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### RECOMMENDATIONS.

### From Captain Dimmock, of the Virginia Public Guard :

ARMORY, RICHMOND, VA., January S, 1861.

#### J. W. RANDOLPH-Dear Sir :

The popular works upon military matters, now before the public, are confined to ordinary drills and parades. What is now wanted, is a treatise going to show when the various movements of Artillery, Cavalry, Infantry and Rifle, as taught in their respective drills, should be used in presence of an enemy; what grounds should be sel-cted for battle and encampment; what precautions to be taken when advancing or retreating; when to act in column; when in line, how to post the different arms to act the most favorably—information most essential to success, and without which, no matter how personally brave troops may be, they are exposed to almost certain disaster in presence of in equal number of well drilled and well maneuvred troops, and this information Capt. Buckholtz furnishes in his work.

I have no hesitation in recommending it.

Very respectfully yours, CHARLES DIMMOCK, Capt., &c., &c.

#### Col. Tompkins, (late of the U. S. Army,) says:

I have examined the manuscript of Capt. Buckholtz, and consider it a valuable compendium of military maxims. As a text book for military students or as a condensed epitome of principles essential to the art of war, the work of Capt. Buckholtz should be consulted and understood by every citizen who holds a commission. It is in fact "multum in parvo." C. Q. TOMPKINS.

RICHMOND, January 18, 1861.

# TACTICS

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#### FOR

### OFFICERS

#### 0F

# INFANTRY, CAVALRY AND ARTILLERY.

#### ARRANGED AND COMPILED BY

### L. v. BUCKHOLTZ,

AUTHOR OF INFANTRY CAMP DUTY, FIELD FORTIFICATION AND COAST DEFENSE.

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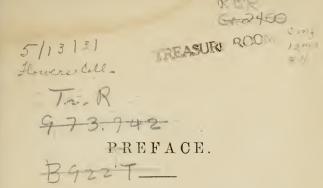
### 1861.

Entered according to the Act of Congress, in the year 1861, by

### J. W. RANDOLPH,

in the Clerk's Office of the District Court of the Eastern District of Virginia.





The present work is designed to impart information to Military Students. I submit it to their attention, and trust they will make allowances for its defects.

There are many reasons why an officer should know something on tactics, of the three departments of an army, even though he may never have the supreme command, he may often be called on to give his opinion on the merits of plans of operations. This alone should make it a duty, that an officer should be thoroughly acquainted with this part of military science.



### GRAND TACTICS FOR OFFICERS

#### 0 F

INFANTRY, CAVALRY AND ARTILLERY.

### PART FIRST.

#### BASE OF MILITARY OPERATIONS.

#### OF WAR.

The knowledge of War is acquired by practice, history and theory. The latter will here be considered.

Theory guided by practice and history teaches the nature of war, or applies it to practical use. The mode of carrying on war is an art, and not alone an abstract science. The resources of genius, combined with courage, are infinite; but they are necessarily restrained by the means at hand, nevertheless these means may be much more available by sound theoretical knowledge.

### WHAT IS WAR?

War is an action by force, to compel an enemy to yield to his adversary's purposes. Political disagreements of Governments may produce a war, its duration

is governed by them, and the results are often new political arrangements.

Therefore war is not independent, it is only a tool of politics, without any mathematical foundation, a hazard of possibilities, probabilities, luck and ill-luck. The theory of war cannot exclude human nature, it has to admit valor, boldness, and even temerity. The science of war has to employ active and moral forces, and can nowhere obtain certainty; a large field is for chance, which only may be rendered of advantage by the noblest valiant virtues, courage and self-reliance.

#### PURPOSE AND MEANS OF WAR.

The purpose of war is as changeable as the political cause that provoked it. The surest success is to defeat the enemy, but even that condition is not always necessary to make peace, mere actions may often suffice, they may render the expected success to the enemy either impossible or too dear. The way to obtain any result is, therefore, by completely routing the enemy—down to the mere resistance.

But there is only one medium—"it is battle." Whatever is to be done in war will be done by troops. The valiant action comprises all that refers to it, its origin, preservation and employment.

Employment is fight. To fight at the proper time and at the proper place is the problem. Destruction of the enemy's forces is the principal aim.

#### SCIENCE OF WAR.

### OF THE QUALITIES REQUIRED IN A SOLDIER.

War is a peculiar activity, and demands according to it wits and talents. War is the sphere of danger. Courage is consequently the first condition of a soldier. Courage in danger-courage to undertake responsibility. War is the field of corporeal exertions and sufferings, it requires therefore energy of body and mind. War is a field of uncertainty, it demands judgment to find out the truth, it requires firm resolution and unshaken presence of mind. To these properties belong also a talent for localities; the ability to perceive the influence of the ground quickly and correctly, and to be clear in the dispositions of the troops. War is therefore an action which can be rendered most difficult under circumstances; the demands are great on every one, but they are not equal to all, they increase in ratio the higher the position is, and the General-in-Chief should be perfect in all these qualities.

#### OF THE SCIENCE OF WAR.

War is fight. Fight is to try the intellectual and corporeal strength by means of the latter; it requires for the combatants equipment and arms. The properties of these additions exert influence upon the mode of conflict; but it always is a peculiar activity, by moving in a most appropriate element in that of danger. The science of war in the strictest sense is, the art of employing to the best advantage the given means in combat; it is the lead of war. In a more extended sense, all actions belong to it which will be done on account of war; they are the organization of the troops, the equipment, armament, practice, &c.

The command of war is therefore the disposition and lead of the battle, and whilst this is divided in single actions for themselves, consequently arises by them the most different activity, to arrange and to guide these actions, and to combine them to the purpose of the war.

The first is tactics, the second strategy. 'Tactics the employment of the troops in conflicts. Strategy —the science of rendering the conflicts to advantage to the object of the war.

Tactics and strategy are two different activities, in space and time indissolubly connected, but essentially different.

This part of the art of war considers only the employment of the troops. Besides this activity are many others serving to the purpose of war, which belong now to tactics, then to strategy.

To the first belong : marching, quarters and encampment; they belong in some measure to battle itself. To the latter belong the support, the nursing, the supply of arms and equipment; they render practicable the preservation. These activities attributed to the war, divide themselves in two principal parts; the preparation for war, and war itself.

To the knowledge and abilities of the first part,

appertains the organization, practice and preservation of the forces. But to the theory of war appertains the employment of skilled forces. This is the art of war in a stricter sense: Tactics or Strategy. The means of tactics are skilled troops. In employing those troops locality, ground, soil, the time of day and weather, are of influence, and to be taken into consideration; they are tactical elements.

#### THE ACTIVE FORCES.

Active forces in general, refer to all that belong to a battle; in a more limited sense to the troops. The troops are to be armed and equipped. The theory demands in this regard active forces, rendering the possibility to be employed every where easy; active forces, whose efforts in battle will not be submitted to too great difficulties; active forces which excel in skill and rapidity; arms well constructed, to effect destruction at a great distance; arms to be used as well in a hand to hand fight as in a general attack.

These demands fulfill the different modes of fires and weapons, the different departments of arms, infantry, cavalry, artillery and the auxiliaries—the engineer —troops.

#### CHARACTERISTIC FEATURES OF SINGLE ARMS.

Battle consists of two essentially distinct elements : the principle of destruction by fire arms, and the hand to hand fight, either to attack or to defend. Artillery constitutes that of the first, Cavalry the second, Infantry both these elements.

In a hand to hand fight, or in a personal conflict is the element of defense—in position; the element of attack—movement. Cavalry is entirely in want of the first property. It is only of value for attack. Infantry has both properties. This renders Infantry superior when compared to either of the other departments of arms, for it combines all three active elements in itself.

It will be further evident, that the combination of all three departments of arms renders the most perfect employment possible. In regard to their priority they are classed—Infantry, Cavalry, Artillery. In regard to purpose and importance in most cases, the destruction by fire-arms precedes the movements. This consideration leads to the following results :

1st. Infantry is the most independent of the three arms.

2nd. Artillery is entirely dependent.

3rd. Infautry combined with other departments of arms is the most important.

4th. Cavalry is dispensable.

5th. The proper combination of the three arms gives the greatest strength.

Considering the expense, Infantry is in the first rank. If the expenses are to be considered, we find that one squadron of 150 horses; one battery of eight 6 pdr. guns; one battalion of 800 men, require the same amount of expense for armament, equipment and support. The proportion of the three departments of arms exerts influence on the character of the war.

Abundance of Artillery is calculated more for defense. Want of Artillery will cause a resort to the principle of manœuvring; war becomes more complicated, more active, but great results are impossible.

Large numbers of Cavalry leads to great movements, —daring assaults in the rear, diversions, invasions, and renders easy the security and comfort of the mass. With a Cavalry force inferior in number, more precaution, more system, more defense and observation of broken country is required. That considered together, leads to the following principles.

1st. Infantry is the most important, both the others are but auxiliaries.

2nd. Artillery is less dispensable than Cavalry.

3rd. Of good Infantry, the more in number the better.

Artillery should be only in proper proportion, or it is an impediment and a disadvantage.

Cavalry not more than is necessary.

In general the proportion is: Cavalry,  $\frac{1}{7}$  to  $\frac{1}{7}$  of Infantry; Artillery, 2 to 4 cannons for every thousand men. These are the principles of the present formation of armies.

Organization must render the troops efficient; to that belong equipment, armament, military practice, discipline, subordination, exercise of strength, arms, camp (field) duties. It depends consequently on the administrative, technical, disciplinary and tactical demands. Its purpose is to render easy the employment of the troops in general, and the cooperation of them. The formation contributes to the employment of the troops. Formations of decided organic significance are: the company, the squadron, the battery, for individual practice; the regiment for a uniform completion and administration. Formations of tactical importance are: the companies, the squadrons, the batteries, and their sub-divisions; the battalion of infantry, the cavalry regiment, the brigade, the division, (simple or combined with cavalry or artillery), the corps, the army. Tactical unities are: the battalion, the squadron, the battery. The organised army needs a medical and administrative body. and finally trains for provisions. The General-in-Chief commands the army, his organ is the staff.

Organization has in view the inner qualification, the formation, ability and skill in movements, the practice, the employment, and all that relates to battle.

Battle consists of three elements : fire, attack, and hand to hand fight. To these belong position and movements beyond the battle-field, but constantly prepared to meet any attack. Consequently the formation should render the disposition, the movements, and the conflict easy, and with great simplicity, facility and uniformity, should be changed from one to another formation. Finally it should be, if possible, executed even under the immediate influence of the enemy's action. The practice must become so perfect that any evolution can be performed as quick as thought; it is a double one, one alluding to the mechanism of formations and the use of arms, as another act in regard to the enemy and ground. The first is mechanical and formal practice, also elementary tactics. The second is intellectual—field operations—manœuvring.

The science of war can not be in the same state of perfection in all parts of an army, the higher the position the more will be expected; but every one must know so much, that he is perfect in his duties when he is called upon for action. In the inferior branches this can be done quite methodically by practice in camp.

The officer can not be contented with methods, he has to instruct himself, to elevate himself above the position of a common soldier, to be enabled to make use of his own ideas, to be "*an artist*!" He should be perfect in all the qualities required of an officer and soldier.

#### RAPIDITY OF MOVEMENTS.

Rapidity is of great importance, in some regard, the strategical and tactical combinations are based on it. Its degrees must be known; unfavorable effects upon it must be avoided by armanent, equipment, discipline; ground, weather, order of march, and the mass exert also some influence upon it. In this regard is to be considered the tactical rapidity. Infantry (closed) 100–120 in common march; 140–160 in double quick time; in open order 110–150; in double quick time 150–200 paces in one minute. ( $2\frac{1}{2}$  feet to oue pace.)

The march in double quick time should not last more than two minutes.

Cavalry at a walk 130–150, at a trot 140–160, at a gallop 400–500, at a charge 500–600 paces.

Artillery on foot, (6 pdr. guns,) common march, 100-120, at a trot 150-200 paces.

Flying Artillery, (6 pdr. guns,) at a walk 130-150, at a trot 300-400 paces.

Artillery can follow Cavalry or Infantry everywhere, according to their own manner. Cavalry is 4–5 times more rapid than Infantry. These results exert influence on a battle.

#### EFFECT OF FIRE ARMS.

The destructive power of cannon is so great, that a shot in its full force penetrates 20–30 files, a grenade disables 16–18 men; a rifle ball kills or wounds 2–3 men. The probability of hitting and the real effect is greatly diminished by various circumstances—as an uncertain aim, excitement, &c.

Ranges of cannons: 6 pdr. shots 700-1000, 12 pdr. shots 900-1200, bounding shots about 1800, grape shots 400-700, grenades to 2000, shrapnells from 200-2000 paces; light 12 pdr. howitzer shells from 200-1000 paces; rifle balls to 600, musket balls to 300, carabines to 150, common horse-pistols to 50 paces.

Result: Artillery can be destructive beyond the range of other arms. Cavalry-fire is much inferior to Infantry-fire. The effect of the fire can be diminished by the position of the troops.

#### ELEMENTARY TACTICS.

Elementary tactics determine the mode of disposition, movement and conflict; the mode and nature of changing from one movement to another, the use of arms, so that the enemy's fire shall be less destructive, and that the enemy's rapidity will not find the troops unprepared. The problem to be solved is, to render the regulations with the arms uniform, simple, sure, short; the position based on the principle, that every soldier can make use of his arms, and can be employed according to his capacity; an organization to change form and front easy, and conformably to the purpose; a mechanism of the movements simple, sure and quick; the words of command and designs of operations infallible and undoubted; and finally the mass enclosed at the flanks by reliable elements.

The existing regulations and tactics do not answer the demands. They require essential alterations.

1st. In regard to the words of command, the word inversion might be omitted.

2nd. All words of command being undoubted, remain unchanged.

3rd. Formations executed to different directions, for instance: "forward in line," the commandant only designates the side to which the movement is to be made.

4th. In formations, by which the guiding division (troop) will have to change front, the commandant

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#### INFANTRY.

designates only the division of the guide, and the others have to go by it.

5th. In forming columns, the commandant designates the division which shall be foremost, or upon which the column shall be formed.

6th. In deploying columns, the commandant gives the direction in which the division have to deploy. It will be conceded that one troop being as well skilled as another, it matters little whether the neighbour is posted to its right or to its left, consequently a more simple rule should be adopted.

#### INFANTRY

Is armed with rifle or musket and bayonet, for fire, attack and defense, supplied with ammunition, a camp hatchet, cooking utensils, and is uniformed. The weight for every man is about 50–60 pounds.

