turned to account. What is certain is that I was convinced upon the steeple of Gautsch, at the battle of Leipsic of the fruits which one may derive from such an observation; and the aid de camp of the Prince de Schwartzenburg whom I conducted there, could not deny that it was our solicitations which decided the prince to leave the confined place between the Pleisse and the Elster. Doubtless one is more at his ease upon a steeple than in a frail ærial car, but one does not always find steeples situated in such a manner as to be able to overlook the whole field of battle, and they cannot be transported at will. It would besides remain for Messrs. Green or Garnerin to tell us how objects are seen at five or six hundred feet of perpendicular elevation.

There is a kind of signals more substantial, which are those given by fires lighted upon the elevated points of a country: before the invention of the telegraph they had the merit of being able to bear rapidly the news of an invasion, from one end of the country to the other. The Swiss use them for calling the militia to arms. They are also used sometimes for giving the alarm to winter cantonments, in order to assemble them more promptly: they are used all the better to this end that two or three variations in the signals suffice for indicating to the *corps d'armée*, upon which side the enemy menaces the quarters most seriously, and upon what point they ought to effect their rendezvous. For the same reasons these signals might be suitable upon the coasts against descents.

Finally there is a last species of signals which are given to troops in action by the aid of military instruments; as they do not bear directly upon the subject we treat, I shall limit myself to observing that they are better perfected in the Russian army than any where else. But at the same time acknowledging of what importance it would be to find a sure means of impressing a spontaneous and simultaneous movement upon a mass of troops in accordance with the sudden will of its chief, it must be owned that this will yet be a long time a difficult problem to resolve: and apart from the case of a general hurrah impressed upon the whole line by the charge step repeated gradually it will ever be difficult to apply signals by instruments, to other use than to skirmishers: even these general hurrahs are rather the effect of a transport of the troops than the result of an order: I have seen but two examples of them in thirteen campaigns.

CHAPTER VII.

THE FORMATION OF TROOPS FOR COMBAT,* AND THE SEPARATE OR COMBINED EMPLOYMENT OF THE THREE ARMS.

Two essential articles of the tactics of battles remain for us to examine: the one is the manner of disposing the troops in order to conduct them to combat, the other is the employment of the different arms. Although these objects belong to logistics and to secondary tactics, it must be owned meanwhile that they form one of the principal combinations of a general-in-chief when it is the question to deliver battle; hence it necessarily enters into the plan that we have proposed to ourselves.

Here doctrines become less fixed, and one falls back of compulsion into the field of systems: it is not therefore without astonishment that we have seen quite recently one of the most celebrated modern writers, pretend that tactics is fixed, but that strategy is not, whereas it is the contrary.

Strategy is composed of invarible geographic lines, the relative importance of which is calculated upon the situation of the hostile forces, a sit-

* All that which concerns formations belongs rather to logistics than to tactics; but I have thought this chapter thus written seven years ago, could well remain as it was. for the formation depends upon the employment, and the employment depends also a little upon the formation most familiar to an army.

uation which can never lead but to a small number of variations, since the hostile forces are found divided or collected either upon the centre, or upon one of the extremities. Nothing is more possible than to subject elements so simple to rules derived from the fundamental principle of war, in spite of the efforts of fastidious writers to perplex the science in endeavoring to render it too abstract and exact. It is the same with the combinations of orders of battles, which can be subjected to maxims equally referable to the general principle. But the means of execution that is to say the tactics properly so called, depend upon so many circumstances, that it is impossible to give rules of conduct for the innumerable cases which may present themselves. To be assured of this, it is sufficient to read the works which succeed each other every day upon these portions of the military art without any being able to agree; and if we bring together two distinguished generals of cavalry or of infantry, it is very rare that they succeed in having a perfect understanding as to the most suitable method of executing an attack. Add to this the enormous difference which exists in respect to the talents of chiefs in their energy in the *moral* of the troops, and we shall be convinced that the tactics of execution will forever be reduced to contrary systems, and that it will be a great deal if one succeeds in laying down a few regulating maxims, which prevent the introduction of false doctrines into the systems that shall be adopted.

