whether it be short or long. The district feeds the children of its soil with whatever they cannot obtain in the enemy's country, and assumes at once the charge of the wives and families left behind. In the district, after the troops march, the remaining reserves and recruits are being taught their duties as steadily as in a time of profound peace, and a regiment calls these to its standard as soon as it has lost by wounds or sickness one-tenth of the men who marched with it. In a very few days after the War Office has telegraphed the order to mobilize, the country produces

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a number of small armies, each perfectly prepared to act instantly as an independent body or to join the others at a place ordered. Moreover, the plans for every conceivable campaign have been drawn up during the leisure of peace; the railway arrangements have all been made, and only need one word from the Chief of the State to confirm the projects of the General Staff. In fact, the various departments have done their work so well in peace that the order for war puts upon them no stress whatever.

The tactical system of the Germans disclose a large experience of the past, an intelligent appreciation of recent changes, and the results of continual efforts to make the army a perfect instrument. Thus the value of one of Napoleon's inventions — the separation of a national force into a number of independent units, each capable of acting by itself — was fully understood and carefully maintained; but instead of being formed into one army, obeying a single Commander-in-Chief, a certain number of *corps d'armée* were aggregated into distinct armies, each under a responsible leader, the immense masses of modern times making this arrangement obviously expedient. Thus, too, the principle of giving subordinates in high command great freedom of action while carrying out a general scheme, observed by Napoleon towards his Marshals, was faithfully followed by Von Moltke: but even more ample liberty was allowed, in consequence of the vast proportions attained by war in the present day. Celerity, absence of complications, and self-reliance were thus promoted; and though too much is not to be made of a mere matter of organization, the consequences were of undoubted value. Coming to tactics in a more technical sense, while the leading rule was steadily adhered to that the three arms should assist each other, and perform their proper functions in the field, the greatest care was taken to adapt them to the exigencies and uses of modern war, and to accommodate

their action so as to fall in with the changes wrought by modern inventions.

Strategy is a science which is constantly in progress, and which always takes into the reckoning the changes in the laws of arms in more recent times, as well as the utilization of the new improvements in the means of communication — such as railroads and telegraphs.

The distinct formal movements by which an army is made to assume throughout a similar or corresponding formation are no longer possible in presence of modern weapons. It is absolutely essential in order to diminish the disastrous effect of the present arms that each small section of an army should be moved in such a manner as the local circumstances impose. An attack in column is no longer possible, and an attack in rigid line — except for short distances — *never was possible* against properly posted enemies; and now, except under the very rarest circumstances, attacks cannot ever be restricted to short distances. If an army, then, is to attack at all, it must do so in skirmishing order, with a proper system of supports and reserves. This mode of battle implies an increase in the space occupied by a given number of men. In proportion as the space occupied by a company is increased, the difficulty of having men under control is augmented. Hence drill discipline is more necessary, and the combination of the most entire obedience with the greatest intelligence more desirable, than ever. It is obvious that it is now impossible for an officer to bring the same number of men under his eye as he could when they were more compact, and yet rapidity of movement and quickness in conveying and obeying orders are of greater consequence than before. The consequences of outflanking or of breaking the line are more serious than they were.

Now, as heretofore, and perhaps more than ever, the fate of battles depends on infantry; but the action of the other

arms must not be forgotten. The French generally threw away their cavalry in dashing but utterly hopeless charges; and did not employ it enough in reconnoitring; the Germans followed exactly contrary rules.

The cavalry divisions covered their army and its marches as with a veil. Even before crossing the frontier the cavalry divisions in the centre of the army were pushed to the front. At the first entry into France they came upon the enemy at Spicheren, at Weissenburg, and at Woerth. Immediately after these actions the cavalry division again led the way. The enemy's cavalry was, on the contrary, very inactive. The French generals did not appear to understand the employment of cavalry after the German fashion.

This double use of horsemen acting as widely-spread *éclaireurs*, and concentrating into immense masses when needed, is best obtained by the Prussian *corps d'armée* organization, with its divisions of Batteries and its Cavalry detachments each attached to a specific Division, so that the little army is complete in itself with some 30,000 men and 90 guns.

It must be laid down as a rule that on the cavalry lies the obligation under all circumstances to watch and gain information concerning the enemy at great distances. But it is the business of the leader to carry this out with a requisite economy of the powers of this arm; for he who considerably weakens his cavalry before the first engagement cannot expect anything from it either in or after it.

The stronger, however, the body of troops destined as coverers, the further it can be pushed forward, and the greater will be its sphere both for gaining information and covering.

The cavalry should always form the head of the column even in the mountains; but in this case their strength should be limited. Their business should be only to secure and give intelligence; thus patrols would be the extent of their employment on such a ground. Some dragoons should always

be at hand to obtain quickly information of anything which may be observed on the flanks, which is often necessary on the march. Good riders on stout horses, with the confidence which these conditions afford, can do much.

The greater the distance that the view is unbroken over the ground, the more numerous will be the patrols which will be required to be sent forward ; and in this case they will require a support of their own arm.

The Artillery should be accustomed to act in masses, or to take up extended positions according to the ground, and nothing can be less effective, pretty as it is, than a line of Infantry with its Batteries all ticked off, gun by gun in line firing right in front. The real power of this mighty arm is most seen in concentration of fire, and in the combination of numerous batteries on a decisive point or two in the field.

If it was wished to open the battle in earnest, no time was lost by the Germans in deploying a strong force of Artillery, which generally took part in a connected line at the distance of from 2,000 to 3,000 paces, endeavouring by its fire to cover the further deployment of the main body and to shake the enemy. The division Artillery, and the greatest part of the corps Artillery, of the army corps engaged, were usually employed for this purpose. The Artillery secret had again been discovered, and the arm had become conscious of its strength. The German Artillery was employed on the largest scale in this manner at Gravelotte and Sedan. Long lines of guns kept up a fearful fire upon the French positions, shattered their formations, and silenced their batteries. We see the French Artillery, utterly unmindful of old Napoleonic traditions in general, not bringing forward sufficient force to meet the massive array of German cannon. We observe no particular cohesion in its formations and manœuvres. They worked generally by single batteries ; rarely were they able to form a line of guns equal to the German in extent.

The Artillery being the arm which can damage an opponent at the greatest distance, its mass must therefore come into operation before the weight of the Infantry is pushed into the fight. The Artillery should never be placed too far back in the column of march, it belongs rather to the front. In the situations in war on a large scale, individual batteries cannot manœuvre of their own accord, as frequently happens in small detachment exercises. Where 12,000 Infantry are striving to attain one object, the Artillery distributed to them should not seek to act on its own account, but on the contrary it should contribute to the attainment of that object with its united power, which is possible only, when the batteries do not act independently, but obey one will.

In war on a large scale, employing the batteries in a mass is the rule; their isolated employment is the exception. This principle must be rather the more maintained, inasmuch as the actuality frequently renders the exception necessary.

In all cases the Artillery of the advanced guard comes first into action and has to keep up its fire for the greatest length of time; and therefore every officer in command would, without doubt, prefer to employ the battery which carried the greatest number of rounds, and that is the 4-pounder battery.

To give a special escort to the Artillery on the line of march is wholly superfluous, since it is in direct communication with the other arms, divisions marching directly in front and in rear of it.

Infantry should not think the protection they get from guns is to be measured by their proximity, and should not feel they were abandoned when the guns move off to better positions.

Detaching guns from a battery must be considered as altogether exceptional, the rule being to keep the whole

together; in open level ground the battery of the advanced guard should always march united.

The German Infantry knows how to adapt itself quickly and safely to all possible positions, because it not only manœuvres on sound principles, but because it is accustomed to act according to the circumstances and situation of the moment.

To obtain the results of arms of precision, the old order of the German battle was modified in an extreme degree—battalions were forced into smaller units, stiff lines and columns were almost given up, and Infantry were trained to break into dense swarms of skirmishers as much as possible, to take any advantage of cover, and to manœuvre rapidly upon the field; while attention was paid to improve their fire, and to make them steady and self-reliant. Most properly, too, though modern small arms, were known greatly to favour the defence, the vicious principle was carefully eschewed of trusting to a passive defensive; and it was sought to overcome the difficulties of attack by quickness of movement, by sureness of aim, by making use of local accidents of the ground, and by combining in all instances, an advance on the flank with advance in front, so as to harass and perplex the enemy.

The German line, as it advanced to attack, presented formations of eager skirmishers who made use of every accident of the ground to conceal themselves and close with the foe, and maintained a deadly and continuous fire, though in loose order at a near range; and it always overlapped and outflanked the French, twisting round them in a destructive coil as they vainly endeavoured to stop its approach.

The loose order of wide-spread skirmishing which characterizes the Infantry tactics of this day has been compared to "the battles of savages," and it has been supposed that the effects of discipline and of acting in concert would be less important at the present day than in past times.

The contrary, however, is the case; experience has shown that long training is required to make use of modern small arms; that the advantage of union and combined practice is just as marked whether men fight in thin formations or in dense masses; and that the difference between raw and disciplined armies is at least as great as it was of old.

The German line of skirmishers approached the enemy by a succession of rushes. This was either done by taking advantage of cover, or else they would advance about 100 paces at a run, throw themselves down, and then run on again. Much address was displayed in this manœuvre. Although the Germans were frequently obliged to make front attacks, the principle of the turning movement always asserted itself. So fearful are now the effects of fire that direct attacks present many difficulties, and therefore demand so much time as to give the adversary leisure to reinforce the threatened part of his line. Thus turning tactics are fully justified.

The German front attack was usually combined with an attack in flank, made by a turning movement. It has yet to be seen whether such tactics, any more than strategy of the same kind, will succeed against a well-trained enemy who makes a vigorous counter attack: but they were very successful when encountered only by troops standing passively on the defensive. The turning movement for the flank attack makes the attacking line exceedingly weak, and gives the enemy a favourable chance to break it; in fact, a great superiority of force, which on most occasions the Germans had, is the true justification of this system.

It is self-evident that when one army so completely surrounds another the attacking line must be very thin in many places. According to old rules the best way of meeting such a move would be by a vigorous attack with a concentrated mass upon some point of the necessarily thin and extended line of the enemy.

The French Infantry generally received the German attack behind field intrenchments; and though they destroyed the enemy in thousands, they frequently allowed themselves to be turned, made no resolute counter-attacks, and ended by abandoning the ground.

In spite of the drawbacks (caused by the fire of modern small arms) the French might have tried the effect of an attack upon a point of the line which was surrounding them. But their tactics were entirely deficient in the offensive element on a large scale, by which, with inferior numbers even, you may gain great advantages if you are in a position to make rapid concentrations and advances on decisive points. Partial counter-attacks on isolated points of a battle field, such as the French made frequently, and with great bravery at Sedan, can only have a momentary effect.

The German Infantry, when on the defensive, did not open fire till the enemy was within 300 or, at the outside, 400 paces.

An attempt to break through investing lines with anything like a large army is a matter of extraordinary difficulty; the case is quite different from that of a garrison escaping from a fortress; and the proverb "*ville investie est ville perdue*" is more than ever applicable in modern war.

It is a very difficult matter to sally forth from a fortress even against unfortified positions, for the investing force has this great advantage, that the besieged can never take it in flank, being themselves surrounded by the position of the besiegers. They must, therefore, attack the latter in front, to which the breechloader opposes great difficulties. Besides which, to deploy considerable masses of troops among the works of a place, and to make them debouch from its gates requires much time and a great power of manœuvring.

A plan which is destined to envelop and overthrow the enemy both in front and on both flanks can only be undertaken

with a numerically superior force, and even then, can only be carried out by leaders who can rely upon the punctual execution by *all parties* of their share in the complicated dispositions.

Plans of this sort have frequently been proposed in former wars, but have never been executed as they were in the late campaign; they never can succeed except with perfectly formed and disciplined troops under efficient and distinguished leaders, a fact which has been clearly proved by history.

The frequent failures of concentric attacks formerly led to the opinion that such operations were altogether inadvisable. The danger to the aggressor is certainly very great, even, if only one part of the army machine should fail to perform its share in the general plan. The lines on which the several divisions of the force march are all converging, and only intersect each other on a point the possession of which they must strive for; the danger lies in the possibility of the separate parts of the attacking force being fallen upon and defeated in detail.

It is then very apparent when the march takes place against an enemy, the several divisions of the column cannot move in immediate sequence one close behind the other, as in that case any mishap to the head of the column would throw the whole into disorder. An advanced guard then should be selected, which in the larger divisions should consist of different arms, and possess sufficient intrinsic solidity and independence to hold its own if attacked by the enemy, until time is afforded for the rest of the column to draw up.

