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Publisher: Routledge

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Royal United Services Institution. Journal

Publication details, including instructions for authors and subscription information: <http://www.tandfonline.com/loi/rusi19>

Musketry Instruction For The Cavalry Carbine And Pistol, Recently Issued To The French Cavalry; With Suggestions For The Training Of Cavalry, And Its Important Function In Future Battles

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Published online: 11 Sep 2009.

To cite this article: Lieut. Andrew Steinmetz Esq. (1861) Musketry Instruction For The Cavalry Carbine And Pistol, Recently Issued To The French Cavalry; With Suggestions For The Training Of Cavalry, And Its Important Function In Future Battles, Royal United Services Institution. Journal, 5:19, 454-496, DOI: [10.1080/03071846109418731](http://dx.doi.org/10.1080/03071846109418731)

To link to this article: <http://dx.doi.org/10.1080/03071846109418731>

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MUSKETRY INSTRUCTION FOR THE CAVALRY CARBINE AND PISTOL,

RECENTLY ISSUED TO THE FRENCH CAVALRY; WITH SUGGESTIONS FOR
THE TRAINING OF CAVALRY, AND ITS IMPORTANT FUNCTION IN FUTURE
BATTLES.

"The Cavalry is the illuminating torch and the protecting shield of armies."

By ANDREW STEINMETZ, Esq., Lieut. The Queen's Own Light Inf. Militia,
First Class Certificate, School of Musketry, Hythe.

PART I. THE SYSTEM DETAILED. *Introduction.*—The French cavalry consists of twelve regiments of reserve, composed of two regiments of Carabiniers and ten companies of Cuirassiers; twenty regiments of Cavalry of the Line, composed of twelve regiments of Dragoons and eight regiments of Lancers; twenty-three regiments of Light Cavalry, composed of twelve regiments of Chasseurs, eight regiments of Hussards, and three regiments of Chasseurs d'Afrique; three regiments of Spahis; ten companies of Cavaliers de Remonte (new horses). There are besides regiments of cavalry forming part of the Imperial Guard; namely, one squadron of Gendarmerie, two regiments of Cuirassiers, one of Dragoons, one of Lancers, one of Chasseurs, and one of Guides, forming the cavalry division of the Guards.

The great Imperial School of Cavalry is at Saumur. Its object is to train instructors destined to teach in the various troops of cavalry a uniform system of equitation and give other instruction appertaining to cavalry. The course lasts one year.*

All the French cavalry carbines are at present rifled; but there are numerous patterns, most of them being "transformations," old arms fashioned into modern requirements. The barrel of their several cavalry carbines is about 35 inches long, the weight of the carbine (called *fusil de dragon* and *carabine de cavalerie* respectively) varies from about 9 lbs. 8 oz. (that of the *cavalerie*) to about 6 lbs. 11 oz. (that of some of the Dragoons). The cartridge is that of the Line, the bullet weighing 480 grains.

Unquestionably the cavalry carbine may be made the most efficient rifle in the service. In this arm we are not compelled to conform to anything like the length of barrel, so manifestly detrimental to accuracy, penetration, and range. Experiments have proved that the utmost length of any rifle need not exceed twenty-eight or thirty diameters of the bore. All beyond this must cause increase of friction, waste of force, and the chance of accidental deviations.

But it is not mere shortness that is required. The diminished length must in other respects be adequately compensated, and nothing is easier, if

* *Annuaire Militaire pour l'année 1861.*

to bear in mind all the requirements of a perfect rifle, and devise its improvements accordingly.

The new French project of musketry instruction for the cavalry* is not intended to lead to any radical change—such as the employment of a “mixed cavalry”—having the double character of a troop of horse and foot soldiers. The principles on which the organisation of cavalry is founded remain unalterable. The only object is to enhance its power, to increase its efficiency as cavalry.†

For if it be essential that the cavalry should know how to manage their horses at all their rates of movement, it is equally important to complete their training as soldiers, by teaching them how to handle their carbine and pistol with skill and precision.

Before the African war the utility of fire-arms in the hands of the cavalry might be doubted; but the experience of the last thirty years has changed our ideas on this subject, and the officers who served in the Algerian war have acknowledged that fire-arms in the hands of cavalry were not restricted, as some pretended, to the office of signalling the approach of the enemy.

It is not supposed that cavalry skirmishers, whatever proficiency they may acquire, can ever rival those of the infantry. The conditions of the fight are too dissimilar to admit of such an idea; but, between skirmishers of the same arm, the advantage will always be with those who by progressive practice shall acquire the greatest proficiency in the use of the rifle.

Such is the object of the French authorities in the following method of Musketry Instruction for the Cavalry, ordered to be first tried at the Cavalry School of Saumur, and then in all the regiments of cavalry.

The adoption of rifled arms for mounted troops infers an important necessity; it would be useless and absurd to place an improved weapon in hands unable to use it to the best advantage.

There will always be peculiar difficulties to overcome by the cavalry soldier in applying the rules of musketry; and the difficulty of habituating his horse to the report of the rifle is not the least. His firing, therefore, strictly depends upon his individual exertion, and it becomes the complement of his training.

The utmost moderation is recommended in the strictly progressive system of instruction. Too much haste would compromise the intended result.

When the horse is made obedient, or, rather, when he becomes obedient by rational treatment; when the report of the rifle no longer startles him; when the rider has acquired the habit of aiming and firing, without altering his regulated position, and without losing his firm seat in the saddle, then will be the time to give him ball-cartridge: for only then will he be able to comply with all the necessary conditions of good firing.

* *Projet d'Instruction sur le Tir du Fusil et du Pistolet à l'usage des Troupes à cheval*, Jan. 1861.

† Nevertheless Gen. Bonneau du Martray emphatically avers, that “it is particularly the tactics of the cavalry that the improvements of the rifle will radically change. Just as the invention of gunpowder modified the ideas of the knights of old in the method of fighting, so will the new projectiles destroy those principles rooted in the minds of modern cavaliers since the time of Frederick the Great. We are persuaded that the latter will become mounted Fusiliers. They should rejoice and take pride in this prospect, which will furnish them with more numerous occasions of being useful, with an increase in the sphere of their activity.”

Officers must bear in mind, not only the aim and object of this training, but also the difficulties to be surmounted.

I. THE BASES OF MUSKETRY INSTRUCTION FOR CAVALRY.—The object of this instruction is to teach the cavalry all the resources of their arm, and enable them gradually to use it to the best advantage. It must also be considered as an essential part of their military acquirements, for it develops their capabilities on horseback, by requiring them to be perfect masters of their horses, and gives exercise to their dexterity, by making them handle their arm at the different paces of the horse. It demands, therefore, all the solicitude required in the other parts of the service, and is placed, in each regiment, under the direction of the colonel, who is responsible for its application. The particular direction is confided to the lieutenant-colonel.

As the instruction of the regiment cannot be insured without a competent knowledge in the officers and non-commissioned officers, the course of instruction is first given to the lieutenants and sub-lieutenants* by the captain instructor, and to the non-commissioned officers by a lieutenant.

All the officers should be able to give musketry instruction.

In each squadron an officer, appointed by the lieutenant-colonel, on the recommendation of the captain-commandant, is charged with the superintendence of this instruction.

An officer with the rank of lieutenant, or sub-lieutenant, is charged with the theoretical instruction of a few of the most intelligent corporals. The officer-instructor applies himself particularly to the training of at least one non-commissioned officer and two lance-corporals in each squadron, to assist the officer appointed for the instruction of the regiment. The captain-instructor is charged with the complete training of the recruits throughout the course.

There must be a course of musketry instruction every year. The theoretical and practical instruction of the officers, and non-commissioned officers, must always precede the ball-practice of the squadrons. The colonels regulate the times and number of these instructions.

The course of musketry instruction is the model of our system as it appears in our manual, and therefore it need not here be given. I shall therefore merely quote such parts as are peculiar to the French. The French infantry of the line, and the cavalry, are taught to use the thumb in the absence of the elevating backsight. The method is as follows:—

With the *fusil de Dragon* we can, up to 270 metres, about 293 yards, select such a point on the human body, that, by directing the line of sight upon it, we can bring the trajectory on the waist; but, beyond that distance (nearly 300 yards), we can no longer use the natural line of sight of the carbine. We must use an artificial line, which will produce a greater angle of sight, and, consequently, a greater range of the point-blank. This artificial line is obtained by using the thumb as a back-sight.

The following rules will be observed:—

1°. At 100 metres, about 108 yards, aim at the feet.

2°. At 200 metres, about 216 yards, aim at the waist.

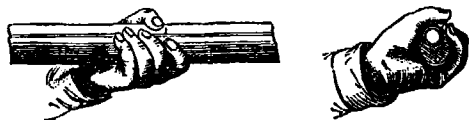
3°. At 250 metres, about 270 yards, aim at the head.

* In the French cavalry there are first and second captains, first and second lieutenants, and sub-lieutenants (*sous-lieutenants*).

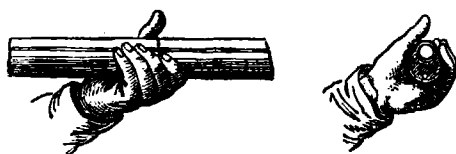
For all the distances at which the thumb is used as a back-sight the left hand is constantly placed at the height of the lower band.*

The following rules fix the position of the thumb, in order that the joint-blank of the piece should successively correspond to the various distances of the firing.

At 400 metres, about 432 yards, the thumb being bent on the lower band, aim at the waist.



At 600 metres, about 650 yards, the thumb being erect, the joint a little above the top of the lower band (about $\frac{1}{4}$ inch), aim at the waist.



Aiming with the thumb requires great practice. During the preparatory exercises the instructors must impress upon the men the absolute necessity of bringing the point of the thumb, substituted for the notch of the back-sight, into the plane of fire, that is to say, it must coincide with the axis of the barrel.

The verification of the line of sight must be made before aiming. To do this, the soldier takes a sight of the vertical plane passing from the tip of the foresight along the line of the barrel; the thumb must be in that line.

When the position of the thumb is well fixed, aiming is no longer difficult. The instructors must take into consideration that the preceding rules have been calculated for a thumb of the average size, and they must be modified for soldiers whose fingers materially exceed the ordinary dimensions.†

All the men must learn the rules of firing with the carbine. The officers and non-commissioned officers must know them thoroughly, in order to be able to suggest them to the men when necessary. Frequent lectures must be given to the men on the subject, and the lieutenant-colonel is specially charged with the superintendence of this part of the instruction.

II. JUDGING DISTANCE.—In addition to the usual mode of measuring

* In French the *capucine*. Of course the positions of our bands do not correspond exactly to those of the French.

† If this substitute for the back-sight has been found almost nugatory when firing from the ground, it must be absurd to attempt it on horseback. The hits were so few when I saw it used, that they may be considered accidental. However, the elevation might have been sufficiently accurate to be effective enough on extended lines. This is worth testing. Back-sight adjustment must be difficult and uncertain on horseback.

and judging distance, I find the following:—the instructor orders the men to walk their horses over the distance of 108 yards—100 metres, enjoining them to allow the horses to take their usual step without endeavouring to increase or diminish its length. A horse makes 120 steps to get over 108 yards, and therefore makes 60 steps for 54 yards, and so on. We may thus ascertain the number of yards gone over by counting the steps of the horse.

The instructor forms his detachment in a single rank at one of the extremities of a marked distance of 200 metres (216 yards) of the side where the measurement commences, so that the straight line measured will be perpendicular to the front of the troop, and pass through the centre of that front. Everything then proceeds much after the mode adopted in our judging distance drill and practice. It may be useful, however, to quote the following

Aids to Judging Distance.

- At 600 metres (about 650 yards) we distinguish in a troop of cavalry:—the rate of motion—walking, trotting, galloping; the direction of the movement—advancing or retiring; the brilliant parts of the accoutrement—helmet and cuirass; the colour of the uniform—red, white; the breastplate, plume, the blade of the lances.
- At 430 yards, we distinguish the saddle-cloth; the rates of motion and its direction; the helmet and cuirass; the bright colours of the uniform; the shoulder belt of the horsemen seen in front.
- At 324 yards, we distinguish—the colour of the saddle cloth; the reins of the bridle on horses with light saddle cloths, seen sideways; the scabbard of the horseman's sword, seen on his left; the shaft of the lances; the epaulettes; the hair of the head.
- At 216 yards, we distinguish—the colours of the saddle cloth; the reins of the bridle on horses with dark saddle cloths; the blade and scabbard of the sword; the shaft of the lance; the carbine slung; the principal parts of the uniform and equipment.
- At 108 yards, we distinguish—the different parts of the soldier's body; his shape and arms; his weapons and equipment; the details of his uniform; harness; the line of buttons on his jacket, his holster, and cloak.

In a body of Infantry:—

- At 650 yards, we distinguish—the movement of companies marching, advancing or retiring; the red colour of the trousers.
- At 432 yards, the direction of their march; the movement of their muskets.
- At 324 yards, the barrels of the rifles or carbines; the rifle at the shoulder; the different parts of the uniform.
- At 216 yards, the colour of the uniform; the badges of the belts or shakos; the hilts of the swords; the cartouch box.
- At 108 yards, the different parts of the body; the movements of the men individually; the form and colour of the uniform.

Objects in *motion*—at a horse *walking*:—

- At 108 yards aim at the horse's shoulder; at 216 yards, aim at his nose.

At 324 yards, aim about $\frac{3}{4}$ ths of a yard before his head (half the length of the horse).

At 432 yards, aim in advance of his head one whole length of the horse.

At 540 yards, aim 9 feet 6 inches before his head (a length and a half of the horse).

At 650 yards, aim two lengths or rather more before his head.

At a horse *trotting*:

At 108 yards, aim at the horse's head.

At 216, aim rather less than his length beyond his head.

At 324, a length and a half beyond.

At 432, three lengths beyond.

At 540, four lengths beyond.

At 650, six lengths beyond.

At a horse *galloping*:

At 108 yards, half the length of the horse beyond.

At 216, two lengths.

At 324, four lengths.

At 432, six lengths.

At 540, eight lengths.

At 650, twelve lengths and a half.

These indications must not be considered absolutely correct. They must be taken as general approximations or averages, susceptible of modification according to the eyesight of each, atmospheric circumstances, and configuration of the landscape.

The lengths of the horse are approximately calculated in the proportion of two metres (6 feet 6 inches) as the unit at the walk, the trot, and gallop.

The soldier having been instructed in the proper method of loading, aiming, snapping caps, blank-firing, &c., precisely according to the method we enforce with the foot soldier—differing in a few particulars, perhaps unimportant, and having fired with ball cartridge at all the distances from 100 to 600 metres, he then commences his practice on horseback.

III. PRACTICE ON HORSEBACK. *Preparatory Exercises.*—*Training of the Horse.*—This part of the instruction cannot be too carefully conducted. It is, in fact, the basis of the whole system. If the horse is not habituated to the report of the rifle or pistol, if he is not obedient to the hand and legs of the rider, it is vain to expect any useful results from the weapon. It is absolutely necessary that the rider should not be occupied with his horse when he has to use his rifle. The most essential point, then, is to habituate the horse to the report of the weapon. The prescribed means must be employed with the greatest perseverance if we would secure good results. When the troop is in line on the practising ground a single restive horse will interrupt the practice completely—his bad example infecting the whole troop.