ARTICLE XLIII.

THE POSTING OF TROOPS IN LINE OF BATTLE.

After having defined in Article 31, what should be understood by the line of battle, it is proper to say in what manner they are formed, and how the different troops should be distributed in them.

Before the French revolution, all the infantry, formed by regiments and brigades, were found united into a single battle corps, subdivided into first and second lines which had each their right and left wings. The cavalry was ordinarily placed on the two wings, and the artillery, yet very heavy at this epoch, was distributed upon the front of each line (they

dragged sixteen pounder guns, and there was no horse artillery). Then the army always encamping united, put itself in march by lines or by wings, and as there were two wings of cavalry and two of infantry, if they marched by wings they formed thus four columns. When they marched by lines, which was especially suitable in flank marches, then they formed but two columns, unless, through local circumstances, the cavalry or a part of the infantry had encamped in a third line, which was rare.

This method simplified logistics, since the whole disposition consisted in saying: "You will march in such a direction, by lines or by wings, by the right or by the left." They seldom deviated from this monotonous, but simple formation, and in the spirit of the system of war they followed it was the best they could do.

The French determined at Minden, to try a different logistical disposition, by forming as many columns as brigades, and opening roads for conducting them abreast upon a given line, which they could never form.*

If the labors of the staff were facilitated by this mode of encamping and marching by lines, it must be owned that, applied to an army of a hundred or a hundred and fifty thousand men, this system would produce columns without end, and that routs would often occur like that of Rosbach.†

The French Revolution brought about the system of divisions, which broke the too great unity of the old formation, and gave fractions capable of moving on their own account upon all kinds of ground, which was a real benefit, although they fell perhaps from one extreme into another, by returning almost to the legionary organization of the Romans. Those divisions, composed ordinarily of infantry, artillery and cavalry, manœuvred and fought separately; whether they were extended beyond measure for causing them to live without magazines, or whether they had the mania for prolonging their line, with the hope of outflanking that of the enemy, we often see seven or eight divisions of which an army is composed, march abreast upon as many routes at four or five leagues from each other; the head-quarters was placed at the centre without other reserve than five or six slender regiments of cavalry of three or four thousand horses; so that if the enemy chanced to unite the bulk of his forces upon one of those divisions and defeat it, the line was found pierced, and the general-in-chief, having no infantry reserve in hand, saw no other resource than to put himself in retreat to rally his scattered forces.

* Chapter 15 of the treatise upon grand operations.
† Chapter 4 of the same work.

Bonaparte, in his first Italian war, remedied this inconvenience as much by the mobility and rapidity of his manœuvres, as in uniting always the bulk of his divisions upon the point where the decisive blow was to be directed.

When he was placed at the head of the State, and saw each day increase the sphere of his means and that of his projects, Napoleon comprehended that a stronger organization was necessary; he took then a mean term between the ancient and the new system, at the same time preserving the advantage of the division organization. He formed inithe campaign of 1800, corps of two or three divisions, which he placed under lieutenant generals for forming the wings, the centre or the reserve of the army.*

This system was definitively consolidated at the camp of Boulogne, where were organized permanent army corps, under marshals who commanded three divisions of infantry, one of light cavalry, and from thirty-six to forty pieces of artillery, with sappers. They were as many little armies proper to form, at need, any enterprise by themselves. The heavy cavalry was united into a strong reserve, composed of two divisions of cuirassiers, four of dragoons, and one of light cavalry. The grenadiers united and the guard formed a fine reserve of infantry; later, in 1812, the cavalry was organized into corps of three divisions, in order to give more unity to the ever increasing masses of this arm.

It must be owned, this organization left little to be desired, and that grand army, which effected such great things, was soon the type upon which all Europe was modeled.