In order that the whole body should not have to form up on account of every small body of the enemy, but should be permitted to pursue its march undisturbed, it is so arranged that the main body shall follow the advanced guard at a certain distance. A wide distance therefore, between the

advanced guard and the rest of the troops, should always be maintained.

The question now is, whether there should be any considerable distance between other portions of the troops—such as between the main body and the reserve, which once was the rule.

That a leader in battle requires a reserve up to the moment when he will be obliged to employ it, is self-evident; all troops engaged, are at the best only conditionally in the hands of the superior command, and generally not at all, and a leader has only so far a pervading influence, as he has closely formed bodies of troops at his disposition, or understands how to form such bodies to meet the several crises of the fight. No action should be entered into, without a reserve. But why a reserve should be detached on a line of march is not easily to be seen. A march reserve is not requisite, and a battle reserve only when the fight commences.

Military nomenclature has here gone a step too far. Let us only for a moment consider what the idea of a reserve comprehends. *All troops, so long as they are not engaged in the fight, are the reserves of the Chief Command.*

Up to this time it has been the custom to lay down as a rule, for a line of march, one-quarter of the force, advanced guard; one half, main body; one quarter, reserve. When a battle commences, no one possibly can know, whether the advanced guard will suffice to carry it through, or whether the last man will be required.

The advanced Guard opens the fight, the rest of troops are its reserve, from which as many men are supplied as are required. Why then should there be any other distribution?

Or, is a considerable separation with greater distances necessary within the masses of troops themselves? It would certainly not be advantageous in action if a part of the whole were to arrive half an hour later than is necessary.

This condition is shown when, for example, on a line of march of a *corps d'armée* the reserve is separated and is permitted to follow the tail of the column at a mile distant.

For the line of march, of course, intervals must exist, in order that the whole may not be affected by temporary impediments, but never of such extent as 1,000 or 2,500 paces; it is quite sufficient to fix as a rule, short distances between the several bodies of troops in close order. Undoubtedly we must picture to ourselves that these distances are there, in order to be lost under circumstances, and when these occur, it requires time to take them up again correctly.

Thus, separating a reserve from the main body on the march appears to be wholly useless; that which is useless is also dangerous, and such a danger undeniably lies in the distribution formerly in use.

Every effort should be used to maintain the original homogeneity of the troops, as formed during peace, that is, their order of battle as long as it is practicable. The order of march commonly practised, operates however, most decidedly towards destroying this most necessary principle.

Add to this, that the value of a strong reserve is greatly increased by the comparatively heavy loss within a short time, in an action of breech-loader against breech-loader. Now, by the distribution of the force into an advanced guard, main body, and reserve, and following the principle of bringing into action these divisions as united as possible, a leader might be seduced into allowing his main body to be engaged too soon, and in that case he would have only about one-fourth of his force — the strength of his reserve — left at his disposition.

It appears advisable to prevent any artificial separation of the unity of a brigade, especially at the moment of the fight. This may be done if the rule is laid down, that the Regiment which brigades with the advanced guard shall always be

placed at the head of the main body. (An analogous formation may also be employed either with small or large divisions of troops.)

We have then this advantage, that the first support of the engaged advanced guard is afforded by the nearest organized division belonging to the same, and the Brigadier is enabled to dispose of his whole united brigade in the battle, and the General of Division has a so much stronger body in close order as a reserve.

Further, a formation of this kind has this advantage — that if called on suddenly to form a new advanced guard for example, or if obliged to hurriedly change direction, the second brigade is not broken up.

The verbal command of a superior officer, given direct to the person concerned, is the surest method of imparting orders.

Also the verbal transmission of orders through Adjutants, orderly officers, &c., is sometimes advisable, but only when the order is short and positive, *e. g.* “the Brigade will take up its march through X to Y;” if anything further is to be explained with regard to general purposes, or other columns, &c., a written order is always preferable.

(The subordinate leader should be made perfectly well acquainted with all that the officer in command knows concerning the enemy so far as it relates to the object in view.)

The purport of a order, *i. e.* what the object of it is, should also be explained, but care should be taken not to go too far. Certainly it is very interesting for the troops to know how their better informed leader looks on the whole state of affairs, but this leader has to digest and ponder over all possible eventualities; and were such detailed views laid before the subordinates they would only become confused,

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because they are not able to judge which of these eventualities would suit the case in point.

Nothing should ever be said in a written order concerning a possible retreat. Such orders fall into too many hands, and at the moment when all should endeavour only to gain the victory, the troops ought not to imagine that their leader is occupied with thoughts of retreat. Such orders, when necessary, should be given verbally in an order, every word not absolutely necessary is an evil. Orders covering a sheet of foolscap take up too much time to read, and still more time to understand; the criterion of a good order is simplicity and clearness; let one word only be struck out, and it ought to be unintelligible. Should this not be the case, then the word struck out is one too many, hence useless and pernicious.

Every leader must consider well what information he has to impart to his divisions, and what to withhold. Orders in circular form, which are advantageously used in peace time, should be avoided in the field. If certain and rapid receipt is to be desired, as many copies of the order as there are commands to which it should be delivered, should be prepared.

The bad selection of a staff quarter has been proved to cause very unnecessary delays in war, and often lamentable results.

Either the General commanding the Division, or his general staff officer should always be present in the staff quarters; both being absent at the same time is highly improper. Should any important orders, reports, or questions be necessary during their absence the Adjutant of the Division would not be in a position to issue the necessary instructions, since, as a rule, he would not be aware of the general state of affairs, or of the intentions of his Commander.

In general the place of each Commander is with the main body of his troops.

As a rule the Commander-in-Chief can only issue his orders after he has received the reports of the occurrences of the day from the several corps.

It must always be made known where the General of Division is to be found, so that reports may be able to reach him.

With regard to the train of a Division, the led horses belonging to it will follow immediately in rear, and it should be strictly enjoined that they should not be turned into packhorses, so that in case of need they may be mounted immediately.

As a rule the munition wagons remain with the train of the Division.

The ammunition wagons, when they are not attached to the divisional train, belong to the regiment. Partitioning off the same to the Artillery Division, separately or united, is unadvisable.

The packhorses, baggage wagons, field forges, regimental staff wagons, and the carts of the chief staff follow the rear of the division.

The Pioneers at hand should never be allowed to be too far distant from the head of the column of march. A single road-bridge broken down would bring the whole Division to a stand. The repair of a bridge cannot be too quickly taken in hand with all the exertion at command.

The detail of a Van Guard is,—

- 1 Battalion
- 1 Squadron
- 2 Guns
- 1 Company of Pioneers.

In a open country such a guard, formed of all arms of the service, is generally unnecessary when there is a strong body of Cavalry in front.

The troops in the main body of the advanced guard are so arranged that those are in front who would be the first employed were the enemy to be met with. Should the Van Guard experience an obstinate resistance, so that the main body is obliged to interpose, in such a case also the Artillery should endeavour as much as possible to prepare the attack. The Artillery however cannot lead the head of a new division; it therefore follows in rear of the leading battalion.

When a mountain chain is between two marching columns, it can never be *certainly reckoned upon* that a fight which is going on in one valley will be heard in the other.

But if a communication exists, the detachment sent over the mountains by the column which is not engaged can essentially aid the other, especially if it should come up in the rear of the enemy.

Flanking parties of Infantry could not follow the march of the columns over the mountains. They would soon be left behind, even if they set off at the same time as the advanced guard, on account of being obliged to go up and down hill, and there being no path. Flank-covering in this manner, when the borders of the valleys are not very favourable, can only be carried out by means of branch columns when parallel valleys are to be found. If this be not the case, and if cross valleys open out from which the enemy can approach the line of march, detachments must be sent up as covering parties, which eventually will join the tail of the column.

It is most strongly to be recommended that bodies of troops, not of the same party, who are in a position parallel to, or behind one another, shall, above all things, keep up an uninterrupted communication.

All forming up of troops is to be avoided, unless the nature of the case absolutely requires it.

In order to rest the men, a simultaneous halt of the column of march is all that is necessary; each successive drawing

up is a preparation. But this should not be done on the mere possibility of an engagement, but only when such is inevitable, and then not till the advanced guard has been arrested on its forward march. Where it is advisable to form up depends chiefly upon the enemy, and on this account it cannot previously be determined on; it is also dependent on the nature of the ground and peculiar circumstances; but the ground must be of such a nature as to render it possible, and it forms the line of demarcation, in rear of which it is the intention to fight, or the battlefield on which the attack is to be made.

In the last case the forming up should not take place so soon, because the advance in deployed order takes up considerable time and fatigues the troops. If the advanced guard shall have taken up a position which is at all tenable, then it will be more advantageous to preserve the column of march up to that point. If, however, the object of the march is to be attained without fighting, the troops should only be drawn up when they are compelled to do so.

Every superior officer on a march should see his troops defile before him at least once a day, in order to control their march discipline, and especially to observe their general appearance.

If the enemy is not in the vicinity, so that it is not necessary for the leader to be with the body of the troops constantly, an inspection of this kind may be extended to the baggage and trains, otherwise every kind of irregularity will go on.

Special attention should be given to the times at which the march is to take place. He who rouses up the men unnecessarily as a rule, overlooks the fact that a large body of men like a Division, when its several bodies are separated by long distances, cannot all be set in motion at the same time, and thus the troops are tired out by assembling too

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early. Whether the troops may have a hard day's work impending, cannot be known beforehand; therefore we should be more scrupulous in avoiding all that is unnecessarily fatiguing.

The art of command does not commence with bodies of troops which come especially into relations with the General Staff—such as the Division or Army-Corps,—it should be exercised with skill acquired by practice by every leader, even the lowest.

And this is a matter of such intense difficulty, that too much pains cannot be taken to acquire it, and in constantly practising that which has been learnt; therefore the study of its rules should be commenced at the moment that the young officer first begins his education in the mode of leading troops.

If we examine the old treatises on war, we find a number of plans given for arranging troops in order of battle. Two opposing armies used to proceed leisurely, and neither attacked till the other had made its dispositions. They were like two chess players arranging their pieces in the regular order before the commencement of a game. And no wonder, for in those days war was constant; men of rank made it the business of their lives, looked to it for their name, their fame, and often even for their wealth, while the soldiers were either feudal servants or mere mercenaries who sold their services for pay and plunder sometimes to one nation, sometimes to another. The fiery attacks of the French in their wars of the Revolution gave the death-stroke to the old system, and Napoleon's genius found in the use of requisitions combined with contracts means of moving his troops so rapidly as to out-manceuvre and demoralize all armies led by Generals who had been trained on the old system. What happens invariably in such cases occurred now. Napoleon's ideas were

adopted and his methods copied to a great extent by other Powers.

In every age one country or another is recognized as the leading school in war, because their exceptional study of the military art has led to exceptional results. It does not follow that the methods adopted for organizing the forces of that country, or even its system of tactics, are to be copied. It is only of vital importance that the principles on which success was based should be thoroughly understood. There is, indeed, the greatest possible danger lest in studying the methods of action the form should be taken for the substance, and a mere wretched, lifeless copy be the result. Wherever the sympathies of soldiers may now be directed, it is quite certain that Germany is the great school of European war, and thither are turned the eyes of all students. The Germans taught us to use breechloaders; they have shown to the world an almost perfect system of supply; they have re-affirmed the law, which began to be doubted, that a vigorous offensive strategy carries with it great advantage.

But it seems we have hardly yet appreciated the idea which they declare to be at the foundation of all their success, without which, indeed, a copy of their whole system would be not only useless, but disastrous. It is, that every officer, from highest to lowest, should be made an adept at the art of leadership in war. All progressive officers should insist upon this great principle. By the study and practice of leading troops, juniors will steadily mount the ladder of knowledge and seniors will find that indefinite grumbling disappear which springs from ignorance of the difficulties inseparable from leadership in all its branches.

If officers of low rank are not trained and accustomed to take charge of an operation and conduct it with intelligence the best plans of Generals may fail signally.

If a man cannot attack or defend a small post with skill, he is not in the way to command a brigade well; and if he cannot place fifty men in good positions on outpost duty, he certainly cannot place five hundred. The Germans put faith in a training of development, from small things to great, in a general knowledge of tactics, individual responsibility, and a system of inspection which tests all these most thoroughly.

Though mechanical and social changes have affected subordinate rules of strategy, and have greatly altered the system of tactics, they have not made a radical revolution in the art of war in any proper sense. Rightly interpreted, the grand precedents of Napoleon require to be still studied; and now as heretofore, a distinct perception of the end to attain and of the means to gain it, a fitting distribution of force on the theatre, rapidity, skill, and good organization, are the essential conditions of military success.