The properties of Infantry are, it can fight wherever a man is able to go, it is able to fight in attack and defense. The troops are classed according to completion. With the increase of the mass increases also the mode of combination.

The battalion shall be independent, easy to be controlled, and shall be commanded by the voice. Even after some days march, fighting and retreating, its order shall not be lost. It shall be 800–1000 men strong, and divided in four to eight companies, from 120 to 220 men per company.

The number of officers and non-commissioned officers increases in small companies, they form the moral and intellectual part of the mass. Detachments taken from one or the other company render a battalion not dependent. Without considering the expense, smaller companies, in regard to discipline and tactics are preferable. But the more moral confidence and military completion is infused in the companies by experience in campaign, or else by long service, the larger may be the companies. The companies are divided into two equal parts, or platoons, and these subdivided into half platoons. The principle of independence will be effectual if these parties are enclosed at the flanks by most competent men.

The base of organization is 2–3 ranks. The rear rank covered by the front rank, thus forming files. The formation of the line is the base of all formations.

Opinions differ as to whether two or three ranks should be formed, but sure it is, that with two ranks, as much has been accomplished as with three.

The armament of the present time allows the use of fire-arms only for two ranks, the third rank may be ordered to reload in a fire attack, but such services are not now required; the present construction of firearms facilitates the reloading, without loss of time, it might be desirable in squares, but then the fire-arms have to be of the same bore.

In squares, the troops in general are posted one division behind the other, and these can reload. Therefore, considered for its efficiency, the third rank is better omitted; it is exposed to the fire of the enemy and is of little or no advantage. In movements, three ranks would render more stability than two; if movements in line were usual, but they are only exceptional, and are replaced by the more compact columns. Consequently the third rank is better to be entirely abandoned.

### PROPERTIES OF THE LINE (CLOSED.)

In regard to formation: the line requires much space for its breadth, this can become disadvantageous; covered ground is of no use to deploy in line, and often also the space is not large enough.

In regard to movements: the movements upon undulating ground are rendered difficult, often impossible, and if of any duration, slow.

In regard to battle : all fire-arms can be employed at the same time.

In regard to the enemy: the enemy's balls will be of less effect; the flanks and the rear are defenseless.

This latter point is in all tactical formations, and therefore this principle may be considered in any conflict: front against flanks or rear: superior against inferior forces.

The line may be chosen particularly in fire-attack of the mass, if the flanks are protected and in position. Consequently it is more defensive.

The effect depends upon the power of fire and the condition of the troops.

The different kinds of fires are: by battalions, by

half-battalions, by companies, by platoons, by halfplatoons, by ranks and files. For instance in mass, if the distance be 200–250 paces, in one minute can be fired two or three rounds, therefore at an advancing enemy can be fired four to five rounds.

Fire by battalious: it is the largest force which can be united in a moment, dependent upon the command of the Chief, he has the troops in this kind of fire completely at his will, but the troops are for a moment deprived of the effect of the fire, and therefore it may be best applied by battalions firing in succession, and when time and rapidity suffers to reload, and further, immediately before the attack.

Fire by half-battalions is of less effect, but it secures a fire in reserve.

Company-fire has a diminished effect, less conformity in the actions of a battalion, and is difficult of control, is best applied in successive formations.

Fire by platoons is of less effect than fire by companies, and consequently not to be recommended.

Fire by ranks in regard to effect, is equal to halfbattalion fire, but it sets the whole battalion in disorder and in a guideless state; it may be resorted to in case a reserve fire is necessary, especially against Cavalry.

Fire by files: the effect is great, owing to the large number of balls fired, but this fire causes the greatest disorder. The control of the Chief is entirely checked, it is of great effect from protected positions against a retreating enemy. The effect of fire is more in the mass of balls than in the direction and accuracy in taking aim; aimed shots are impossible. The effect is greater downwards than upwards, and best in horizontal line.

#### COLUMNS-OPEN-CLOSED,

Are formed, if the sub-divisions of a battalion are posted one after the other. The troop in front designates the name of the columns; they are formed of a company in line, down to that of a file.

#### PROPERTIES OF THE COLUMNS.

In regard to position : the mass can be easily concentrated in the smallest space, they render easy any position on any ground, and admit a perfect control.

In regard to movements: they are of advantage on account of their suitable extent of front and inner strength.

In battle : their fire is inferior and reduced to the extent of the front.

In regard to the enemy: his fire is destructive, but the flank is less exposed than that of the line.

It may be applied: if a mass in a covered position shall be concentrated, in movements, and in attack with the bayonet, which latter is made in double quick time, and only to a distance of about 100 paces. The attacking columns are better not closed, the nearer they get to the enemy the smaller the intervals become

between themselves; during the hand to hand fight they should not fire.

\* March columns have a small front for their own convenience, best double files.

Attacking columns may be best in company or platoon-columns.

#### THE LINE WITH INTERVALS BETWEEN THE FILES.

This manœuvre requires the largest space, and requires the occupation of favorable ground in the most extended sense.

In regard to movements: it is best, especially in broken ground and woodland.

In battle : favorable for attack and defense, the fire is of good effect, but not destructive ; every man is independent ; the control of the Chief is broken, and consequently requires men of great skill and confidence.

In regard to the enemy: it presents not many points to be aimed at; in open ground it is weak; under some circumstances the open order may be combined with the mass, especially with columns, if movements and fire are necessary, and if impediments are to be overcome in passing woodland, &c. If single parts of a battalion are ordered to succor the open-line, it is best to order closed companies for those duties.

#### THE THREE ORDERS OF FORMATIONS

Will answer to meet any eventualities which may occur. In regard to their properties, they are the means for attack; attack in closed order, in open order, in column, in line, and by skirmishers. To the first belongs the square, to the latter the mass, both formations are the mode of defense against cavalry.

The square is the only formation which has no weak point and is formed in the quickest time from the line as well as from the column; it should have sufficient space inside to admit of more ranks for reserve fire. The simplest formation is, when the parts (divisions) are of equal extent; the formation is rendered reliable and secure, when advanced troops will not be required.

The increased ranks may be of some value, if they have all the same fire arms and equal ammunition; four ranks secure the reserve fire; short fronts are preferable to long ones.

The results: 1st, in forming three ranks, they are to be of the same element; 2nd, to combine closed order with open order, and to form squares with security; five companies are better than four in a battalion; 3rd, squares with company front will fulfill the conditions.

The properties of the square are: the movements are difficult, but the firing can be done in all directions, they are only effective in position, and are of great value on uncovered ground against cavalry. The formation of the square is exceptional, and depends upon the condition of the attacking cavalry. The square is more secure, less complicated, than any other tactical formation.

The skirmishers rally under similar circumstances in mass, to render greater resistance.

#### CHANGE OF FRONTS.

#### FORMATIONS AND CHANGE OF FRONTS.

The organization of a battalion renders the means easy of meeting any emergency which may occur; but the present adopted rule of having the first rank under all circumstances in front, exerts a disturbing influence upon it.

No good reason can be given for it; a soldier of the second rank is of as much value as one in the first rank. This partiality lies only in the order of numbers. Should this be abandoned and other suitable terms adopted, many movements, by simple roundabout will be shortened and more quickly and easily executed; counter-march, round-about-wheeling, &c., should be abandoned. Consequently by that the exceptional inversion of the movements becomes a rule, and the elementary tactics, according to the nature of the troops, will be freed from all complications. Theory might have here a great field for improvement.

The number of file-closers should be reduced to the utmost, and also the whole system of the lead should be simplified.

Finally, in regard to the form, by which a formation of order of battle shall be executed, the columns of files—flank-march—would suit that purpose the least, if the march is of some duration; therefore this mode of manœuvring on the battle field is to be rejected.

The column of double files is best on march. If under certain circumstances a weak form should be

#### CAVALRY.

adopted, it must be strengthened by combination with other forms; the best means are the open-order.

The three modes of position render easy and probable the modes for actions; every one has a peculiar significance, advantage and disadvantage; together they combine all desirable means for battle.

The form must be directed by the genius of true courage, which gives life to the whole, through the power of knowledge, which renders the superior as well as the inferior competent, according to his position.

The formations of infantry in a concentrated mass, do not unite battalions in one body. The unities remain independent. The importance of concentration rests only in combined actions.

#### CAVALRY.

Horses differ in their qualities, size, &c., therefore equal qualities will be classed, and thus be obtained light—medium—heavy—cavalry.

In theory any good cavalry is serviceable, but it can not exist without light cavalry; it considers the horse not a beast of burden, but the means of moving with rapidity from one place to another. Man and horse are a unity, the brute force submitted to the rational will, and is only serviceable and true to its nature.

The horse's power is effective only by rapidity, and therefore, motion is the true element of cavalry. It is only offensive, and depends entirely upon the contour of the ground; it is invincible on level ground, but

useless in broken obstructed land. Armament and equipment are according to their nature. Equipment is : saddle, bridle, uniform, ammunition, cooking pots, and shoeing. The weight for a horse depends upon its-size, the less the better. Armament : sword, lance. carbine, pistol ; the sword, curved or straight, is an excellent weapon. The lance is visible from a large distance, its use requires in a hand to hand fight much skill for man and horse ; it is of great value in an attack. The fire arms of cavalry are considered of fittle value ; rifled carabines should be distributed to the most skillful men ; pistols are only for self-defense, to give signals, to alarm ; it is important not to encumber the single man with arms.

#### THE FORMATIONS.

A regiment shall have only one kind of cavalry. If single troopers are armed with carabines, they may be distributed to the platoons.

Every squadron and platoon is subject to every duty, and is bound to do it. The strength of a regiment may be 600 to 700 horses, it must be lead by the voice and independent in its movements. Cavalry is arranged in two ranks, forming files. Horses and men are not of equal qualities, consequently the best men and horses should be in the first rank.

The regiment should be divided into four squadrons, these into platoons and half-platoons. A platoon shall not have less that twelve to fourteen files. The

#### CAVALRY.

depth of the smallest division should not exceed its breadth, therefore it should have more than seven files.

The fundamental position is the line. The regiment, squadrons and platoons, are numbered from the right to left. This is the present normal organization of cavalry; cavalry is the arm of movement, a very slight impediment can cause any success doubtful.

The manœuvres on the battle field should only be executed by platoons or half-platoons. Half-platoous whose strength is 8–9 files have this disadvantage, that both wings cannot always be framed with skilled men, and the platoon for manœuvring may therefore be preferred. Theory demands: that the manœuvres are independent; if both wings of the half-platoons are well framed, without being clumsy, the movements, by the loss of a few files, will not be checked. If by any accident men in the first rank are lost, the men in the second rank fill up the place of the lostones. A platoon shall not have less than 12–14 files. Cavalry, like infantry, forms line, column, open order.

Peculiarities of the line: it occupies in position much space; movements with large bodies are rendered difficult, if they last some time; but they allow greater rapidity than columns; the fire of the enemy is less effective; with the increased speed of the movements the flanks become weaker; in regard to action; the greatest number of troopers can be engaged.

The column takes less space, the control is easy, ground and position are more easily chosen; but the

#### CAVALRY.

enemy's fire is more destructive, particularly in position; only few troops can be engaged; the movements are somewhat slow.

The open-order requires much space, the control is difficult; the enemy's fire of little effect, it is weak in front and flanks, allows the greatest rapidity and employment of the greatest number of combatants.

Result: For cavalry, the line is the only mode for action. Columns and open-order are the auxiliary formations. The column serves to concentrate troops, and to manœuvre on the battle field. The open-order is of little value—it may be employed to scout in the vicinity, to divert the attention of the enemy, to pursue, if no closed body of troops can be engaged.

The elementary tactics of cavalry are principally occupied in forming and deploying columns. In the organization of a regiment are the means for any formations and change of front.

Charge is increasing rapidity to its highest point, and giving the most powerful shock which can be exerted by a horse. The force of cavalry is concentrated in a charge. Cavalry in attack cannot change its front, it goes straight on; great relaxation follows the charge; cavalry exhausted and broken down by fatigue is powerless; with the increasing speed are the flanks weakened; consequently great care is to be taken of the horses, they shall be properly employed in regard to their strength.

The charge shall be short, and the flanks protected...

ARTILLERY.

It is a principal point to perceive the proper moment for attack. Surprise is superior to any form.

The tactics of cavalry are most simple. The command is very difficult, in it rests the secret of success. Where there is no genius, there can never be mastership.

#### ARTILLERY.

Batteries are organized with six or eight cannons (guns or howitzers) mostly combined  $\frac{1}{3}-\frac{1}{4}$  howitzers. Heavy batteries are 12 pdrs., light batteries, flying or mounted batteries, are 6 pdr. The 12 pdr. gun is drawn by 8 horses, the 6 pdr. by 6 horses. The limbered cannon is 4 paces in breadth. 18 paces deep; to every cannon belong 20 to 30 men; a wagon with ammunition is drawn by 4 horses.

Properties when in position are: extremely destructive by fire: powerless in a hand to hand fight; its flanks much exposed to fire. In motion without effect, and checked in some degree by the ammunition following. In general defensive, and fulfills the conditions only satisfactory, if the troops are perfectly technically instructed. The large range and the variety of the projectiles facilitate their employment.

The batteries are divided into half-batteries; platoons with two guns, and half-platoons with one gun.

Artillery forms columns to concentrate the mass, or for movements before deploying in the order of battle. The intervals in position between the guns are 12–24

ARTILLERY.

paces. The breadth of a battery is consequently 120 –200 paces.

The front presents to the enemy but few points to be aimed at, the flanks more, but the most, when the batteries are to be limbered up and unlimbered, and that is therefore the weakest moment for about 15– 30 seconds.

Artillery is not bound to any normal position. The various projectiles and modes of firing render easy the means for any eventualities. Its defenseless state in conflict with other arms makes it necessary to be supported by other troops. The elementary tactics of artillery are the simplest. The principal problem is to move quickly and surely, and to be ready for action in the shortest time. Proper control in a battle will be decisive.

The elementary principles here considered in general, lead to the following points to be observed in the battle :

lst. Ammunition not to be wasted without getting any advantage by it; to be freely used if a great result is obtainable.

2nd. The strength of every troop is in its front; the weak points are the flanks and rear; consequently; strength against weakness; the means—rapidity, and surprise. The weakness of the flanks increases in ratio with the higher degree of movements. Artillery is inefficient in motion, and defenseless in a hand to hand fight.

3rd. Infantry has three modes of formations for at-

#### CAVALRY.

tack. Artillery and cavalry each only one. Artillery fires in position; cavalry attacks in line—it follows:

Infantry against infantry : defensive : covered ground; protected by reserves; fire; open order or line; attack; column; offensive : fire; the enemy engaged; deceive; attack with fire supported; attack of the flanks; attack in the rear; the three forms combined.