Some military men, dreaming of the perfectibility of the art, would have desired that the infantry division, called sometimes to fight by itself, were increased from two brigades to three, because this number, gives a centre and two wings, which is of a manifest advantage, since without it the number two gives for centre an opening, an interval, and that the fractions forming the wings, deprived of central support, could not operate separately with the same security. Besides that, the number three permits two brigades to be engaged, and have one in reserve which evidently augments the disposable forces for the decisive shock. But if thirty brigades, formed in ten divisions of three brigades each, are better than distributed into fifteen divisions of two brigades, it would be neces-

* Thus the army of the Rhine was composed of the right wing, under Lecourbe, three divisions; of the centre, under St. Cyr, three divisions; and of the left, under St. Suzanne, two divisions; the general-in-chief had besides three divisions as a reserve, under his immediate orders.

sary, to obtain this division organization, *par excellence*, to augment the infantry by a third, or to reduce the divisions of the *corps d'armée* to two instead of three, which would be a more real evil, since the *corps d'armée* being oftener called to fight alone than a division, it is to it especially that the number three is the most suitable.*

As for the rest, the best organization to give to an army entering the field, will be for a long time a logistical problem to resolve, because of the difficulty that is experienced in maintaining it in the midst of the events of the war, and the incessant detachments which they more or less necessitate.

The grand army at Boulogne, which we have just cited, is the most evident proof of it. It seemed that its perfect organization should have secured it from every possible vicissitude. The centre under Marshal Soult, the right under Davoust, the left under Ney, the reserve under Lannes, presented a regular and formidable battle corps of thirteen divisions of infantry, without counting those of the guard and of the united grenadiers. Besides that, the corps of Bernadotte and Marmont, detached to the right, and that of Augereau detached to the left, were disposable for acting upon the flanks. But from the passage of the Danube at Donauwert, all was disordered; Ney, at first reinforced to five divisions, was reduced to two; the main body was dislocated, part to the right, a part to the left, so that this fine order of battle became useless.

It will ever be difficult to give an organization at all stable; meanwhile events are not always as complicated as those of 1805, and the campaign of Moreau in 1800, proves that the primitive organization can, to a certain point, be maintained, at least for the bulk of the army. To this end it seems that the organization of the army into four fractions, viz: two wings, a centre, and a reserve, is the only rational one; the composition of those fractions may vary according to the strength of the army, but in order to be able to maintain it, it will be indispensable to have a certain number of divisions out of line, to furnish the necessary detachments. Those divisions whilst they are detached, could reinforce the one or the other of those fractions which should be the most exposed to receive or to strike great blows; or else they would be employed either upon the flanks of the main body, or to double the reserve. Each of the

* Thirty brigades formed into fifteen divisions of two brigades each, would engage only fifteen brigades as a first line; whilst that those thirty brigades, formed into ten divisions of three brigades, would give twenty brigades as a first line, and ten as a second. But then it is necessary to diminish the number of divisions, and to have only two in each *corps d'armée*, which would be objectionable, since the army corps are oftener required to manœuvre alone than the division.

four grand fractions of the main body may only form a single corps of three or four divisions, or else be divided into two corps of two divisions. In this last case we should have seven corps, by counting but one for the reserve; but it would be necessary that the latter should always have three divisions, in order that the centre and the wings have each their reserve.

In forming thus seven corps, if we had not always some out of line for detachments, it would often happen that the corps of the two extremities would be found detached, so that there would remain for each wing but two divisions, from which it would be necessary even at times to detach still a brigade to flank the march of the army, in such a manner that there would remain no more than three brigades, which does not constitute a very strong order of battle.

These truths lead to the belief that an organization of the line of battle into four corps of three divisions of infantry and one of light cavalry, besides three or four divisions destined for detachments, would be less subject to variations than one of seven corps of two divisions.