Tact and patience on the part of the instructor can alone succeed in quieting the animals, and one of the most efficacious means is to isolate them—either placing them singly in column with intervals, or separating them one from the other, so as to give them the benefit of good example.

There must be no firing until the rider is perfectly master of his horse, and ball-practice must be out of the question until the preceding instruction

shall have been well understood and well executed. During the musketry instruction, the soldier should always ride his own horse, if possible.

1. *Position of the Soldier firing on horseback—at the Halt.*—The troop being formed in a single rank, three yards interval between each, and at the position of "Shoulder Arms," the instructor gives the following caution, and has it performed, substituting simple *indications for the words of command*. This is worthy of especial notice; it is impossible to teach shooting by word of command; this is a point in which the French system generally surpasses our own as now carried out.

Position on Horseback.—Lower the carbine to the left hand—partly open the left hand—seize with the right hand the part of the reins held by the left above the runner, the little finger between the two reins, the fingers fronting the body; raise the carbine with the left hand, bending the arm, the nails uppermost, and hold the carbine horizontally, the butt to the right, and at the height of the shoulder.

Aim and Fire.—Come to the "Present," slipping the little finger of the right hand to the end of the reins, the muzzle of the carbine pointed between the shoulder and left ear of the horse; cock the piece by seizing the comb between the thumb and the first finger of the right hand without quitting the reins, the butt at the shoulder; place the first finger on the trigger, fire without moving the carbine, seize the reins with the left hand, and come to the loading position, letting go the reins with the right hand.

This motion being performed, the soldier is practised in loading to fire again, or to sling his carbine in order to seize his sword.

At the "Present," the reins are let loose, in order that the carbine should not feel the heaving of the breast, and that the movements of the hand, connected with those of the barrel, should not be transmitted to the horse; but this position must interrupt the use of the reins only for a very short time, and the instructor should strive to curtail it by habituating the horseman to adjust very rapidly.

2. *Firing at the Halt.*—The troop is formed in a single rank opposite the target. A pole is planted in the direction of the company and the target, indicating the distance whence they will fire. In order to habituate horsemen to get themselves in position promptly, so as to fire on objects before them, on their left, on the right, or in the rear, the instructor makes them execute the following movements:—

Firing to the Front.—The named horseman advances from the rank, shoulders the carbine, takes the position of firing on horseback, and marches straight to the pole: here he halts, makes a right quarter face, makes ready, presents, and fires. He then resumes the advance, and after a few paces comes to the right about, and retires, loading his carbine, and forms ten paces in rear of the rank opposite the spot he occupied.

Firing to the Left.—The named horseman quits the rank, shoulders the carbine, takes the position of firing on horseback, turns to the left, then to the right, and advances straight to the front, towards the pole. There he turns to the right, and, when near, he halts, presents, and fires to the left. He then advances, returns, loading his carbine, and forms ten paces in rear of the rank opposite the spot he occupied.

Firing to the Right.—The named horseman quits the rank, shoulders the carbine, takes the position of firing on horseback, turns to the right, then to the left, and marches straight to the front towards the pole. There,

turns to the left, and advances to the pole; when near, he comes to the right about five quarters, halts, presents, and fires. Then he comes to the left about five quarters, resumes the march, and returns, loading the carbine, and forms ten paces in rear of the rank opposite the spot he occupied.

Firing to the Rear.—The named horseman quits the rank, takes the position of firing on horseback, and marches towards the target in such a way as to leave it a little on the left. Having got up with it, he turns, and when he is between the target and the rank, on a line with the pole, he halts, rises lightly in his stirrups, turns, pressing the right stirrup, presents, and fires to the rear. He then resumes his seat, advances straight to his front, and returns, loading his carbine, and forms ten paces in rear of the rank opposite the spot he occupied.

When the troop can perform these movements correctly at the walking pace, they practise them at the trot and the gallop.

3. *Position when firing on the March* (the same preliminary movements as at the halt).

Present—Fire.—These movements are the same as at the halt, with this difference, that firing on the march the horseman must disengage his seat from the reactions of the horse during the time necessary to adjust and secure the immobility of the carbine: he rises lightly in his stirrups, presses the horse solidly with his knees, and leans forward, to aid in keeping his equilibrium, and favour the motion of the horse.

Firing on the march is directed to the front, to the left, and to the rear, as from the halt; at first at the walking pace, and then at the gallop. When they fire at the gallop the horsemen must give rather more rein to the horses at the moment when they come to the Present, in order to diminish the reactions of the horse, gently resuming the reins after firing, and falling lightly into seat.

The horseman must be practised at loading his carbine after having fired, or at slinging it in order to seize his sword.

These movements must be performed with celerity, in order to make good use of them in war. This instruction might be advantageously completed by placing beyond the target a head for the horseman to fire at or sabre.

4. *Snapping caps.*—When the troop has been sufficiently practised with the preceding “dummy” firing, they will go through all the movements, snapping caps, to be followed in like manner by blank cartridge, at the halt, at the walking pace, trot, and gallop.

At the halt it is difficult to ensure the perfect immobility of the horse, but tact and address will supply the deficiency, and the horseman should fire at the instant when the habitual stamping of the horse has just ceased, which he will feel by his seat.

The horseman must also be most careful so to direct the muzzle of his carbine that the stray grains of powder and the gas may never reach the ears of his horse.

5. *Individual firing at various distances.*—Ball-practice takes place when the men and horses have become sufficiently used to powder to permit the exercise to take place without danger. They fire at the halt, to the front, to the right, to the left, and to the rear—in marching at the walking pace and at the gallop, forward, and to the left. The regulation-distances for firing on horseback are 100, 200, and 400 metres—108, 216,

432 yards, nearly. Each distance-practice consists of four rounds to each man, fired on each occasion.

If any of the men are awkward at the practice, or any of the horses restive or not sufficiently steady, they are excluded from ball-practice.

RECAPITULATION.

Practice on Foot.	Officers, Corporals, Old Soldiers.				Young Soldiers.			
	Lessons.	Caps.	Blank Cartridge.	Ball Cartridge.	Lessons.	Caps.	Blank Cartridge.	Ball Cartridge.
PREPARATORY EXERCISES.								
1. Aiming	1	—	—	—	2	—	—	—
2. Position of firing on foot	1	—	—	—	2	—	—	—
3. Aiming and position on foot	2	—	—	—	3	—	—	—
4. Keeping the arm steady in the hands of the soldier	1	—	—	—	1	—	—	—
5. Snapping caps	2	20	—	—	2	20	—	—
6. Blank cartridge	1	—	8	—	2	—	8	—
7. Ball-practice at various distances	4	—	—	16	4	—	—	16
Practice on Horseback.	Officers, Corporals, Old Soldiers.				Young Soldiers.			
	Lessons.	Caps.	Blank Cartridge.	Ball Cartridge.	Lessons.	Caps.	Blank Cartridge.	Ball Cartridge.
PREPARATORY EXERCISES.								
1. Training of the horse	—	20	8	—	—	—	—	—
2. Position of the soldier firing on horseback at the halt	1	—	—	—	2	—	—	—
3. Imitation of firing on foot	1	—	—	—	2	—	—	—
4. Position of firing on the march	1	—	—	—	2	—	—	—
5. Firing on the march	1	—	—	—	2	—	—	—
6. Snapping caps	2	20	—	—	2	20	—	—
7. Blank cartridge	2	—	8	—	2	—	—	—
8. Individual firing at the various distances	3	—	—	—	3	—	—	12
School of Skirmishers	—	—	20	20	—	—	20	—

PISTOL FIRING.

1. *Rules of firing.*—The theoretical principles of the carbine are applicable to the pistol.

The rules of firing are confined to aiming at its point-blank range, and may be applied with sufficient accuracy up to 50 metres—about 54 yards, but practice reduces this distance to 25 metres.

As the cartridge is that of the carbine, it must be “bled” before loading, by throwing away a part of the powder, about one-half of it.* The exact measure of this powder to be thrown away is given by the capacity of the hollow at the head of the ramrod. Blank-cartridge has the regulation charge.

Firing with the Pistol.—The horseman is not to use the pistol excepting on horseback and when alone; but it is necessary to initiate him in the principles of firing with that arm, and teach him the details of position to facilitate their application.

For this purpose the men are placed as prescribed for aiming with the rifle, and the instructor gives the following explanation:

1. *Position of firing on Foot.*—Carry the right foot about 26 inches from the left; cock the pistol; raise it with the right hand vertically; the trigger-guard to the front; the wrist to the front and about 6 inches from the shoulder; the first finger extended along the trigger-guard.

2. *Present.*—Lower the pistol, the arm being half extended; place the first finger on the trigger, the muzzle pointing to the centre of the target. In this position the horseman must avoid squeezing his fingers, to diminish the trembling of the hand.

1. *Firing on Foot.*—The horseman is practised in firing to the front, to the left, to the right, and to the rear, following exactly the progression and series of the preparatory movements indicated for the carbine.

2. *Firing on Horseback.*—The horseman is placed and practised as prescribed in the firing on horseback with the carbine, taking, however, the position indicated for firing on foot with the pistol. He fires to the front, to the left, to the right, and to the rear; from the halt, at the walking-pace, and at the gallop.

I omit the “Theoretical Instruction”† of the French Manual, as being sufficiently understood by all, and substitute instead the following remarks by General Bonneau du Martray; they are at least curious:—“As no one doubts that the rifle will play a much more important part in the success of future battles than hitherto, it is of the utmost importance to train good shots. We say, in the first place, that the use of the elevating sight is too slow and too difficult in battle; it will even cause the loss of some of the advantages of breech-loading. The determination of the distance, and, consequently, the adjustment of the sight, are liable to error, and the time required endangers the loss of the favourable moment for firing. On the other hand, supposing the line of sight exactly found, we must next make it coincide with another right line—that which extends from the eye to the target or object; in other words, we must place in one line four different points, the eye, the notch of the backsight, the tip of the foresight, and the target, an achievement by no means easy, especially if, in addition to it,

* This seems a strange waste of ammunition, if not absolutely necessary “by the exigencies of the service.” I find that there is a special cartridge for our carbine and pistol.

† I had translated and adapted the whole of this little manual, thinking it might be adopted by our authorities for the cavalry.

the rifle must be held at the shoulder. With certain physical conformations—too long or too short a neck—firing from the shoulder renders the desired coincidence utterly impossible. We think, therefore, that in the field we should abolish the use of the backsight.

"It is not absolutely necessary to hold the rifle at the shoulder to make good practice in firing. In support of this averment we will draw attention to the fact, that it is nearly certain that the resistance given to the recoil of the rifle augments the deviations of the bullet, and we will quote an historical account, which we are not bound to believe, but which suggests incontestable proofs in confirmation. The account occurs in the book of Father Hue, apostolical missionary, on China, vol. i. ch. 10. It is as follows: 'The Fusiliers and Archers then practised at the target; their skill was remarkable. The Chinese matchlocks have no butts, but terminate like a pistol. When they fire they do not hold the matchlock at the shoulder; they hold it at the right side, at the height of the haunches, and, before letting down upon the priming the hook that holds a lighted match, they fix their eyes upon the target. We remarked that this mode of procedure was eminently successful, which seems to prove perhaps that to fire accurately with the rifle it is less necessary to sight with the top of the barrel than to look steadfastly on the object.'

"These last words are completely in accordance with facts perfectly admitted, and prove our proposition, namely, that it is not necessary to take a line of sight to hit an object, and that it suffices to look at it steadfastly, with a strong will to hit it with the bullet. Thus the stone that whirls in a sling, describing a circle and escaping at an instant which indicates only an internal instinct, the quoit thrown by one hand which retires and then advances, the end of a stick which describes a circle round the shoulder to strike accurately a point suspended in space, are all instances in point [to which we must add that of the Australian boomerang in its otherwise incomprehensible gyration].

"In these different examples the chief point is the attention and intention of the operator powerfully concentrated on the object; and we are led to suppose that by a physiological cause, analogous to that which forces a muscle to bend or extend, the stone, the quoit, the stick-end, through the apparatus of nerves forming the medium of communication with the mind, becomes as it were endowed with the magnetic will of the operator, and obeys him as long as the impulse is not victoriously counteracted by gravitation, the resistance of the air, the insufficient initial velocity, &c.

"This theory—a direction impressed to a projectile as it were by a sort of magnetic power—seems confirmed both by the example of savages skilful in the use of the bow, and by the practice of certain hunters (the most skilful) who content themselves with steadfastly looking at the game, following its movements with their eyes, then bringing the rifle to the shoulder, and instantly touching the trigger without taking time to aim. Some years ago, at Paris, there was an exhibition of South American savages and their war exercise. All drew the bow with rare precision, holding it vertically, the right-hand at the haunch, the head elevated, and the eye looking steadfastly at the target. And, as another example, we will quote the description of an English sportsman given by M. Mangeot, a renowned gunmaker of Brussels:—

" 'The son of proud Albion never lowers his head, even before his game

leaving in a straight line. At its departure he full-cocks, his head elevated so as to follow all its movements with his eye. When he thinks it sufficiently far to allow him to fire at a fair sportsman's distance, he brings the butt of the gun smartly to the hollow of his shoulder, at the same time directing the muzzle to the object, the elbow slightly raised to preserve the equilibrium of the piece, and without an instant's delay he touches the trigger, so that these two movements are simultaneous.*

"From the above facts we conclude that it is not absolutely necessary to place the butt to the shoulder, nor to take a line of sight; that it is important to fix the eye on the object at the moment of firing; and that consequently, if we wish to hit an enemy situated sufficiently far to require us to aim above his head, if we discard the backsight (whose use is impracticable in battle), we must then, instead of sighting, place the butt at the hip, and endeavour empirically at each distance to incline the arm to the proper elevation before firing."*

No doubt this suggestion of the gallant French general will be laughed at by many. Nevertheless the facts of his logic are worth consideration, if only to modify certain imperious inculcations with which not one man out of a hundred can perfectly conform in order to be a good shot with the rifle. Cultivate the strong will to hit,—that is the secret. If all cannot succeed in doing so, it proves that we have something else to do besides inventing a perfect rifle, of which fact the French are perfectly convinced. In the event of invasion our sportsmen and their gamekeepers will prove the truth of this remark, although it is notorious at Hythe that they fail to hit the target with an Enfield when firing according to the regulation method. The conclusion drawn from this last fact has been just the reverse of what it ought to be, and therefore the French general's observations may not be useless in our present meditations, which should be very serious.