Infantry against cavalry: defensive: covered by ground; squares; reserve fire; offensive: fire; charge with bayonet.

Infantry against artillery: defensive: covered by ground; open order; line with intervals; according to circumstances open columns; offensive: open order; well directed fire; hand to hand fight.

Cavalry against infantry: defensive: if possible, posted beyond the range of musketry; offensive: at short intervals, successive charges—best by divisions following each other at small intervals; succored by troops in the flanks.

Cavalry against cava<sup>7</sup>ry : the flanks protected; the flanks attacked.

Cavalry against artillery: defensive: open line; covered by ground; posted beyond the range of fire; affensive: open order; charge; hand to hand fight.

#### BATTLE.

# ARTILLERY AGAINST INFANTRY AND CAVALRY.

Defensive and offensive : fire; supported by succor.

Artillery against artillery: covered by ground; intrenched position; heavy ordnance; flanking position.

#### BATTLE.

Fight is battle; bloody and destructive actions to break the physical and moral forces of the adversary. Whatever may be the real cause of a battle, the destruction of the enemy are the means to succeed. Destruction is the tactical purpose of a battle. Destruction is not only the loss of men in a battle, but it also exerts a depressing influence upon the moral courage of the survivors. Principally in the latter is found the decision.

The loss of a battle will be perceived by the lost ground, by the diminished reserves, both cause the retreat.

The loss of moral power continues to increase after a lost battle, until the defeated troops have recovered sufficiently to resume the offensive. This moment of extreme weakness the victor should take advantage of. The losses in a battle are the killed and wounded; their number differs on both sides not much. The losses after a battle are prisoners and cannons taken from the defeated parties—they are the trophies of the victory, and the only means of estimating it.

The moral effect of a victory increases with the mass of the forces, which have been engaged in the battle. This is least in partial conflicts, most in pitched battles. It effects not only the army, but also the very existence of the belligerent country; it is of importance in regard to tactics, strategy, and politics. Those trophies, representing the victory, are to be obtained on the return from the battle field. The disposition should be chosen with the view of getting in the rear of the enemy, the success will be more probable and more decided. The tactical and strategical manœuvres aim to cover or to attack the rear.

Three elements are combined in the victory.

1st. The loss of physical power.

2nd. The loss of moral power.

3rd. The confession of these losses and the discontinuance of the war. This latter is often the only proof of the conquest.

The loss of moral power can cause the defeat; the contrary will animate to the highest degree a victory. From the simple retreat to the complete defeat are many degrees of victory; every one is of importance for strategy.

# CHARACTER OF THE BATTLE OF THE PRESENT TIME.

The losses in a battle are perceived by "the diminished successive engaged reserves." In battles of the

present time large masses of troops are formed in line, and one after the other; a proportional small part of them are engaged, they are replaced by another similar force. Darkness having closed the conflict, it will then be considered what has been gained, what lost, and by that determined either to clear the field of battle, or to resume the battle the following day. This character of the battle is not accidental, because the armies opposed to each other are generally equal in armament, equipment and skill, and often comprise the whole force of a country, and therefore a defeat would be irreparable; they should not be hazarded at once, only the necessary forces. The disposable forces, (the reserves,) exert a continual influence in a battle; they will render great advantage against an independent tactical body. By these means are determined the order of battle of the present time, the mechanism and the lead of the battle.

The order of battle disposes of the forces at the will of the commander to an unlimited extent. The progress of the battle is by successive engagements, and a slow consuming of the forces on each other in their efforts to exhaust the adversary. The one, which at the end of the battle has still strength and disposable reserves, is the victor. The success of battle at the present time is consequently dependent upon the reserves.

This characteristic feature is better expressed in pitched battles, than in partial coufficts, and still less. if the destruction of the enemy is not aimed at.

#### SIGNIFICANCE OF BATTLE.

War at the present time is seldom ended by one pitched battle; it consists mostly of several battles, separated by space and time, whose intentions are based on various purposes; they may be:

1st. The destruction of the enemy's forces.

2nd. Conquest or defense of any locality.

3rd. Conquest or defense of some object.

4th. Sham-battle, to entice the enemy to improper dispositions and movements.

The importance of these purposes decreases in the above mentioned classification. Battles of the second and third kind are negative for the defender, they will only be of value if they facilitate some purpose positive—some great success. It is a bad sign if negative battles are often fought. The importance of the object to be obtained rules the battle, and consequently belongs to strategy.

## DURATION OF A BATTLE.

Duration, depending on relative resistance, on gain of time, is important, and leads to success. The duration of a battle depends upon essential circumstances, upon the troops opposed to each other, upon the armament and battle-field, it has principally strategical importance. This influence exerts itself in tactics, in determining the intervals between the troops and the reserves.

#### BATTLE-VICTORY.

## DECISION OF A BATTLE.

No battle of any importance will be ended in a moment, but in every battle there is a moment from which it may be considered as either gained or lost.

1st. If a movable object whose possession has been purposed, is lost.

2nd. If an important locality, whose occupation has been purposed, is lost.

3rd. In pitched battles, if no new reserves will be required for succor.

The disposition of the reserves is therefore of influence at the decisive moment. The events of a battle must determine the proper intervals between troops, being designed for combined actions.

#### VICTORY

Is a strategical element, that renders success the greatest possible advantage.

The question arises here, what is to be done with the victory? The arms opposed to each other, the nature of the ground, the tactical form will have to solve it. Great success is only gained by pitched battles, they are the first means for superior, and the last means for inferior forces.

The pitched battle is superior in importance to any other event in war. The highest qualities of the Chief will be perceived in the arrangements of the the means, in proper dispositions, in regard to locality, time and troops.

The only means are the pursuit of the defeated forces, it has also its degrees of energy; either the troops follow or press on, or endeavor to cut off the retreating enemy. The success is the greater, the quicker the enemy retreats, the more he is completely routed.

Continued marches in the night exert a most destructive effect on retreating troops.

#### RETREAT.

It is the most difficult problem to be solved in war, quick movements, scattering of the troops cause ruin. Losses are inevitable, but they decrease in ratio if the power of resistance of the defeated troops is not entirely lost. Success rests in the power of soul.

## THE NIGHT BATTLE.

The effect of a night battle is great, the greater, the less the enemy is prepared for it. The lead is extremely difficult; it is preferable, that only small forces should be engaged, and under the following circumstances: If the enemy is careless or too daring; if the moral power of the enemy is broken; if the enemy's line is broken; finally, under desperate circumstances; but only under the condition, that the enemy's mass is not posted near and succor cannot be ordered timely enough to support the attacked forces.

SIGNIFICANCE OF NUMERICAL SUPERIORITY.

The more the forces equal each other in corporeal

strength, and the less the influence exerted by the genius of the Chief, the more important is superiority in number. If it is large enough, it will overcome counteracting circumstances, and will secure the victory. Its presence alone often leads to success, without action. Consequently the maxim is to be observed, to deploy on a battle-field superior forces. If, according to circumstances, an absolute superiority cannot be had, (which it is not in the Chief's power) a relative superiority must be resorted to. Consequently superiority at the proper place. That's science -correct estimation of the enemy and of the battlefield; to distract the enemy's attention by false movements, quick attacks, animated activity; surprise is most sure against superiority. Consequently: it is an evil to divide the forces which renders any uniform action in a battle impossible, and may only be excused, if demanded, by unavoidable circumstances. Strategy knows no reserves, but the more a battle becomes partial, and no great aim is in view, the easier can be estimated the force which would be required to secure success.

## RESERVES.

They have two designs: to prolong—to renew the battle, and to be employed against unexpected casualities. By their support they allow the troops to continue *the conflict with more security*, without being in danger of being cut off; to meet any approach of the enemy, and to correct any mishap in a battle, which can never be forseen. They are the means of influencing a battle. Reserves are indispensable for the free will of the Chief, without them, he is entirely checked in his plan of operations.

## ORDER OF BATTLE,

Is the arrangement and combination of single parts of the mass. Formerly it consisted of one mass. Modern times broke these forms and divided the mass into parts. An army should not have too few nor too many parts—eight parts are to be preferred, divisions from 10 to 20,000 men; divisions with 4-5brigades, best brigades with 2,000 to 5,000 men each.

The combination of the three departments of arms is represented in the parts of every army, which are designed to act independently, in divisions or corps but seldom in brigades. The disposition of these parts in regard to each other, is not submitted to any restraint.

The order of battle of the present time is consequently the organization and disposition of an army in one co-operating mass for battle. The parts are so combined, that their employment is rendered possible and completely at the will of the Chief.

## GROUND AND SOIL.

Ground in its general appearance is either level or broken, free from obstacles, or overgrown, or com-

posed of all these kinds. These properties have a most decided influence on a battle, in regard to movements, free view, and cover against fire. By this influence the battle becomes more complex, and therefore requiring more skill.

In undulating and covered ground, Cavalry is more or less inefficient; Artillery less on account of the great range of its fire.

The superiority of Infantry over Cavalry and Artillery, is evident on ground, which renders movements difficult.

# IMPORTANCE OF ELEVATED POSITIONS.

The attack is more powerful from above than from below, and the effect of fire greater; the troops on elevated positions observe better. The particularities of ground render it easy to cover the troops, to deceive and to surprise. Obstacles to any approach hinder the employment of large forces. Some formations of ground cover against fire, without diminishing the effect of fire at the enemy. The ground makes tactics an art. That party being in possession of the ground will have the advantage. The ground is the base of life for the weak. But it is only the means of attaining some purpose, the principal aim is battle and victory. The ground can be turned to great advantage by art. The auxiliary means to tactics, particularly for defense, are the field-fortification : they are indispensable and of decided importance.

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The ground lengthens the duration of the battle, facilitates a successive employment of the forces, and compels to greater precaution.

## DEFENSE AND ATTACK.

Defense is to resist and to be prepared for attack. based on proper measures. The beginning of actions is attack. Defense is to maintain, attack to gain. In general it is easier to preserve than to gain. Defense takes advantage of localities and of the contour of the ground. Ground particularly renders defense superior in strength, even against a far superior mass. The defense is therefore considered the stronger form of actions of war. Confined to localities it can only have a negative purpose; if the defense can free itself from these chains, and become morally and numerically superior to the adversary, it can prosecute positive purposes-it can attack and gain. But even the defense can obtain a negative purpose by actions; and not by remaining in a passive condition. Any rational operation of war will reject pure passiveness. The means of action for defense are to fire from covered positions.

If the idea predominates, as it has often happened, that the qualities of the ground render success easy, which can only be obtained by troops, then a disproportion of actions of war arises, which results in scattering the forces, line and cordon, and a less powerful attack will cause destruction. A defense, lost in selfdelusion, builds-with the qualities of the ground-the enemy a golden bridge.

The attack is considered the weaker form of war, but with a positive aim. The attack depends upon ground, if it gives more than a cover it is an obstacle; its advantage rests in the numerical superiority, in surprise, in well selected points for attack.

The nature of defense and attack compared with the previous named elements of conflicts, shows, that fire-arms have the superiority for defense, and are the only means to render defense possible.

Hand to hand fight corresponds with attack; the latter will have greater success if the enemy has lost in strength and number; the destructive effect rests principally in fire arms; the preparatory means of beginning a battle are fire-arms.

Attack and defense each has two moments, the action of destruction, and the action of decision. The first learns also the position of the enemy, in order to take proper measures, and to make the disposition for further action, and changes from the deploy to the most vigorous attack of fire-arms. This is the prelude to the second act, the decision, by hand to hand fight. This, in general, is the progress of a battle.

#### PLAN AND LEADING TO BATTLE.

To concentrate a superiority of forces at the decisive point, must be the principle purpose; this point is in the flanks, or in the rear of the enemy, it can be in front only by an improper disposition of the enemy, and by scattering his forces. A direct attack at the decisive point will seldom fail of success; the enemy would direct his forces to that point, and change his front. Consequently the enemy's attention must be distracted, that he may become uncertain about the designs, and may not counteract by proper measures.

The plan of a battle contemplates the purpose of, and what is to be observed during its progress.

The leading into battle unfolds the plan, with regard to reciprocal actions of the enemy, which may frustrate the plan, but then another plan may be substituted; these possibilities are to be considered beforehand in the dispositions. The successive employment of the forces are the only means to secure free action,—consequently reserves and columns are necessary.

# RULES FOR PLANS OF BATTLE .- OFFENSIVE.

1st. The attack with the whole force against the enemy's flanks; generally only to be executed under peculiar circumstances.

2nd. Oblique and echelon formations afford chance for success.

3rd. Parallel formations are the worst.

The oblique position is of value, if it opposes to the enemy superior forces; that position only is indeed rejectable, which neglects the principle of superiority in forces; the attack is only to be given up

#### BATTLE-OFFENSIVE.

when the ground renders it inadmisable, or when the position of the enemy is too strong.

The advantage of a flank attack seems to be doubled if both flanks be attacked at the same time; but not so, if the forces have to be divided, unless every part should be strong enough to succeed independently, then it may be attacked in any way; maxim is to gain the flanks, to attack the flanks. Exceptions can be made if the superiority in forces renders any success probable, but also the success becomes more decisive and cheaper, if the troops are guided and engaged according to the adopted maxims.

The flank-attack will have a chance of success, if proper measures are taken, and if the enemy does not change his position; to prevent this:—

1st. The design is to be concealed from the enemy as long as possible.

2nd. The attack is to be commenced and ended with the utmost energy.

The means for both these maxims are: movement covered by ground, or in the night; false-attack, delusion, menace, &c.

Whatever may be the proportion of the troops on both sides, the rear is to be gained to secure victory.

Moral influence will animate physical strength, and may increase the power immeasurably, even in forces of inferior numbers; movements—march—are the means to action, and consequently: to know how to march, is a chief point in the lead of war. Equipment—armament, exert an influence, besides activity. The conditions of war are to be considered with those of organization; and only a complete knowledge of the demands of war can solve these questions; if they are solved contrary to the rules of war, it is "half defeat."

## DEFENSIVE.

Defense is not only made by troops, but sustained by nature and art; it should not be passive; it must allow of any movement. What a sham-fight is to a battle, a proper selected ground is for defense; it entices the enemy to advance to localities, which will render his approaching most destructive; the design must be to have the enemy's forces divided, and to render impossible uniform action by his troops. Intrenched positions combined with natural obstacles are best for those purposes, they render difficult any attack, facilitate the movements, and protect the flanks.

In regard to the disposition of battle, the defensive forces should offer the strongest resistance at the point, where the fight is hottest; this is generally not in their power, often not until towards the close of the battle.