The rapid and decisive success of Prussia must be wholly ascribed to ability in command and to superiority of efficiency in the field, prevailing over divided counsels, imperfect generalship, and a bad military system.

The less we imagine we can dispense with any of the lessons of the past the sounder our conclusions will be. The principles of war are immutable, but it was in direct violation of a tactical principle that the German armies won their most signal triumphs. It was not astonishing that an ill-directed and ill-handled army whose organization was rotten should have been beaten by one whose organization was sound, and which, superior in numbers and in material, was led by the best Generals in the world, nor were soldiers surprised to have it, proved that armed mobs are not armies; but what is astonishing and surprising is the fact that the Germans succeeded on three capital occasions in surrounding the French without sustaining disaster, if not destruction. No one of the armies by which, almost to the last man, the last

horse, and the last gun, the French were led into captivity, had such an advantage in numbers over the forces which surrendered to it as would, according to all previous calculation, have justified its extension over the enormous expanse of ground which it occupied at the moment of victory, especially in face of an enemy from traditions and training most likely to take advantage of it. From the very circumstance of a General like Count Moltke adopting what a short time ago would have appeared to all military students the ridiculous method of literally surrounding an enemy, it is evident that a vast change has been made in the mode of carrying on the operations of war. Metz, Sedan, Paris—three startling professional paradoxes! And yet the movement on Königgrätz in 1866 was anomalous also. There two armies were placed so far apart, each in the presence of an enemy of superior numbers, that one was severely engaged and might have been worsted before the other could come up to its assistance. So vast is the change, indeed, in the application of principles that we are exposed in contemplating it to be led into errors of a very opposite character. There are those who rigidly adhere to maxims and traditions long after they have ceased to be applicable, and condemn tactical innovations of all kinds—fogies, young and old, who swear by the thin red line as a perfect formation for every movement, and adore solemn and deadly slow deployments with passionate tenderness. There are those who declare that all the lessons of the past must be forgotten, and that we should begin afresh to construct a new system from the muzzle of the breechloader. No sensible man could adhere to either side when the views of its champions are thus nakedly put, but under different forms and guises such views are entertained where one would least expect to find them.

To what, then, has the immense facility of manœuvring which the Prussians have shown been due? First, doubtless,

to the perfection of the actual training for war which has been acquired severally by each man throughout the army. A system of working at once so free and harmonious would have been impossible if all had not been trained to appreciate the value of the same principles, and to understand the larger theory of the great art in the details of which they had to co-operate. At every point the training of the average Prussian officer shows itself to have been as high as it is probably possible that, for the ordinary run of an army, it ever should become, whether in the practice or in the theory of their profession. But was that all? Not one who has considered the history of the camp of Boulogne, and the effect which it had upon the succeeding wars of the Empire, and who studies the features of the present war, remembering always what is the nature of the German organization in peace time, will doubt how important an element that permanent local organization of the *corps d'armée* has contributed to the marvellous harmony of their tactical working.

It is necessary to develop by practice the good qualities of officers and men, and to secure the military excellence or elasticity as opposed to looseness, to enlarge the functions and responsibilities of officers, to constantly work bodies of troops together at home so as to insure freedom of manœuvring without degenerating into eccentric independence.

It by no means follows that the greater portion of drill should consist in such large manœuvres. Rigid formations will still be a most essential means of early training, and be also best adapted to most marches out of the immediate reach of the enemy. It is important that any details that can be suppressed should be done away with, in order that troops may be able to devote as much time as possible to perfectly mastering those which continue to be practical, and to acquiring field aptitude. But always enough will remain to demand much time. No one who has watched the effect of much

loose work upon ill-trained troops will doubt that as a means of discipline parade drill will be more, not less, essential than ever, little as it continues to be applicable to the purpose for which it was first designed.

As the mechanism of armies becomes more delicate and complex, the value of mature organization increases.

Highly as the truly creative activity of the French September Government and its astonishing results must be acknowledged, still the quality of the newly-levied armies of the Republic did not equal that of the former Imperial army. They had, it is true, a sufficient force of artillery, some of which was even superior to that of the latter; but they had but little cavalry, and the greater bulk of their numerous and well-armed infantry was deficient both in organization and drill. It fought well in defensive positions, but failed in that intrinsic firmness which is so necessary during lasting and energetic offensive operations. When attacking it seldom went beyond the preparatory advance of a dense swarm of skirmishers; the attack itself often failed as soon as it was met by artillery fire. Added to this, the organization of the ammunition and provision trains for so large a mass of troops was faulty, while the consumption was irregular and enormous. These circumstances crippled the free action of the newly-formed armies, and compelled them to cling to their lines of railway.

Modern war, from its rapidity, assumed that an adequate reserve should be immediately forthcoming, for troops without discipline there is no place in modern open war, something more is needed to form an army than putting arms in the hands of a great many men.

An army is never tried except in war. If the officials charged with its organization and administration are not students of war, if the army is regarded as a peace weapon or a political plaything, it will never be fully prepared for that supreme moment when only it is of any real use.

Success must attend the banners of a nation which does not forget in peace that war is sometimes a necessity, and spares no labour or forethought to prepare for it.

The deeper the study of the events of 1870-71 is carried the more confirmed will be the opinion that brave men when masters of the art of war both in principles and details will be far more than a match for brave men without professional education; that first defeats are almost irretrievable; and that thorough knowledge of war is a greater power than superiority of weapons or of numbers.

The one decisive lesson of the war from beginning to end is that no bravery will avail in modern war against superior knowledge, with the moral force attendant upon the first proofs of such superiority in knowledge. Great military geniuses are as rare as great geniuses in other departments of labour. A high standard of professional knowledge ought to be demanded from all.

There is great simplicity about Prussian plans as well as about Prussian organization. Whether the force to be manœuvred against an enemy be a group of great Armies, an Army Corps, a Battalion, or a Company, the general plan is always the same—namely, to hold the foe fast in front with even an inferior force, trusting to the defensive power of modern arms, and to attack him in flank with great vigour; above all, to take the initiative whenever it is at all possible. Thus it was to have been in 1870, whether the French invaded or not. In the former case, the field of decisive battle would have been in Germany, instead of France; but the method of proposed action was the same in both cases. Everything depended upon information, and the best intelligence was brought in by the Cavalry, which made raids into the enemy's territory, not generally in large masses such as would attract observation, but in dashes of a few men at a time riding recklessly through the country, and taking their chance of

getting back again. Sometimes they came across hostile detachments, which almost invariably fled at their approach, probably believing that the daring horsemen were but the vanguard of a stronger force. Sometimes they penetrated quietly beyond the French lines, and, from some hill or church steeple, watched the breaking up of camps and the march of troops, whom they could count by battalions, squadrons, or batteries. One such report as a Cavalry detachment could bring in might appear of little value, but a number of them brought together and examined by keen intellects well versed in the theory and practice of war told nothing less than the movements of the whole French Army on any given day.

Concerning cavalry, there is a tendency to overwork them at first, forgetting that, while a tired man may be recalled to energetic action by moral means, a tired horse cannot be restored otherwise than by food and rest.

Often a couple of bold riders, if intelligent, can ascertain more than a whole cavalry division, for they can remain concealed where the division, could be perceived. When it is necessary to send forward a strong detachment of cavalry its commander should be placed in possession of all possible information, especially about the position occupied by any other bodies of friendly cavalry, the position of friendly troops generally, and that of the enemy so far as it is known. In the case of an unsuccessful action, support to routed cavalry is always more necessary than to infantry. Therefore, as a rule, infantry should be told off to support cavalry, even if they have to remain far behind. Nothing annoyed the Austrian cavalry in 1866 more than the habit which the then inferior Prussian horsemen had of falling back steadily and drawing their pursuers into the fire of infantry.

Mounted riflemen will be valuable.

As a rule in action the whole of the batteries should be well up, and working with the front line under the commander

of the artillery. The General should work the whole, as far as possible, as a compact body of troops, and understand how to treat it in that sense. He should not leave battery commanders to their own devices, but include the artillery in his plan of operations just as much as the other troops. But he should not interfere with details which are the business of the artillery commander, who should generally ride with the chief of the division, taking command of the guns when massed for work exactly for the same reason, on the same principles, and with the same responsibility as commanders of brigades, either infantry or cavalry. The artillery, being always liable to a sudden call forward to prepare an attack for infantry, should be near the front always. Its fire would probably have to be given for an hour or two before the infantry attack, even if the battalions were in fighting order. But, generally speaking, a long column has to get into fighting order, and the guns cannot be too ready to come into action and cover the deployment, so as to commence as early as possible the preparation for the infantry attack. As soon as the enemy draws off the artillery should rejoin the troops to which it belongs—that is, if attached temporarily to a brigade it should rejoin that brigade—and horse artillery go to its cavalry.

Although an artillery combat must generally be carried out at distances under 2,000 paces, the introductory fire will, nevertheless, be opened at greater distances.

Though a brigade takes less than 40 minutes to pass over a distance of 4,000 paces, the necessary time increases in proportion to the difficulties of the ground and strength of the force extended. Moreover, it is necessary to leave much to commanders of small bodies, such as battalions, only requiring them at last to be drawn up in the order and at the place marked out by the General. Though the superiority of the breech-loader to the rifle of the Austrians in 1866, and that of the German soldiers to the French levies in the latter

part of the Franco-German War, enabled the troops to be used successfully in extended order and almost without reserves, such a mode of action would be dangerous in the presence of a steady and well-armed enemy, and its past success must not be quoted as a precedent.

Independent fire well directed is calculated to scatter any column. Should it be composed of stout material, and the loss not too enormous, the men will join the advancing support in partially loose order; if not possessed of the requisite intrinsic power they will fall altogether out of the first line. A front attack on lines of infantry in good position, even made by very superior forces, has little chance of success unless well prepared and supported by artillery. Whenever it is possible, the enemy's flank must be threatened in combination with the front attack, and the dispersion of attacking troops menaced by great losses can only be prevented by depth of formation. On the other hand, the defensive power of the breech-loader allows the defending troops to be much extended with comparatively small reserves, but then the flanks are very weak, and the whole line probably retire if one flank is in jeopardy.

In these days more than ever depends upon manœuvring, and as front attacks must sometimes be made, the formation for the purpose must be deep. A division, therefore taking the offensive should, as a rule, irrespective of flank attack, move with a front of not more than 2,000 paces, and this supposes that its artillery has passed to the front to prepare the attack. Troops on the defensive may extend much more than this, so long as they take care to have reserves behind unprotected flanks. For purposes of manœuvre the whole force should be separated into organized, connected sub-divisions. The subordinate leaders receive their special tasks independently, and the Commander-in-Chief takes care that the working together of the several parts is kept to the general aim.

The temptation to interfere in the action of subordinates is immense. It is always present to weak leaders and sometimes even to strong ones. A General should keep his mind fixed on his own business, which is as much as a clever man and more than average man can do thoroughly. Interference in details may appear very energetic, but it is always at the expense of higher duties, and has a direct tendency against training good subordinate leaders. Clear orders, a general supervision, occasional information or direction towards a new task, and the selection of a position whence he can see all, or, at least, his first line, and where messengers will find him easily—such are, in addition to an intelligent control over the use of reserves, the first duties of a commander.

An excellent rule, and one worth impressing on the infantry, is that since, without doubt, the greatest losses are incurred by those who are running away, the best way to act when in inferior force before an enemy is to hold your ground, or even to attack boldly, trusting to be reinforced. But for success in such bold tactics it is necessary that all officers should have more responsibility, more right to take the initiative. Every column should support every other column without waiting to get leave from a General, and, furthermore, the bodies permitted to act with some independence must be smaller.

Modern improvements in guns and rifles render flank attacks almost imperative.

The Great Napoleon, as a rule, broke through the centre of the enemy's line. Napoleon and Wellington carried the principles respectively of attack and defence to their highest development—highest, that is, so long as men fought with the old weapons. The Napoleon and Wellington of to-day would change their systems, not because they used to be wrong, but because the two great Commanders would know how to adapt their tactics to the new circumstances.

The campaign of 1866 in Germany is, in some respects, even more interesting and valuable, from a military point of view, than the great struggle with France. Apart from its political results, it was the first contest since the days of Napoleon—at least, on the European Continent—which showed what strategic science and skill could accomplish in war on a great scale; and it was the first also which clearly indicated the changes in the formations of troops, and, in some degree, in the direction of armies, which the mechanical inventions and progress of our age have rendered necessary or expedient.