Having, in the rifle, lost the flat trajectory and great initial velocity of Brown Bess, and its certain efficacy at the shortest distances, we must train the soldier so to use his Enfield that it may not fail him at a most critical moment, when Brown Bess would save him. The soldier must be "habituated" to hit at the shortest distances, instead of stimulating his ambition to excel at "long range" on the target-ground. Let him have practice within the 100 yards, and train him, moreover, to "judge" the distances beyond up to 300 yards with certainty, or at all events with sufficient accuracy to hit a man or a horse somewhere, if not in the centre, "without the use of the back-sight"; or, rather, by merely using the notch with the flap in its bed. Unless this is done our soldiers will have to regret the loss of Brown Bess on many a fatal occasion. It has been said, that our gallant soldiers of old "won their victories in spite of Brown Bess." Experienced military men, who have seen service, are not of this opinion. They owed their victories to their valour and Brown Bess united, and the rifle will never do what she did unless we take counsel beforehand to obviate its difficulties, and make up for its disadvantages.

IV. To stimulate the exertions of the cavalry prizes will be given.

These are, one to the non-commissioned officers of the regiment, four to the corporals and privates, consisting of 15 francs for the latter and 30 francs for the former.

They fire on foot and on horseback, but the competition on horseback is

* Nouvelle Methode de Guerre, &c.

confined to the best shots. The competitors must fire in complete equipment and marching order.

The prizes must be distributed, if possible, in the presence of the Inspector-general, and must be recorded in the instruction returns of the regiment.

The target is placed at 200 metres for firing on foot, and at 100 metres for firing on horseback. Only four rounds are allowed, and the prizes are awarded according to the smallness of the deviations from the centre in the total of the four shots.

All the French cavalry are provided with pistols. Field-Marshal Radetzky said, "All cavalry should be provided with pistols, for a fire-arm is often of great service to a horseman for personal defence, and quite indispensable to give an alarm or signal." Yet our dragoon-guards, heavy and light dragoons, and hussars, are not now, as formerly, so armed. But these weapons form part of the equipment of the household brigade, general, field, and mounted officers of every branch of the army, except of brigades and regiments of artillery, and those with repeating breeches are universally used.

"A mounted man," says Mr. Russell, "if he has only one revolver, should always carry it in his waist-belt, and in the case, so that, should he fall, he may avoid the injury to which he is otherwise liable from falling on the pistol. He ought not to place it in the holster, because if he is separated from the horse he loses the weapon. If he has two revolvers he can put one in his holster and the other round his waist."

PART II. THE IMPORTANCE OF CAVALRY DEMONSTRATED, AND THE RECENTLY ADOPTED FRENCH MODE OF TRAINING AND PROPOSED CAVALRY TACTICS EXPLAINED.

1. It is most important to bear in mind that the first military nation of the world not only retains, but actually expands, and trains to the utmost extent, that section of her splendid army, which recently some of us thought of converting into general carriers of baggage—supposed to be rendered otherwise utterly useless by the all-devouring rifle. Cavalry, in fact, would never dare to stir on a field of battle! If the light cavalry might be permitted to exist, to be made otherwise "generally useful," the heavy cavalry, at all events, should be utterly abolished, just as if the two things were not perfectly distinct in their use and application—each having its special function in the field of battle.

In the last century, when fire-arms were improved, the same notion prevailed, and it was thought proper to keep cavalry carefully at a distance, out of the reach of fire. It became inactive, and was nearly considered only secondary in the tactics of battle, when a man appeared, who set it free, and gave it wings, and won with it victories that seemed to belong to heroic poetry, not the annals of facts and history—the renowned SEYDLITZ.

Happily, no nation thinks of abolishing, or even diminishing its expectations from, that arm in future warfare—least of all the French, whose cavalry at the present moment is in a perfect state of training, not only as to the vigorous gymnastics of the martial circus in splendid and astonishing variety, but also as to the efficient use of the rifled carbine with which it is furnished.

If the intrinsic value of cavalry seems to have been lessened in many respects, if this arm no longer dazzles with its ancient splendour, the cause is not in the arm itself, it must be sought elsewhere; and our cavalry may sink into utter decadence if we do not advance it to the level of the other arms of the service—in its organization and employment—in its training and requirements.

To dare everything—to risk everything—even the impossible—was the characteristic of cavalry two hundred years ago. On the 1st of January, 1658, the great Polish hetman Czarnecki actually swam his cavalry across the Little Belt! Several times the Poles and the Swedes crossed the Dnieper and the Elbe with entire corps of cavalry. Will the cavalry of the present day march fifteen miles and fight a battle, as did the cavalry of Torstenson in 1645 at Juterbok? Can we expect the cavalry of the present day to take a part in the attack and defence of cities, as it did constantly during the Thirty Years' War?

Unquestionably the most difficult military problem is to bring our cavalry to the field of battle in a fit condition for fighting; that is to say, starting from a given point, how to reach our destination with the smallest loss of men and horses. For the experience of ancient wars demonstrates that, on an average, regiments crossing the frontiers lose one-fourth before they reach the field of battle, by sheer exhaustion, or its concomitants.

Hence the absolute necessity for training—systematic training—for all soldiers, and especially the cavalry—compound, man and horse. Mere field-day parade and drill are not the training for such cavalry as the Great Napoleon wanted, when he exclaimed, "If I had had sufficient cavalry at the battles of Lutzen and Bautzen, I would have re-conquered Europe."

2. As there may still be lingering doubts respecting the function of cavalry in future battles, a few of the hasty surmises against it must be discussed and refuted. The principal objection recently advanced against the utility of cavalry is the introduction of the rifle and rifled cannon. A letter written by one of the French campaigners in the late Italian war seemed to prove the utter inutility of cavalry, by announcing that, at 2,500 yards, the eighth battery of the 16th regiment threw into disorder a squadron of Uhlans (light cavalry) at the battle of Solferino, and that, following up this favourable result, several batteries opened fire from the same distance upon twenty-five squadrons ready to charge, and forced them to the rightabout. This precious achievement of the Emperor's truly beautiful howitzers has been upheld as a proof that cavalry should be abolished. Now, what were the facts respecting these Uhlans? They belonged to Mensdorff's division, which, to the very end of the battle, never ceased to front the fire of its enemy—not at the distance of two miles, but at close quarters. Several times they charged MacMahon's right, and penetrated almost to the very muzzles of the 72nd and 11th Chasseurs à Pied—the hand-artillery of the French army. They got within 200 yards of Vinoy's division in Neill's corps, and they only retired before the grape-shot and balls of 42 pieces of artillery of the divisions and reserves of that corps; and during the night following the battle these Uhlans aided in covering the retreat towards the Mincio.

Besides, at 2,500 yards, how is it possible to distinguish between a change of position having no reference whatever to the firing in question, and a rout caused by it, as alleged by the letter in question? Is it at all

likely that cavalry would make ready to charge at 2,500 yards? Why, the horses would come in utterly blown and incapable of any serious effort. The battle of Solferino was a fortuitous affair, a series of fights spread over a front of nearly twelve miles, on ground utterly unfit for the movement of cavalry. Besides, it is a fact, that the Austrian cavalry was most improperly handled on that occasion.*

Most assuredly we have as yet no proof that the rifle will be the annihilator of cavalry in the field of battle, but perhaps just the reverse. The introduction of the rifle urges the cavalry into new life, and enlarges its field of operations.

3. The comparative immunity to be expected by cavalry from the modern rifle, has been amply discussed in a previous paper.† In theory the rifle is a dead shot; in practice, however, by not complying with its requirements, we make it worse than "Brown Bess." An advancing troop is at every instant safer and safer from the rifle-bullet, owing to the great curvature of its trajectory; whereas, with "Brown Bess," the soldier, aiming right upon the galloping line, the barrel parallel with the ground, saw his chance of emptying a saddle or upsetting a horse increase at every second of the charge. Of course, the rifleman can alter his elevating sight, but, alas! under what circumstances? At an object constantly altering the distance, in the midst of smoke and dust, the advancing squadrons making the earth quake under their resounding hoofs, and in momentary expectation of the formidable shock when the cavalry will be upon him!

4. We must not, therefore, exaggerate the effect of the rifle in future warfare. Its influence will be greater on the tactics of the battle-field than in the destruction of armies. In future, the lines and the reserves will be posted at greater distances. Column movements will be interdicted where they might formerly be safely ventured. We shall have to deploy much quicker than formerly. We must advance in line or in columns of companies at wheeling distance, in echelon oblique or direct. All diversions on the field of battle, all movements to turn the enemy, will require a greater radius.

Hitherto armies have encamped or bivouacked at from 2 to 3,000 paces from the enemy's outposts. This will no longer be safe, because the position can be accurately shelled by rifled cannon. Hence, on the other hand, the necessity for having at the outposts a greater number of squadrons with light batteries, in order to ensure the safety of the army.

The least change of position, up to 5,000 paces from the enemy's lines, will be of serious importance. And the movements and bearing of our skirmishers will require the utmost development, and become of serious consequence on the event of the battle.

Now, it is evident that these urgent modifications of our tactics positively enhance the value of cavalry, and render its employment more necessary and efficacious. For, the more we develop the movements and action of the skirmishers, the more we extend our lines and augment their distance, the more we need divisional cavalry. The more we increase the space separating the contending armies, and the greater the distance of the infantry reserves from the main body in action, the greater the

* General Renard, "De la Cavalerie," p. 129, *et seq.*

† "Military Gymnastics of the French," Part II, published in Vol. V. of the Journal of the Royal United Service Institution, and as a pamphlet by Mitchell, 39, Charing Cross.

necessity for cavalry reserves and light artillery, in order to reinforce promptly those points which may be compromised, and to check for a time the efforts of the enemy. Thus, cavalry and light artillery, well trained and capable of rapid movement under any circumstances and on any ground whatever, are more necessary now than heretofore; the function of cavalry, in our modern tactics, will be enhanced in importance and admit of greater development.*

4. Infantry is decidedly the mainstay of battle. It is the army's centre of gravity. It is adapted to all sorts of ground,—plains, mountains, and broken country. It is endowed with the two essential qualities of action, the bayonet and the bullet; but these faculties are limited by the inherent weakness of man, and by the range of his weapon. The deficiency in the strength and resistance of the infantry is supplied by the cavalry and the artillery, which, although they have but one of these faculties—strength, still this faculty in the cavalry and the artillery exists to an extent which the infantry can never attain. Defeat to the infantry in an open country, unsupported by sufficient and good cavalry, is fatal; and every victory, in the same deficiency, must be always undecisive.

With equal morale† an army, consisting only of infantry, will be beaten an army much weaker, but consisting of infantry and artillery; and with still greater certainty by an army combining the three elements together, infantry, artillery, and cavalry. Moreover, in an open country,

* General Raynard, *ubi supra*, p. 154.

† The following quotation gives some idea of the French estimate of *morale* in an army:—"As it is a favourite saying among French soldiers, *C'est le cœur qui fait le grenadier*—'tis the heart that makes the grenadier,' so, on a larger scale, it was invariably a maxim with Napoleon that the value of the *morale* to the *physique* of an army was in the proportion of two to one; and, as a striking illustration of the prevalence of this sentiment, we may state that, during the Peninsular war, in several instances there fell into the hands of our Engineer officers the governor's daily report, during the different sieges, of the strength of his garrison, in which the hourly fluctuations of "*la morale des troupes*" were as carefully recorded as the motions of the weathercock at our Observatory at Greenwich."—Sir Francis B. Head, Bart. "*The Defenceless State of Great Britain*," p. 241, a new edition of which work should be published in a cheap form at the present time, since its patriotic and terrible warnings are even better grounded now than they were in 1850. Something has certainly been done by way of national defence, but what is it relatively? If you content yourself with one or two indecisive moves whilst your antagonist makes as many as he likes, is there no danger of being checkmated? In his remarkable letter to Sir J. Burgoyne, the Duke of Wellington said: "I know of no mode of resistance, much less of protection, from this danger, excepting by an army in the field capable of meeting and contending with so formidable an enemy, aided by all the means of fortification which experience and science can suggest."

"The Duke, however," adds Sir Francis Head, "assuming, as a national axiom, that the British House of Commons would constitutionally shrink from the expenses of enabling Her Majesty's army and navy to defend the nation from invasion in the proper manner, suggested the formation of a militia force of 150,000 men. This, he adds, with an augmentation of the force of the regular army which would not cost £400,000, would put the country on its legs in respect to personal force, 'and I would engage for its defence, old as I am.' But the ink with which these chivalrous words were written was scarcely dry before reflection materially modified the enthusiastic declaration: 'I shall be deemed foolhardy,' he adds, 'in engaging for the defence of the empire with an army composed of such a force of militia! I may be so; I confess it. I should infinitely prefer, and should feel more confidence in, an army of regular troops; but I know that I shall not have these; I may have the others. This is my view of our danger and our resource.'"—"The Defenceless State of Great Britain," p. 377.

A regular standing army in England of 100,000 infantry, with proportionate cavalry,

and unsupported, infantry will be demolished by cavalry with sufficient artillery at its disposal. Its destruction would only be a question of time, even if it has the heroism of Napoleon's Guard at Waterloo.

Every movement within range of the enemy's fire, or on the field of battle, constitutes a weakness—a state of weakness in the infantry; the movement may be compromised if it be not supported and protected by cavalry. At the moment when he was hurling his division against Zach's column at Marengo, Dessaix exclaimed, "Go, tell the First Consul that I am about to charge, and must be supported by cavalry." In the same battle the divisions of Victor and Lannes would have been crushed, had they not been aided by Kellerman and Champeaux's cavalry. Without Murat's cavalry at Eylau, Angereau's corps, and perhaps the whole French army, would have been defeated. But why need we seek under foreign standards the proofs of the fact that the cavalry is the tutelary god of battles? At Waterloo, Ponsonby's Dragoons hurled D'Erlon's infantry into frightful disorder, whilst advancing without the support of cavalry. They sabred the men and the horses of the artillery in its rear. The rout was complete, and retreat was only made possible by the late arrival of Travers's Cuirassiers and Bro's Lancers. On the other hand, on the left, a single brigade, Guyot's, posted against La Haie Sainte, kept its position for a long time against the centre of the entire English army, thanks to the efficient aid of Dubois' Cuirassiers. These undaunted soldiers, isolated in the front of the army, not only drove back the enemy,—they mounted the plateau alone, and crushed Lünebourg's battalion, captured his standard, charged Allen's division, and only gave way to Uxbridge's squadrons, who were subsequently checked by Guyot's battalions.

5. Infantry and cavalry are indispensable to each other, and this fact has never been more strikingly revealed than in small armies, fighting on the defensive, and on their natal soil. A large army, taking the offensive, does what it likes, acts according to a plan of its own choosing, and seeks the enemy to give him a decisive battle. The possession of the initiative permits it to employ a comparatively weaker cavalry. Nevertheless the services it receives from this cavalry are not less considerable. Thus, in the splendid march of the French on Marck's line of operations in 1805, Murat's squadrons were in the van. They seized the bridges and defiles, and by their rapidity they co-operated more than any other arm in isolating the Austrians in their position at Ulm; and they won the first laurels of the campaign at Wertingen.