For the rest, as all depends in these kinds of arrangements, on the strength of the army and the units which compose it, as much as on the nature of its enterprises, there result many variations which it would take too much space to detail here, and I will confine myself to tracing on the accompanying plate, the principal combinations which a formation would present, according as the divisions should be of two or three brigades, and the corps of two or three divisions. I have traced there the formation for two corps of infantry upon two lines, either one behind the other, or one by the side of the other. The latter leads us to examine if it can ever be suitable to place thus two corps the one behind the other, as Napoleon has often done, especially at Wagram. I believe that with the exception of the reserves, this system could only be applied to a position of expectation, and by no means to an order of combat; for it is much preferable that each corps have in itself its second line and its reserve, than to accumulate several corps under different chiefs. However well disposed a general may be to sustain one of his colleagues, it will ever be repugnant to him to divide his forces to that effect, and when, instead of a colleague, he shall see in the commander of the first line but an envied rival, as happens only too often, it is probable that he will not furnish with haste the succors of which it might be in need. Besides that, a chief whose command is spread upon a long extent, is much less sure of his operations, than if he had only embraced half of this front, and when he would find in exchange in greater depth, the support which might be necessary to him.

PLATE II.

VARIOUS FORMATION OF LINES OF BATTLE FOR TWO CORPS OF INFANTRY.

FIG. I.
Two corps deployed, the one behind the other.

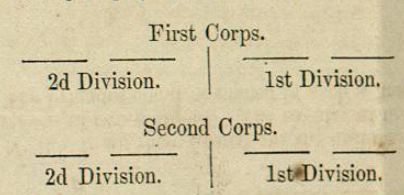


FIG. II.
Two corps formed by the side of each other.

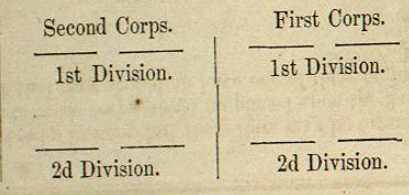


FIG. III.
Two corps of two divisions of 3 brigades each.

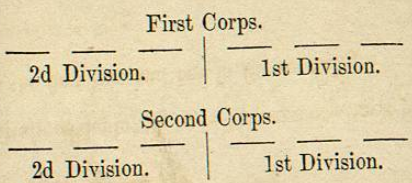


FIG. IV.
Two corps placed by the side of each other.

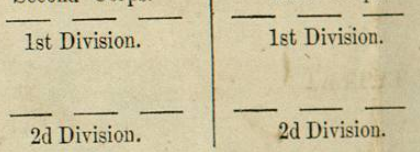


FIG. V.
Two corps of two divisions of 3 brigades each.

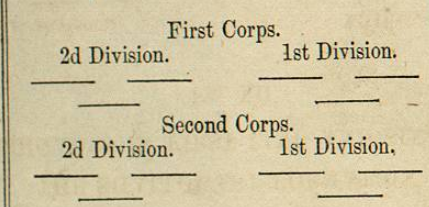
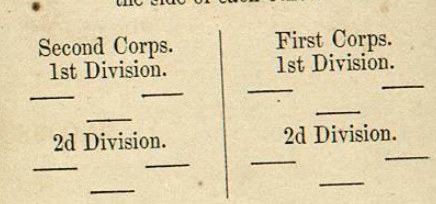


FIG. VI.
Two corps of the formation No. V. placed by the side of each other.



FORMATION
OF TWO CORPS OF THREE DIVISIONS OF TWO BRIGADES EACH.

FIG. VII.
Formation of three divisions

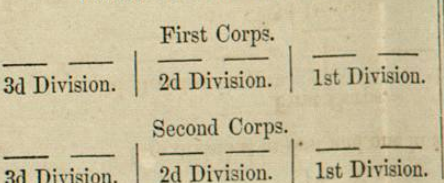


FIG. VIII.
Another formation of three divisions upon two lines.

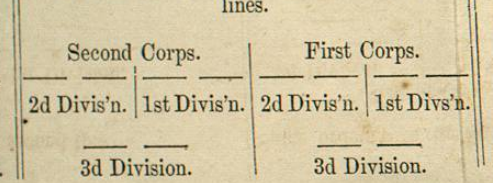
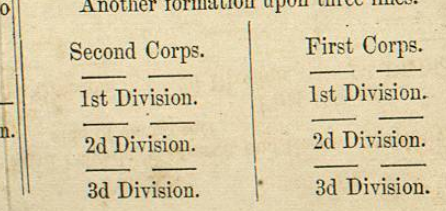


FIG. IX.
Another formation upon three lines.