Ground should be protected by fire, and fire should be covered by ground; to obtain that, will require intrenchment, which is the true element of defense. The field-fortification is its nerve. The artificial ground renders defense less dependent than the natural, it is therefore superior, and best for the positive part of defense, for the act of decision; the defense then becomes attack.

#### TACTICAL MAXIMS.-DEFENSE.

1st. Covered positions for the troops.

2nd. Not to be surprised.

3rd. The troops should be successively engaged.

4th. The battle order should have more depth than frontal breadth.

5th. Reserves should be posted sidewards.

6th. There should be no inattention.

7th. Intrenched where no action will be desired.

8th. In the engagements the utmost energy is to be exerted.

9th. Perseverance and energy in execution.

10th. Great risk for a great object.

#### ATTACK.

1st. Sham-manœuvres, surprise.

2nd. To deceive with few men, and to attack the point of decision with a large force.

3rd. Flank attack with combined forces.

4th. Long lines to be avoided.

5th. Reserves ready for action.

6th. Principal point to drive the enemy from the battle field.

7th. The lead of the battle should not be checked by the plan of operation.

Sth. To prosecute a great aim.

9.h. Energy and system in the execution.

# EMPLOYMENT OF TROOPS.

Ist. The fire-attack precedes the hand to hand fight. Artillery is for this purpose concentrated at the most important points, supported by infantry; cavalry is posted in the rear of infantry. Artillery opens fire, infantry deploys in open order and line and advances; fire at the mass, finally attack by columns; cavalry follows closely.

2nd. This mechanism of battle gives the rules also for the order of march of combined troops.

3rd. If a large mass is concentrated, artillery and cavalry reserves will be formed.

4th. If the mass designed for action is ordered to advance at the decisive moment, it must be animated with the utmost courage.

5th. Horse artillery and cavalry are best to attack the rear and to pursue.

#### GROUND.

1st. The ground often is an obstacle to approach, and covers positions and movements; this is particularly important; the first quality renders easy only defense, the second, defense and attack.

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2nd. Obstacles to any approach are important: (a), to cover flanks; (b), to strengthen fronts; flanks can be perfectly protected by impassable ground, by rivers. swamps, lakes, etc.; any ground which is not impassable will not give sufficient security, it requires troops, reserves; intrenched positions will be essentially effective. Any obstacle in front is of value, if it renders defense easy and approach difficult.

Declivities (or slopes) may be considered as obstacles; the first line will be posted at the first height; or this shall be posted with skirmishers, and the first line posted so far back, that the enemy, the moment he approaches the height, will be in the most destructive fire.

Obstacles-rivers, creeks, narrow-passes, etc., will cause the enemy to break his front, he will have to re-order his front, which will check his advance. Consequently, they must be occupied in the range of fire; artillery 400 to 600 paces distant, infantry about 200 paces. But the resistance rests not alone upon the fire, columns are in readiness for action on a distance from 600-800 paces.

An applicable method is also, that artillery occupies the ground in the range of its fire, 1000-1500 paces from the obstacles; but this needs only to be done when the obstacles are of some magnitude.

Isolated obstacles may be: (a), steep hills; (they must be intrenched;) (b), defiles, bridges, dams, ravines, by which the enemy can approach only at one point. If the enemy should be compelled to pass 5

through a certain defile, the whole force is posted at the point where the fire is most destructive; a considerable force should be posted in the rear for support, in case the enemy may have succeeded in passing unobserved at some place, and is attacking from the rear.

#### VILLAGES, TOWNS.

If the forces are to be relied upon, and they carry on the war with enthusiasm, the defense in houses of a few men against far superior forces is often possible.

Ist. It is in general better to occupy gardens and houses with skirmishers, the approaches with artillery, and to post the larger part of the forces, formed in columns, in the place, or in the rear of it, covered by some means, but in readiness for action, if the enemy enters.

2nd. If those points are designed for great operations, the troops should be constantly on their guard, and prepared to support retreating troops. These points should be defended to the last extremity.

2rd. Undulating ground, overgrown land, houses, etc., cover positions and movements; the troops are formed in columns to facilitate these movements.

The attacking troops have more difficulties in covering their march than the troops have in defending their position.

4th. In taking position may be observed :

a. One or both flanks shall rest on impassable ground.

#### GROUNDS-ATTACK-RETREAT.

b, Free view in front and flanks.

c, The approach in front obstructed.

d, Covered position of the troops.

c, Favorable ground for retreat; it may be undulating; but the defiles not too near.

5. For attack is observed :

a. To march to the battle field through ground which renders difficult any observation.

b, For attack, a point should be selected, whose formation does not render too difficult the movements of the troops.

6. Too much confidence must not be placed in the strength of the ground; it should never induce to passive defense. Inaccessible ground should be avoided, and is therefore of no value.

Ground which is an obstacle should be only occupied for partial defense, in order to resist with an inferior, a proportional superior force; to gain time—to resume the offensive; the victory may be gained under favorable circumstances, and by proper measures.



# PART SECOND.

EMPLOYMENT OF THE TROOPS.

# BATTLES ON LEVEL---UNCOVERED----NOT UNDULATING GROUND.

This kind of ground does not cover nor protect against fire, and does not check the movements; for attack these properties are favorable, they are the true elements for cavalry. The employment of troops on level ground is elementary. Superiority in number is of predominating significance, if strong enough, it will overcome valor and skill. It has only to conquer the intensive power which exists in every troop. This power increases geometrically with the increase of the mass.

#### ELEMENTARY BATTLES.

Infantry against Infantry—in general.—The battle of Infantry has mostly three moments, disposition. deployment, decision.

In disposing the forces we should endeavor to get perfectly acquainted with the movements and position of the enemy, by forced reconnoisance.

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Deployment is the action of destruction, the fireattack; it lasts till the intensive force of the enemy is broken. Theoretically, its duration cannot be determined; besides numerical strength, the condition of the troops has influence.

It may be observed : a combined brigade can resist a troop half superior in strength for 1 to  $1\frac{1}{2}$  hours, a division 2 to 3 hours; three or four divisions double this time, (4–6 hours.) and 8–10 divisions four-fold this time, (16–24 hours).

The decision aims at the final expulsion of the enemy from the battle-field, by a hand to hand fight. These three moments are not expressed in all battles. In conflicts of small parties the second moment is often omitted; the third moment is not forced to the utmost.

These three moments are most distinctly expressed in battle of large forces, which nearly equal in completion and number; in this case also, a hand to hand fight will be avoided, and the field left by one or the other party, before it comes to a decision.

One party may perceive in time, that in the battle nothing will be gained, and therefore the battle will be discontinued. Whatever the circumstances may be, these three moments should be carefully considered. Fresh troops are required for every moment, and the rule is therefore to have the order of battle divided into three parts. The strength of the troops for every part depends upon the importance of these moments. The disposition requires the least number

of troops, the deployment the most. This leads to a certain rule in regard to the numerical proportion of the parts,  $\frac{1}{4}$  at the utmost for the preliminary engagement—advanced troops;  $\frac{1}{2}$  at the utmost—deployment —mass;  $\frac{1}{4}$  at the least for decision—reserves.

Smaller parties have no reserves; in large bodies the reserves are reinforced. The open order is the element of the preliminary engagement—the line, that of deployment—the column, that of decision.

In the beginning of the battle, the distance of these parts from each other is determined by their strength; it may be, from the range of a rifle shot to a half a day's march; if the advanced troops are not independent enough in themselves, they have to be posted in front of the main body, not farther off than from 300 to 400 paces; in this positon  $\frac{1}{8}$  to  $\frac{1}{4}$  of them form open order, the rest is about 80-100 paces either behind the centre or behind both wings of the chain; this mode renders easy relief, reinforcement and succor; the chain is extended to the right and left, to cover the front and flanks of the main body. If the main body consists of some battalions, it may, according to circumstances, be divided into two battle lines, posted one behind the other, with about 80-120 paces interval between each other; they are designed to relieve and support each other mutually; therefore the distance should not be greater than is required for regular movements.

The mass is in line or in columns; the line is rather

for defence, the column for attack; the line is not always closed, if the reserves are near, it may have some intervals. The enemy's five is thus rendered less effective, its own fire more destructive.

The reserves should be in columns, their distance from the main body should depend upon the mutual strength; if the troops are inferior in strength, it should be 200 to 300 paces, they are either behind the centre or the flanks of the main body.

With these principles any fundamental order of battle can be formed without regard to the ground.

This order of battle is based upon the following maxims:

(a.) Columns.

(b.) Successive employment of the troops.

(c.) The Chief not to be checked in the lead during the progress of the battle.

(d.) The forces which are not engaged shall be covered against the enemy's fire.

## EXAMPLES.

Battles of Single Battalions—defense, position. —a, reserves are not required; b, the main body may be in line or in column, in order to meet the enemy's attack.

1. The Main Body formed in Line.—The greatest effect results from the fire of the mass. An open chain of skirmishers at a distance of 300 paces covers the line; 80 to 100 paces behind each wing of the chain is a reserve.

Progress of the Battle .- The skirmishers are engaged; they are supported by reserves, they fall slowly back. 'The front of the mass will be unmasked as soon as the enemy approaches within the range of fire, the skirmishers rally on the flanks of the mass, if they are still in condition to render assistance in the conflict. The line delivers its fire at the command of the Chief, and continues the fire until the enemy is about fifty paces distant; then charge with the bayonet or retreat, according to circumstances; fire at the files Tof the retreating enemy; skirmishers deploy and pursue; the first position of battle line is reformed; in this position the battle line remains or pursues according to circumstances. The offensive is the last means for the defender; the strength and condition of the enemy determine the moment, and whether it shall be resorted to. A battle can only be discontinued if the strength is not broken; the enemy must be opposed by new imposing forces.

2. The Main Body is formed in Columns.—The most stress is laid upon the fire of the skirmishers, which is continued with energy; closed columns follow; the exhausted are relieved; finally attack before the troops are too much fatigued.

#### RETREAT.

The enemy cannot pursue with rapidity, it is therefore not difficult to retreat. The main body is covered by the chain of skirmishers, all at once retreat in order.

. Mack-position : open order and columns.

The skirmishers engaged and reinforced; the advanced troops of the enemy should be repulsed and restrained by fire and alarm.

The main body : fire, if required ; attack supported by the skirmishers.

Pursuit or retreat : in the latter case the troops fall back beyond the range of the enemy's fire.

# BATTLES OF SEVERAL BATTALIONS.

Defense : two battle-lines and one reserve.

Progress of the Battle, disposition.—The advanced troops are engaged; they continue firing and force the enemy to deploy, the front will be unmasked; the main body will be engaged: fire, partial attacks; the battle-lines have to be relieved, this shall be done at a pause during the engagement, or in combination with a bayonet charge; the front battle-line falls back through the middle battle-line; great caution is to be observed.

Daties of the reserve—They cover and support the flanks; relieve the main body; charge with the bayonet; pursuit; retreat in form of cchelons or successively in battle-lines.

This only is to be done if the enemy is hotly pressing. The intervals between the battle-lines are small. As soon as circumstances will allow, fresh

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troops are ordered to support the main body; a rear guard is to be ordered also.

Attack-position : chain, support, columns.

Disposition : forced reconnoissance; deploy; skirmishers; sham-manœuvres; the mass secretly to be concentrated against the principal point of attack; company columns will render movements and shammanœuvres easy; they should be concentrated in proper time and in readiness for attack in the flanks; fire by the mass.

*Decision* : attack of the whole force, pursuit or retreat. Cavalry and artillery must not be wanting in the co-operation, if success is to be expected.

# INFANTRY AGAINST AND WITH CAVALRY.

Level ground is the element for cavalry, and that it can make complete use of its rapidity. Cavalry is four to five times quicker than infantry, it passes the most favorable range of fire-arms in 15 to 20 seconds. The fire of cavalry is ineffective, its power is the charge and the hand to hand fight. Infantry against cavalry must be defensive; if cavalry can be prevented from charging, all is gained, this only can be done by well directed volleys.

The formation of the mass is of importance in attack; every weak point should be reinforced, no flanks, no rear, on all sides must be strength and front; if the ground affords not protection.

The form in which infantry fights and protects it-

self against cavalry is, the square and mass; on condition that this formation can be done in the quickest time; the position alone renders any success favorable; the fronts of the square should be shorter, than those of the attacking columns. Battalions form best the squares of the breadth of a company, or of that of a platoon; companies may form squares of the breadth of platoons or half-platoons; smaller sections and skirmishers form irregular masses; larger bodies than battalions form battalion squares; these squares in position of echelons will render mutual assistance possible.

The squares may be so combined that one corner rests on that of another square, and forms an immediate connection. This formation is of importance, if the enemy's line shall be broken. Advanced skirmishers fall back to the corners of the squares, or in the centres of them.

*Principles*: not to be surprised during formations or in movements; the mass ordered for action shall be completely closed and united in whatever form they may attack; self-possession; supported by skirmishers as long as possible; the fire as near as possible.

*Cavalry* : its efforts should be to surprise infantry in its movements and during its formations. No matter by what means this may be done.

If this fails, infantry must be engaged in some way and caused to fire at improper distances, and then is the moment for charge; open order may render easy an attack; an unfailing but a dear method is quickly repeated charges, to prevent reloading.

Attack is best against one and the same point. If several squares are formed, that square will be attacked which can be the least supported by others; the attack is executed in open platoons or open squadron-columns.

*Remarks*: 1st. Cavalry attacks rarely in closed columns; this form has sometimes been applied in battles of the present time with heavy cavalry at decisive moments.

2nd. Cavalry should not expose skirmishers to the fire of infantry, except to entice or to provoke it; alarm, smoke, may often be applied with some success.

3rd. Rapidity is superior to fire; against an inferior enemy any form is strong.

Infantry attacks cavalry very seldom, and requires no further explanation.

If cavalry alone or combined with other arms, is opposed to infantry, it will force upon it the following considerations :

1st. Greater precaution.

2nd. The open order near to the mass.

3rd. The movements are in some way checked.

4th. Order of battle is unfavorably exposed.

5th. The initiative actions are lost.

This result is important in the battles of infantry. if cavalry on one or the other side is the auxiliary troop. Cavalry takes advantage of all weak points of the enemy, and is best for a successful pursuit or to

cover a retreat. Cavalry, the auxiliary of infantry, should be near it. Cavalry opposed to far superior forces should be posted within squares of infantry.

# INFANTRY AGAINST AND WITH ARTILLERY.

Artillery can only be of value by fire in position. Its range of fire is from five to six times greater than the range of other fire-arms; its greatest effect is against the mass. Artillery is to be protected by troops, which are particularily ordered to support it, consisting in general of one-half to one squadron of cavalry, or one-half to one company of infantry. In this case we will consider infantry in an offensive state against artillery.