6. An army on the defensive, however, is subject to the enemy's combinations. It remains as it were in a state of enchantment as long as the enemy's intentions are unknown. It needs scouts in every direction, and at a distance, and must have sufficient reserve of cavalry to oppose the first efforts of the enemy, in order to give time to the other troops either to accept battle on a chosen position, or to decline it by retreating. A small army, declining a general engagement, and yet anxious to check the ad-

and a better organised militia—these are our wants; and, until we are so protected, the "idea" of invasion will always hang over us until it is realized, and then, God help us! In the face of such defence the "idea" would never be entertained. An efficient fleet is indispensable; our Volunteers should be fostered; but a *competent army and militia are vital to the empire.*

of the enemy, can obtain this result only by manœuvring, and by endeavouring to deal the enemy decisive blows as often as it can without a general engagement, and without compromising the fate of the whole army. The blows must be quick—dealt as it were by surprise; and it is on such occasions that a general contemplates with pride and satisfaction in the ranks of his troops a numerous and staunch cavalry, and an artillery equally staunch and numerous. These are the guarantees of success in the rapid marches and surprises which he designs, or in the defensive battles which he may be forced to accept.

We have a celebrated example to uphold these tactics—the French campaign of 1814. In that campaign the effective of cavalry always exceeded the fourth of that of the infantry, and in some battles it reached the half.* The last days of the imperial cavalry shone with incomparable splendour. Its triumphant success is indissolubly connected with the immortal battles of the 10th, 11th, 12th, and 14th of February. At Champaubert the dauntless cavalry of Girardin and Doumerc charged and pursued Olovieff, the Russian infantry was sabred and hacked to pieces by the cuirassiers, 1,500 killed and wounded, 3,000 prisoners, 20 guns captured, Olovieff and his staff being amongst the trophies of the victory. At Montmirail, Nansouty's cavalry killed 3,000 of the enemy, made 4 to 5,000 prisoners, and captured 30 guns. At Château-Thierry, the same warrior with his cavalry cut off the retreat of the enemy, sabred its cavalry, and captured its light artillery,—whilst Letort flung his heroic dragoons upon three Prussian and Russian battalions, pierced through them, and brought back 3,000 prisoners and a numerous park of artillery. At Vauchamps, Ziethen was charged by Grouchy's heavy cavalry, and left in his hands 2,000 prisoners, 12 guns, and several standards; and, not content with this, those admirable squadrons of cuirassiers dashed off in pursuit of Blucher himself, and, from eleven o'clock of the morning to three of the afternoon, they harassed and hung upon him, picked up thousands of soldiers in the pursuit, and then they started at full trot across the woods, alone and without artillery, and attacked without hesitation the Prussian masses in full retreat, which Blucher had the greatest difficulty in leading back to Etoges.

On the 17th, at Mormant, the Russians suffered a similar defeat by the dragoons from Spain; at their head Milhand and Valmy attacked the Russian squares of Pahlen, broke them, and made them prisoners *en masse*, together with their artillery, whilst they scattered and put to flight the cavalry which attempted to come to the rescue: 4,000 men—prisoners, killed, and wounded—rewarded the conquerors.†

No wonder that the Duke of Wellington declared to Jomini his unqualified approbation of the French cavalry. He said, "After having personally borne the brunt of their audacity and perseverance at Waterloo, I know of none capable of surpassing them." And it will be in the recollection of the readers of these pages that Napier, in his "History of the Peninsular War," felt compelled to declare his opinion respecting the

* The total strength of the French army on the 25th January, 1814, the day on which the Emperor Napoleon took the command, was 71,012 men, namely, 48,682 infantry, 15,478 cavalry, and 6,852 artillery.

† General Raynard, *ubi supra*, p. 81, *et seq.*

French cavalry in terms by no means flattering to our national pride;* but, if he had reason then to think the French cavalry superior to ours, it is our duty now to ensure a contrary opinion in the pages of future historians.

8. In addition to the *physique* of man and horse, there must be the intelligent and rigorous training of both. The "sufficient cavalry" required by Napoleon at Lutzen and Bautzen was not merely numerical:—cavalry is only sufficient when it is up to its work, and then it is all-important for a "crowning victory." Saint-Arnaud, writing to the Emperor from the battle-field of Alma, said, "Sire, if I had had cavalry I would have obtained immense results, and Menschikoff would no longer have an army." At the recent battle of Montebello the want of cavalry gave General Forey a fruitless victory. Excellent infantry will not be pierced by indifferent cavalry: but excellent cavalry will always beat indifferent infantry; and the want of cavalry arrested even an Alexander and a Cæsar in the midst of their conquests.†

What are the requirements of this training to produce excellent cavalry? By constant practice both man and horse should be habituated with every kind of ground—should be led through narrow, winding, rugged pathways, uphill and through by-ways and valleys leading to a plain—where they may be suddenly halted, formed in line of battle, and advance at the trot and gallop.

They should be familiar with the difficulties of ploughed fields—be able to pick their way through woods and defiles—to cross a stream by boating, fording, and swimming.

Carrying his bread and forage for his horse, let every man be ready and start for a military march of a certain number of miles; then bivouac, as in real warfare; and, as in war-time, despatch a squadron from the garrison some 12 or 15 miles to reconnoitre, as in the vicinity of a supposed enemy.

Divide the troop into two bodies—throw them off in different directions—bring them into sight of each other suddenly—and form them in the best position that circumstances will allow for mutual attack.

It is obvious that all this requires a thorough love of duty, intelligence, and a strong heart, as well as nerve and sinew, on the part of men and officers; but then, are we to be left behind in the race after efficiency, not to say perfection? Is it a fiat of Providence that England must always be unready—must always suffer disaster before she can make good her claim to the place she holds amongst the nations?

9. It was the opinion of Napoleon I., and it is that of Napoleon III., that all the cavalry should be armed with carbines. Good cavalry officers have objected to this view; the subject is important, and deserves serious attention.

* Vol. v. p. 327 (French translation).

† It may appear pedantic to allude to martial antiquity in support of modern conclusions, yet Napoleon I. formed himself upon its models, and now Napoleon III. is at the present time engaged on a new translation of the great Conquestador's "Commentaries on the Gallic War." Nay, he has even had constructed a model *trireme*, such as used by Cæsar in his filibustering expedition! The idea tickles the fancy of us who in our school-days sympathised with the Britons in their unequal contest with Cæsar's veterans. Is the idea ominous? What a plague is this our insular fancy, constantly tormented by realities which seem like dreams, and by dreams that may turn out realities!

Marshal De-Servan was strongly of the Emperor's opinion; he maintained that the carbine and *bayonet* are indispensable to cavalry when fighting on foot; that they could not be inconvenient in any circumstances; and that these arms might be even necessary to cavalry when fighting in a body, when on detachment, and to single horsemen left to their unaided resources.

There are many occasions in war in which the cavalry cannot fight on horseback; there are others wherein it is not necessary that it should fight in that manner; and it may sometimes be utterly impossible so to fight. The cavalry cannot fight on horseback in hilly countries, in countries covered with woods or planted with trees and vineyards, or cut up by canals, streams, and ravines. What shall we do with it? It must either be sent to the rear, or be made to fight like the infantry. If we send it to the rear, we must leave unguarded some point of the front, some important pass, or weaken the positions of the infantry. Now, in all these cases we double the danger and fatigue of the foot-soldier; whilst the horseman, rendered useless, and worried by his idleness, waits impatiently for an opening to mingle in the fight.

"I say worried by his idleness," says the Marshal, "from my knowledge of the French cavalry. In every campaign the cavalry is disgusted with the obstacles which prevent it from exposing itself everywhere, like the infantry, for the defence of the State." Such was the situation of the cavalry in the Crimea, and such is at present that of the regiments which have not yet been led to battle.

In the attack of fortresses, towns, and lines, and whenever we must advance step by step, the cavalry is reserved for exterior service, which seldom gives it sufficient occupation; and when we come to the assault it can only look on tamely, waiting until the walls are destroyed, a gate opened, or a part of the line cleared out, to aid the infantry in demolishing the few soldiers that may remain to resist.

Had the cavalry been better armed and trained to use its weapon, it might have been actively employed and enabled to share the victory. The emulation of corps of a different nature would have produced the happiest results. It was thus at Novara, in 1522, when Montmorency, on the refusal of the Swiss, ordered his cavalry to dismount and advance to the assault.* The bold and chivalrous Charles XII. of Sweden modified his cavalry precisely in this manner. He gave it a great relative mobility, hurled it against troops of all arms, even against fortified positions, through all sorts of obstacles and over every kind of ground; and his horsemen, full of confidence, indefatigable in the attack and pursuit, knew no difficulty in their achievements. In the defence of lines, posts, villages, and even fortresses, the inconvenience of the cavalry's arms is equally felt; if they fight at all it must be at fearful odds.

Again, suppose a detachment of cavalry, a company for instance, is pursued by a detachment of the same arm, but consisting of a squadron. To fight, to run, or to surrender, are the alternatives at present. The first is of course the most glorious, but its glory is useless. To surrender without

* Under Francis I. the Swiss employed as auxiliaries often refused to march, under the pretext that they were not punctually paid; hence the proverb, "*No money, no Swiss: point d'argent, point de Suisse.*"

a blow is a painful extremity to brave men. To run for it is more simple; but the enemy is on your back, at your heels, and, whilst shame forces you to check your horse, glory gives the spur to his charger.

Now, if this company had been armed and trained so as to be able to fight on foot, what would its leader do? He would look about him. He would fix his eye on a house, a ravine, a hedge, a wood, and with the utmost speed make for it. There he would take post, under cover, and defend himself, like the infantry, and repulse the enemy, like the infantry.

Again, suppose one or several horsemen dismounted in a charge, they must retire behind the infantry. In this position, the luckiest of all, they have to regret their inability to mingle in the charge and win distinction. If they have and can handle their carbine, with the bayonet, they may still come in to share the honours of the brush.

Perhaps it will be said that a cavalry soldier is a precious man and we must take care of him. Decidedly, good horsemen are not as plentiful as mushrooms; they are a work of time and long labour and must be treated with caution. An experienced general would not employ cavalry on foot excepting in cases of absolute necessity.* To be prepared for an emergency is at least half the difficulty got over; and, if all the occasions just alluded to are of constant occurrence in war, it is our duty to take them into account, and endeavour, by wise improvements and intelligent training, to be found equal to those occasions on their occurrence.

Armed with a carbine an isolated soldier might keep at a respectful distance several adversaries not so provided. In Egypt and Russia, the Mamelukes and Cossacks, having only pistols, were always in great dread of the fire of the French cavalry. In hilly countries, the cavalry would be often exposed to the danger of being cut off if unable to throw out skirmishers in the woods and on the rocks, to protect its line of march. In a reconnaissance near Ostalricho in Catalonia, General Gourvion Saint-Cyr was nearly killed or taken prisoner by the Miguelites: a part of his dragoons dismounted, climbed up the rocks in spite of their big boots, and delivered their general by routing the enemy with their carbines. In 1796, in the gorges of the Brenta, an Austrian corps of considerable strength was obliged to surrender, because, being attacked in front and on the flank, it could not retreat—a regiment of dragoons having dismounted and blocked up the passage. History is full of similar examples.†

10. After the Italian war the attention of military men of all nations was directed to France, to see what changes she would make in her army, especially as to the cavalry. For, certainly, the French cavalry did little or nothing on that occasion, the consequence being, that, although the Austrians were historically beaten off the field, there was never a rout, and, consequently, never a complete victory—such as were required in the old empire. High military judgments, however, have been advanced as to the impossibility of cavalry action in the Italian campaign, owing to the nature of the country; but it now turns out, beyond the possibility of doubt, that the French cavalry was positively wasted on the march, rendered unfit for action, and reduced to insignificant dimensions. They entered Italy with

* *Système de Guerre Moderne*, p. 83, *et seq.*

† Gen. Dufour, *Cours de Tactique*.

10,600 horses, and at Solferino they numbered only 3,000, more than two-thirds having been rendered useless on the march.*

France now possesses 61 regiments of cavalry,—36 of heavy, and 25 of light,—presenting a mass on war footing of 60,000 horses, at least; but, in the event of war, there can be no doubt that her cavalry will not be less than as 1 to 5 of her enormous infantry. The utmost endeavours are now being made to bring this numerous cavalry to perfection, by developing individual instruction, by a better class of horses, and by lessening and rendering more comfortable the weight of both the heavy and light cavalry.

A better carbine has also been given to the cavalry, which, however, will soon be displaced by a breech-loader devised by the Emperor. Its calibre is about nine-twentieths of an inch,—about that of the Whitworth rifle, its weight about 5 lbs.

The cavalry is trained to fight on foot—*en tirailleurs*—as skirmishers. Formerly three of four men would dismount, leaving their horses in the charge of the remaining horseman; but a shell bursting in the vicinity

* “*Miscellanées Militaires*,” by General Grand, President of the Cavalry Committee at the French War Office, p. 20. There is ample instruction in this Blue Book, or Official Report, quite consoling to us in England, so familiar with blunders and shortcomings. We are plainly told that the French cavalry in Italy, “instead of being united in the hand of an able leader, lacked proper and firm direction, which might have taken a vigorous initiative on every occasion, regulating the details of its marches and service, and, with adequate experience, looking to its wants and interests. Instead of keeping it in reserve to employ it according to circumstances, the ground and its own requirements, in directing the movements of the army, or in completing its victory, the cavalry was frittered into weak fractions; its marches, its hours of departure, were the same as those of the infantry, which, by reason of the excessive heat, was very slow, the columns being frequently retarded and halted, causing accidents and compelling the men to dismount.

“In conclusion, it results from all these observations that the causes of the numerous injuries of the horses in the Italian war may be attributed—

“First. To the weakness of the effective of the regiments of cavalry during the time of peace, and, consequently, to their want of *morale* and individual instruction.

“Secondly. To the sudden augmentation of this effective by means of men without experience, and young horses barely trained and hastily harnessed.

“Thirdly. To the introduction of men from other corps, unknown to their leaders, and not always having the requisite zeal and good-will.

“Fourthly. To the want of superintendence on the part of the officers during the march.

“Fifthly. To the fractional distribution of the cavalry in the various *corps d’armée*, and under the orders of officers of another arm, instead of its concentration in the hand of an able and experienced commander.

“Such seem to be the principal causes of the wounds of the horses of the Italian army, the bad quality of the harness being only secondary. Nevertheless, we must not dissimulate the fact that the saddle in use is not free from grave defects,” &c. &c.

The whole report should be read by those whom this matter concerns here in England; it is full of useful suggestion. The following opinion is much to my purpose in the present article:—“It would be useful to complete the trial now being made of the regiments changing garrison, by requiring the divisions of cavalry at Châlons and Lunéville to carry constantly, in the manœuvres as on the march, the whole weight that the horses have to carry in a campaign. Up to the present time the camp at Châlons has only been an assemblage of troops whose special object has been merely tactical instruction; but, unfortunately, we have neglected an essential part of the business—campaign service. All the operations of these camps should be the image of what is done in war. Instead of contenting ourselves with manœuvres, we should habituate the officers and soldiers with the various turns and twists of warfare. At every turn-out the bivouac should be raised, just as if we had to decamp and take a position elsewhere. However fatiguing or harassing these obligations may appear, it is certain that they would give a better idea of those imposed upon us by actual warfare.” Does this not apply to our Aldershot and the other miniature Châlons of England?

would throw the horses into confusion. Now they follow a different method. The men number off rapidly from 1 to 4. The even or odd numbers, according to the word of command, dismount and throw the reins to their comrades remaining on horseback and in the ranks. The officers following the skirmishers are immediately succeeded by others, and the squadron continues its movements just as if all were mounted. The success of this training has been recently exhibited at the camp of Châlons.