FOR
CORPS OF THREE DIVISIONS OF THREE BRIGADES EACH.

FIG. X.
Two divisions in first and one in second line.

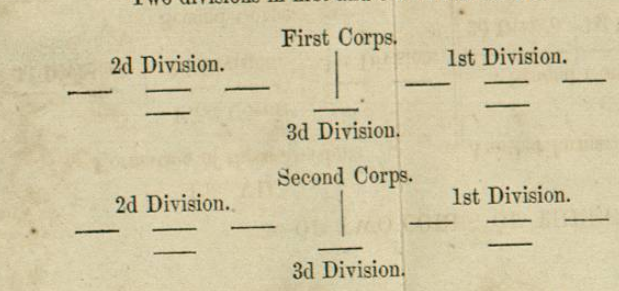
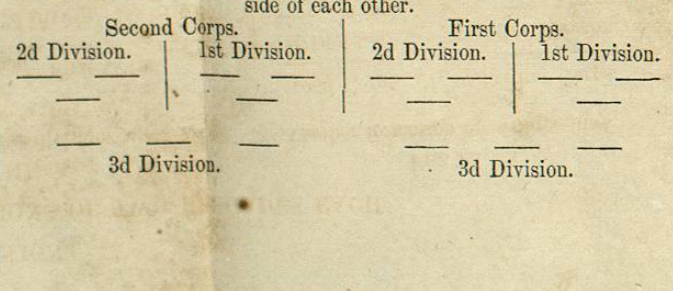


FIG. XI.
Same order with the third brigade in reserve, and the two corps by the side of each other.



THE SHALLOWEST FORMATION;
TWELVE BRIGADES IN FIRST LINE AND SIX ON SECOND.

FIG. XII.

N. B. In all these formations the units are brigades in line; but those lines may be formed of battalions deployed, or in columns of attack by divisions of two platoons. The cavalry attached to those corps would be placed upon the flanks.
The brigades could be placed in such a manner that they should all have one of their regiments in the first line and one in the second.

Finally, in order to complete this sketch, it will be seen by the table hereafter,* how much this question of the best formation is subordinate to the strength of the army, and how complicated it is.

We can scarcely be regulated now a days, by the enormous masses put in action from 1812 to 1815, where we have seen one army form fourteen corps which had from two to five divisions. With such forces, it is incontestable that nothing can be imagined better than an organization by army corps of three divisions; eight of these corps would be destined for the line of battle, and there would remain six as well for detachments as for reinforcing such points of this line as should be judged suitable. But to apply this system to armies already very respectable of one hundred and fifty thousand men only, we can scarcely employ divisions of two brigades, where Napoleon and the Allies employed entire army corps.

In effect, if we destine nine divisions to form the main body, that is to say, the two wings and the centre, and design six others for the reserve and the eventual detachments, there would be necessary fifteen divisions or thirty brigades, which would number one hundred and eighty battalions, if the regiments are of three battalions each. Now this supposes already a mass of a hundred and forty-five thousand foot, and an army of two hundred thousand combattants.

With regiments of two battalions it would require, it is true, but a hundred and twenty battalions, or ninety-six thousand foot, but if the regiments have only two battalions, then the force of the latter ought to be increased to a thousand men, which would always give an hundred and twenty thousand foot, and an army of a hundred and sixty thousand men. These calculations alone prove how much the system of formation of inferior fractions influence that of the grand fractions.

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* Every army has two wings, a centre, and a reserve, in all four principal fractions, besides eventual detachments.

These are the various formations which can be given to infantry:

1st. In Regiments of two Battalions of 800 men each.

	Divisions	Brigades	Battalions	
Four corps of two divisions besides 3 divisions for detachments, -	11	22	88	= 72,000 men
Four corps of three divisions besides 3 divisions for detachments, -	15	30	120	= 96,000 men
Seven corps d'armee of two divisions, an eighth for detachments,	14 2	28 4	123	=103,000 men

2nd. In Regiments of three Battalions, Brigades of six Battalions.