Infantry will have to fight two enemies, the cannons and the support; the purpose of attack may be to drive the artillery from its position. The capture of the cannons can be effected only under peculiar circumstances.

*Maxims*: the skirmishers advance, firing against men and horses, the support follows in such form and direction as to be the least exposed to the enemy's fire; the support observes well all the movements of the enemy's support, and endeavors to gain the flanks, or better still, to get between the support and the guns; if this cannot be prevented, and the enemy's skirmishers are repulsed, his artillery will limber up and fall back. Artillery will have to observe: fire against mass; its support is not posted behind the position of the guns, and shall not be in the way to check its movements or its line of fire; if the enemy's skirmishers get too troublesome, artillery falls back; artillery combined with infantry observes:

*Defense* : 1st. Well selected positions for a destructive fire.

2nd. Not to be exposed to the enemy's fire.

3rd. If the enemy attacks, to fall back.

4th. Fire against the mass.

5th. Not to be separated without good reasons.

*Attack* : 1st. Positions which do not check the forward movements.

2nd. Not exposed.

3rd. Not to approach within range of fire.

4th. Fire against artillery.

5th. Artillery concentrated.

If artillery is combined with infantry, the fire conflict is generally more intense, and the duration of the battle prolonged, particularly in the beginning.

Artillery and cavalry are of great value, both in pursuit and in retreat.

The security of artillery, in combination with other arms, can lead to unfavorable positions; if posted in the centre, it renders difficult any control, command and movements; the position is best on the wings and supported by companies or a battalion.

The Batteries should not be separated, exceptions may be, if long fronts and squares are formed, the division in platoons may then be best; in the rear of batteries no troops should be posted.

# ARTILLERY AGAINST ARTILLERY.

Battles, in which artillery is ruling, are not in open field; it is the auxiliary of the other troops; this excludes not the maxims for its employment; these are,

1st, Inefficient in movements.

2nd. Vulnerable in the flanks.

3rd. Unfavorably exposed at the moment of limbering and unlimbering the guns.

The flanks shall not be exposed to the enemy's fire, but the enemy's flank should be fired at, to force the enemy to change his position; and to fire at the moment of limbering; the position of artillery shall be covered by any obstacles in front, without being hindered in its fire; the most favorable moment for fireattack is at a distance of about 400 paces, the range of grape shots. A greater number of cannons, heavier ordnance, rapidity in firing, are of importance; if one part is superior to the other in guns and calibre, the inferior part must manœuvre with skill and precaution to overcome the disadvantage.

Of great value is rapidity in movements; flying and mounted artillery will have therefore some advantage over heavy artillery; by their movements their ability to fire quicker, to approach nearer; they are sufficiently recompensed for the lack of heavier ordnance.

In changing positions, the guns may be divided in two parts, one continues firing, the other falls back, takes position, and begins fire, then the one in front falls back, and so on alternately.

# ARTILLERY AGAINST AND WITH CAVALRY.

Cavalry against artillery is in a decidedly unfavorable position as long as it cannot get into a hand to hand fight; its fire is of no value; its rapidity alone will render the accomplishment of its purpose easy. An unexpected attack in open order, supported by a reserve which observes the movements of the supporting troops of the enemy's artillery, is of great importance. The weak moments of artillery are rendered to advantage.

Cavalry combined with artillery, is rapidity with the greatest effect of fire; notwithstanding if opposed to cavalry, it requires favorable circumstances, and great skill to turn it to advantage; the reason is, cavalry rarely halts in position, and therefore artillery will have to fire at cavalry in motion.

Artillery commences attack, and covers the retreat; posted in the centre of a battle-line, it will check its movements. Artillery opposed to infantry, is an excellent support to break the squares, and to loosen their compactness.

# CAVALRY AGAINST CAVALRY.

It is most difficult to give rules which cavalry against cavalry will have to observe.

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1st. Its rapidity is great.

2nd. Its weakness in the flanks increases in ratio as its frontal strength increases.

3rd. The charge goes straight on, and the direction cannot be changed during its forward movements.

4th. In one moment extremely powerful, in the other totally exhausted.

Therefore, it may be observed :

1st. To surprise in a moment, when the least resistance can be made.

2nd. Front attacks are to be avoided, principally those with short fronts.

3rd. The flanks constantly covered by troops being ordered for these duties.

4th. The moment for charge properly selected.

5th. The troops as little fatigued as possible.

All this is at the will of the commanding officer, but the moments change quickly; it is more difficult to lead cavalry than any other arm; on level ground, troops of equal excellence, and the Chiefs possessing equal intelligence, the chance of success will be on that side which is superior in number.

Cavalry can be employed to attack at the same time, front and flanks.

Reserves follow at a proper distance to support the flanks; flanking attack is of great advantage, the echelon-form leads to it; if the ground is not favorable for flanking movements, movements in echelons must be resorted to. The formation in line is best for attack; rule is to spare the strength of the troops for the proper moment; sham attacks will cause the enemy to take wrong measures; in pursuit, precaution; all movements most simple; cavalry must be perfectly skilled in performing its duties, if it is to be of value.

Attacks of cavalry have two moments: disposition and decision—beginning and ending; a proper disposition will secure success; the enemy should be enticed to improper movements; whilst the real designs are concealed; light cavalry and open order are the best means for this.

Cavalry attacks quick; and the quicker the most complete the success; larger bodies have to manœuvre with a front and a rear battle-line in conformity with mutual movements and actions.

## INFANTRY-CAVALRY-ARTILLERY.

These three arms combined, are the strongest and most independent.

Cavalry and artillery combined with infantry: 1st. If the parts of infantry (for instance divisions) areindependent.

2nd. If smaller forces receive orders of such importance that it is necessary to strengthen them.

In both cases, one squadron of cavalry is ordered to a battalion; for larger bodies the strength of cavalry will not exceed one regiment; artillery is rarely ordered more than one-half or one battery.

Both these arms are in the capacity of auxiliaries of infantry; their duty is to assist infantry in obtaining its aim by attack ; in cases where infantry is not strong enough to succeed by its own strength ; the point of dependence shall be strictly observed ; the duties of the auxiliaries are :

.*Wtack—cavalry*: to scont, to support the skirmishers and the attacking columns; under certain circumstances, it may manœuvre in the flanks; it covers retreat and pursues.

Artillery: the enemy's artillery fired at; the attack prepared; in the pursuit assisting; the retreat covered.

Defense—cavalry: it will cover the flanks, and will take advantage of improper measures or weak moments of the enemy; the attacking columns shall be supported; the pursuit resisted; the retreat covered.

.*Irtillery*: the attacking mass of the enemy fired at; the pursuit resisted; the retreat covered.

In general : the auxiliaries should not be too much fatigned before the battle becomes decisive; the ammunition of artillery shall not be wasted without having some purpose in view. A further advantage of combined arms is, that the fire is more destructive; the reconnoisance is rendered easier; the flanks are better protected; the flanks can be more easily turned; infantry in a state of great relaxation can be easily supported; mutually greater precaution can be observed; the retreat and pursuit will be done by uniform action, and will be essentially supported.

## RULES OF DISPOSITION-DEFENSE AND ATTACK.

Infantry: mass formed in line or columns with advanced troops; artillery (in the rear of this mass in column) covered in rear of the mass; cavalry covered in rear of artillery.

Mechanism of the order of battle; defense: Artillery commences firing as soon as the enemy advances within the range of its fire; its position is in the battle-line, on some point from where its fire will be most destructive; it is of value to change the position as little as possible; and to remain concentrated. The front of the first battle-line should be protected by grape shots; if the battle-line extends itself more than 500 paces, the artillery should be divided in unequal parts; the positions are better on the wings than in the middle; cover by ground is most important; the intensity of the fire depends upon the critical moment of the battle.

Cavalry in general is in reserve and in readiness for attack; smaller troops scout on the flanks; the enemy's cavalry is rarely attacked; the infantry should be supported to the utmost; the enemy's infantry will be attacked (successively) at proper moments; for instance if an advancing column halts or deploys for fire action, or retreat; the enemy's troops must be prevented from turning the flanks; the retreating troops should be pursued; your own retreat covered; in all these cases the auxiliaries are to support.

. Attack .- Cavalry reconnoitering; the enemy's advanced troops should be repulsed by light troops, supported by cavalry; artillery will silence the enemy's artillery; the main body advances for attack, accompanied by artillery to the range of grape-shots; fire at the mass; it repulses open and closed lines; skirmishers deploy supported by columns; the attack becomes partial; cavalry is near, and takes advantage of favorable accidents; if the mass of the enemy falls back, cavalry pursues; during these actions the other forces occupy the enemy's position. If the attack should be repulsed, cavalry will delay the enemy in his attacks, that the repulsed troops may restore their order. If, with the attack on the front, the flank can be attacked, then for this purpose one-fourth of the strength of forces is ordered.

## MOVEMENTS IN BATTLE.

*Maxims*: The troops being completely ready for action, will take the shortest route to the battle-field; the columns and manœuvres with single parts will render easy the purpose; the different arms will support each other, if one forms a strong position, the other will resort to a weak form, as necessity requires.

#### RETREAT.

The retreat is the most difficult problem after a lost battle; besides the unfavorable situation in regard to the enemy, the depressed state of the troops is aggravating; the troops must be animated to self-confidence by any means; the enemy must be resisted to the utmost.

Consequently: the troops must not be separated, and in no way checked in their retreat; infantry formed in columns; skirmishers in the intervals; the artillery: manœuvring. Cavalry attacks according to circumstances; if the enemy pursues hotly, the retreat will be in battle-lines, artillery combined and supporting in the successive retreat, it takes position on the right orleft flank of the second or middle battle-line, (or artillery may be divided and a part ordered to each battle-line.)

The rear guard will afford the security if the ground is favorable; the enemy in his pursuit must be checked, that the main body may gain time to retreat in such order as circumstances will allow; and to have the communications with the different troops unintersected. Movements and resistance must be done at proper moments; troops shall be placed in ambush; the lead becomes most important, it requires particular capacities of genius and heart; best to retreat in the night.

#### PURSUIT.

The enemy must be constantly alarmed in rear and flanks, he will thereby he forced to greater haste in his retreat, and be thrown into greater disorder, which produces great physical and moral weakness.

# BREAKING THROUGH THE ENEMY'S LINE.

Confidence must not, even in the most distressing situations, be lost, the utmost must be done.

Infantry columns concentrate themselves into wedge form; artillery joins the troops at proper points, the wagons will be taken in the middle; cavalry opens the way for the van-guards; if cavalry is not strong enough, it must be taken in the middle of the columns; no precipitation; all must be well considered; night is best to succeed.

#### SURPRISE AND AMBUSCADE.

On level ground a surprise is only possible in the night; surprise will render advantage, because, the attacked troops are in a weaker tactical and in a weaker moral state; if any success can be expected, the surprise must be kept secretly; the main attack is against flanks and rear; sham-attacks, by combination of all the troops, may be important. The lead of a night battle is somewhat difficult; therefore only proportionally small forces will be employed.

Ambuscades are excellent means in retreat, to render the pursuing enemy more cautious; they are of value, if the enemy is careless, or the ground too rough, to allow him a careful reconnoissance and a quick deployment.

# BATTLES IN COMBINATION WITH GROUND.

Ground changes from the gentle slope to the inaccessible bluff, either covered or intersected, or both; these peculiarities designate the character of the country or ground; they are: rolling land, hilly-land, mountains, flat-land, etc.

These peculiarities of ground have influence on the employment of troops, they render the movements difficult, they conceal, they cover against fire. The effect is not the same for the different arms; artillery and cavalry have more difficulties, infantry less.

Undulating and covered ground is to a certain extent the theatre for infantry, whereas cavalry and artillery are entirely checked in their actions; the three arms combined have the greatest strength, and it must therefore be considered, which ground may be selected for employment of the combination; but such a choice is seldom allowed by the prevailing circumstances; the problem is to employ only those troops which best suit the present battle ground, and the others to be posted in reserve; but in such a position and state of readiness, that, if in the progress of the battle, the ground changes, and will admit their employment, that it can be done without loss of time *that's tactical art.* 

The peculiarities of ground render the inferior forces strong, if they understand how to use them properly; but it is only of value, if the space is in proportion to the forces; any disproportion turns to

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disadvantage; a disproportion will exist, for instance: if the principle of battle-order, the column formation is sacrificed to the line formation. It has also essential influence on the lead and control of the battle; the uniformity of actions is more or less lost, by the aggravated control and the aggravated movements. The single parts become more or less independent. The accidents and chances of the battle are entirely in their power; trifling eventualities often cause decided consequences. The leader can only exert an influence on the progress of the battle, if he can employ new forces; but their employment may also involve difficulties. Under such changing circumstances the numerical superiority loses to a certain extent its importance; the efficiency of the troops and moral power will excel; with perfectly reliable troops, that can be executed on ground properly rendered to advantage, which never could be expected even on level ground; it follows-that the efficiency of the troops forms the base of the combinations of battles.

For battle order, on ground of peculiar formation, is to be considered:

Defens<sup>o</sup>.—The shortest fronts possible; the flanks resting on inaccessible ground; the approaches obstructed; the position covered; the movements in the rear in no way checked; the positions intrenched; the single parts independent; artillery protects the approaches; strong reserves; proper measures to be taken to prevent any attack in the rex Attack.—Light infantry and artillery deploy; heavy fire against the approaches; important positions of artillery are to the utmost defended; if the enemy can be repulsed from positions of importance, they are to be occupied; cavalry supported by infantry; shammanœuvres; attack in the rear; the route for retreat should be secured.

If the peculiarities of the ground are considerable, it may be observed :

Attack.—Open-order in undulating ground; the reserves are drawn near the columns, the nearer the troops approach open-laud; the approaches will be protected by artillery; cavalry ordered in front for action; artillery and infantry will force the approaches to undulating ground.

Defense.—The approaches to undulating ground will be occupied; cavalry and artillery will have to support in open-land; the positions intrenched; the roads rendered impassable; communications between the troops established; ground changing considerably in its contour requires another mode of attack; the duties to be performed by each part are therefore to be changed; during these moments the troops are in a state of weakness, the defending party must prolong this moment as far as possible, to check the assailants.

#### BATTLE ON BROKEN GROUND.

Gently undulating ground checks the movements of the troops very little, or not at all; it renders easy cover to the posting of troops in reserve some distance in rear, and to artillery in taking position; the movements can be executed without being observed, and renders surprise easy. In general the employment of the troops is elementary. On both sides are advantage and disadvantage equally; the superiority in number will prevail at the impending moment. Attack is superior to defense; that's not the case in cavalry battles, the peculiarities of cover can be turned to advantage. Activity leads to victory.