11. As before stated, all the improvements in the French cavalry now in progress, must be traced to the experience of the Italian War. The resolution was promptly taken and vigorously put in action. Napoleon III. and his illustrious generals did not conclude that the introduction of the rifle and rifled cannon was a death-blow to cavalry. They came to the deliberate conclusion that, in future, cavalry would be more necessary than ever; that nothing was to be neglected in its improvement to render it fitter for the service which it is expected to perform, either by giving it better horses or by developing the individual instruction of the soldier. Marshal Randon, the war minister, gave directions to that effect, and a committee, composed of the best-qualified officers of the empire, elaborated the various measures which they thought calculated to attain the desired result. From their most important and out-spoken report I shall give the details of the improvements now in progress of application. It will be quite evident, that, whatever may be the deficiencies of our cavalry, it is impossible that they can surpass those of the French when they began the work of improvement. Therefore, if we have much to do, this fact will alleviate the toil of the advance towards a rival perfection.*

"After the conquest of Silesia, Frederick II. directed all his attention to forming his cavalry. He adopted the formation in two ranks, gave it better instruction, its action was more resolute and decisive, and it was confided to the experience and high intelligence of such commanders as Zeithen and Seydlitz. Its brilliant exploits enhanced to a high degree the importance of cavalry.

"Since that period this arm has not undergone any radical reform in its organization; nevertheless, it has passed through different phases. Its importance varied according to circumstances, and its more or less frequent employment. During certain periods it has been raised in estimation far above the infantry; in others, it has received much less consideration. These two opinions, somewhat hastily advanced, were to be regretted. Each arm proves its value—its merits—when we know how to make a proper use of it. Still, it is admitted that an army should have a powerful and mobile cavalry, so that nothing can resist it when it is well organised and led with the tact of experience.

1. *Modifications required in the Cavalry.*—The improvement in the accuracy and range of rifled arms of the infantry and artillery has given them considerable power, doubling their moral effect, and tending to lessen the impetuous action of the cavalry. It is important, therefore, to follow the same progress, and try to restore its elements of attack and defence by a more rational instruction.

* The Report begins with an interesting historical summary of the cavalry in all times, "from the beginning," which, however, I have omitted, as being beside my present purpose.

"For a long time the radical defect of the cavalry has been its deficient mobility; even at the present day it is not sufficiently exercised to foster a powerful military morale, that impulsive dash which performs hazardous exploits. The cavalry is lost in inactivity; its horses are well groomed, fat, but easily winded and blown, and consequently more liable to disease than they would be if they were constantly and in all weathers kept in wholesome activity.

"To preserve the true function of the cavalry, its mobility and action, we must give it, by incessant and varied exercise, that impetuosity and daring which tend at the present time to disappear through the apprehension of wearing out and fatiguing the horses. To distinguish those regiments which have annually lost the fewest horses is certainly favourable to their preservation, but it is pernicious to the maintenance of the cavalry in a state of vigour and mobility.

"Some of the officers are too old or used up. The majority have not that physical vigour nor that noble ardour which is such a precious example to the men. There exists among the superior officers a grievous state of indifference—*un laisser-aller fâcheux!* It is an epidemic which has propagated itself throughout all the degrees of the service, and which may lead to disorder, utter inability, and discouragement. The pride of the service grows weaker and disappears, and that self-esteem, which produces such great results when it is appropriately excited, is no longer susceptible of that precious enthusiasm which we are sure to find when we know how to appeal to the heart of those whom we command.

"2. *Ill-considered Instruction.*—Our cavalry, however intrepid and vigorous it may be, sins in the essential part—*riding*. It is not sufficient that a horseman can keep in the saddle; he should be completely master of his horse, so as to impress him with his will as easily at the full trot and gallop as at the walk; able to quiet and subdue those horses which are too ardent, and rouse and animate the sluggish. Cavalry must not be only a mass hurled like a bullet at a target—for we must not forget that cavalry charges degenerate into *mêlées*, into hand-to-hand encounters, in which the rider's skill in handling his horse and weapons gives all the advantage. But, to attain this skill, the horsemen must be frequently exercised in open country and on broken ground, then urged to the gallop, and left to themselves; so that, measuring the distances, they may thrust, sabre, and cut at the heads of the supposed enemy. A skilful horseman should be able to turn short, and suddenly halt his charger at the top of his speed, make it turn on its haunches, leap ditches, hedges, and over cross-poles. Two horsemen must also be habituated to run after each other, leaping over the obstacles of the ground, to cross rivers by swimming, and to fire at a target at all the paces, the walk, the trot, and the gallop.

"3. *Recruiting.*—To secure these results we must take care from the beginning to fill the ranks by a very rational method of recruiting. We must select men from the inhabitants of those districts where horses are bred,—men accustomed not to fear horses, used to their management, and the care of them,—men who take an interest in the well-being of the horse. Such are the recruits in whom we shall find the elements calculated to quicken our progress and give good results as cavalry soldiers. On the other hand, a recruit from a hilly country, from a country of vineyards, or

from a manufactory or trade, for a long time looks upon the horse between his legs as an enemy whom he fears,—does not fall in love with him, grooms him badly, and totally neglects those attentions which endear the kind master to his grateful horse.

"The horseman must be vigorous, robust, alert: his strength must be proportioned to that of the horse, and the weight of the arms which he has to use, his stature being about the average; for a tall man on a small horse is as ridiculous as a small man on a large horse. Besides, the former will never ride well, owing to his dangling feet, and will be easily dismounted.

"We must never receive in the cavalry deserters, vagabonds, nor convicts; nor give a horse to a man which would enable him to desert, if we know that his conduct gives no guarantee for his honesty; or to a man whose vicious habits lead us to suspect that he would defraud his horse of its provender.

"4. *Training of the Horses.*—The new horses are not trained with sufficient care; their instruction is not sufficiently progressive and individualised. There is very little coaxing, too much violence and abruptness, causing premature fatigue. The result is that the horse is scarcely under control, but on the contrary headstrong, sometimes skittish and restive: he is not in the rider's hand; it is difficult to master him. But it is absolutely necessary that the horses should be supple, obedient, and trained with all the skill and easy progression so desirable in the agents—the men themselves, whose duty it is to prepare, direct, and inspire them with confidence.

"5. *Instruction of Recruits.*—Having carefully recruited the cavalry, we must, by a methodical education, familiarise the recruit with the knowledge of the material which he is to use, and all the theoretical and practical military notions with which he must be acquainted. We must develop his intelligence by the explanation of the moral duties before acting mechanically on his body. We must win his confidence by frequent questions on what he is taught, devoting a part of his instruction to progressive gymnastic exercises, to render his body supple and yet give occupation to his intellect. We must excite in his heart those sentiments of self-esteem which we can rouse on the proper occasion to achieve great things, and which always facilitate the progress of instruction. We must entice him on by kind words during the lessons. Change in the method of instruction must be avoided; if we would obtain the best results we must constantly insist on the same principles. He must have much individual practice on broken ground, at all the rates of movement, to acquire solidity, to make him acquainted with the qualities of his horse and the means at his disposal.

"When the men are able to manage their horses, continue the instruction with the handling of their arms, first at the halt and then at all the rates of movement; teaching him all the different cuts of the sword, points and parry, according to the position of the opponent whom he would attack, and repeat the same movements at the trot and gallop with the sword and the lance, whilst leaping over obstacles.

"Complete these instructions by carbine and pistol practice, teaching the men how to place their horses so as to avoid accidents. This instruction will make the men and horses supple, and render the latter docile and nimble or less skittish during the sword and manual exercise, and less excitable under fire.

"Conclude with company charges, or charges *en fourrageurs*.* In these charges they will learn how to rally, to regulate the speed of their rates in column or fours, by gradually augmenting the rate, in order to put the horses in wind, without wasting their means of endurance and endangering their preservation.

"This part of the instruction demands special attention, for rapidity in the rate, and regularity in the movements, are the principles of all success over the enemy, and mobility gives the means of taking the initiative and anticipating the attack of our wings by the enemy.

"This individual instruction, calculated to render the horseman more active and mobile, is necessary to avoid, partially at least, the disastrous effects of the infantry fire and that of the artillery, whose arms have so long a range, and whose firing is so much improved.

"6. *Better horses*.—But to obtain this indispensable mobility the horse must be more select, better fed, to aid the dash of the rider.

"Those who have to purchase these horses must be most exacting in their requirements. The horses must combine all the qualities of conformation, strength of limbs, development of organs, and stamina to support the fatigues and increase of labour in the lengthened rates of movement. It is better to pay a higher price than to place in the ranks of the cavalry lymphatic horses, defective in conformation, without sufficient energy to give the chargers that daring which enables them to make those bold dashes which ensure success, and do honour to the service. As we wish to augment the power of the cavalry we must increase the food of the horse.†

* The charge *en fourrageurs* is given in extended order. The old regulation did not require it to be made in perfect order, but permitted each horseman almost to take what direction he pleased. This might be attended with serious consequences. A charge *en fourrageurs*, or extended charge, methodically conducted, that is to say, preserving a certain alignment and keeping up equal intervals between the chargers, would, at a distance, present the appearance of an unbroken line, covering with a few men an extent of ground relatively considerable, whilst giving great facility for leaping over or avoiding obstacles, and permitting the fullest development of individual action. In the ordinary boot to boot charges, a soldier in the second rank is almost paralysed by a bad front-rank man inclined to give in or turn to the right about. It is therefore probable that future charges will be given in single ranks, with plenty of elbow room on either side. Tactics have, from the earliest times, continually diminished the formation of troops. From 32 ranks, its number in antiquity, it has been successively reduced to 24, 16, 12, 10, 8, 6, 4, 3, and now to 2. Analogy would make us infer that we shall ultimately fight in a single rank. Certainly this will diminish the danger of long range, which requires us to lessen the depth of our formations. More freedom of action, and infinitely less squeezing in the ranks, are imperatively required by the soldier to comply effectively with the rifle's rules of firing. The charge will, of course, be made in two ranks; indeed perhaps three ranks would be better still, by increasing the material shock and moral effect, besides the resources of the third in filling up the front and second ranks, in the event of casualties during the advance.

The foot-chasseurs were the first French battalions formed in two ranks, in 1845, but recently this formation has been extended to the entire French infantry. It was only gradually adopted in our army, and a part of the army in Spain, during the Peninsular War, still retained three ranks, when the Duke of York, in 1810, abolished it completely. For the disadvantages and advantages of three ranks, see General Dufour's *Cours de Tactique*, p. 66, *et seq.* It is said that the Duke of York's object in adopting two ranks was merely to get a more extended front.

† It is certain that hunger has a different effect upon man than upon the lion and the tiger, whose courage it emboldens; but, on the other hand, we must not forget that the

"7. *The Harness*.—It is essential to look to the harness, in order to enable the horse to move with ease and display his strength, without risk to his safety. For this object we require a light saddle, so made as to be easily kept in order and repaired, and well adapted to the conformation and structure of the horse. This difficult problem has long occupied the attention of cavalry officers. Opinions are divided as to the necessity of padding the saddle-bow to attenuate the contact of the hard parts in the back of the horse. The shape of the saddle-bow also excites controversy. The Cavalry Committee, impressed with the importance of the question, commissioned General Gudin to study and compare the harness of all foreign nations, and contrive, with the aid of the different systems, a model to satisfy the required conditions, namely, lightness, solidity, admitting of being easily and cheaply repaired during a campaign, and, above all, comfortable to the rider, without inconveniencing the horse. In fact, if the man is ill at ease he cannot maintain his regular position; he leans to ease the fatigue; he does not connect himself with the movements of the horse; his daring and dash are diminished. The conditions of solidity in the saddle are indispensable, to enable him to guide and master his horse.

"The General's investigations, and his conscientious studies, have produced good results, and a sufficiently complete solution of this important question for the cavalry. It is probable that a harness so thoroughly adapted to the conformation of the horse will not produce those disastrous saddle wounds which we had to deplore during the Italian campaign.

sentiments which sustain the soldier in his painful march and struggle in the field, are totally wanting in the horse; the horse has no idea of glory; the work we get out of him is the entire result of our care for his welfare, and the condition in which we place him. "Military equitation is the union of the theoretical and practical knowledge of the horse applied to military exercises and labour. To become a good horseman, fit to instruct, we must be able to discuss all that concerns the conformation of the horse, his structure, and the work we can get out of him.

"Instead of being superficial, this study should be deep and accurate. We must be cognisant of the exterior and interior of the horse, his use, the best mode of ensuring his health and vigour, the various points that must be attended to in rearing and selecting him for service. This study must be pursued in three points of view: the knowledge of the animal, his preservation, and equitation properly so called.

"Although certain generalities should only be succinctly pointed out, there are important parts of the horse's anatomy the knowledge of which is indispensable. Its osteology—the framework of the basis—serves to show the action of the articulations which concur in locomotion and equilibrium. Its myology—science of the muscles—shows the cords that impress the movements and constitute the mass of the animal. The nature of the internal organs, such as the brain, the basis of its intelligence and sensibility; the lungs, of respiration; the heart, of the circulation; the stomach and the intestines, of digestion,—should all be known by every cavalry officer who cares for his horses, at all events to a certain extent, if not as deeply as by the veterinary surgeon. An officer may be called upon to certify the death of a horse; he must, therefore, be able to state the cause.

"In the matter of the horse's preservation, in health or disease, we must study the general causes that influence his temperament, the nursing he requires, the nature of the air, water, the effect of the seasons, the changes of temperature; the barracks, and their construction; the compartments, the keeping and cleanliness of the stables, and the means of preserving them in a wholesome condition; the different kinds of food considered in their effect on the organization of the horse; forage, the mode of collecting, preserving, preparing, and selecting it. In fine, a thorough knowledge of all the 'points' and defects which give or depreciate value in the horse."

Then the experience of the officers, with more attention to their duties, and conscientious self-respect, will aid these improvements, in order to avoid a great number of those mishaps which we must attribute to want of superintendence.

"8. *Function of the Cavalry since 1814.*—Certain officers, not of the cavalry, have considered its action as likely to be only accessory in the operations of future war. Indeed, all the success it has obtained in our modern wars in Africa have only been isolated encounters—a few razzias, whose only result was to, prove to the Arabs the mobility of our cavalry, and the good service we can obtain from brave, resolute, enterprising, and well-mounted horsemen.

"Since the first Empire there has been no cavalry action which can be cited as having produced any results of a nature to influence the duration of a campaign against disciplined troops. The function of the cavalry in the Crimea and in Italy was, so to speak, absolutely null, either on account of the nature of the ground, or mismanagement—*l'incertitude de la direction*. General D'Allonville had a smart affair with the Russians near Eupatoria, but without important results.