Preparations were being made in Austria as early as March, even by that time the heads of her armies were visible along the Moravian frontier, and South Germany was getting ready; whereas Prussia did not “mobilize” her forces until the first week of May.

The plan of campaign on the part of Prussia had been evidently designed with careful forethought; and, like the projects which so often gave Napoleon victory over a coalition, was a fine specimen of calculation and daring. This plan rested upon the assurance that Hanover, Cassel, and Southern Germany would not be ready to begin hostilities, and that the numerous and martial legions of Austria formed the real and main strength of the Allies; and, accordingly, it was proposed to leave a small force only in the North and West to paralyze the enemy on the Weser and the Maine, while the principal power of the Prussian Monarchy should be directed against the great State which alone was felt to be truly formidable. For this purpose 50,000 men only were to confront the Allies from the Elbe to the Rhine, though their foes would be twice their number on paper; but three armies, forming, when joined, a mass of 378,000 soldiers, were to be marshalled against the hosts of Austria, which, it was expected, would be less numerous even if united to the Saxon contingent.

This scheme, framed with such true insight, was executed with celerity and skill, and by the middle of June the weak

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divisions of Manteuffel, Falkenstein, and Beyer were collected at Harburg, Minden and Wetzlar, ready for an immediate advance into Hanover, while the Army of the Elbe, under the veteran Herwarth, that of Lusatia, under Prince Frederic Charles, and that of Silesia, under the Crown Prince of Prussia, drawn together from a variety of points, had taken their positions along a broad front extending from near Dresden to beyond Neisse, and already approached the Saxon and Bohemian frontier. At this time the Allies, it would seem, had not formed any definite plan; and while their enemy was about to make a well-concerted and sustained attack they were discussing, with the usual hesitations and jealousies of a loose coalition, projects of an advance by Hof on Berlin, of a raid into Lower Silesia, and of a march on the Elbe through the Saxon passes. Nor were their forces even nearly prepared, nor had they anywhere taken positions which would have given them a fair chance of success. The Hanoverian, Bavarian, and other Southern contingents were not yet even equipped for the field, and were scattered in disjointed fragments along the Main, the Weser, and the Rhine; the Saxons were isolated in their own country; and though a large and formidable Austrian army was being directed towards Bohemia, its preparations were still incomplete, and one only of its seven *corps d'armée* had passed beyond the Moravian frontier. Such are the advantages which clear perception, a fixed purpose, and a good military system give in war over divided counsels, unsettled resolves, and faulty organization; and it is a simple fact that, before an action was fought, the promise of victory was all on the side of Prussia.

Hostilities having been proclaimed on the 15th of June, the Prussian commanders set their troops in motion at all points for an offensive campaign.

On the 16th of June the Army of the Elbe, about 45,000 or 46,000 strong, took possession of the capital of Saxony, driving before it the Saxon *corps d'armée*, compelled to retreat at once into Bohemia; and by the 19th it firmly occupied the region along the right bank of the Elbe, covering its right flank by the course of the river, and extending its left towards Hinchfield and Rumburg. Meanwhile, the Lusatian, or 1st army, composed of the 2d, 3d, and 4th corps, and of one corps of cavalry, and numbering about 95,000 soldiers, had been led by Prince Frederic Charles to the neighbourhood of Zittau and Marklissa; and by the 21st it had come into communication with the Army of the Elbe on the very edge of the Bohemian frontier. A corresponding converging movement had been made by the Crown Prince of Prussia, and by the 22d, the Silesian, or 2d army, about 115,000 strong, and made up of the Guards, the 1st, the 5th, and the 6th corps, with a single corps of cavalry also, had advanced to the tract between Landshut and Glatz, its rearward divisions, however, still stretching back to a short distance from Neisse, in order, probably, to deceive the enemy, and to threaten Austrian Silesia till the last moment. Thus, on the 22d of June, the three Prussian armies, approaching each other on a narrowing front, had overrun Saxony and reached the verge of the mountains that bound the north of Bohemia; and a march or two would lead them through the passes in the hills into the territory of the Austrian Empire. They still, however, spread along an arc of 130 or 140 miles, and held perfectly distinct lines. A large gap still existed between the positions of the 1st and 2d Armies. Could they venture in this situation to penetrate the mountain barrier before them and to risk an encounter with a foe who, if concentrated, would be able to fall upon their separate columns to meet and overwhelm them in detail, and to renew the exploits of the youthful Bonaparte at Castiglione, Arcole, and

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Rivoli? Von Moltke, however, did not hesitate, and uniting the Army of the Elbe with the 1st, and directing the second to close up on the right, he caused the two masses to enter the defiles, and gave orders that they should gather towards each other, from east and west, and concentrate within the Bohemian frontier, if possible in the vicinity of Gitschin. The Prussian armies, though widely separated, were directed to combine in Bohemia, after a march through the hills at far distances; in the main because it had been nearly ascertained that the Austrian army could not be collected upon an interior line sufficiently soon to reach them when apart; and though the invention of the field telegraph, which lessens the danger of operations of this kind, and the great strength of the Prussian armies which made it difficult to defeat either quickly, may have had some influence on Von Moltke's judgment, the true reason that he acted as he did was that he had grounds to believe that his enemy's forces would not be able to unite against him. His advance, therefore, which gave the Prussians the great advantage of a speedy movement conducted upon a variety of lines may be vindicated by well-known examples, and was not a new and unheard-of operation; and we may be quite sure he would not have tried it had the Austrian army been drawn together and ready to strike in the north of Bohemia. Nor was the Prussian march, however favourable the conditions were under which it was made, exempt from the serious dangers which must inevitably threaten an army that endeavours, starting from distant points, to effect its junction by separate lines, if at any time within reach of its enemy.

On the 23d, 24th, and 25th of June the Prussian armies were in full march, the Elbe and 1st Armies making their way through the passes in the Bohemian range to the Iser, the 2d Army gathering towards the first, on a front between the points of Liebau and Pastehkau. What, in the meantime, had been the operations of their foe, as they were hazarding

this converging movement, which, had he been able to seize the occasion, might have been made disastrous and even fatal? Austria had been arranging her Army of the North, as she called it, since the beginning of April, if not three or four weeks before; but when the ill-fated but high-souled Benedek assumed the command, on the 10th of June, its arrangements were not nearly complete, and seven or eight days, at least, were required to supply it with material absolutely needful, and, in a word, to put it in marching order. Here we see once more the superiority of the Prussian organization over that of Austria; the Austrian army was not ready for the field as soon as the Prussian by more than a week, though the work of preparation had begun much earlier; and to this circumstance we must largely ascribe the discomfiture of the Austrian projects, and the calamitous reverse which befell the Empire. On the 15th of June, when war was declared, the Army of the North, perhaps, numbered 240,000 men, including noble reserves of cavalry, and an artillery force of high renown; but of the seven corps of which it was composed, one only, the 1st, as we have seen, was stationed beyond the Moravian frontier, while the remaining six, comprising the 10th corps, the 4th, the 6th, the 3d, the 8th, and the 2d, with almost all the divisions of horse, were cantoned far to the south, in Moravia, between Zittau, Olmütz, Wischau, and Austerlitz. The mass of Benedek's forces, therefore, was still far away from the Bohemian range, the decisive scene on the theatre of operations; and even at this moment two or three days were needed to complete its preparation, and to enable it to proceed northwards. On the 17th and 18th of June the Army of the North was at last set in motion; and the general scheme of Benedek's operations was in conformity with the true rules of war, though even at this time it was hardly feasible. The Austrian commander plainly foresaw the double converging movement of the Prussians, and he resolved to

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meet it in the manner in which it obviously should be met in theory, to retard the separated enemy's advance, and then to take a central position, to strike the Prussian column as they emerged from the hills, and to defeat them before they could effect their junction. With this object in view, he directed Clam Gallas, the chief of the 1st Austrian corps, which was the most northward, to march and join the Saxon contingent, already retreating upon Bohemia, and with this force, about 45,000 strong, to hold steadily the line of the Iser, while he prepared in person to move his six corps, and to occupy positions behind the Elbe, between Josephstadt and Koniginhof, with not less than 200,000 men. In this situation he would have placed his whole army just behind the frontier, with perfect facilities of communication, and interposing between the Prussians as they debouched into the Bohemian plains. In principle, the project was worthy of a great captain. But in war the execution of a plan is everything, and at this moment it was scarcely possible, at least, without extraordinary efforts, to carry out successfully Benedek's design, for the bulk of his forces on the 18th of June was further from the interior line in Bohemia, which was his great object, than the Prussians were from the point at which they might expect to unite their armies. Thus it was not to be supposed that the Austrian commander would be in time to break in between the Prussian masses as they advanced; and it was the knowledge of this that is the true justification of the Prussian leader's movement.

On the 18th of June and the following days the army of Benedek was on its way from Moravia to the Bohemian frontier. The General of 1796 and the enthusiastic warriors he led might possibly have reached the space between the Iser and the Elbe in sufficient time, but the Austrian movements were far from rapid, owing, doubtless, as much to a bad system as to any errors of the General-in-Chief. Mean-

while the Saxons had joined Clam Gallas, that commander holding the line of the Iser from Jung Bunzlau to Munchengratz and Turnau, according to the orders of his chief, it being expected that the main army would be close to the frontier to support this wing before the enemy could seriously assail it. By the evening of the 25th of June, however, one only of Benedek's corps, the 10th, had reached the Elbe at Josephstadt, still a good way from the central position which the Austrian commander hoped to occupy; and his remaining five corps were far to the rear, filling the region between Pardubitz and Policka, and unable for several days to concentrate. By this time the Prussian Army of the Elbe, and the 1st under Prince Frederic Charles, were not more than a march from the Iser, while that of the Crown Prince of Prussia, though still five or six marches distant, was preparing for an advance to the Elbe; and thus, at this crisis, the Prussian forces were better united than those of Benedek; he had scarcely a chance of reaching the line, which was the mark and end of his efforts; and while the detachment of Clam Gallas was isolated, and almost within the grasp of an enemy more than double in numbers, the main Austrian army was in no condition to strike or to put forth its strength against the Crown Prince of Prussia. Such is the manner in which a good project may be marred by miscalculation and slowness; and thus, too, may military movements which seem on the surface wild and hazardous be proved to be well-designed and correct.

On the 26th of June the Army of the Elbe came for the first time in contact with the troops of Clam Gallas, and after a few affairs of outposts, the Austrians fell back behind the Iser. Prince Frederic Charles being now fully in line, the two Prussian armies, in great strength, assailed at once the retiring enemy; and having routed him with great loss at Podal, Munchengratz, and Turnau made good their way to Gitschin on the 29th, the Austrians and Saxons, utterly beaten,

hurrying in precipitate flight to the Elbe. Meanwhile the army of the Crown Prince of Prussia had been advancing towards the point of junction, and had also gained important successes, though not wholly unchecked by defeat. On the 27th of June part of his first corps became engaged with the 10th of Benedek, which, as we have seen, was the most forward, and it was driven back with some loss at Trautenau, a failure which for a time made the position of the 2d Army critical, and shows the danger of this kind of movement. On the same day, however, the 6th Austrian corps was defeated at Nachod by the Prussian 5th; and as Benedek's 10th, which had advanced too far, was turned and afterwards routed by the Prussian Guards, the Crown Prince was able to pursue his movement, though in a somewhat disjointed manner. Benedek, thus assailed by the enemy on his right, whose advance he had hoped to frustrate, now endeavoured to draw his forces together; but his rearward divisions could not be up in time, and he was only able to aid his defeated vanguard with one additional corps, the 8th. On the 28th this fresh reinforcement was, with part of the 6th Austrian corps, overthrown with ruinous loss at Skalitz, and driven headlong across the Elbe; and the 2d Prussian Army, now free from its foe, converged rapidly towards its supports, though even yet it was a long way from Gitschin. Meanwhile, the luckless Austrian commander, whose first line had been half destroyed, called up his 4th, 2d, and 3d corps, the only ones which remained intact; and rallying his defeated wings, tried to form his army into one great mass, and still to make head against his enemy.

In these operations we see the results of the tardiness of the Austrian advance, of the dislocation of Benedek's army, and of the celerity of the Prussian movements. Clam Gallas had been sent to the frontier because Benedek felt assured that he would be in time to support his lieutenant, but the

Austrian commander was too late, and his detached wing had been routed in detail. Again Benedek on the 25th of June, had not reached his central position, and had not any two of his corps near each other; and the consequence was that he was not able to approach the line which he desired to occupy, and when attacked by his active enemy he was not strong enough to resist his onset. He failed, in a word, to meet the converging movement of the Prussians by concentration in time, and saw his divisions beaten in detail; and his fine army was cruelly stricken before it could develop its power.