Isolated hills can be turned to advantage only by intrenchment; they comprise a small space with an extending front, which must be attacked.

Slopes render movements difficult, particularly for large and closed bodies of cavalry and artillery. A sudden unexpected attack becomes impossible, they are therefore only of defensive value.

If the inclination of the slope allows troops to march up the hill in closed order, or so that it can be fired at with effect, the fire-line may be posted on the crest of the slope, and therefrom the fire commenced; if the inclination is too steep, and it cannot be fired at with effect, the skirmishers will form a chain along the crest, and the fire-line takes position some distance in rear, that the enemy, the moment he approaches in the range of musketry, will be received with an overwhelming volley. The position of infantry may be in this case about 120–200 paces, artillery 400–600 paces in rear of the crest; columns are in reserve to attack the enemy; the pursuit should be made very cautiously and should not go farther than to the crest of the slope. The enemy may attempt by a false retreat to turn suddenly upon the pursuing troops, and by this manœuvre gain the top of the hill; cavalry under certain circumstances may be employed to support infantry; roads for retreat must be rendered practicable.

Attack — Attack from the rear; the crest of the slope should be occupied by skirmishers; columns follow; sham-attacks by skirmishers; the enemy will be enticed to pursue, and by turning suddenly upon him, the top of the hill may be gained; how far artillery and cavalry may be effective depends upon circumstances.

If the height is gained and the enemy repulsed, his return may be expected—great effort should be made to occupy the crest; perhaps a quick and vigorous attack to a greater distance may be risked, to frustrate the enemy's aim to retake the height.

#### BATTLES ON COVERED GROUND.

Woodland.—It covers and protects against fire, it renders movements difficult, intercepts communications, checks free view, control, impedes cavalry and artillery, and aggravates the lead of the battle. The greater or less significance of the influence depends upon the special condition of the woodland; rough, thickly grown woodland without roads is favorable for retreat; the defense is confined in this case to the approaches. Larger bodies of troops may take position in the rear of the woodland and attack the enemy if he deploys from the woods; they are in this regard an obstacle to approach; open woods, as they are in cultivated countries intercepted with roads, are of importance in the battles of the present time. Those troops which are in possession of the woodland will have the advantage; this is important for the defender; he should have the woods in his rear, or he should avoid it entirely.

Properties of the woodland.—Ground: level and cleared; the enemy cannot approach unobserved.

Borders of woodland,—Their form, either projecting or re-entering angles; thickly and heavily timbered; some bushy; impenetrable parts; fences, ditches.

Within the woods.—Hard ground; practicable roads, open timber, undergrowth.

## PREPARATIONS FOR DEFENSE.

The approaches rendered impassable; parapets for artillery; weak positions intrenched; salient parts obstructed, at proper points the woods cleared; roads rendered practicable for artillery and other troops.

Disposition of the troops.—The borders of woodland are the principal points, and should be defended to the utmost; cavalry cannot be employed, and should therefore be posted in rear, or should guard the flanks.

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Artillery.—Posted at the entrances, and so that it can sweep all along the borders; cross-fire on the salient-angles.

Infantry.—A covered chain of skirmishers; the salient-angles and entrances deserve particular attention; supports and reserves of closed companies, and at hand. The main reserve, concentrated or divided, in or behind the woods; the reserves are  $\frac{1}{3}-\frac{1}{2}$  of the whole force, according to the extent of woodland; upon this depends the strength of the chain. The front is divided into independent parts; turnpikes and cross-roads are strictly guarded.

Battle.--Reserves have to support; the troops on the fire-line should not support each other; the borders unmasked; charge with bayonet against the entering enemy; he should be driven out; no pursuit in the open-field; the first fire-line of defense reformed.

Retreat.—Care is to be taken to get the artillery in the rear; within the woods the resistance is to be continued, if possible, under the cover of the woods; the communication of the troops should not be intercepted; no haste; ambuscades; in the rear of the woodland artillery and cavalry is posted, to support the retreating troops; the enemy must be prevented from debouching from the borders; fire with grenades.

Attack.—Reconnoissance; attack in the rear; well selected points for attack, the salient parts are preferrable, also openings; the approach by all means to be covered; chain of skirmishers, sudden attack or alternate advance; reserves ready to succor in the shortest time; company-columns acting simultaneously for the same purpose; sham-fight; vigorous bayonet charge of all troops.

If artillery can be employed, it fires at the enemy's artillery, particularly against that, which protects the position, selected for attack; grenades, grape-shots will be fired against the borders; the borders occupied; the columns concentrated near; systematical advance; the troops deploy on the borders, and advance in complete order; the most passable roads will be occupied, the troops not intercepted; precaution; artillery in front of the columns on the main roads; before leaving the woods the troops are to be concentrated and re-formed for further action.

Houses.—If the troops are brave and fight with enthusiasm, a few can defend themselves in houses against a far superior force.

If the men cannot be relied upon, it is better to occupy the houses and gardens with skirmishers, and the approaches with artillery; the greater part of the troops  $\frac{1}{3}$  to  $\frac{1}{2}$  will be posted in columns within the place or in the rear of it, in order to charge with the bayonet, if the enemy enters. Houses of solid structure, are of importance in an attack; those built of light and combustible materials are of no value.

Situation of houses.—Isolated positions should not be suffered to be attacked in the rear; the position must render easy uniform action. The best position is at the foot of a gentle sloping hill, on roads near intersected ground, on rivers, creeks, &c., &c. Single houses.—Preparations for defense; the defense may be absolute or relative. The absolute defense demands houses and rows of houses of solid structure; the doors and windows in the lower stories obstructed; any approach rendered difficult; in the upper stories walls and windows loop-holed for fire; the wood work of the roof may be used for obstructions. Inside between the stories and also between the houses a communication is to be established; the access in the rear; means in readiness to extinguish fire; provisions and water; bandages; ammunition; the surrounding trees within the range of musketry are to be cut down, in order to render the view unobstructed.

*Employment of the troops.*—The fire line with relief; each story rendered independent; the reserves will be posted in the lower stories; fire; bayonet charge against the attacking troops; the breaches will be repaired; retreat to the upper stories, or abandon' the house.

Attack.—Attack from the rear; artillery will set the houses on fire; battering breaches through doors and corners; skirmishers ceploy in open order; every man must be strictly informed as to his duties; storm with all troops. The necessary tools to break in, and remove the obstructions ready for use.

*Farms.*—The houses barricaded, and connected by barricades; preparations should be made for flanking fire; obstacles which hinder the free view should be re-

moved; redoubts may be constructed, if necessary; preparations for retreat.

*Employment of troops.*—The single intrenched positions independent; fire line and support properly posted, if possible a main reserve.

Progress of the battle.—Fire; bayonet charge; no pursuit; successive retreats systematically ordered.

Attack.—The same to be observed, as in attack of houses; the conquered houses occupied; the troops concentrated, and measures taken according to circumstances.

Villages — If they are surrounded by fenced gardens, the gardens will be occupied by skirmishers and form the first line for defense; a second line will occupy the outer row of houses; if the village can be divided in sections for defense, the better. Single houses of solid structure on the main streets or within the place will be intersected by intrenchments and occupied.

Preparations for defense.—The first line for defense will be posted, covered and connected together as much as possible; obstacles which obstruct the view and afford cover for the enemy, will be removed; the entrances obstructed; the cannons posted behind parapets; the gardens divided into sections, and posted with a sufficient force to be independent; materials in readiness to obstruct the entrances; the retreat for every section is to be secured. Second line, the communication established, the sections put in a proper state of defense; materials on hand to obstruct the entrances; the roads for retreat rendered practicable. In the interior.—The sections and intrenched places prepared for defense.

*Employment of the troops.*—As long as the first line occupies its position, matters stand well; if the enemy enters by force, he may be repulsed in the first moment; but if he has succeeded in occupying a position, it will be difficult to drive him out; all these points must be well considered in the employment of the troops; cavalry if it cannot be of immediate service, may prevent any attack in the rear; sometimes it may check the enemy in its advance.

Artillery will be posted in the flanks of the village, in order to sweep the ground in front; the cannons are posted behind parapets.

Platoons are posted in positions to defend the entrances, they fire at the attacking columns at a short distance.

If a redoubt can be constructed, to defend the main roads, it should be occupied by artillery, but its retreat must be secured.

Infantry.—First line; an independent position of the principal points on the fire line and reserve; to every two or three succors will be ordered companies as reserves; the main body is posted in the interior or in the rear of the village; the communication should be so arranged that it cannot be interrupted; the place not too much crowded with troops; if a second line is posted, new forces are ordered for it, they must support the retreat of the first line.

Engagement .- Artillery posted on the flanks com-

mences firing; the skirmishers advance and fire; guns posted at the entrances will fire at the storming mass; but not against artillery; the assailants will be met with the bayonet and repulsed; or retreat in the interior, without preventing the second line from fire; the houses occupied and defended; columns which attempt to attack the flanks should be repulsed.

Retreat.—As long as the enemy may not have occupied positious within the place, he may be repulsed and the place retaken. Those moments are to be chosen for attack, in which the enemy cannot make use of his concentrated troops; the pursuit should not be farther than to the first line.

Attack.—The rear attacked; the enemy's artillery silenced; in general the same to be observed as for attack in woodland. If the first line is repulsed the troops will be concentrated and re-formed; the troops storm the village with vigor, but with precaution; the columns are on both flanks supported by skirmishers; the whole village or part of it should be in rear of the troops; they occupy the place and take position for defense; they concentrate and will be reformed; the returning troops of the enemy to be resisted and repulsed; the retreat provided for.

Remarks.—Closed places belong rather to the class of intrenched positions; the principal purpose is to enter by force in some way; the necessary preparations will be conducted secretly; the defender's attention is distracted; sham-attacks, storm, position, rally, re-form, advance.

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Attack of barricades.—They will be fired at by artillery, the nearest houses should be stormed, and occupied; the skirmishers will keep up firing on the defending troops; attack from the rear; storm; in villages or towns, where the inhabitants are revolting, the troops should be concentrated; the main points occupied; the main roads kept in a passable condition; single houses of the place should be separated by intrenchments; severe measures must be applied; no quarters given.

#### BATTLES ON UNDULATING GROUND.

Any obstacles in front, which check the communication to the approach, serve to break the front of the enemy, and force him to reform the troops for attack, and thereby delay him; the defenders must therefore take position, from whence the fire will be most destructive; the distance of artillery from those points is for grape-shot 400-600 paces; for infantry only 150-200 paces, if artillery caunot be engaged in sufficient strength; but the resistance should not rest alone on this fire, reserves  $\frac{1}{3}$  to  $\frac{1}{2}$  of the mass must be in readiness to attack.

If the troops are inferior in strength, the skirmishers and artillery are posted very near, and fire at the deploying mass; the other troops will be posted 600-800 paces in the rear, and if possible covered.

If the troops are too much exposed to the enemy's artillery-fire, they may be posted 1000-1500 paces

back, and will attack the enemy from all sides if he deploys; at all events, if any attack from the rear is possible, strong reserves must be ready for support.

#### SWAMPS AND DAMS.

Swamps are frequently along rivers, their breadth and length is of importance; the condition of the communications and whether the fire may be effective from one side to the other side is of value; the movements in large fronts are principally checked; the passage is limited. Two points are considered:

Ist. If a passage is to be established, it will be most difficult; dams can only be constructed slowly, and the work cannot be defended by advanced troops; sometimes a passage may be effected by joining timbers together; should a swamp be intercepted by a creek, the obstacle may with difficulty be surmounted, or not at all.

2nd. Dams cannot be removed like bridges; the defender must occupy them, he is bound to the locality and to passiveness; if one passage is lost, it cannot be regained, and the defense must be given up. If the breadth of the swamp is of such extent that the fire will not have any effect from one side to the other side, and if only a few passages are through the swamp, the defense of such points will be very strong. But in regard to this there should be no mistake; it is most dangerons to defend a swamp, which is not absolutely impassable, except by a few known passages, it cannot be much relied upon. Surprise, particularly in the night are rendered easy; the weather has also great influence.

## DAMS.

Dams are not to be defended in front; but if circumstances demand it, redoubts will be constructed to render them strong. This is a rule for the defense of all defiles. The defense in the rear may be immediate or mediate.

Preparations for defense.—'The bridges will be rendered impassable, the dams cut through, parapets for artillery constructed; breastworks for infantry; pit-holes for skirmishers.

*Employment of the troops.*—Artillery must fire along the dams; infantry in a defensive position; fire of the skirmishers and closed troops; charge with the bayonet; cavalry attacks,—no advance—no pursuit.

Attack.—Attack from the rear; surprise; passages established; false-attacks; storm; fascines ready for storming.

## RAVINES AND DEFILES.

Their tactical value consists in the degree to which they render difficult the movements. If movements are confined to a few points, or entirely checked, the defensive value will be the more increased The defense will be made immediate or mediate according to circumstances. Infantry may often be favorably posted in defiles, if an effective fire is possible in front and the retreat is secured. The reserves and cavalry are in the rear.

Redoubts connected with defiles strengthen the positions; under these circumstances ramps may be cut for sallies.

Defiles and obstacles to approach are of great importance to inferior troops, if attacked by cavalry on level ground. Valleys are often favorable for combined positions on both sides and in the centre. Positions may be taken on this side, in the centre and on the opposite side, as the peculiarities of the ground, such as undergrowth, houses, creeks, rough contour and so forth will admit; but under all circumstances it must be observed, that the retreat is so secured and protected, as to prevent the enemy from coming up with the defender on this side.

In all kinds of defiles, the defense, besides the ground, depends upon the mass of the troops; what may be expedient for one part, may be inexpedient for another; therefore the mass in the rear, smaller forces, according to circumstances, in front.

# RIVERS, CREEKS

Are of no importance, unless they are deep, swampy and banks high and steep. If they are overgrown, they become important; for instance they offer a very limited passage, on account of their depth; the contour of their banks, whether bridged or not; these circumstances are to be considered.

Water-course.—If the stream is very crooked and the current strong, the defense is unfavorable; a salient angle renders the attack easy; a re-entering facilitates the defense; a straight course is indifferent; this to be considered in regard to the nature of the course; it will be of value in the arrangements for defense of a bridge or ford; and in the choice of a point for an artificial passage.

Width—It is of value in regard to an effective fire, the less available to the enemy the better.