Four corps of two divisions besides detachments,	11 Divisions	22 Brigades	132 Battalions	=105,000 men
Four corps of three divisons do. do.	15 "	30 "	180 "	=144,000 "
Eight corps of two divisions,	16 "	32 "	192 "	=154,000 "

If to these figures there is added a quarter for cavalry, artillery and sappers, the force necessary for these various formations may be calculated.

It is necessary only to observe that regiments of two battalions of 800 men would be very weak at the end of two or three months campaign. If they have not three battalions it would be necessary at least that the battalions should have 1000 men.

If an army does not exceed a hundred thousand men, the formation in divisions, as in 1800, would be better perhaps than that by corps.

After having sought the best mode for giving a somewhat stable organization to battle corps, it will not be out of place to examine whether this stability is desirable, and whether we do not better deceive the enemy by frequently changing the composition of corps and their position.

I do not deny this last advantage, but it is possible to harmonize it with that which procures approximate stability in the order of battle. If we unite the divisions destined for detachments with the wings and the centre, that is to say, if we compose those fractions of four divisions, instead of three, and if at times we add one or two divisions to that one of the wings which should be the most probably destined to the principal shock, we shall have at the wings corps which will be nominally of four divisions, but which by detachments will ordinarily have but three, and at times might be reduced to two, whilst that the opposite wing, reinforced by a part of the reserve until the concurrence of five divisions, would present a sufficiently marked difference, in order that the enemy should never know exactly the real force of the fractions of the main body which he would have before him. There would be by this means more unity in the orders of movements of the staff, more facility for daily expeditions, and in the mean time not enough regularity to allow the enemy to know always precisely with whom he would have to do. I perceive, however, that I am engaged too far in an arena into which I ought not even to enter. It is for governments to decide those questions which merit a mature examination, and ought to make the object of an instruction for the staff; instruction, nevertheless, which should not impose absolute chains on the generalissimo, who ought always to have the power to regulate his forces according to his particular views, and the extent of the enterprises which he should form.

Definitively whatever may be the force and the number of the subdivisions or fractions of the army, the organization by *corps d'armée*, will remain probaby a long time the normal type with all the great continental powers, and it is on this truth that the line of battle should be calculated.

If the distribution of the troops in them is different from what it formerly was, the line of battle itself has also undergone some changes which result from the reserves, and the light cavalry attached to the various corps of infantry. Formerly it was composed ordinarily of two lines, now it is composed of two lines, with one or several reserves. But in latter times the European masses which encountered each other became, so considerable, that the *corps d'armée*, themselves formed upon two lines,

being found often placed the one behind the other, formed thus four lines; and the corps of reserve being formed also in the same manner, there resulted frequently, even six lines of infantry, and several of cavalry, a formation good perhaps for a preparatory position, but which is too deep for battle.

However that may be, the classic formation, if this name can be given it, is still, for the infantry, that upon two lines; the more or less confined extent of the field of battle, and the forces of the armies could well give rise sometimes to a deeper formation, but this will always be an exception, or used for a last effort, for the order upon two lines besides the reserves, appearing to suffice for solidity, and giving more forces fighting at a time, seems also the most suitable.

When the army possesses a permanent corps as an advanced guard, this corps could also be formed in advance of the line of battle, or withdrawn to the rear for augmenting the reserve,* but as has already been said elsewhere, that rarely happens after the manner of the present formations, and the mode of combining the marches they require; each wing of the army has its own advanced guard, and that of the main body finds itself quite naturally furnished by the troops of the army corps which should march in front; when the army arrives in presence, those divisions reenter into their respective battle positions. Often even the reserves of cavalry are found almost entirely in the advanced guard, which does not prevent their taking the post assigned them, at the moment of delivering battle, either from the nature of the ground, or from the views of the general-in-chief.

After what we have just explained, our readers will be assured that the methods followed since the revival of the art of war and the invention of gunpowder until the French Revolution, have undergone great changes through the present organization, and that in order to appreciate well the wars of Louis XIV, of Peter the Great, and of Frederick II, it is necessary to refer them to the system adopted in their time.