On the 30th of June, the Elbe and the 1st Army held Gitschin in considerable force; but though connected with its supports by cavalry, the 2d Army was fully 25 miles distant; and as Benedek had by this time concentrated the greater part of his forces; it is just possible that a chief like Napoleon would have had a chance of striking with success one of the two masses opposed to him, so essentially critical, under any conditions, were the separate movements of the Prussian leaders. Benedek did not, however, make the attempt; in fact, probably, his disheartened soldiers were not equal to an effort of the kind; and in the actual state of his affairs, his most prudent course would, perhaps have been to have retreated behind the Elbe and gained some rest for his shaken army. He adopted, however, one of those half measures, so characteristic of second-rate commanders, which though it gave him more nearly victory than superficial persons suppose, was, nevertheless, we believe, a mistake since he had definitively renounced the offensive. The ranges of eminences beyond the Elbe, between Josephstadt and Königgratz, present a series of strong positions, extending from Nechanitz on the far left to Sadowa and Racitz on the extreme right, and covered by the streams of the Bistritz and the Trotiuka, and Benedek resolved to make a stand here, and to risk the

chances of a decisive encounter. He fell back to this ground on the 1st of July, and gave orders on the following day, that his army should prepare for a general action. His left, the Saxons, and 3d corps, with the 8th as an immediate reserve, was posted from Nechanitz to Sadowa, holding Probus and Neue Prim in great strength, and with the Bistritz along its front; and his centre and right, the 4th and 2d corps, with the 10th a little distance in the rear, were directed to occupy the space between Sadowa by Lipa and Chlum to the Elbe, the Troitiuka protecting the extreme flank. The 6th corps, with great masses of cavalry and artillery, formed the general reserve and held a central position behind the line of battle, ready, when necessary, to come to its aid. The whole army, with the Saxon contingent, notwithstanding the losses of the preceding days, still numbered about 208,000 men.

While Benedek had been making these dispositions, the Russian armies had been advancing and finishing their converging movement. They had not, however, nearly effected their junction by the 2d of July; and on that day they were spread along an arc about 30 miles in width, from the extreme right at Smidar, to the far left at Gradlitz. The Prussian commanders were, in fact, unaware of Benedek's resolution to stand and fight; and as they calculated that he would not venture to risk a battle till he was behind the Elbe, they were moving forward as quickly as possible, without concentrating their still parted forces. On the evening of the 2d, however, Prince Frederic Charles became assured that a part, at least, of the Austrian army was between him and the Elbe, and he resolved to attack it without delay, with the Army of the Elbe and the 1st Army, sending at the same time to the Crown Prince of Prussia to request the co-operation of one of his corps. Had this project been carried out, about 130,000 men would have been engaged with 208,000 in a defensive position of great strength; and most probably the

Crown Prince's detachment would not have sufficed to redress the balance, especially as, being distant from the field, it could not arrive until late in the day. This obviously faulty design, however, was corrected by the remarkable man to whom the arms of Prussia owe so much. Acting on true principles, Von Moltke gave orders that the Crown Prince should advance at once, not with one corps but with his whole army, to give aid to Prince Frederic Charles; and he calculated that, by a vigorous effort, the Crown Prince would strike the Austrian right in sufficient time to insure victory. This was the best move that could possibly be made; yet as the army of the Crown Prince was fully 15 miles from Sadowa, with a difficult and intricate country between, and as the order could not reach him until the early morning of the 3d, the operation was far from certain; and Von Moltke would hardly have risked so much, had any other course been now open to him. It deserves also especial notice that the momentous summons to the Crown Prince was intrusted to a single aide-de-camp only, a mistake which has often cost armies dear, and which proves that even the Prussian Staff is not incapable of serious oversights.

Prince Frederic Charles attacked Benedek with part of the Elbe and 1st Army in the early forenoon of the 3d of July; but though the Bistritz was at last forced and the woods around Sadowa were won, the main Austrian line resisted with success, and after noon the engagement began to wear an ominous look for the Prussians. The powerful Austrian artillery proved more than a match for the Prussian batteries, which were not served as in 1870; the power of the needle-gun was comparatively unfelt in the thick cover which lined the position; and, notwithstanding its heroic efforts, the assailants' left wing might have been crushed, had Benedek boldly assumed the offensive with the great superiority of force at his command. The favourable moment was, however,

lost; and before long an apparition on the Austrian right decisively turned the scale of fortune. The Crown Prince of Prussia had set his army in motion with remarkable energy; and his troops, straining every nerve to advance, reached the neighbourhood of the field about 3 o'clock, and drew off the weight that oppressed their hard tried comrades. A gap existed now in Benedek's line, for the 4th and 2d Austrian Corps had taken a position in front of that assigned to them, and had besides inclined to their left, in order to press Prince Frederic Charles; and Chlum, the key of the Austrian right was brilliantly seized by the Prussian Guards, while their supports moved forward on all sides to their aid. The Austrian commander, completely surprised, in vain called upon his numerous reserves to dislodge their rapidly increasing foes; and as the pressure on his right became overwhelming, the whole Austrian line by degrees gave way, and, abandoning from Nechanitz to the Elbe the positions they had held in the morning, rolled beaten away from the blood-stained field. The cavalry and artillery, however, covered the retreat with heroic devotion; and though a number of guns were captured, and its losses in men and material were great, the Austrian army crossed the Elbe safely, nor was the pursuit of its foe vigorous.

The victory of Sadowa was the result of the arrival on the field of the Crown Prince of Prussia, an event which, like Blucher's march on Waterloo, threw an overwhelming force on the enemy's flank, and before long decided the fate of the day. The junction of the Prussian armies, however, in sufficient time was by no means assured; in fact, Benedek might have destroyed the left wing of Prince Frederic Charles before the 2d Army came up; and had this occurred the ultimate issue would have been different on the page of history. This proves how hazardous at last became the operations of the Prussian leaders; their divided armies never

united until actually upon the field; and though their general movements were fine, the unexpected stand of the Austrian commander exposed their armies to no little peril. The plan of Prince Frederic Charles, evidently founded on an inaccurate notion of Benedek's strength, was, it is hardly necessary to point out, a mistake; and had it been adopted, it is difficult to see how the Prussians could have escaped defeat.

Viewed as a whole, the battle bears a marked resemblance to the now half-forgotten struggle at Bautzen; but, owing to what was almost a surprise, the Prussian operations do not disclose the precision and depth of Napoleon's manœuvres; and, strategically, the advance of Ney was more thoroughly and surely planned than the march on Chlum.

Benedek probably, ought not to have fought at Sadowa at all after the severe defeats of the preceding days; he would have found better positions of defence had he retreated behind the Elbe and its fortresses, and though the stand he made at Sadowa assuredly gave him a chance of victory, this is no proof his decision was correct. His dispositions for the battle itself contemplated only a passive defence, a system always to be condemned; and, in consequence, he certainly lost, as in the case of Bazaine at Gravelotte, an opportunity of crushing the Prussian left wing.

The Austrian chief, subduing ill-fortune, effected his retreat with vigour and skill.

In 1866, as on other occasions, the Austrian commanders gave signal proof of qualities for which they have been often famous, tenacity and perseverance in the hour of disaster.

It is almost useless to refer to the secondary operations in the Western theatre, for they had little influence on the final result; and yet they are not without much interest, for they strikingly illustrate the superiority which a small force boldly

and ably directed may acquire over the far more numerous, but ill-organized and ill-commanded levies of a faint-hearted and weak coalition.

The issue was due to careful preparation, to an organization for war which, under favourable conditions, sent masses of warriors into the field with a celerity never before witnessed, and to scientific and well-ordered strategy, improved tactics, and superior weapons. In the plan of campaign of the Prussian chiefs and in the general distribution of their forces we see deep calculation and insight; the march of their armies into Bohemia, though hazardous, was justified by the rules of their art; and the rapidity and ease of the Prussian movements and the power of the fire of the Prussian infantry were important elements in deciding the contest. The campaign also showed that operations on distinct lines may be less liable to objection than they formerly were, the field telegraph having in some degree united even widely-divided corps, and armies now being so large that it is difficult to treat them quickly in detail; and it showed also that modes of tactics in use in the days of Napoleon and Wellington must be abandoned, and a complete change effected. It is, however, a mistake, to imagine that this campaign or that of 1870 has wrought a revolution in military science, or in the leading principles of the terrible art which founds and destroys Empires. It is sheer ignorance to say, as some have said, that the Prussian army is not essentially a standing army in the true sense of the word; and it is as ludicrous to argue that the Prussian commanders have "invented a novel method of strategy" as it was to insist that the results of Rosbach and Leuthen were caused by "the oblique order" of Frederick the Great, or that of Austerlitz by "the central attack" of Napoleon. Not less idle is the supposition that the possession of interior lines of operation has been found to be of no advantage, and that one of the great objects of strategic man-

œuvres need no longer be sought in modern warfare. Undoubtedly the value of interior lines has diminished as armies have so greatly increased; it would be almost impossible to play the magnificent game of 1796 with 200,000 men against 400,000, instead of 40,000 against 80,000; but this was pointed out long ago by Jomini, and was illustrated in the campaign of Leipsic. The war of 1866, however, itself shows that this position is still of capital importance; it was because Benedek would almost certainly be unable to gain an interior line that the Prussians advanced in the way they did; in the operations before Sadowa we see how perilous it may be to attack a commander who holds an interior line, even when its advantage has been almost lost; and Falkenstein's movements against the Southern Germans, like those of Lee in 1862-3, prove what a good General on interior lines can effect against incapable foes.

Werder's dash at Bourbaki at Villersexel and march from Vesoul to the Lisaine are fine specimens of daring generalship, though not to be cited as military precedents; but there is no doubt that he was for some days in danger, wretched as Bourbaki's enterprise was as a general strategic conception.

Manteuffel, with the 7th and 2d Corps, bore down rapidly on Bourbaki's flank, and when informed of Werder's success resolved to close on the Frenchman's rear, and cut him off from his retreat southwards, and finally, the German chiefs enclosed in their net their luckless victims, and the French Army was left no choice but to surrender or cross the Swiss frontier. These decisive operations strikingly illustrate the great advantage of the telegraph in modern war, for Manteuffel and Werder, though widely separated and operating on distinct lines, were always in communication with each other; and in this way, certainly, one of the chief objections made formerly to manœuvres of this kind is, to a great extent,

removed or diminished. Still it is impossible to deny that such attacks are full of danger, and likely to fail against a resolute foe in a central position; it remains to be seen whether a mechanical change will wholly efface the lessons of the past; and attempts to surround a large army are only likely to succeed when it has lost confidence in itself and its chiefs. As it was, poor as was the composition of Bourbaki's improvised force, and pitiable as its condition was when it took refuge under the guns of Besançon, it might not improbably have effected its escape, had it marched directly by Auxonne on Dijon.

All reasoning from facts, all experience of the late war, tends to prove that a trained army, properly covered, either naturally or artificially, properly armed and supplied with ammunition, is unassailable in front with any hope of success. So long as the French regular army existed it never once failed to meet and hold back a front attack until its flank was turned. The author of the *Tactical Retrospect* of 1866 tells how the fire of a defending force causes the attacking force to stream naturally towards the flanks. With later experience before us we may say that what the troops did by instinct was the right thing to do, and must in future be done systematically and by order of the Generals. Von Moltke, in an article published by the *Militär Wochen-Blatt*, in July, 1865, says that a line of troops with open ground in front of them can defend themselves against any front attack and be pretty sure of success. On the other hand, "As the chance of a front attack being successful becomes smaller so much the more certain is it that the enemy will direct his attention to the flanks, and so much the more important does it become that these should be well protected." His words have been verified in every battle between armies provided with breechloaders, and it seems impossible to avoid the conclusion that flank attacks supersede all others

for the real decision of battles. Front attacks must be made, of course, to hold the enemy fast, and we now come to a very important conclusion based upon the rapidity of fire from breechloaders. *If an enemy attacks us boldly in front and we reply by a simple defence, it is almost impossible to know his strength, or to be sure that he is not very weak in front and massing his troops on our flanks.* For, if an equal force can hold its ground with ease against front attack, an inferior one can make the same impression for a certain time and produce an effect more than double its apparent numbers by acting aggressively. Such work was actually done frequently in 1870. Take, for example, the battle of Mars-la-Tour. The object of the Prussians was to hold Bazaine fast and prevent him from making his escape from Metz. The third Corps was the first to arrive in contact with the French Army.