"It would have been better, during the Italian campaign, to unite the cavalry divisions of the army in the hands of a single, vigorous, resolute commander, thoroughly impressed with the duties he had to perform, and who would not have shrunk from the responsibility of his mission, instead of dispersing it amongst the different *corps d'armée*, where it was under the orders of officers who were strangers to its tactical handling. The cavalry would have won a lustre before which all the other arms would now incline with approbation.

"Having called to mind the services of the cavalry in ancient and modern times, when it has been opportunely and properly led into action, we have examined the improvements which must be introduced in the nature of the horses, recruiting, the instruction and harness of the cavalry, in order to raise it to the level of the progress made by the other branches of the service, and dispel the sort of disfavour under which it labours with regard to its employment and utility in armies.

"The principal object of an army being to give battle, the action must be planned according to the topographical distribution of the ground of operations. If the battle is in a plain, the most important part is played by the cavalry. If the latter is badly engaged, it is very rare that the army is not defeated. If, on the contrary, it is well led, and gains an advantage, the battle is probably won, and the success is rendered complete in all its results.

"When the army is weak in cavalry, it should occupy the heights, entrench itself, and wait for re-inforcements, as did Gustavus Adolphus in abandoning the plains of Poland and retiring into Prussia. But, whatever may be the theatre of war, the different kinds of cavalry are always necessary to strategical operations. In all cases, it is essentially important to confide its direction only to commanders of great experience, and especially to avoid parcelling it out, and placing it under the orders of infantry officers, who, in spite of their military education, do not habitually employ it usefully when the occasion presents itself, and know not how to spare it when its aid is unnecessary.

"We shall now endeavour to point out, by a new system of tactics, the means to be employed to avoid the disastrous effects of the improved fire-arms, and the different preparatory dispositions for attacking the enemy,—the cavalry charges, and their effect.

"9. *Raking Charges—Charges Rasantes.*—We believe that we must modify the means of attack, and plan them so as to lose as few men as possible, and with this object, instead of direct charges on the faces of a square or on a deployed line, we must, at full speed, execute raking charges, presenting the right hand to the enemy—the horsemen breaking individually at intervals of two yards from each other, at the top of their speed, for, should they slacken pace or stop, they would be soon decimated by the balls of the infantry. We must rake the enemy's line at very close quarters, and threaten the eyes of the foot soldier with the point of the sword or the lance, so as to make him come to the parry by raising his bayonet.

"Companies, squadrons, or whole regiments executing such charges, will inflict immense damage upon the infantry, without themselves sustaining notable losses, for, armed with his sword, the horseman can deliver point through a raking space of from 60 to 80 yards.

"From these data, we can calculate how many horsemen must be placed in file in order that the foot soldiers charged by them may be killed or disabled.

"Nevertheless, these raking charges must be executed only by horsemen completely masters of their horses, and skilful in wielding their sword.

"We must never forget that men must be required to do only what they can do well. They will always boldly undertake to do what they are sure they can do. If they are not sufficiently trained it is important not to expose them uselessly. We must spare them, reserve them for circumstances offering a chance of success, and give them the opportunity to win distinction which will enhance their dash, invigorate their hopes, and confirm their resolves.*

* Of all French conceptions, so wonderfully fruitful in resources, this last method of cavalry attack is decidedly the most brilliant, and it demands our most serious attention. Of course it presupposes the utmost training in man and horse. There can be no doubt, however, that it will be put in practice by the French cavalry, being precisely the sort of work suited to their fiery nature. It is impossible to underrate the moral effect on the infantry squares of such a mode of cavalry attack; the staunchest might well quail for a moment in such a dreadful onslaught. Yet, doubtless, we shall be conceitedly told that the standing ranks will "pour in a deadly volley," and easily settle the matter. With what aim? But even then they will have scarcely more than the chance of their preparatory loading. They may topple over a few of the first chargers; but, by the very proposition, whole squadrons and regiments will follow up the move in this hideous succession, and give no time to load again. And then the rapidity of this raking charge—the rush of the steam-engine or the whirlwind re-produced, strewing destruction on its path!

The only remedy is the utmost skill in the use of the bayonet, with the utmost practice in the appropriate parry for such an encounter, if we retain the old formation of squares, presenting the parallel front on which this mode of attack is founded.

But the most effectual mode of paralyzing this new system of cavalry-attack is the French formation of solid circles. For it will be very difficult, if not impossible, for a horseman to deliver effectual point, at the top of his speed, with one hand, whilst the other must direct his horse continually inwards round the circle. The most skilful circus-rider will find it difficult to keep his seat in such a manœuvre. Still, the French cavalry is assiduously practised in the "outwards about wheel," circles and curves in great variety, apparently for the raking charge against any formation whatever. If our usual square be retained, I apprehend that, against this contemplated raking charge, the threatened face should make a left half-face, thus bringing their bayonets in position, with the

"10. Charging by the Angles.—The method of charging by the angles is more advantageous and less murderous. It may happen that the cavalry is required to attempt a charge on a deployed line or a battalion in square at the commencement of an action, when the rifles are in full power, and proper slope, and that the face opposite to the direction of the charge should make a right half-face, so that the standing ranks may fire on the advancing cavalry. As this face is not immediately threatened, it will probably deal deliberate and effective shots on the "raking chargers," if it does not fire too soon. On the other hand, this mode of charging confirms still more the opinion in France, that small squares are better than battalion squares. A horse killed in the charge frequently does more damage than his rider, by tumbling on the extended face of the great squares, whereas he might miss the men in small ones, and fall on the flanks. Besides, the latter are more quickly formed. Of course the case is different in such battles as Napoleon's at Gizeh, and Dessaix's at Sediman—both models of formation against preponderating cavalry; but even herein the great squares were flanked by small squares, at the angles especially. The following is the French method of forming the solid circle in skirmishing-drill. "By sections—rally." At this command the leaders of sections run quickly to the centre-group of their sections, or to another group more inwards, whose position offers shelter, or an advantageous position; the skirmishers run together at full speed, without distinction of numbers in, on that group. The men composing the groups which are the bases of the movement, instantly form square and raise their rifle, the point of the bayonet over head; in order to indicate the rallying point. The other skirmishers, as they come in, place themselves at the angles left vacant between the four first, and successively round this first nucleus, so as rapidly to form a solid circle on the primitive square. The outer rank comes to the position "charge-bayonets" standing, the point of the bayonet more elevated, and full cock the rifle. When the movement is completed the two outer ranks load without stirring, and make the best defence they can.

"The officers and non-commissioned officers must see with the utmost attention that the rally is performed in silence, with the utmost promptitude, and without confusion, and the firing be properly directed so as to be efficacious."

The following woodcut shows the *solid circle*, the third concentric ring being in the course of formation.



If the shock of infantry charging is far more a moral impression than a physical pressure, how much more efficacious in that respect must be such a raking charge as intended! We know that in battle the eyes are the first to be conquered, *in omni praelio oculi primi vincuntur*, and we say that "the contest is merely a moral one;" and so we must render ourselves familiar with the "idea" beforehand, and be ready to bear its brunt in practice, and render it null and void, if we can, by a steady eye, firm foot, and unflinching resolution.

The formation of the solid circle is from the "Ecole de Tirailleurs," of which it has been truly said, that "nothing more simple, succinct, and to the purpose, can be desired than these 40 pages in 16mo. of which a good portion are 'observations.'" The great innovation is the grouping in fours, which forms the manœuvring unit, and the idea is carried through. It is this skirmishing brotherhood which forms the basis of the whole. They are taught to consider themselves as so many groups, and are left to their own discretion in rallying. The nearest group and the shortest way is the rule. These groups are, as it were, intermediate links between the single skirmishers and the whole body of skirmishers. Whoever saw or did skirmishing knows the value of this, especially in the rallying to resist cavalry or foragers. There is not much question of the right and left as immovable points; but right is right, and left is left, with regard to the direction in which the movement is to take place. The circle is extensively used as the simplest form of rallying the groups of four in larger ones. This idea is said to be American, but I believe it to be essentially French.

The squares are formed on the same principles as in the large evolutions, and these principles are the simplest. If in column of divisions of two companies the distances between them are reduced, the first and fourth remain in their places, half of the second faces right, the other half left, the centre sections of the third remain as reserves, while

the *morale* of the men is untried. The horseman, armed with his sword or his lance, falls upon the foot-soldier armed with his rifle. If the latter were isolated, his movements would be free—he might turn and deliver his bullet into the breast of the horseman; but, instead of being isolated, the foot-soldiers are packed together in a line, or framed, as it were. Whatever the number of the horsemen, there are always four or six foot-soldiers to one horseman, according to the depth of the ranks, and the latter will be exposed to four or six bullets instead of one, which he can avoid, at the angles, by the velocity of his raking charge.

“11. *Posting of the Cavalry-reserves in Battle*.—It is only by a well-considered individual training that we can secure a vigorous and dashing cavalry. In battle we must avoid keeping it in masses too near the infantry. The deep ranks of a close column have, it is true, the advantage of uniting the troops and reserves, and enables us to dissimulate their number; but such a disposition in the presence of the fire-arms now in use could cause immense misfortunes, and damage the *morale* of the cavalry by losses which it would be difficult to repair. To conciliate the matter, it is therefore important to form several columns at deployment intervals.

“We do not manœuvre much in war. The simplest movements are the best. Skill consists in seizing the opportunity by the forelock. We must attack the enemy on his weak side, take advantage of the least fault he makes, and fall upon him when he is deploying.

“It is essential to study the enemy's situation, shake his *morale* by the effect of our artillery, especially when he is in position or covered by obstacles. We must endeavour to surprise him by the rapidity of our attacks. In the front of the squadrons we must always be preceded by scouts on the right and the left, at the distance of 50 or 60 paces, to reconnoitre the ground of operations.

“Cavalry charges must be prepared beforehand in order to succeed. It is therefore the general's duty to get exactly acquainted with the nature of the ground. A mere nothing suffices to ensure their failure; an inequality of the ground, a bad direction, the incapacity of the leader, the exhaustion of the horses, the tumult, the effects of artillery, the discouragement resulting from a succession of failures, &c.

“Charges may be made in line, in column, in echelon, and in extended order (*en fourrageurs*).

the flank sections face right and left. If the front is only one company, an oblong square is formed by the first and last company remaining in their places, and the rest, with the exception of the seventh, forming the reserve, facing right and left. The most remarkable and important part, then, of the new infantry instructions is the part relating to skirmishing, which would be worth a translation and study if only on the part of the Volunteers, although many hints might be likewise derived for the primary instruction from the “*Ecole du Soldat*.” It is less stiff and more adapted for Volunteers, who surely would not like to be considered as machines. Perhaps our formation of square is scarcely quick enough in the present eventualities. When in danger of cavalry a company could form effective square to the simple words, “Fours-deep—cavalry—ready,” and save precious time. A company marching in fours is already in position to form square. More backs would thus be felt, and there is nothing like feeling a back when on the defensive. The square-formations are amongst the most important “developments” of the new French battalion-drill: there is one particularly worthy of study, “Column against Cavalry.” See “*Ecole de Bataillon*,” p. 205. The last company but one always acts as “reserves” to the squares. It is said that four successive and well-directed discharges, from four ranks, will stop the best cavalry.

The chief object is to fall suddenly and obliquely on the flanks of the enemy, masking the movement with a curtain of light troops in a single rank. These sham attacks, especially if veiled by a cloud of dust, threaten the battalions against which they are directed. It may happen that infantry, without experience and untrained, gets disconcerted by these movements, fires at random on this curtain, whose thin line nullifies the effect of most of the shots, hurriedly reloads, does so in disorder and with agitation, thus presenting a splendid chance of a murderous charge, especially if charged by heavy cavalry.

"11. *Speed of the Cavalry charging Artillery and Infantry.*—Numerous exercises have shown by favourable trials that we can estimate the advance of cavalry according to the following data. Fixing the precise point where we may begin to charge at 550 metres (about 600 yards), a light-horseman advancing against a battery, first walking, then successively at the trot, the gallop, and the charge, will be in 2 minutes and 24 seconds, arranging his rates as follows:—95 seconds walking, 28 at the trot, 13 at the gallop, and 8 at the charge. He will have done the distance at the rate of about 4 yards per second, and during the same time (2 minutes and 24 seconds) the battery might fire 13 shots of 6-pounders.* The same horseman doing the distance without the transitions will only take 113 seconds, which gives 5 yards 15 inches per second.

"If we apply the same researches to the charge against infantry, we find that the horseman, commencing it at 370 metres (about 400 yards), does the distance in 50 seconds, receiving three shots, and with the speed of nearly 8 yards per second.

"It is important to remember that the sword-point exerts its effect at the distance of 25 inches, whilst the bayonet does not project in front of the soldier more than 20 inches when in position against cavalry charging.

"It is a pity that cavalry officers remain indifferent to the study of these important questions, and it is desirable that experiments should be tried at the camps of Châlons, Versailles, and Lunéville, in order to transform into precepts the data of experience.

"12. *Charges against Infantry and Cavalry.*—Charges against infantry and cavalry have the same object, namely, to rake, to penetrate the troops against which they are directed. It is essential to seize the opportune moment—a deployment, a retreat, a crossing of a defile, an obstacle forcing a reduction of the front, and to act with such cohesion as will break through all resistance.

"13. *Charges against Artillery.*—The case is different with artillery. These charges are performed by the individual movement of a line of horsemen dispersed in extended order—*en fourrageurs*—presenting to the enemy only scattered men, but all making for the battery to take it in the front, on the flanks, in the rear—at the same time—with the utmost dash and impetuosity. They strive to turn the positions, to attack the supports by their weak side, to harass their retreat, shake the morale of the drivers, cut the traces, spike the guns if they cannot be carried off, using a small hatchet-hammer—in fine, employing all means to silence and shut up that battery completely.

* The French rate their howitzers, &c. according to the diameter of the ball—but the measure may be taken as the weight in *lbs. Eng.*

"This mode of attack will prevent the great loss usual on such occasions, by avoiding that agglomeration which presents a good target for accurate practice,—for, let us suppose that a column of twelve men in the front and fifty deep is hurled against a 12-pounder, served by twenty gunners. Before it is reached, these gunners will have delivered sufficient balls and grape to upset a portion of their adversaries, whereas, twenty-five horsemen in skirmishing order, at intervals of 25 or 30 yards, will certainly get up to the gunners without having suffered much in the rapid advance."

These few remarks on artillery seem to be less than the subject demands: I will therefore submit the following observations to supply the deficiency of the Report in this important matter, suggested chiefly by General Bonneau du Martray, Chef d'Escadron, &c.

Field artillery has hitherto been a costly, heavy, embarrassing arm, difficult to restore when once destroyed; and, moreover, it has as often hampered the troops with which it operated as it has been useful to them, for, on its account, it has been necessary to follow directions, to select ground, and to march at rates unfavourable to the troops. Whatever may be the vigour of the horses, as soon as the carriages meet with marshy ground and hollows, slippery slopes or roads covered with snow, it advances only at a slow rate, and with immense difficulty. A check to the advance is almost as bad as a defeat on the *morale* and *physique* of an army.