High Banks.—The height of a bank is important, when the width renders effective the fire from one side to the other; in addition, the condition of the adjacent ground is of value, as it renders a position strong, if overgrown with woods; it is an impediment if the view and the movements are obstructed.

#### PASSAGE OF A RIVER.

1st. Bridge.—The destruction of a bridge is the surest way for the defender; but it is not always possible; if only a partial destruction can be effected, it should be done on that side furthest from the enemy; if it is necessary to preserve the bridge, the approach to the bridge, and the adjacent ground must be intrenched; but best if the fire can be effective from this side; if the bridge is located on a sharp re-entering angle, favored by the contour of ground and the width of the stream. If such a point is selected, the necessary arms and troops will be posted; the troops not being employed will be ordered in the rear. The utmost precision must be observed in the lead of the battle, and precaution in the attack.

Defense on this Side—immediate—If the circumstances demand it, or time will admit of proper measures being taken for defense.

**Preparations.**—The approach to the bridge on the enemy's side must be under cross-fire of artillery. The bridge shall be fired at length-wise by artillery, which is covered by parapets; infantry will be posted in pits or ditches on points from which the bridge can be best fired at; if the end of the bridge on this side cannot be protected by fire, barricades should be constructed.

*Progress of the Attack.*—Fire and attack ; cavalry will be of service.

The enemy should not be allowed to occupy ground on this side.

Mediate.—If circumstances demand it, the defense will be conducted with great vigor, the most favorable moment is, if the enemy will have the obstacles of the ground closely in his rear, and is prevented from deploying, and from retreating quickly, and his support cannot render assistance in time, he will be in regard to strength, form and locality, in a most difficult situation. In all events, a pursuit should not go further than to the bridge.

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Attack.—If rivers and creeks can be crossed on foot, the main attack will be directed at a salient angle, and from thence pressed forwards. If the fire from one side to the other is effective, the surest success will be obtained by a superiority in number.

If bridges cannot be avoided or taken by surprise, an effort must be made to get troops, unobserved by the enemy, on the other side, to support the attack. If the defender is posted on this side, by a vigorous attack, the crossing the bridge may be effected at the same time with the enemy. In a well conducted attack, the fire of artillery and skirmishers is important. Infantry will be ordered to storm; under particular circumstances cavalry may precede. Infantry having passed the bridge will form with the utmost valor a live bridge head. Artillery and cavalry follow the first battalions, the reserves also without losing time; then vigorous attack.

The maxims for retreat over bridges may be derived from the foregoing: they are to mask and to select favorable points for retreat, protected by artillery; the enemy's pursuit should be checked to gain time to retreat.

2nd. Shallow fords render the passage of one or the other of the arms easy, their defense is analogous to that of a bridge with modifications; the troops will not be posted on the other side; if the ford will not be used, it should be rendered impassable; the attack is like that of a bridge, with this exception, that cavalry will precede if possible.

## ARTIFICIAL PASSAGE.

The technical construction of bridges will not be considered here. The main point is, to have the bridge finished at the proper time. The best chance for success is surprise; troops should be carried over the river in order to resist the enemy's approach. The defender's duty is to prevent the completion of the bridge, and to frustrate surprise; the enemy's troops which may have crossed the river, should be driven back.

In regard to the employment of troops : they should attack with energy ; the conflict should be ended before the bridge could be rendered passable.

#### REDOUBTS.

Field-works are essential to render ground for defense strong. Parapets and redoubts are constructed for these purposes. Breast-works for infantry, combined with redoubts, principally to establish a bridge head, and for artillery to have a covered position within the range of fire. Open-works are inefficient. Only closed works, redoubts, &c., are independent. If artillery is posted in redoubts, they have to fire against the enemy's artillery and the mass. Infantry will be posted behind the interior slope of the breast-works, and will fire against the assailants; on each side of the breast-work is a second and a third rank ready to support. The main reserve is inside.

If the fire does not prevent the enemy from scaling

the breast-work, he will be met upon it with the bayonet and repulsed by a hand to hand fight; if the defenders succeed, they take their former position and commence firing.

*Attack.*—The redoubts fired at with grenades; the enemy's guns silenced; attack from the rear; skirmishers combined with closed forces get possession of the ditch, scale the parapet, and enter by force the redoubts; support follows closely.

The maxims for troops to be observed in these varieties of ground are considered. These peculiarities are seldom separated; they are often times combined. This renders war more complicated and more artful. Not in regard to the effect of the troops, but in regard to the plan of the order of battle, to apprehend quickly advantages and disadvantages, and to employ the troops according to mass, arm and order. The new battle order, the open order, the columns, the deep position, the reserves, render advantage easy.

## EXAMPLES WITH VARIETIES OF GROUND.

Positions in regard to the ground, attack or defense, have been fully considered; positions are not upon the hill, but behind the hill; not in front of woodland, but within or in the rear of it, if the woodland will admit of it. The troops are formed in columns, to be more easily covered in position; villages, woodland, rolling land, are selected for cover. Even in cultivated countries it will seldom happen, that ground can be found upon which by proper measures troops cannot be covered; but the disposition must be in conformity with purpose and the design of combination; the preservation of the battle order principally is to be observed.

A position is therefore, a battle-field, which in regard to length, breadth, and peculiarities of ground, renders most favorable the purpose aimed at by the troops, according to strength and nature of the troops.

It follows that there are certain forms of ground, which, to be in a state of defense, demand a certain strength of troops; others which demand a certain armament. In this regard prevails the greatest variety.

But in regard to the employment of the troops, the lead of war at the present time is entirely independent, and this variety is a decided advantage. Battles occur every where, and demand for the inferior only that the superior in strength shall be checked in employment and movements of his troops.

The principles are :

(a.) In regard to strategy : favorable condition for their own line of retreat as well as for flanking position in regard to the enemy's retreat.

(b.) In regard to tactics :

1st. Extension of the troops according to their strength; that is, the front battle-line should not make use of the reserves (in the beginning of the battle) too soon. The order of battle-line shall be preserved.

2nd. One or both flanks shall have resting points.

Only insurmountable ground, rivers, creeks, swamps, lakes, valleys with bluffs, rarely mountains, render secure resting points. Such obstacles will rarely be found, in most cases the ground is to be intrenched, and occupied by troops.

In selecting resting points for the flanks, it will be observed: (a) not to rely upon their security; (b)both flanks shall not rest on impassable ground, they would compel to a mere passive position. The less the flanks are protected, the more reserves will be required; it is preferable to have redoubts combined with those obstacles. Ground intersected is better than overgrown ground, to cover the flanks; woodland is dangerous. The more or less flanks are protected, the greater influence they exert in regard to strategy and to the proportion of arms, (cavalry.)

3rd. Unobstructed view in front and flanks.

4th. A covered position of the troops without being checked in their movements, if they can be executed unobserved by the enemy, the better.

5th. A front-line without interruption; the contour of the ground rendering easy the fire in front; therefore, best gently sloping; the manœuvres on this point from which the rear of the enemy can be best attacked. Defensive positions, ditches, hedges, walls, woods, farms, villages, redoubts, which render easy the combat of a few against a far superior strength; the open order supporting each other without checking the necessary movements. 6th. The approaches in front should be obstructed, that the enemy may be compelled to have his troops constantly separated, but posted so far off that they are within the range of effective fire. Where this cannot be done, open redoubts may be constructed for artillery somewhat in advance, within the range of fire.

7th. Movements in front not checked, particularly where the enemy may be encountered.

8th. Ground is to be selected which renders retreat in the rear easy; it may be partly covered, partly intersected; the defiles not too near.

These advantages are rarely found in every position in war; nor are all positions of the same value; they are the more important the more the probability prevails that they may be attacked. These advantages are only demanded by the most important positions.

The maxims in regard to the defense of a position are: a, that advantage from the locality itself should be attained.

b, That in this position the troops should act with energy.

These maxims dispose of the employment of the troops, and of the necessary artificial works; at first the formation and position of the troops in front; in the beginning the most important is, the effect of fire; then follows the engagement, if it succeeds, it becomes offensive; if the troops have to retreat they observe the rules considered in former chapters.

The strength of the ground, which might mislead to a passive defense, should not be too much relied upon. The assailants will have to observe :

1st. Ground with too many difficulties should not be selected for attack.

2nd. To advance through ground which entirely covers the movements.

The employment of the troops should be, according to the rules for a proper selected attack : the retreat to be secured ; mass against one flank ; to break the line with the mass, if the flank cannot be attacked, or if the front of the enemy is weak. The lead of a battle is uniform, and the plan is based upon this, that every employed force exerts all its energy ; relying with all self-denial and with the greatest confidence upon the Chief.

## MOUNTAINS.

In no kind of ground are defensive properties so clearly expressed, as in mountains. They have long been considered of great value for defense. Extended chains of mountains combined with redoubts have been defended and resisted with success. The attacking troops respected them.

The lead of war at the present time, differs in this view; it condemns any passiveness, where the defense attempts to attain a favorable final decision; and also it condemns any scattering of troops. The troops should not be checked in their movements. Mountains rendering these conditions easy are exceptions, and they may therefore be considered unfavorable for masses. But the more the troops are inferior in

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strength, and the more passiveness of single detachments is desirable for the common purpose, the more that mode of defense may be resorted to. Mountains are a refuge for inferior troops, and favorable of gaining time.

To be observed—*Defense*: the mass to be posted in the rear; the positions in the valleys in front intrenched; the main posts on important points of communications; security against attack in the rear; the advancing enemy is to be met and attacked, or his flanks are to be turned and attacked in the rear, if he is in a defile.

*Attack.*—To turn the flanks; false attack; to attack with energy on the main line; the enemy to be routed; small detachments of the enemy may be turned and repulsed; infantry forms the main body; light howitzers will be most useful.

Finally, an important rule is : He moves in war with security, who is guided by rules derived from the nature of the troops and the character of battle; and who considers form and ground as auxiliary means, and who relies upon the practical and theoretical efficiency of the troops, and upon their employment according to their nature.

# APPENDIX.

#### LA PETITE GUERRE.

War cannot be imagined without a battle-field, without a base and line of communications. The army, the base and line of communications form an organic unity. The base comprises a piece of land upon which those provisions and materials of war are magazined, which are designed to supply the wants of the army, implements of war which an army cannot get from the theatre of war; being troops, arms, ammunition. The base, therefore, is the condition of existence, and its possibility of continuing operations. The army depends upon the base, it is compelled to have an uninterrupted communication; a line of posts will render possible the line of communications. Not every route from the army to the base is a line for communications, only that particularly established for those transactions.

Supplies of all kinds, as ammunition, transports, detachments, posts, couriers, hospitals, depots, spare ammunition, officers of the administration are constantly upon this route; whose total value is of decided importance; this line of communication is the channel of life which never should be intercepted for a long time. The duty of the army is therefore, to protect this line; the enemy's purpose is to have it intercepted and the communications cut off.

If these duties be done with the whole strength of the army, they designate the kind of war. If they are only done by small parts of the army, or by troops which are not immediately combined with the army, as volunteers and militia, then these duties belong to *la petite guerre*, and form an irregularly organised kind of war: the *partisan's* and *national war*; it is principally a means for defense; it serves the war only partially, by rendering itself obnoxious to the enemy, its attacks are directed to the strategical rear of the enemy, it avoids his forces, and will attain success by their knowledge of localities, popularity, ability and rapidity in movements, cunning, surprise, valor and resoluteness.

Another kind of *la petite guerre*, originating also from the strategical necessities of the army, comprises the regular organised duties for security.

A war will not be commenced and ended in one battle; there may be several battles, separated by localities and time; in the meanwhile the army is in camp, quarters, or on march; in these situations an army cannot be completely prepared for action, it is more or less in a degree of tactical weakness; and the necessity therefore demands security against the enemy's influence. The activity orginated from these demands belong to *la petite guerre*, and comprises the duties in field for security. Strategy demands further, to render possible its combinations, most exact reports in regard to enemy and ground; these duties demand patrols.

And, finally, the army must have provisions, they should be received by the line of communications and from the vicinity; this leads to transports and foraging.

These different activities are in the most immediate connection with the war; they are the conditions of its existence. Their duty is not to fight, but in realizing their purposes, they may have to meet some conflicts, and therefore the possibility of being complicated in conflicts gives them a tactical character.

Such is the meaning of la petite guerre.

## DUTIES FOR SECURITY.

Their purpose is to protect the army in camp, quarters, or on march. The purpose is obtained, if the army has gained time, to be completely prepared for action.

Time may be gained: a, by being in time informed of the enemy's plan; b, by checking the enemy's advance; these rules properly observed, alone will give guaranty.

The enemy's movements observed as soon as possible, must be checked, if the ground will admit, by advanced detachments, van-guards and patrols.

Van-guards and advanced posts have various degrees of strength, they may be, a combined corps, or an in-

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trenched line of defense, or only small cavalry troops, pickets and field-guards. The condition of the army determines their strength, it is in inverse proportion to the forces ready for action.

The distance of the troops in advance, which are ordered for resistance, depends upon the degree of their independence and upon the contour of the country, and may be from the range of musketry to a day's march.

The arrangements of the duties for security differ also. The shorter time the troops are resting, the less precaution is demanded; the longer time they camp, the greater precaution is demanded. The extent of the front which shall be protected, is also of importance; sufficient protection may be rendered by a closed body or by several posts, according to circumstances.

## DUTIES OF ADVANCED CORPS.

They have to observe the enemy's movements, they will not absolutely check them, but delay them. They are, compared with the forces of the enemy, inferior in strength; it is therefore, their duty to know how to act.

The enemy is protected also; the first conflict is therefore, not disproportional. The enemy's ignorance of the distance of the opposer's mass, compels him to precaution, and to slow action; by that and the resistance, time will be gained. The retreat under the cover of ground will be done as slowly as their own secu-

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rity will admit. The single conflicts being of short duration, should be quickly and often repeated.

The result of such resistance depends upon the strength of the troops, upon the character of the country, the length of the march, support and day-time.

In general: it may be observed, that at least, double the ordinary time is required for troops to march a certain distance.

Cavalry will be best to support advanced troops.

Advanced corps effect more by their presence than by their efforts, more by the possibility of conflicts than by a battle. By resistance, time will be gained, and the enemy is compelled to show his strength and purpose.

## MODE OF SECURITY.

The army may be camping, quartered or marching: Camp: At the present time, the troops camp in open air, or in tents or huts, if time will admit, and material can be had, without any regard to weather, season and ground, and even purpose and plan of operation, may render it necessary.

Such bivouacs will not render troops less prepared for action, but they are most obnoxious to the health of men and horses; therefore they will only be chosen if the enemy is near, or if time and the want of materials will not admit other preparations for camping.