There was no hesitation or doubt about its conduct, though the French were immensely superior in strength. It laid hold of Bazaine's army like a bull dog, and never ceased its apparently reckless attacks, though perfectly certain not to succeed in driving the enemy back. It held him fast, and though it lost nearly 7,000 men, maintained its position and its hold upon the enemy until supported by the successive arrivals of other corps. It is now a golden rule with the Prussians never to yield an inch of ground, because once yielded it is so hard to regain it. It is recognized that an inferior force in position can hold its own for a long time against front attack—and for this reason, they are not afraid of weakening their front in presence of the enemy, so only that they can use the troops taken away for the purpose of a flank attack.

Closely allied with the question of front or flank attack is that of a system of offensive or defensive tactics. There can be no doubt that almost all the German writers support the

principle of active aggression in war. Yet we find an excellent example of their defensive fighting when Bourbaki attempted to raise the siege of Belfort and make a diversion in the East to assist Chanzy in his march upon Paris. Of course, the whole strategic plan of this movement was ridiculous, but that has nothing to do with the fact that the Germans, very inferior in force, intrenched and defended themselves for three days against all the efforts of Bourbaki's superior army—superior, that is, in numbers, not in fighting quality. But on this occasion the Germans were only doing on a large scale what can be done on a small one. They were only holding their own to give time for the flank and rear attack of reinforcements hurried down to their support from the North.

No army can limit itself to the defensive. Even on the defensive, all that now remains in the power of the commander is to determine the moment at which he shall abandon his absolute inaction, and trust, as he launches his troops into counter attack, to their readiness to conform, and their capacity for conforming, to the essence of his instructions.

The answer to the tactical question of offence or defence is perfectly simple, though its practical application in war is more complicated than ever. If two thoroughly good Generals were placed opposite to each other in command of troops, equal in all respects as to marching and fighting powers, we believe that both of them would act partly defensively, and partly aggressively. Everything else being equal, superior information as to the movements of the adversary would carry the day. Let us suppose, then, that both armies are being extended eastwards, in the endeavour to turn, one the right flank the other the left of the opposing force. We will suppose that A discovers the design of his opponent B. He will neither continue his own movement towards that flank, because it would be useless,

nor will he make a decisive centre attack, because it would be both vain and costly; but he will avail himself of the defensive power of modern weapons by placing a detachment, inferior, perhaps, to the force with which the enemy is attempting to outflank him, in a position where it can defend itself vigorously and for a long time against the flanking force of the enemy. At the same time, he will himself attack the other flank of B's army, not hesitating to weaken his centre for the purpose. His attack may, perhaps, be answered in a similar manner by the enemy, if the latter obtains proper information. Indeed, we have as yet no experience of what will happen when two armies, equally trained, armed, and commanded, meet on the field of battle. If the troops be animated with the same antagonistic spirit of race which possessed the French and Germans during the late war, we can well conceive that the result may be bloodier than that of any action yet known to history. There may, evidently, be special occasions when a distinct offensive or defensive part must be played, as with Alvensleben's corps at Mars-la-Tour or the Germans near Belfort when attacked by Bourbaki; but, as a rule, when the forces are anything like equal, we believe there must be both attack and defence on either side. Two great powers—one moral, the other intellectual—are always on the side of the assailant. The spirits of men rise with the sensation of attacking. An enemy on the defensive seems by that very defensive action to be hiding, and therefore inferior in numbers or courage, and the assailants feel that they are making the battle, or at least giving its tone. The other power is that of actually carrying out your own plans while checking the development of those of the enemy. Both of these are very strong in favour of the attack, and we may add a third, which springs out of them. If attacked, you know not what is behind the enemy's first arriving troops; if you attack, you soon find out the weak

points of his harness. Defence, to be of any value, must at some period or another be changed into counter attack.

No greater proofs of the difficulty of front attack could be cited than the blockades of Metz and Paris, and the battle of Sedan. In these three cases the action of the Germans was eminently aggressive to begin with. All their marching powers, all their courage and aggressive faculty were used at first, and only by means of their aggressive action vigorously carried out for days together did they succeed in placing themselves in that strategically offensive, but tactically defensive, position where the enemy must attack them in *front*, for there was no flank to attack.

The vital necessity is that, above all things, an army should be fed well and able to move fast. It seems quite out of the question to supply a large army entirely from its base. The Prussians hold that such a system would be utterly impossible. The French are of the same opinion, and other nations must imitate them or be left behind in a campaign.

The three most necessary articles are food, including tobacco, ammunition and boots. The experienced soldier will carry any additional weight rather than go hungry.

The Prussian Etappen Department, acting upon regulations made in 1867, after the experience of the Bohemian campaign, includes among its duties much more than accumulating stores and supplying them to the fighting forces. It is responsible for the condition and the safety of all the means of communication between the armies in the field and the country whence they originally marched.

At the head stands an "Inspector-General," holding the rank of General of Division. He is always in direct communication both with the Commander of the Army and the Minister of War, who remains behind. He has nothing whatever to do with the strategical march of the various corps

until they unite under one command. All that is the business of the Corps Etappen Departments and of the wonderful district organization; but the Inspector-General takes them up at the point of concentration, and begins even before they arrive to form his magazines and dépôts, which are to extend in a chain from the base of operations to the army in the field, no matter how far it may march. As the army advances he follows it, always one or two days' marches in rear, but in constant communication with its Commander, under whose orders he acts, being kept acquainted with his councils. He fixes each day the head of his chief Etappen line, taking care that it is within reach of the transport belonging to each corps, and they shall find there whatever they may need; that the postal and telegraphic communication is kept up regularly, and that he has troops enough with him—generally Landwehr—to assure the safety of the roads without the assistance of a single man from the fighting corps. He has little to do with details of execution, only watching carefully that all the duties of his subordinate officers are performed with energy and intelligence. He has under him:—

1. A Chief of the Staff, whose title indicates his duties.
2. Three Adjutants; the first responsible for the military organization, the guards of the roads, the correspondence with the commander of the army, and all questions relating to the *personnel* of the department. The second watches the position of the various corps and detachments, takes charge of their field-states and reports, attends to transports, convoys, prisoners, and horses. The third performs the duties of a superior aide-de-camp. All these attend to the office work, keep the journal, &c.
3. An Officer of Gendarmes directing the provost duties.
4. An Auditor responsible for all affairs of justice.

5. An Officer of Artillery. His business is with everything relating to arms. He is in charge of the parks and ammunition columns, establishes workshops, collects arms, &c., from battle-fields, and is generally responsible for the supply of military material and all repairs too heavy to be executed by the artificers of regiments and batteries. He has a considerable staff of soldiers and workmen under him, and full power to make requisitions for whatever he wants.

6. An Officer of Engineers, who directs and carries out all duties relating to construction or demolition of field works, roads, railways, bridges, barracks, huts, telegraphs, provisional hospitals, and other works of the same kind.

7. A Director of Railways, who must be fully competent to act as manager of a line with all its branches, as well as to superintend and direct the engineering part of the work. He has a large staff under him, and is responsible that lines destroyed by the enemy are in working order as soon as possible. If he wants help, he makes requisitions through the medium of the Inspector-General for men, civil or military, or for material. The cost of repairing a line in the enemy's territory is, with the usual Prussian economy, paid out of requisitions made upon the people. When the lines are restored, the Director of Railways works them through commissions appointed under his direction. As far as can be, the old servants of the line are made to work it under strict supervision. A regular railway guide, a sort of comprehensible *Bradshaw* on a small scale, is printed, but room is left for special trains conveying stores and reinforcements to the army, damaged material, and sick and wounded. There is a system of regulations imposing punishments touching purse or person on the inhabitants of the district in case of damage to the line.

8. A Director of Telegraphs. He performs with regard to the telegraphs the same functions as we have just described

in relation to railways. Whenever the army rests for a while, each corps is placed in telegraphic communication with the general head-quarters, and through them with the Fatherland and the world. In this case the *personnel* of the field telegraphs falls temporally into the hands of the general Director.

9. A Director of Posts, who takes up the postal work between the nearest railway station and the army or within a day's march of it, according to circumstances. The duty of sending letters and parcels from Germany, as far as the railways can carry them, belongs to a central administration common to all the armies in the field. The Director of Posts for the army establishes relays on all the roads, requisitioning horses for the purpose. The one day's journey between the corps and the Etappen Post Director is managed by the field posts.

10. An Etappen Intendant. The work of this officer is one of very great difficulty. He has not only to secure the provisioning of all the Etappen *employés*, but to be always ready to supply to the army any provisions or clothing of which it may stand in need for the moment. For this purpose he has to establish magazines at the most important places, and to sweep the whole country round for contributions. The system of requisition is well known to be the backbone of Prussian supply.

It would be a great mistake to suppose that the railways in an enemy's country can be entirely trusted to as in peace manœuvres for the supply of an army.

In an enemy's country the railways are always in danger of being cut. The trains must therefore move slowly. Furthermore, besides empty carriages returning, there are frequent and sudden calls made upon the railway for conveyance of wounded. The result is that not the railways but the roads are still regarded as the main arteries through which must flow the life-giving requisites of the army.

With regard to the great staff of life—bread, the Prussian instructions of 1870 foresee that when the army is making rapid marches it cannot well employ its field ovens. In such a case the Etappen Intendant has to pursue it with three sections of bakeries, one of which only is at any given moment actually supplying bread to the troops. It is supposed that to establish bakeries sufficient for a large army and to set them fairly going requires three days. For another three days the section bakes as much bread as possible and sends it on to the army, it then breaks up and spends three days in catching its army again. We have thus three periods of time during each of which one section is installing itself close behind the army. Another further back is baking bread, as fast as it can, while the third is on its road to rejoin the army.

The Etappen Intendant supplies hospitals as well as marching troops with food and clothing, and takes care of all the love gifts for the sick sent from the far off German home.

11. An Etappen Surgeon-General. His duty is to establish all the necessary hospitals in rear of the army, to arrange with the commissions all the transport and evacuation of the wounded. He directs the reserve of ambulances and supplies assistance, voluntary or otherwise, to the army when required. He has to see to the comfort and repose of the wounded from the front, and establishes resting places as well as convalescent hospitals where lightly wounded or over-fatigued men are received, carefully tended, and when sound again sent back to their corps.

12. A veterinary surgeon, who has to care for the horses just as the Surgeon-General has for the men. The only point worth special notice is that there are no such curious animals as dismounted cavalry with the Prussian army in the field. If there are spare men after battles or from any other cause, they are supplied with horses from the Etappen Department,

which, on the other hand, takes charge of any horses becoming useless to the army by reason of deficiency of men.

So far we have spoken only of the General Etappen Department of the army, but all the organization of this Department would fail in two essential particulars were it not supplemented by another organization carrying out the principle of decentralization, furnishing the blood which, as we have said, flows along the main artery, and then distributing it to the various members—the *corps d'armée*. This second organization is so complete in itself that it can at any time be detached from the Etappen Department of the army and work the communications and supply of each corps separately. We must never lose sight of the fact that the whole force of the German organization lies in the district corps system. From the districts come the various articles required by their own corps and not to be found in the enemy's country. For the collection and final distribution of these stores every corps has an Etappen system exactly analogous to that of the Army Etappen Department, only the *employés* are each one step lower in rank than the corresponding functionaries of the army. For instance, the Corps Etappen Inspector has the rank of a commander of a regiment and has two adjutants. When the different corps are acting together he remains with the Army Inspector and takes orders from him, but if the corps is separated from the others, he acts independently, and falls at once under the orders of the corps commander—under his orders most distinctly. The only body he “controls” is his own department; and there is no such thing as the commander of an army or corps asking his Etappen Inspectors, “Can you provide the means to enable me to perform the operation I have in view?” He simply says, “I am going to march or fight a battle, you must be prepared for certain probable contingencies and for others not so probable. You must anticipate the requirements of the army according to your knowledge

and past experience. If I want anything take care that it can be supplied. » Beyond watchfulness not to be cut off from his communications the General has no further anxiety or trouble about them. That care falls upon the Etappen Inspector, who has even the troops necessary to guard his roads and railways against the attacks of any small bodies of the enemy. He has force enough to overawe the occupied territory, to perform the duties of police throughout it, and to establish garrisons, small, perhaps, but enough considering that his own friends are in front of him. Thus the further the armies penetrate into an enemy's country the larger becomes his command, which, confined at first to the few men necessary to perform duties at head-quarters, grows by being fed from home till whole provinces are covered with his soldiers and agents, while the commander of the army need never so much as look over his shoulder to see that all is right in rear.

It is by no means clear that the Prussian system of « mobilization » in certain conditions would not prove faulty and even dangerous.