Very often the other arms, instead of receiving support from the artillery, have been obliged to sacrifice themselves to save it; and, for a false point of honour, they have paid with the lives of a great many brave men, for the preservation of a few pieces of bronze, which, however, they have been forced to abandon a little further off—a sterile trophy indeed, but still sufficient to puff up the pride of the enemy.

Now, if the only object in view is to place men *hors de combat*, cannon is decidedly inferior to the rifle. To appreciate the effect of an arm, we must consider not only the accuracy of its fire, but also the time required to load it, as also the number of soldiers, and all the accessories of its service. Thus, a light 12-pounder, which requires in the field, for itself and its caissons, about thirty men and thirty horses, scarcely fires, amidst the complications of battle, one shot per minute, and at 650 yards hits an object of middling size only once in four discharges with ball, or with five bullets out of forty of grape. Consequently, taking as unity the damage done to the enemy by one discharge of grape, and admitting that the ball produces four times as much damage as the grape, we arrive at the conclusion that the effect of the piece in question is represented by one for the discharge of ball, and five for the discharge of grape, in a minute. Now, during the same time, thirty foot-soldiers would fire at least sixty bullets, of which one-fourth, or fifteen, would hit the object in question. It follows, therefore, that the useful effect of the rifle would be represented by fifteen, that is, it would be treble that of the grape and fifteen times greater than that of the ball. Moreover, all other circumstances being equal, we should economise thirty horses and four carriages.

The conclusion is, that cannon must be used only to break down or knock over obstacles—to fire especially at great distances—to act as reserves, and then to act in powerful batteries, to fill up an accidental void

in the order of battle—or to fulminate an enemy victoriously advancing ~~after~~ having crushed or overwhelmed the other troops.*

Artillery, moreover, must be placed in very favourable circumstances, out of which its efficacy is considerably diminished, or is totally nullified; for instance, when it cannot, without a considerable roundabout turn, reach the points whence it can discover the enemy—when the latter is posted too high or too low with reference to the horizon of the guns—when the ground permits too much recoil—when the horses and gunners are killed. On the other hand, the soldier with his rifle goes every where—scales the heights—crosses ravines and rivers—glides into the midst of bushes and copses—avails himself of trees and rocks by way of shelter or support to take better aim—can give to his line of sight all the inclinations from the zenith to the nadir—in fine, can profit by every thing that would absolutely be detrimental to cannon.

Again, skirmishers easily annoy artillery. In the last continental wars, the range of the musket being very short, the infantry could not struggle against artillery when the latter attacked it at five or six hundred yards. It will not be thus at the present day. Suppose six pieces endeavouring to place themselves in position: they will occupy a pretty wide extent of ground, and will present in this extent six considerable groups of men and horses, on which it will be easy, with middling skill, to rain bullets. Fifty skirmishers at sufficient intervals, so as to present but a very small target to the battery, would sling, in five minutes, 500 bullets, one hundred at least of which would hit those large targets of men and horses and tumbrils to their utter disorganization and confusion. A striking experiment of the sort was tried at Hythe on the representation of a battery coming into action. Thirty men were arranged in skirmishing order, and fired at a group representing a field-piece coming into action—stuffed figures of horses and men of the ordinary size. The firing was stopped at two minutes, when it was found that each man had fired two rounds. There were six horses and eleven men, including the three mounted drivers, and the six horses had twenty-two bullets in them, and seven of the men were struck. The trial was repeated at 815 yards; five out of the six horses had sixteen hits, and six out of the eleven men had eight balls. At this second trial the time was extended to three minutes, when it was found that the front rank had fired three rounds, and the rear rank two.† The length of the time indicates that deliberate firing which we shall expect from our skirmishers. Colonel Jacob says:—"Judging from our practice, it seems certain that two good riflemen so armed [with his rifle, I presume,] could in ten minutes annihilate the best field battery of artillery now existing." And the feat was accomplished at the battle of the Alma by the French, where several Russian batteries had to be removed, the gunners and horses being quickly killed, so that it was neces-

* It is seldom that the ground presents a sufficiently even surface to permit cannon to fire further than the rifle when firing effectively at 750 yards; at this distance slopes and obstacles often conceal from sight not only single men, but entire bodies of troops; or, we are unable to get that inclination of the axis of the piece which is so essential to ensure good results.

† Col. Wilford's Lectures, p. 7.

sary to fetch other horses to draw off the guns. In one hour and a half the French skirmishers utterly smashed the Russian gunners. "They came upon us like serpents, and killed our men without our being able to see them," said the Russians. The Turks did the same with the Russian artillery on the Danube with the Minié rifle at 1,000 and 1,200 paces.*

If the distance diminishes and the affair is prolonged, the chance increases more and more in favour of the skirmishers, who will repair their losses from their reserve, whilst the intensity of the fire of the guns will sensibly decrease just in proportion as their men are knocked off. It may be objected that the enemy will disperse his foot soldiers between his pieces, to fight the skirmishers; but then this will only increase or double the disadvantage, by presenting thicker groups to be fired at, whilst he has before him only isolated men, defiling into the smallest depression of the ground or behind the smallest obstacle; and, moreover, raising before his skirmishers the thick smoke of his cannonade, which will prevent them from aiming effectually.

The proportion of field artillery must be less than heretofore. The best conducted campaigns of our century and the last were carried on with few guns relatively to the strength of the armies; but in 1809, in proportion as good troops had disappeared, mowed down in battle, it was tried to supply their place with artillery, which increased in considerable proportions, and in 1813 its importance still more increased when the cavalry and infantry had only conscripts in their ranks. During the first years of the conquest of Africa, the expeditionary columns dragged field-pieces after them. The result was a slowness or retardation of the march most prejudicial to the peculiar strategy required in dealing with the Arabs. At the camp of Tafna, where a French division was blockaded by Abd-el-Kader, the French durst not send out a fatigue party to the woods or to forage without the escort being accompanied by cannon. Marshal Bugeaud, then brigade-general, was ordered to leave France to put an end to this frightful state of affairs. At his arrival, in spite of the representations of several superior officers, who maintained the old theory of the moral support given to the troops by artillery, he shipped off the artillery which was in the camp so as not to fetter his ulterior movements: then advancing with confidence against the Emir, at the head of the infantry, but lately full of alarm and discouragement, he won a complete victory at Sickak. Some years after, having become governor-general of Algeria, he used in his expeditions only mere mountain howitzers, and those in insignificant numbers.

What Marshal Bugeaud did in the African war we must henceforth do in all wars, and reduce the proportion of field-artillery hitherto admitted in our armies, because its relative efficiency is diminished, and because the liberty of moving easily on ground the most broken and bereft of communications, will always be an advantage to be preferred to all others. Doubtless this species of artillery is, like the rifle, susceptible of immense improvements; breech-loading, rifling, elongation of the projectile, diminution of weight, fewer men and horses, are improvements on the point of

* Baron Rostaing proposes to give the artillerymen *chevaux de frise*, consisting of six bayonet-blades, and quite portable, so that they may be able to return the fire of the skirmishers at an advantage, after spreading out before them their *chevaux de frise*. See his "Nouveau Système Militaire," where he describes his invention.

passing into the domain of practice, and, consequently, they uphold the preceding proposition, since with fewer guns we shall obtain better results.

A single gun, at the most, to one thousand men, infantry and cavalry, will suffice in future;—such is the deeply meditated opinion of General Bonneau du Martray.*

"14. *Heavy Cavalry.*—We must now examine the function of the heavy cavalry, that of the light cavalry, and their respective employment, according to the nature of the country in which we are operating.

"Heavy cavalry, which comprises the Cuirassiers and the Dragoons, must act in battle to break down resistance by the force of its shock; its place, therefore, cannot be supplied by light cavalry, whose mass is less considerable. Thus, at the Battle of Ansterlitz, the light squadrons of General Margaron were checked by the Austro-Russian squadrons, whilst Boursier's Dragoons repulsed the latter, and presented an impenetrable wall to the enemy's attempts. At the same battle a similar fact occurred in the grand charge against Lichtenstein's squadrons in the centre; the Chasseurs of the Guard—that intrepid troop of veterans—tried to stop the advance of Prince Repiren; they were routed and thrown into confusion, but only to be very soon avenged by the Horse Grenadiers, who gallantly extricated them by their weight and intrepidity.

"15. *The renown of the Heavy Cavalry under the Empire.*—The reputation of the heavy cavalry was as well established amongst strangers as in the French army. Bismarck declares that the soldiers of the Empire, when they would honour valour, used to say, 'Brave as our Cuirassiers.'

"Wellington himself declared at the Congress of Verona that he had never seen anything more admirable in war than the ten or twelve reiterated charges of the French Cuirassiers against troops of all arms. Later, after having had to support the efforts attempted with so much intrepidity and perseverance at Waterloo, he declared that no cavalry could surpass it. In 1808, at the siege of Saragossa, General Palafox issued a decree, awarding death to every Spanish soldier who should, in the sorties, cry out, 'Here are the French Cuirassiers.'

"16. *False ideas expressed on the transformation of the Cuirassiers.*—The Dragoons had equally won an imperishable renown in Spain.

"The valour of the heavy cavalry does not weaken in any degree that of the light cavalry, whose employment is equally brilliant, equally glorious in war. Each has its merits; it would, therefore, be unjust to cry up one at the cost of the other. It is important to refute the ideas put forth by certain innovators after the Italian campaign, without any foundation, since the cavalry was not permitted, by action, to challenge a judgment on its services. The transformation of the Cuirassiers into Chasseurs, somewhat lightly conceived, would be very imprudent as a moral effect and as a material effect on the constitution of the army. Instead of permitting these suspicions of contemplated reduction or transformation to float about, to the disquiet of the officers, let us preserve what we have, and, like our neighbours, who respect more seriously the

* *Nouvelle Méthode de Guerre*, p. 10. A very curious pamphlet. It was printed for private circulation, only three or four copies being on sale at an exorbitant price. I may have an opportunity of giving the General's views of the order of battle he proposes to meet the requirements of the rifle and rifled cannon.

well-calculated elements of their armies, let us occupy ourselves in the pursuit of improvements to be introduced.

"17. *Function of the Light Cavalry.*—The light cavalry has been called 'the illuminating torch and the protecting shield.' Its place is everywhere—at the outposts, in the main guard,* in patrols, skirmishes, reconnaissances, surprises, flank movements, diversions; as an advance guard, and as a rear guard, where it is supported by the heavy cavalry; in engagements of cavalry, where, in its turn, it acts as a support and reserve to heavy cavalry, whose victory it completes, by pursuing the routed enemy, or whose retreat it protects, by attacking and surrounding on all sides the victorious squadrons.

"In battles in an open country the services of light cavalry united to infantry are equally important. If the divisions of the cavalry reserves do not stir before the moment fixed by the general-in-chief, on the other hand the leaders of divisional cavalry must be allowed the greatest independence. Their action is intimately connected with surprises and *coups de main*, when the lucky moment vanishes like lightning.

"To protect the skirmishers of the line and disperse those of the enemy; to keep an eye on the batteries of the division and seize every favourable opportunity to make a dash on those of the enemy; to support the flanks of attacking infantry on the offensive, and on the defensive to be ready to sacrifice itself, if necessary, by rushing on the enemy's infantry to check its advance, if but for a moment; such is the noble and hazardous function reserved for the light cavalry, as performed by Desvaux's division at Solferino.

"This function of the Hussars and Light Dragoons will be enhanced by the mobility of infantry and the increased range of the rifle and rifled cannon. They are often flung out to great distances and in small detachments. They keep their eyes on the movements of the enemy; nimble, active, audacious, they penetrate everywhere. They should be endowed with the instinct and intelligence of the trail-hunter, the craft of the poacher, the intrepidity of the filibuster. Without a tolerable and sufficient light cavalry generals must march like blind men, and armies will be compromised. For such a service we must select special horses—active, full of nerve, light and impetuous—to suit their riders; † but there is no necessity for breeding them for that purpose, as required by Captain Nolan.

"To have this mobility, the light cavalry must be mounted on fiery, active, perfectly manageable horses, full of nerve and broken into all manner of service, and endowed with such vigour of constitution as to be able to resist all changes of weather and endure privations and fatigue. Perhaps it would be dangerous to employ the Cuirassiers and even the Dragoon horses in this service, which would soon exhaust them. Each arm has its value according to its employment. Indeed, with equal morale, a regiment of Cuirassiers or Dragoons will always crush a regiment of

* The outposts are divided into *postes avancés* and *grand' gardes*, the former being further out, the *grand' gardes* being their rallying point and centre. The outposts are supplied by the *grand' gardes*, which I translate by *main guard*. In the great continental armies these matters are of the utmost importance, as they should be indeed in every army in the field.

† As this section has been borrowed from General Renard, I have translated the passage from his book, *ubi supra*, p. 113, *et seq.*

Chasseurs or Hussars; but, on the other hand, the function of the heavy cavalry could not give decisive results without the aid of the light troops. It is therefore necessary, in good tactics, to marry these two arms, and combine the strength and weight of one with the impetuosity and lightness of the other.*

18. "*Necessary qualifications of a Cavalry Commander*—To command and handle cavalry exacts long study and experience; but to manage it so as always to have it in condition to act, is the object which few officers can attain. It is a rare thing to find combined the qualities of cool determination, *sang froid*, with impetuosity, in the same individual. According to circumstances, we may carry too far the tendency to abuse the mobility of cavalry, and compromise it by ill-planned marches, or by inopportune charges.

"At the battle of Leipsic, Murat's cavalry, exhausted by superhuman efforts, had halted panting before the marshy ground of Gullen-Costen; it was without infantry, and had not a single squadron of reserve to oppose to the attacks which threatened its flanks. The exhausted squadrons were attacked by the Austrian Cuirassiers, charged on the left by the Cossacks and the Hussars of the Russian Imperial Guard. Murat was forced, after considerable loss, to retreat upon the lines of the infantry. At Waterloo, the English infantry, after having resisted the charges of the French Cuirassiers, was disengaged, and, supported by fresh squadrons held in reserve, hurled opportunely into the intervals of the first line. These two examples, at different points of view, prove that we must not abuse the rates of motion, and that it is imprudent to exhaust the strength of the horse before the decisive moment; for a troop, preserving a regular, moderate rate of motion, falls upon the enemy with union and impetuosity, and at the last moment will be able, by its strength and cohesion, to overturn and complete its destruction.