However, a part of the ancient methods can still be employed, and if, for example, the position of the cavalry on the wings is no longer a fundamental rule, it might be good for an army of fifty or sixty thousand men, especially when the centre is found upon a ground less suitable to this arm than the one or the other of the extremities. It is generally the cus-

* The advanced guard being every day exposed in face of the enemy, and forming even the rear guard, when it is the question to retrograde, it seems but just, at the moment of the battle, to give it a less exposed post than that in front of the line of battle.

tom to attach one or two brigades of light cavalry to each of the infantry corps; those in the centre place it in preference behind the line, those of the wings may place it upon their flanks. With regard to the reserves of this arm, if it be sufficiently strong for organizing three corps, to the end that the centre and each of the wings have its reserve, it would be an order as perfect as could be desired. In default of that, we could dispose this reserve in two columns, the one at the point where the centre is connected with the right, the other between the centre and the left; these columns could thus arrive with the same facility upon every point of the line which should be menaced.*

The artillery, now more movable, is indeed as formerly distributed upon the whole front, since each division has its own. Meanwhile it is well to observe that, its organization being perfected, we can better distribute it according to need, and it is ever a great fault to scatter it too much. There exists, for the rest, few positive rules upon this distribution of artillery, for who would dare to counsel, for example, to block up a gap in a line of battle, by placing a hundred pieces in a single battery, far from the whole line, as Napoleon did with so much success at Wagram? Not being able here to enter into all the details of this arm, we will limit ourselves to saying:

1. That horse artillery ought to be placed upon the ground where it can be moved in every direction.

2. That foot artillery, especially that of position, would be better posted, on the contrary, upon a point where it would he covered by ditches, or by hedges which would secure it against a sudden charge of cavalry. I need not say that, in order to preserve to it its greatest effect, we should be careful not to post it upon too elevated eminences, but rather upon flat grounds or slopes like a glacis; this is what every sous-lieutenant ought to know.

3. If the horse artillery be principally joined to the cavalry, it is well, however, that each army corps have its own, for gaining rapidly a point essential to occupy. Besides that, it is proper that there be some of it in the artillery reserve, in order to be able to direct it with more promptitude to the succor of a menaced point. General Benningsen had cause to congratulate himself at Eylau for having united fifty-eight pieces in reserve, for they contributed powerfully to re-establishing affairs between the centre and the left where his line chanced to be broken.

* It is well understood that this position supposes a ground favorable for that arm, a first condition of every well combined order of battle

4. If one be on the defensive, it is proper to place a part of the batteries of heavy calibre upon the front, instead of holding them in reserve, since it is the object to batter the enemy at the greatest possible distance, in order to arrest the impulsion of his attack and to scatter confusion in his columns.

5. In the same condition it seems suitable, that apart from the reserve, the artillery be equally distributed upon the whole line, since one has an equal interest in repelling the enemy upon every point; this, meanwhile, is not rigorously true, for the nature of the ground, and the evident projects of the enemy, might necessitate the carrying of the bulk of the artillery upon a wing or upon the centre.

6. In the offensive it may be equally advantageous to concentrate a very strong artillery mass upon a point where we should wish to direct a decisive effort, to the end of making a breach in the hostile line, which would facilitate the grand attack upon which might depend the success of the battle.

Having to treat here only of the distribution of the artillery, we shall speak farther on of its employment in combats.

ARTICLE XLIV.

THE FORMATION AND EMPLOYMENT OF INFANTRY.

The infantry is, without contradiction, the most important arm, since it forms the four-fifths of an army, and it is it which carries positions or defends them. But if it must be admitted that next to the talent of the general it is the first instrument of victory, it must be owned also that it finds a powerful support in the cavalry and artillery, and that without their assistance it would often find itself much exposed, and able only to gain half successes.

We shall not evoke here the old disputes upon the shallow and the deep order, although the question, which was thought to be decided, is far from being exhausted, and placed in a point of view which permits the resolving it by examples and probabilities, at least. The war with Spain and the battle of Waterloo have renewed the controversies relative to the ad