MacMahon had placed the French right wing in position at Wœrth, and trusting to the support of De Failly, about a march distant with the 5th French Corps, awaited the attack with perfect confidence. The position of the **Marshal** was very strong, but it admitted of a passive defence only, MacMahon like all the Imperial chiefs having adopted a system in all respects opposed to the traditions of the French Army.

From a tactical point of view, the French army occupied the ideal of a defensive position ; but it had the disadvantages common to so-called unassailable positions.... First, the position was deficient in issues to the front ; an attack upon it might in the worst case be repulsed, but a counter

attack to the front was scarcely to be feared.... Secondly, the flanks were not supported. His right flank was more or less in the air ; his left rested on that most doubtful of all points of support to wings—a wood.

The French Army has seldom shown more heroism than on the day of Wœrth. MacMahon, unaided by De Failly, had not five whole Divisions on the field, not more than 48,000 men ; yet with this comparatively small force he successfully baffled for many hours the attacks of nearly three German Corps, not less certainly than 90,000 strong, and even had a marked advantage for a time. The defects, however, of a system of passive defence revealed themselves as the day wore on ; and when the German reserves came up, not far from two additional Corps, it became possible to turn both his flanks and to overwhelm him with irresistible numbers.

If MacMahon had safely crossed the Meuse, he would have been intercepted by the Crown Prince of Saxony, and in that event the whole Third Army would have assuredly closed on his rear, and the catastrophe of Sedan would have happened a few leagues to the east or south of Montmédy. In fact, under existing circumstances, MacMahon's march was a ruinous error, contrary to the simplest principles of the art of war ; and no one knew this better than the Marshal himself, who, as early as the morning of the 27th of August, desired to abandon his fatal course, and to fall back by the Oise on Paris.

A glance at the map will show how insane was the conception of making an army describe a vast semicircle of which the Crown Prince of Prussia held the centre with 180,000 men, and at the end to encounter in succession the Crown Prince of Saxony, with an army of 70,000 men, and the two armies of Prince Frederick Charles, 200,000 strong, at Metz.

The head of the German armies, when apprised of the

results of the battle of the 14th of August, addressed himself, without hesitation or delay, to the means of turning them to the best advantage. Though not aware of the exact facts, he felt assured that the Army of the Rhine would now endeavour to escape from Metz; and he thought it probable that he should be able to baffle its leader's assumed projects. He did not yet entertain a hope of hemming Bazaine in on the Lorraine fortress, but he believed that it was now in his power to separate him finally from MacMahon; and, adhering steadily to his original design, he prepared to cut him off from Châlons and Paris, and, if possible, crush him on his line of retreat.

According, therefore, to this project, the 3^d Army continued its march, and it attained the line of Toul and Nancy by the 16th of August, stretching thence backward beyond Luneville. Meanwhile the movement upon the Moselle was accelerated in every possible way; and while the rearward corps of the 1st and 2^d Armies were still held on the eastern bank, the vanguard was hastened across the river, with general directions to the commanders to push towards the roads from Metz to Verdun, and to operate at their own discretion, but with the greatest possible speed. These orders were executed with energetic zeal, and by the evening of the 15th of August the 3^d and 10th Corps of the 2^d Army had made their way over the river in force, preceded by two divisions of Cavalry, while the 9th Corps and part of the 8th of the 1st Army were near the stream in the space between the Moselle and the Seille. By these dispositions a German force was placed on the westward bank of the Moselle, within reach of the roads from Metz to Verdun; and it might be expected to prove sufficient to intercept stray columns on this line, and to form the head of a great pursuit northwards. The mass, however, of the 1st and 2^d Armies was still far away on the eastern bank; the 7th and 1st Corps

to the south-east of Metz ; the Guards, the 4th, the 12th, and the 2^d Corps extending from Dieulouard to Herny, and therefore at a very great distance ; and accordingly the divisions on the western bank could not expect support if at once assailed, and were to a considerable extent isolated. A glance at the map, indeed, shows that these bodies were very far apart, to resist the efforts of a powerful army that should endeavour to march from Metz on Verdun. The cavalry only had approached the Verdun roads ; the 10th Corps was many miles away ; and so, also, were the 9th and 8th ; and the 3^d alone was in real proximity. It is evident, therefore, that the German chiefs, according to ordinary military rules, had not barred the retreat of the Army of the Rhine on the line leading from Metz to Verdun, much less on any of the routes northward ; in fact, their objects had been different ; and, should Bazaine attack in force on the 16th, he would have many chances in his favour.

Such were the dispositions of the Germans, carried out with conspicuous vigour and rapidity, yet not perfectly in accord with the facts, and not without danger, had the French had a real leader. The whole of these movements had in view the pursuit of Bazaine north of Verdun, and did not contemplate his army being in force on the roads between Metz and that place ; for, in that event, the Marshal would have a great preponderance of strength on his side. The fact affords a new illustration of the important truth that Generals, often obliged to act on incorrect data, fall into what, judged by the event, are errors, however excellent their plans in the main may be. While the German hosts had thus been advancing across the Moselle by a wide sweep round Metz, Bazaine had been endeavouring to get his Army free from the great fortress, and thence to effect his retreat westward. Having lost the precious day of the 13th of August in halting between opposing schemes, he had fought a battle

on the 14th, which had led only to disastrous delay ; and the probability that he would make his escape without molestation on the part of his foe was growing fainter from hour to hour. Yet it is now certain, as these papers prove, that he had still the means of making his retreat ; nay, fortune was about to give him a chance which a great soldier would, perhaps, have made productive of very fruitful results. On the afternoon of the 14th, and throughout the 15th, the retrograde movement of the French went on, and by the evening of the last-named day the 2^d and 6th Corps and the Imperial Guard were concentrated beyond Gravelotte, on the uplands which spread around the villages of Vionville, Rezonville, and Mars-la-Tour. The 3^d and 4th Corps had, meanwhile, defiled through Metz and crossed the Moselle ; but these divisions of the Army of the Rhine, having been those chiefly engaged at Borny, were fully twelve hours behind their comrades, and it was not until the morning of the 16th that they had taken their positions north of Gravelotte, near Villers-les-Bois, Marcel, and Doncourt. There can be little doubt that, viewed in the abstract, this movement had not been well conducted ; and, as to retreat and avoid the Germans should have been the principal aim of the Marshal, he ought to have divided his columns, and have sent one detachment by the road to Briey, and so have made his march more easy and rapid. But, in the actual position of affairs, the Army of the Rhine was very well placed ; nay, its chief had a real opportunity which he might have turned to great account. Five French corps, fully 110,000 men, were now gathered within a small space and perfectly in communication with each other along the direct roads from Metz to Verdun ; and they still formed a magnificent force, equal, if well directed, to the most gallant efforts. This great Army, therefore, was on a line on which Von Moltke did not expect it in anything like imposing numbers, and which he had

not even nearly barred ; and was it to be arrested in a decisive movement by the comparatively feeble and divided foes who alone could throw themselves across its path ? Were a few thousand horsemen and the 3^d German Corps, resting on supports at a great distance, to paralyze Bazaine and his dense masses ? Nay, had he not the means of making his enemy suffer heavily in his advanced position, of attacking him with largely superior forces, and of opening triumphantly his way to the Meuse after a struggle which ought to have given him victory ? No candid student of war will deny that the French Marshal had, on the morning of the 16th, a golden occasion which a true leader would not have allowed to pass unimproved away.

These operations on both sides led to the great battle of Mars-la-Tour, the most remarkable in the whole campaign. In the early morning of the 16th of August the advanced guard of the German cavalry, which had reached the great road from Metz to Verdun, about Tronville and Mars-la-Tour, surprised and drove in the French outposts, and ere long had spread in a wide circle to reconnoitre the French position. In a short time the two Divisions of the 3^d Corps appeared on the field, and falling on the corps of Frossard, defeated at Forbach, they forced the enemy back a long distance, and captured the two villages of Vionville and Flaviigny, which gave them important points of vantage. The 6th French Corps now came into line, and had it put forth its whole strength and been sustained, as it might have been, by the 2^d and the Imperial Guard, the united mass must have broken through and through the Germans, and crushed them. But Bazaine obstinately clung to the belief that he would be assailed in flank and rear by enemies advancing from across the Moselle through the woods and ravines that covered his left, and conceived that his paramount object should be to keep up his communications with Metz ;

and, accordingly, he permitted a part only of the 6th Corps to take part in the fight, and, withdrawing the 2^d Corps from the field, massed it with the Guard and the rest of the 4th in strong positions around Gravelotte, thus removing from the struggle the very forces which, if properly used, ought to have given him victory, in order to meet a fancied danger ! The 6th French Corps gained some slight success. By this time it was 3 o'clock, the struggle which the French Marshal ought to have made a victory being quite undecided. At the news that its comrades were engaged, the 10th German Corps was pushed to the field by Prince Frederick Charles.

Meanwhile, however, the 3^d and 4th French Corps had been summoned by Bazaine to the fray ; and these detachments, which, being near at hand, ought to have been in line in the forenoon, and to have literally annihilated the 3^d Corps, were in time to confront the newly-arrived enemy. The battle now spread far away eastward, and the villages of Mars-la-Tour, of Tronville, and Bruville were the theatre of a stern encounter, in which, however, the preponderating force of the French gave them a marked advantage. But here, again, the General-in-Chief interposed in the most disastrous manner ; the leaders of the 3^d and 4th Corps received positive orders to hold their ground only. Prince Frederick Charles, who had arrived on the field, employed his reserves to the last man. Meanwhile the attack which Bazaine had dreaded many hours before it could have occurred, had been developed to a certain extent, and parts of the 8th and 9th German Corps, marched to the scene of action with great rapidity, began to menace his left flank from Gorze and the adjoining district. This caused the Marshal to draw in his line, and night ended a desperate battle. The 1st, the 3^d, and the 4th French Corps showed themselves worthy of their old renown ; and the French cavalry, though

thrown away, as at Woërth, against unbroken infantry, displayed splendid though fruitless valour.

Twice on the 16th, Bazaine let victory elude his grasp; and, had he moved his reserves against the weak 3^d Corps, as it stood isolated in the midst of foes—nay, had he afterwards boldly engaged his 3^d and 4th Corps against the 10th, his antagonists could hardly have escaped defeat. Instead of this, he withdrew the Imperial Guard and the 2^d Corps to cover his left, when not an enemy was even near; he opposed a weak screen to the 3^d German Corps, and gave time to its supports to come up; and, after having throughout the day stood on a feeble and timid defensive, he paralyzed his 3^d and 4th Corps, and held them back at a decisive moment. In other words, he made no use of more than half his army on the field of battle; he so placed it that it was not in force at any time at the important points; and throughout the day he evidently had no idea of the inferior strength of the enemy, no conception of what he might have accomplished, no thought but of fighting when brought to bay, and making sure of his hold on Metz, to which he clung as to a plank in a shipwreck. This was the paramount cause of the defeat of the French.

A great commander might even yet have, perhaps, opened his way to Verdun by a desperate effort on the morning of the 17th: The Germans were happy in having such an antagonist. Von Moltke had good reason to thank Fortune at Mars-la-Tour. It is a mistake to suppose that the operations which ended in the surrender of Metz were the result of a preconceived design; and in this respect they are not equal to the strategy which encircled Mack in Ulm. The German commanders were not omniscient, and their antagonists had more than one chance. The German chiefs underrated the resistance of France.

The battle of Coulmiers was nearly being a serious re-

verse, and spread anxiety through the German camp; after that event, the fall of Metz probably alone prevented a remarkable change in the scene. The Germans strengthened their hold on Paris, and looked out anxiously for the fall of Metz, which would set 200,000 men free to support their feeble investing line, and to overpower the new French levies. Meanwhile France made astonishing efforts, to repel the invaders; and in the South especially the Army of the Loire became a large force. Even after the calamitous surrender of Metz, the Germans felt that they were insecure, and the First Corps was left around Orleans completely isolated, as no troops could be detached to its aid from Paris.

The German authorities were not able to make a definite disposition of the inconsiderable forces that remained at their disposal after deducting the Army of Prince Frederick Charles, which was on the march. It was, indeed, a critical period, and any prolongation of it was viewed with impatience at Versailles.

In this state of affairs the Army of the Loire, now composed of the 15th and 16th Corps, crossed the river in the last days of October, the mass of the army by Blois and Mer, and one detachment advancing on Gien, the object of D'Aurelle being to cut off and overwhelm the First Corps by a concentric movement against Orleans. General Von der Tann advanced to Coulmiers and Baccon, and this movement led to a collision between the First Corps and the new French army.