But war at the present time, is conducted so rapidly, that this manner of camping has become almost a rule; it causes an uncommon loss of physical strength, and an uncommon destruction of ground; on account of the latter reason, this manner of camping will only be resorted to, when the localities are quickly changed or the operations demand it.

Quarters are: to have the troops housed and supplied by the inhabitants; they are either march-quarters or cantonments. The first are of short duration, the latter may last some time.

The march-quarters are confined to a limited space, they check very little the readiness of the troops for action; they render easy the supply of provisions for the troops, and preserve the health of men and horses; they are chosen when circumstances admit, and often resorted to, for single detachments and arms, whilst others are camping.

In regard to readiness for action of the troops, and their security, camps and march-quarters belong to one class.

Cantonments serve to refresh the troops, they demand a large space; they are exceptions in the wars of the present time. Ground will be chosen for them, if possibly obstructed by nature in front and flanks; but notwithstanding that, the troops are scattered in their quarters and less prepared for unforseen events, therefore perfect measures of security are to be taken, according to their extent and form of the ground.

*Marches*, in time of war, are only transitions from one position to another; they demand comfort for troops; regularity in movements; march-discipline; convenient uniform; light weight for each man; in order to

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render these conditions satisfactory, the mass must be divided into columns; each one must be independent; and therefore must be combined with all arms; each one must have intensive strength to a certain degree. The mode of dividing a mass, is ruled by the formation of the order of battle of the present time. Those parts march next to one another, and one after the other at intervals, according to their strength, and so rendering easy support and the camping of the troops.

For instance : The depth of a column of a combined division of 8000 men, is about two-and-a-half miles, a common day march for troops is fifteen miles. A division of 8000 men marches this distance in eight to ten hours, and in a mountainous country, in teu to twelve hours. The greatest march in a day is twentyfive miles, to the utmost, thirty miles; if the march lasts several days, only twenty miles can be made. To twenty-five miles are required sixteen hours. Long continued marches exert a most destructive influence upon men and horses.

The march, in regard to enemy, is either advance, retreat, or flank-march; the latter demands greater precaution, on account of its exposed flanks. March and camp security, demand van and rear-guards.

Quartered troops are guarded by a line of posts. The security of a camping troop is more easily effected, than that of a troop on march.

The van-guards, composed of all arms, strengthened by light cavalry, will advance against the enemy, as far as possible, and as their strength may admit, and as to be supported in time; they occupy, if possible, ground favorable for defense. Combined detachments will be posted in front and flanks on proper points. For these duties  $\frac{1}{3}-\frac{1}{2}$  of the troops will be employed; they are posted half a mile to three miles from the main troop, on ground, which renders defense easy.

Detachments are guarded by pickets, which, according to ground are infantry or cavalry;  $\frac{1}{3}$  of their strength will be ordered for that purpose; the distance of the pickets from the detachment, and between each other, is, for infantry 800 paces, for cavalry 1500 paces. If the connection with the detachments by pickets are not complete, posts are to be ordered behind the intervals, these troops are taken from the main body of the van-guards, according to circumstances they may have out-guards too.

The pickets, guards, &c., should be behind cover and on points important for communications.

Pickets of infantry post single or double guards about 300-400 paces distant; the intervals between the guards is about 100-150 paces, and so arranged, that nothing may pass unobserved; cavalry pickets post vedettes 400-600 paces distant, and according to circumstances about 150-200 paces between them. The chain of the pickets shall be well connected, and so posted, that they can observe the ground in front and between them, and if possible covered. Chains of mountains are particularily favorable for these duties. The smaller guards will be posted, during the night, nearer to the detachments, and the line of posts from the height a little backwards on lower ground.

The duty of the posts is: to observe; the resistance will be done partly by the pickets and detachments, and partly by the main-body.

From time to time the line is by small troops patrolled, to control the guards and to keep them vigilant; they serve also to carry orders from one picket to another; it is important, that they pay attention to all, that is going on, to scout and examine, what is doubtful, and to report all.

In spite of these precautions the enemy may possibly pass the posts unobserved, and attack with superior forces; to prevent this, patrols of light cavalry are to be ordered from the detachments or from the main troop, to scout in those directions, from which larger bodies might possibly approach, and with order to observe the enemy in his movements as closely as possible.

In attack is to be observed: the purpose of an attack is either to alarm or to surprise single posts or pickets, or it is of higher importance.

The commonest sentinel is not to be suffered to desert his post without cause.

Vedettes and guards form the chain; the pickets have to support. Counter-attack is often sufficient to drive back the enemy; pickets retreat slowly, covered by the ground in the direction nearest the support.

The pickets in the flanks attack the enemy in his

flanks; with perseverance in the resistance, the purpose of the enemy's attack can be learned.

Pickets shall not rely upon their detachments, nor these upon the main-body of the van-guard; a mutual support of the detachments is rarely possible, and is advisable only, if they are themselves secure from attack.

#### SECURITY ON MARCH.

The detachments are replaced, by van-guards in front, and patrols in the flanks, consisting of infantry and of light cavalry. They march with their wings somewhat in the rear, about 1000 paces from each other. The distance from their support is to the utmost the range of a gun-shot; patrols are in advance also with connections between them. In open land it is sufficient to see each other, in undulating ground they form a chain. If the contour of the ground changes, it will not be entered before it is carefully scouted and occupied. Great precaution is to be observed in passing defiles. Nothing shall remain unscouted, the greatest precaution is demanded. If the column is deep and protection in the flanks is necessary, detachments in the flanks and cavalry patrols should be ordered out. For flank-march the vanguard is in the direction of the enemy, and sufficiently strengthened; patrols of light cavalry are essential.

If the troops are engaged, they must take advantage of the ground, and according to circumstances, they

will advance or retreat. Van-guards well supported have easier duties than rear-guards.

Rule is in retreating not to be turned and cut off.

The uniformity of the duties in march and in camp renders easy the change from one mode to the other.

## SECURITY IN QUARTERS.

Security in extended cantonments cannot be confided to one closed advanced troop; independent detachments are required. It is therefore of importance to select a country for cantonment, which is covered by important obstacles, rivers, mountains, bluffs, &c., and whose approaches are obstructed. The approaches will be occupied by independent detachments intrenched, and guarded by vedettes and patrols.

In mountains several chains of guards may be posted. If their contour will admit approach, great caution is to be observed in order not to be turned.

The nearer troops in cantonments are to the cordon, the more they have to be prepared for defense. It is conditional, that the troops are concentrated, before the enemy attacks.

The problem, in case of attack, is simple: it is resistance; the position in regard to resistance is selected, the security of the whole force consists principally in gaining time, therefore the utmost resistance must be made.

A decisive attack is best to be made by masses, combined with sham-attacks.

## 110 RECONNOISSANCE-DUTIES OF PATROLS.

The resistance must be broken with vehemence, if the troops have forced within the cantonments, they should prevent by rapidity and resoluteness the camping forces from rallying.

## RECONNOISANCE-DUTIES OF PATROLS.

Known objects are observed; unknown objects, ground, enemy, are reconnoitered. Open-land can be observed by single guards, being posted on proper points, with those, patrols may be combined, scouting the ground.

Overgrown and intersected ground will be occupied, and if the approaches themselves afford obstructions, they should be guarded, patrols may scout in front farther off.

Rivers and creeks must be observed by a cordon. Points, which render easy the passage of troops, will be intrenched and occupied. It depends upon circumstances how far an attack is to be resisted. It suffices often to know the presence of the enemy, often it is necessary to learn the purpose and strength of the enemy, which can only be effected by resistance; in order to observe the enemy, the troops must follow closely, and unobserved; it requires favorable circumstances to accomplish this. Smaller forces are preferable to larger ones.

The assault of a fortress belongs to this class of duties; it is to be observed; what communications and how they are made, and how they can be checked. If a fortress is completely blockaded, it must be prevented from sallying as well as from raising the blockade; it requires therefore a strong force; strong reserves, intrenched detachments, covered guards, patrols scouting in the vicinity, are the means.

In marching through a country, the van-guards and patrols have to reconnoitre. The reconnoissance can have a common or a special purpose. Circumstances decide whether this can be accomplished secretly, by surprise, or with combined forces by attack.

Patrols and detachments are designated for these purposes; patrols are small parties of infantry or cavalry, and sometimes composed of both combined. Their strength depends upon the order, distance, and can be from three men to one company or squadron.

Light cavalry is best for the duties of patrols, and if to a great distance is to be patrolled, its facility in movements secures success.

No rules can be given for single cases; in general it may be observed that any separation of the troops is inexpedient. "Fortune favors the Brave."

Large patrols gain their purpose more surely if they follow the enemy closely, alarm the line of posts and surprise the patrols. But, it is evident, that both the chief and the troops must be possessed of courage and wit.

The more the contour of the country is known, and the inhabitants are not opposed, the more can be effected.

The duties of larger patrols resemble the partisan's

war, they are highly interesting and of great value; their strength renders them often independent, they are the best means to preserve the communications between columns; their purpose is not attack and not the destruction of the enemy, except under peculiar circumstances.

## FORAGING AND TRANSPORTS.

An army is subsisted in a fourfold manner :

1st. By magazines; established on a complete theatre of war; which compels the troops to be in their vicinity.

2nd. By regular requisitions; the provisions will be furnished by the inhabitants on the line of operations; this manner is most convenient, but requires that the military authorities are masters of the country, and it also requires time.

3rd. By foraging, an inevitable evil, and rather for small parties; van-guards and patrols have to be resorted to.

4th. The best means, and particularly in settled countries are, to be provisioned in quarters by the inhabitants, if the troops are only quartered for a short time

The first three methods of sustenance require transports and measures of security.

Foraging troops are divided into two parts, one part foraging, the other part protecting the foragers. It

should be properly conducted and controlled; no disorder, no brutal actions, no plundering should be suffered; light artillery should protect the foragers.

Transports; a transport should not be stronger than 80–100 wagons; it should be well protected, and proper measures should be taken to prevent any disorder on the march by discipline, regular times for rest and feeding, and by removing the obstacles from the road.

It is important to be timely informed of the approach of the enemy; the troops being designed to offer resistance, are constantly concentrated. Patrols of cavalry scout carefully to prevent surprise; the most dangerons moment is if convoys are attacked in passing defiles.

A transport of prisoners is of singular nature, they assist often the attacking troops; to prevent this, stringent measures are demanded.

It is a rule in defense of foraging parties and transports to gain time, and to prevent any influence by the enemy; the wagons may be defended like a redoubt, according to circumstances.

The attack of foraging parties and transports is best by surprise; the principal aim: to attack the wagons and not the convoy; the convoy may only be attacked, if circumstances compel it.

## THE FARTISAN'S WAR.

War, in order not to be checked in its progress, demands many necessities. An army is much embarrassed, if any of these necessities should be cut off. One party's zeal is, to furnish the necessities for existence, which demand an uninterrupted communication in the rear of the army, another party attempts to check and counteract the operation of their opposers; this is the reason, that even in the rear of an army, nothing can be done without protection by *detachments*; small forces are employed for that; in against those measures shall be counteracted, small detachments are also ordered; a decision of importance can only be gained by the mass. Support must be obtained by other means, and not by numerical superiority; by skillful manœuvres in weak moments of the enemy.

This requires knowledge of the country and of the enemy's intention and means. The more perfect this information, the more chance of success.

The troops employed for such duties should be light, intelligent, persevering and obdurate. Volunteers well disciplined will be best for this kind of war.

The partisan's duties are, to check, to destroy, to harrass, to capture persons, couriers, detachments, transports of all kinds, and to alarm constantly the line of communications.

Some patrols have to follow the enemy closely or to carry orders from one column to another.

Intelligence, boldness, surprise will lead to success.

This kind of war moves in an atmosphere of secrets; its object is to surprise and to disappear. False reports, circulated, are essential. The troops should not be

separated without good reason. As soon as ambushed troops are discovered, they attack with vigor; the enemy must not be allowed to recover his senses, he must be checked, routed. Protracted conflicts must be avoided; a sure though a small success is better than a great but an uncertain one; an active partisan will render great service in the prosecution of a war.

## NATIONAL ARMAMENT.

A national armament is an irregularly armed organization of the people, to rank not with the army, but an organized militia; it is a defensive organization, whose strength is more extended, more marked, and easier animated by soul and good will; it is a co-operation of the population, who cannot form a part of the regular army, but both pursuing one aim.

Such an activity can only be effective in those parts of a country which are occupied by the enemy, in the rear and in its strategical flanks.

Its conditions are :

1st. The war is to be conducted in the interior of the country.

2nd. Its decision should not depend upon one catastrophe.

3rd. The theatre of war should be of considerable extent.

4th. The inhabitants should be in favor of partisan operations.

5th. The country should be undulating, in some

way impassable, by mountains, woodland, swamps, or improvements and scattered settlements.

The employment of the armed people should not be against the enemy's mass, and not against considerable corps; best to be employed where it will be difficult for the enemy to appear superior in forces; they follow closely the line of communication, " the nerve of life"; they check, alarm, annoy, and harrass the enemy, whenever it is in their power, they render the roads impassable, and barricade narrow passes.

These small parties surprise and disappear more easily than regular troops.

The enemy is in a state of uncertainty, but he offers no resistance. Their operations should have a strategical, but never a tactical character of defense.

The nature of their conflicts is : vehemence in attack, but little cool blood, and no duration in fight. Armed people may be defeated, driven off, but they never should be routed.

A nation may be brave and valiant in its habits, great in its contempt for the enemy, favorable the country; but it is undeniable, that the national war can not exist in the too dense atmosphere of danger.

But assisted by the inhabitants, the Commander-in-Chief will have means for defense.

To animate them, they should be supported by small regular forces; that the enemy may not be compelled to oppose large forces; so that the inhabitants may not feel themselves safe enough by the presence of regular troops.

The nature of the partisan war is closely connected with the national war. Supported and animated by that, it may be conducted everywhere, where the conditions of its existence are afforded.

War lives in *la petite guerre*, and in that—is its condition of life; it is principally of strategical nature, and becomes only of tactical nature by becoming superior in strength, and if it should be compelled to gain its purpose by fight.

In most cases it will be conducted with small forces; it offers an interesting field for independent actions, and whilst only officers of inferior rank are employed for these duties, they will have opportunity to prove their abilities, and to open to themselves an infallible way to gratify their ambition.

In a war with masses at the present time, based on *la petite guerre*, lies a pleasant consolation for the subalterns.

If I have succeeded in demonstrating the nature of war, and in enlisting admiration for an art which, in regard to its importance, gravity and extent, cannot be compared with any other, I have accomplished my purpose.

END.



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