Between 3 and 4 p. m. General Von der Tann became convinced of the necessity of adopting one of two alternatives, either to hold his position till nightfall, even if it cost him his last man and his last cartridge, or to retire... He issued orders for a retreat towards St. Peray and Artenay.

The success of Coulmiers not only sent a thrill of rapture through France, but caused profound anxiety at Versailles, where the dangerous position of the investing army around

Paris was fully apparent. Preparations were made to raise the siege; the Grand Duke of Mecklenburg was despatched with two divisions to the aid of the First Corps; and though Prince Frederick Charles was approaching the Yonne, it was feared that the victorious Army of the Loire would move to the relief of the capital by the circuitous route of Dreux and Chartres.

Whether the Army of the Loire could have made this march, and what, if it had, would have been the result, can now be only matter of surmise; but the German Chiefs were not a little uneasy, and the fact shows how unexpected had been the revival of the military power of France. One thing is certain, that at this juncture nothing but apprehension of Prince Frederick Charles prevented even the cautious D'Aurelle from making the attempt to advance on Paris; and, if so, who shall pretend to say what effect the capitulation of Metz—that dark episode of treachery and shame—may have had on the final issue of the war? For some weeks after the battle of Coulmiers the operations of the Germans were far from coherent, and the consequences showed themselves in their strategy. Though the Army of the Loire had retired on Orleans, the Staff at Versailles continued to fear that it yet might push forward by Dreux or Chartres, and the result was that the Grand Duke and Von der Tann were despatched far away to the Sarthe and the Eure to guard against this supposed movement. This diversion, which opened a wide interval between their forces and those of Prince Frederick Charles, might have given a great chance to a more daring chief than D'Aurelle—a chance perceived by the capable Chanzy. Few passages in the war are more worthy of notice than the rallying under Chanzy of the left of the Army of the Loire, and how, aided by an additional corps which had risen suddenly, as it were, from the earth, he baffled the Grand Duke and Von der Tann.

During the following week Chanzy, in position in the space between the Loire and the Forest of Marchenoir, resisted all the attacks of the enemy, and more than once gained a marked advantage.

The tenacity and endurance with which the troops made their stand for four days is a proof of the conspicuous energy and inspiring activity of their leader, General Chanzy... Modern history offers no instance of battles so completely fought out as those on the plains of La Beauce.

It is by no means now so certain that on future battle-fields Cavalry cannot be turned to account. The natural tendency of the breechloader is to cause great dispersion among Infantry and immense waste of ammunition. Moments are certain to arrive in every great battle of the present day when troops find themselves dispersed and scattered, very likely distant and separate from their reserves, and not at all improbably with their ammunition expended. In these circumstances the sudden appearance of a large force of Cavalry at a critical moment may turn the fortunes of the day, more especially when Infantry is demoralized, fatigued, or surprised. At the battle of Custoza a squadron and a half of Austrian Lancers came across an Italian brigade of five battalions, and completely routed four out of the five. But more especially when Cavalry is opposed to Cavalry do heavy men protected with cuirasses and mounted on heavy horses become useful. Light and medium men, not so protected, cannot face them. In fact, the Heavy Cavalry of an army is required to protect its light horsemen from the Heavy Cavalry of the enemy. It may, therefore, seem worthy of consideration whether all Heavy Cavalry should not be armed with cuirasses.

The fire of a Battery at the present day (and we hope soon to outdo this) begins to be effective at 4,000 yards, is very powerful at 2,000, and annihilating to troops in any forma-

tion at 1,000 yards and under. The ground must, of course, be supposed to be moderately open.

A gun in action under favourable circumstances covers with its fire about seven square miles of country, and can change its object from one point to another more than four miles distant from the first by a simple movement of its trail. A column on the right flank may be hit, and within a minute another column four miles to the left of the first. 100 guns would occupy a mile, and a mile was once a long range, but now a line two miles long might fire at the same object, and the guns at one end could protect those at the other by flanking fire. Therefore every increase of range lent a new argument for the tactics of massing.

A General should endeavour to obtain a superiority of Artillery as early as possible. His whole, or nearly his whole, force of guns should be pushed well forward and massed at the beginning, so that it may crush the enemy's Artillery in detail as the latter comes into position.

Whether acting offensively or defensively, artillery can protect its own front in ordinary open country, and should not retire before Infantry unless the whole force is retreating.

But Artillery can be sorely annoyed, or even caused to retire, by the fire of Infantry skirmishers, well concealed in folds of ground or behind walls and trees. Therefore Infantry should not attack in any formation, but, so to say, stalk the guns. And this being granted, Infantry should always attack guns; who knows but that they may be unsupported?

The only reply to such hidden attacks, early in the battle before the friendly Infantry has come up, is by the use of dismounted Cavalry, or, better still, by mounted men trained to work on foot either as riflemen or gunners, and permanently attached to the batteries.

Since Artillery can take care of itself, provided its flanks are protected, a line of guns may be deployed, and behind

it the Infantry may effect turning movements to act on the enemy's flank. When such a flank attack is ready to be delivered, the mass of guns should concentrate their fire on that part of the enemy's line about to be assailed till it is shaken.

A system of signals should be used to enable a large number of guns to act simultaneously against the same point.

When the Infantry combat has commenced, as many guns as possible should be pushed close up to the enemy.

When Artillery advances to close combat, a considerable number of men and horses should follow the batteries as near as they can consistently with keeping under cover. If this be done, there is no fear of leaving the guns in the hands of the enemy. At such moments cover becomes a secondary consideration. Artillery, like Infantry or Cavalry, in close combat must count on heavy losses in men and horses, but they must determine to crush the enemy in that part of the field, remembering that « omelettes are not made without breaking of eggs. »

Since a frontal attack can be beaten off at any range, artillery, if it has a clear space of 1,000 yards in front of it and scouts on flanks, should not allow itself to be turned from its immediate purpose by the reported approach of large bodies of infantry. Such attacks may be neglected till the enemy comes within 1,000 yards.

Range-finders, telescopes, and scouts are indispensable to the development of the full power of artillery ; the same may be said of spare men, horses, and ammunition. The front line of the battery should have as few men and horses as possible, and should be fed from the rear, two or three times over if necessary. But the great principle of all is that artillery has issued from its childhood, and is as well able to shift for itself as any other arm. This does not mean that it is independent of the others, but that it is only dependent

on them in the same sense that they are dependent on it.

The mainstay of an army is Infantry. Command should extend over depth rather than breadth, and each company should provide its own immediate support. This is effected by directing each Captain to extend, in the first place, only half his company, the other half being placed in the front line whenever the Captain may see fit. Thus the mixing up of companies at an early period of the action is avoided. Tactical and administrative command should coincide.

The attack formation is to be assumed as soon as a battalion becomes exposed to artillery fire. The distance necessarily depends on the nature of the ground. In some circumstances it may not be more than a few hundred yards. In open ground the limits are estimated as being 3,000 and 4,000 yards, so great is the range and accuracy of the modern field-piece. The battalion is supposed to be in quarter-column, and before it reaches the zone of effective artillery fire it is deployed into line of half-battalion columns, and on account of the range of shells the front taken up is much wider than that hitherto considered sufficient. Space is allowed as for a battalion in line on the following *data* : — Each file is supposed to occupy 30 inches. The companies are to be separated from each other by an interval of three paces, and half-battalions by one of six paces. Thus not only will half battalions and companies be kept as distinct as squadrons, but each man will have plenty of room for the full use of his arms. As soon as the half-battalion columns have assumed their positions, the two front companies of each will be sent forward to act as the attacking line. Only half of each company will at first be extended, the other half companies being retained at a distance of from 150 to 200 yards in rear, to constitute company supports. The leading half companies will form on the march single rank, the intervals between men being such as to insure the whole front of the

battalion being covered. The rear half companies will move in two ranks, with two paces interval between files. The front and rear half companies will together be styled « the attacking line. » The captain is to take post in rear of his leading half company. The remainder of the half battalions — two companies in an eight company battalion — will follow in rear of the supports of the extended companies at a distance from them of from 200 to 300 yards, and in such formation as may be deemed advisable. These companies will be styled « the supporting line. » An excellent innovation is the sending in advance of all, at about 100 or 150 yards of the extended line, four or five picked men per half battalion. These, under the direction of an officer, will act as scouts, and will retain their relative position until they approach to within 500 yards of the enemy, when they will halt and lie down till the arrival of the attacking line and then advance with it.

The principle is to evade as far as possible the destructive effect of artillery fire by giving it no masses or bodies of men shoulder to shoulder as targets. The front of a battalion of 800 rank and file, exclusive of scouts, would be 374 paces. Consequently, at first each man in the extended line would occupy a space of nearly two paces, or nearly five feet. Even if a shell burst precisely at the right moment, it would cause comparatively little loss on such a line. The effect of artillery fire would also be very slight on the supporting bodies spread over a considerable depth of ground and, equally with the skirmishers, taking advantages of all cover and being constantly on the move. We may, therefore, conclude that during the earlier part of the advance the enemy's gunners would fire but little. The extended line is to advance quietly, steadily, and without unnecessary words of command or bugle calls, and as far as can be gathered in a general line. On reaching the zone of effective infantry fire the supporting

half companies will reinforce their leading half companies. The precise moment at which this operation may be necessary will depend upon the ground and the amount of resistance encountered, about 800 yards from the enemy's position. No fixed rule can be laid down. Officers commanding the advanced companies should endeavour to approach as near as possible to the point to be attacked before ordering up their rear half companies. The true principle is to keep as large a number of men as possible in comparative safety till the decisive moment, and always to have something in hand. Still, it must be borne in mind that the enemy's fire must never be allowed to gain the ascendancy and snuff-out the assailants in detail. When the whole of the attacking line has been thrown into the fight the supporting line is to be moved up to within 300 yards of the men engaged. At this point of the action a further advance must evidently become difficult. The question then is, how is it to be accomplished with the least possible loss? That many casualties will occur in the process is certain. The object to which attention must be directed is the minimizing of loss. Advance is to be continued by alternate companies. This is so far sound, for if the advance were by smaller bodies, they would be apt to get in front of each other and obstruct the firing line; whereas, if the advance were by larger bodies, it would be difficult to give a simultaneous impulse to them. The rush is only permissive, not obligatory. Thus, captains are practically allowed to advance in their own way. The experience of many officers is that the best method of advancing is for the two men of a file to work together, one running or creeping forward a short distance, while his comrade covers the movement with his fire. By this means the whole line gradually gains ground like an incoming tide. When the attacking line is about 300 yards distant from the enemy's position, it is to be reinforced by the rest of the battalion.

In many cases, if a battalion succeeded in establishing itself on a line about 150 yards from the enemy the affair would soon virtually come to an end without a further advance. Either the assailants or the defenders would be crushed by the volume of fire poured in at such a close range. Assuming, however, that the loss was not so great as to induce the assailants either to remain halted or to retreat, or to compel the defenders to quit their position, it is evident that a very critical and dangerous piece of work devolves on the attacking party. How is the deadly zone of 100 or 150 yards to be passed over? The ranks of the enemy may be much thinned and their courage greatly shaken. In that case the assailants may, without danger, make a rush over the intervening space. What, however, if the enemy, partially covered by, say, the brow of a hill, should not have suffered heavy loss and be evidently determined to stand their ground? In that case a rush over 150 or even 100 yards would bring the assailants up breathless, in disorder and thinned by the last few shots, to cross bayonets with a halted, regularly formed, perfectly fresh line. It seems, therefore, that the former method of gaining ground by degrees should be prolonged till the attacking line is within 50 or 60 yards. As a matter of fact, however, a front attack on a fairly good position, occupied by resolute troops, would have few chances of success unless the foe were previously shaken by a fire of artillery, or simultaneously threatened on the flank. The advance of Infantry should always be preceded by a concentrated fire of Artillery on the point selected for attack.

In order to minimize the loss inseparable from a front attack, even when the latter has been fully prepared by Artillery, the assailants must have recourse to three expedients—*i.e.*, the nature of formation, quickness of movement, and the taking advantage of cover.

The flank formation is the same as the front formation,

except that only one half battalion is broken up for attack, the other half battalion remaining in rear as a battalion reserve.

The attack formation for a brigade is merely an application on an extended form of the principles laid down for a battalion.

Retirement should be carefully practised. For nothing tests the discipline and general training of men more than a retreat under fire. Indeed, many military authorities are of opinion that if an attack fails it will be almost impossible to fall back without crushing loss and terrible disorder. Is not the method adopted during the advance equally applicable during the retreat ?

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