"The regular and long-continued trot and the impetuous gallop are the

* We give the straight sword to the heavy cavalry because it is best adapted to give point forward in charges in line; the light cavalry, having to fight for the most part in extended order, is best armed with the curved sword, with which they can more easily cut right and left, and whose handling for the parry is easier and more decided. To give point, however, should be the object of the cavalry; cuts are rarely decisive. With regard to the lance, only the best trained horsemen can use it to advantage, if at all. It requires great skill and vigour in the horseman and great suppleness in the horse. In our western regions, only the Polish and Cossack horses have the requisite qualities; the consequence is that good regiments of lancers are rare even in armies of the most lengthened service.* Still this arm has often been of most important service; hence Montecuculi called it "the queen of armies," *la lancia è la regina delle armi*; and Marshal Saxe assigns the lancers the first rank. Certainly the lance will reach the foot-soldier who can brave the sword in security. In 1813, at the battle of Dresden, a division of Austrian infantry resisted for a long time the repeated charges of the French cuirassiers with their bayonets alone, for the rain had damaged their cartridges and they could not fire. General La Tour-Maubourg placed at the head of the last charge the 50 lancers of his escort; they made a breach through which the cuirassiers entered, and cut the infantry to pieces. In 1811 Napoleon had ordered a regiment of lancers to be attached to each division of cuirassiers, apparently in contemplation of similar occasions. Dragoons were first created in Italy by Marshal De Brissac: he had armed them with the infantry musket to fight on foot, the horse being only a means of rapid transport from one point to another.

* General Dufour, *ubi supra*.

rates of the cavalry in troops; the very rapid trot and short gallop are the rates of isolated cavalry. *

"19. *The Influence of the new Arms on Tactics.*—The improvement in firing, and the range of the new arms, will have great influence on tactics.

"The lines of reserves must keep at greater distances; the deployments of columns must be done with greater prudence; column marching must be at wheeling distance, as a rule; skirmishing will assume more serious developments; all diversions and turning movements will require a greater radius.

"The bivouacs must be covered by outposts of cavalry as a protection against batteries that might shell them, for, the greater the distance between opposing armies, the more cavalry and light artillery will be

* Elsewhere in the "*Miscellanées Militaires*" I find other very pertinent observations:—

"The chief staff-officer of a *corps d'armée* who does not know how to calculate his marches, and who is imprudent enough to move off, at the same hour and by the same route, united masses of troops, ruins and quickly destroys his cavalry. The result is the same when a cavalry division is obliged to regulate its march, in a broken and difficult country, at the same hours of departure as the infantry; it is soon reduced to nothing by its injured horses, diminishing its fighting effective.

"Experience has proved that a well-led cavalry may still lose a quarter of its effective for action; but this loss amounts to a third if it be led with only middling capacity, and it may rise to the half, or even more, if the leader is incompetent.

"Officers capable of leading adequately this arm, so complicated in all its bearings, are rare. They should unite to a variety of knowledge a special and profound study of its elements and wants, in order to keep it in condition.

"With all this knowledge, the leader of cavalry must possess a prompt *coup-d'œil* to seize the opportune moment of a probable success, and a ready judgment to weigh the favourable chances of a movement or a determination, and foresee the obstacles of the ground that may impede his design and frustrate his action, if not cautiously avoided.

"But even these qualities are not sufficient for success; he must be full of daring, and yet deliberate, or these characteristics must be so blended as to be, on occasion, equally within his control. In certain circumstances the commander's audacity wins the day; but, on the other hand, when in excess, it may entail disaster. If, however, he is too prudent, too deliberate, he is condemned to negative results in a campaign.

"Without the action of a good cavalry, in good condition, there are no results in war. A campaign proceeding without prisoners, without the capture of standards, cannon and equipage, is a state of hesitation injurious to the *morale* of our own army, and favourable to that of the enemy.

"Some officers suppose that the improvements of artillery and other rifled arms will render the action of cavalry more uncertain. These notions have been propagated in the army since the Italian campaign, in which the cavalry attached to the divisions in each *corps d'armée* was not led to play its true part in war. The fact is that the infantry was used, very brave and active as it was, too extensively in reconnoitring—an excess of such action, which, had the war continued, might perhaps have been disastrous; but its operations in this respect were necessarily too confined: had the cavalry been used to extend its reconnaissances to a distance, our army would have been better apprised of the movements of the enemy.

"It is also supposed that the greater range and accuracy of fire-arms renders the action of cavalry powerless. This notion may be well-founded if the cavalry is led by officers ignorant of its uses, or who are imprudent enough to charge a battalion in square, solid and in a good position. But if, instead of beginning with a charge, we first try the metal of this infantry by discharges of musketry or grape, to weaken its *morale*, and put a little confusion in its ranks, and after that trial charge vigorously and repeatedly, the uncertainty of the enemy's fire caused by their hesitation, and the surprise of the charge, will insure the success of cavalry; but to attack brave troops, untried, and within easy range, with cavalry, is a deplorable blunder, to be severely blamed, not only on account of its failure, but also its bad effect on the remainder of the campaign."

1 to support or reinforce promptly the threatened points, and to 4 the efforts and attempts of the enemy.

20. *The Organization of modern Armies.*—For some time hitherto modern armies have been formed into *corps d'armée*, composed of several divisions, and a troop of cavalry, whose strength has not been precisely defined. Certain bases, calculated in accordance with the nature of the ground and the proposed intention of attack or defence, will not perhaps be useless to fix the proportions of cavalry, and the rules to follow.

"We must not too easily yield to the desire of the commandants of *corps d'armée* by according them more squadrons than the nature of the ground and the necessities of the war or the service require. Thus, in an open country, where the action of the cavalry may be useful to gain intelligence, to reconnoitre, to hold in check, or act on the offensive, one division of cavalry, composed of three regiments, cuirassiers or dragoons, and one regiment of light troops for the service of the staffs, will be sufficient. In a broken, woody country, the number of squadrons of heavy cavalry would be less than that of the light troops, which might furnish one regiment for the interior posts and escort-detachments, and another for exterior service, to act as scouts, and in diversion to gather intelligence for the army. In order not to fatigue them, these bodies might be relieved at fixed periods according to the orders of the commander-in-chief of the cavalry, who would reserve all power in the interest of the arm, acting, however, in concert and previous understanding with the major-general of the army.

"21. *Cavalry-reserve.*—The army being thus organised, it must have a reserve sufficiently respectable to reinforce the divisional squadrons, and protect the outposts of important detachments, without drawing them from the other corps, to be able to attack instantly the exposed points of the enemy. It is better to reinforce the weak points by squadrons from the reserve, than to form a reserve with squadrons taken from all the divisions. It is therefore of absolute importance to have a strongly constituted cavalry reserve, which may be flung out, at the opportune moment, to decide the great event of the day. However, the tactical management and handling of these masses can only be acquired by practice; the leaders must be used to it; they will play their part badly if they assume it unprepared.*

* In war the three arms must lend each other mutual assistance, but the cavalry and horse artillery are especially two "fraternal" arms, two inseparable companions. With reciprocal reliance in their training and valour, they will never fear to attempt these bold strokes that sometimes decide the success of a battle. They will perform together those rapid marches, bold and unexpected deployments, during which the artillery—skillfully unmasked—scatters disorder and confusion in the enemy's columns with its showers of grape, to be turned into complete rout by a sudden charge of the cavalry. But to this end there must be between all the arms the most perfect and mutual reliance and esteem, the true bond of which is the perfect knowledge by all of the principal elements of tactics, and the mode of action peculiar to each respectively.

It is certain that in future warfare the means of destruction, in defence, will attain such a development that it will be impossible to meet the difficulty according to the rules and principles of military art in its present state. Battle tactics, the organization of armies, the proportion between the three arms, in fact everything relating to the art of war, will undergo important modifications.

One salient result of modern tactics emphatically suggests the difficulty of the situation: the field of battle will be immensely more extended at its commencement; the troops posted by their officers according to the new system, will be for the most part lost sight of by the general-in-chief. Hence the increased labour, solicitude, and anxiety of colonels of

"22. *On the offensive return of Cavalry.*—The infantry and the cavalry owe a mutual co-operation to each other. An offensive return of the cavalry in a retreat may change the aspect of affairs completely. What happened at Maddeline is a proof of what the cavalry can do when led with prudence and hardihood. Marshal Victor was retreating before the Spaniards, covered by his squadrons. The enemy's general having committed the fault of pursuing him too near with his infantry, in the hope of driving him on the Guadiana, General Latour-Maubourg suddenly fronted and rushed like a thunderbolt on the Spaniards, who were not more distant than the range of a pistol. He dashed at their front with three regiments of dragoons, whilst Generals Lassale and Bordesoule hurled on the flanks of the enemy the 10th and 3rd Chasseurs. In less than five minutes the Spanish army presented only a confused mass, flying in all directions towards San Benito and Villa Neuva; 6,000 prisoners and 40 guns were the trophies of that affair. The Spaniards had cavalry, but it was not engaged; that arm, badly organised and loosely handled, behaved at Maddeline as it did at Ocana.

"Kellermann, at the battle of Alba-de-Tormès, at the head of six regiments of dragoons, surprised General Del Parque, who was retreating precipitately; he threw Del Parque's cavalry upon his infantry and routed him completely. The Spaniards lost 4,000 prisoners and 20 guns.

"Successful returns on the offensive raise the *morale* of the army and often spread discouragement amongst the enemy. It is therefore important that the infantry, that arm of strength and resistance, should be supported in its offensive movements and sustained in its retreat. The campaign of 1814 shows us what a solid and daring cavalry can do.

"The pursuit of General Olsourvief, made prisoner, with his staff, by Generals Girard and Doumerck, was an affair which left in our hands 800 prisoners and 30 guns. Nansouty and Letort, at Château Thierry, rushed on the Prussian and Russian battalions, pierced them, and brought back numerous prisoners and guns.

"The superiority of the French cavalry under the Empire resulted from the happy use of masses. The cavalry of the Allies was inferior to it, especially by reason of the system of dispersion imposed upon it and the neglect of the lessons of Frederick II.

"On the first of January, 1814, the French army numbered 71,012 men, 48,682 infantry, 15,478 cavalry, 6,852 artillery. The cavalry was therefore the fourth of the effective of the infantry, and we owe the prodigious spoil won at that epoch to its strength and very superior quality."

battalions and captains of companies in the employment of their troops, and following out the scheme of the battle as preconcerted. The generals of armies will scarcely have more to do than superintend the general dispositions of the plan, and take means to obviate accidents. After having laid down his plan of battle, the general-in-chief will become a simple spectator and observer; all he can do is to be ready to interpose at the proper time, and in the proper place. It can scarcely be expected from him, at the present day, to take advantage of any faults committed by his antagonist, as of old. The chief work will be done, if done at all, by his subordinates of all degrees, who will now be required to be masters of their art, full of depth and penetration, and, above all, endowed with the faculty of being always able to appreciate the march of events on a field of battle.

THE immediate result of this Report and its consequent deliberations was a small but most comprehensive book of instruction, carrying out the salient suggestion, namely, the *individual training* of the horseman, the rider and his horse. It is entitled *Instruction Provisoire sur le Travail Individuel dans la Cavalerie*—"Provisional Instruction for the Individual Training of the Cavalry." It lays down the object of the training as follows:—

"What constitutes the true horseman for the purposes of war is, besides his skill in the use of his arms, his dexterity in managing his horse at all its rates and on all sorts of ground, and consequently obtaining from the horse instant obedience in all movements that may be reasonably required; hence the necessity for practising the horseman and the horse in such conditions that both may be able to meet all the exigencies of war-service.

"This individual training will therefore have for its chief object the improvement of the rider in the management of his horse, to habituate the horses to separate from each other, and instantly to obey the will of the rider.

"The dispositions of this instruction are not applicable to the mere recruit, who at the commencement of his training finds already so much difficulty in understanding and performing all that he is taught; but one lesson at least a-week, in addition to the habitual exercises, must be devoted to gymnastics, military leaping, and the various exercises adapted to ensure the suppleness of the body.

"The facility, the correct performance of the whole system, depends entirely on the long practice of the individual training; without it the tactical power of the cavalry remains stagnant and inert in the hands of its leader; with it that power may be infinitely developed. Therefore in this instruction the horseman is led progressively through a variety of movements more and more daring, and the training, by its very difficulty, develops the energy of the men, rouses their warlike instincts, and gives the army skillful, solid, adventurous—in one word—good horsemen for the purposes of war.

"By mastering the true principles of the training and presenting them in a proper order to the intelligence of the men, there is nothing that constitutes a warrior which may not be taught them. The officer-instructors will therefore find in the improvement of this individual training a constant stimulus to their special studies, and have the satisfaction of giving to our regiments horsemen worthy of the name."

This little book, full of work however, with its twenty-six beautiful plates, is well worthy of our consideration with a view to its adoption and application to our cavalry. The movements, especially the new ones, are all calculated to ensure the efforts of the cavalier by their beautiful design, imposing advances, splendid wheels in every possible variety, a grand affair emphatically termed the Carrousel, and a powerful column movement perfectly resembling and called the Cross of Malta.*

* It should be stated that the French assiduously practise their cavalry to manœuvre in the inverted order. The cases are frequent in war where the natural order of formation would be either most dangerous, or attended with the loss of precious time. For instance, in the passage of a defile forward, the cavalry may have to form line by a processional movement on one side as well as the other: it must therefore be accustomed to manœuvre in the inverted order, so as not to hesitate on such an important occasion, in which success depends upon rapidity of execution. Manœuvres in the inverted order,

By endowing the cavalry with mobility and rapidity, and placing it in the hands of a competent commander, it becomes indeed a formidable arm, of the utmost importance in the field of battle. In the twinkling of an eye, cavalry has frequently changed a desperate conflict into glorious victory. Strokes of power, strokes of audacity, strokes of genius, are the special and peculiar exploits of cavalry, says Guibert; and General Marbot reminds us that it is often at the very moment in battle when all seems lost, that a brave cavalry finds its best opportunity for winning distinction, by boldly rushing upon the enemy at a moment when he can be easily conquered, precisely for the reason that he already thinks himself victorious. Thus, at Marengo, 500 horemen, led by Kellermann, pouring down furiously on the Austrians at the moment of their greatest success, utterly stunned them by the vigour of the attack, pierced them on several points, and contributed by this brilliant charge to snatch from them a victory of which they had believed themselves assured.

Such, then, are the views and considerations which have directed the recent improvements in the French cavalry, whose results have been most satisfactorily demonstrated at the camp of Châlons.

Colonel the Baron d'Azemar completely expresses the opinion of the generals of his country in the following avrment: "Were it permitted to raise for a moment the veil that hides the future of the cavalry, we are persuaded that we shall see its destinies enlarged. Yes, that is our conviction. Henceforth the only part that the cavalry will play in the field of battle will be to strike decisive blows, to fulminate, to annihilate the enemy. In battle, cavalry will appear like lightning; its action will be as terrible as it will be unforeseen and unexpected; it will warrant more than ever that ancient and poetical qualification of the Bible—a horse-storm: *procella equestris*."

The French have got the start of us—as in everything else—in their cavalry improvements. It remains to be seen whether we shall "take action" in this most imperative want and preparation, without waiting for the stern and cruel lesson of our habitual and proverbial teacher—**DISASTER.**

which we should avoid as much as possible in the infantry, must be familiar to the cavalry, which has frequently to form with the rapidity of lightning on the flanks and forward, whether it be right or left in front. It would lose all its advantages if the inconveniences of the inverted order could fetter its movements. If, for instance, on debouching from the defile it had only room to deploy on the right of the infantry, it should—in order to form as rapidly as possible—execute the manœuvre by inversion on the left into line, supposing it came up right in front; but, if it be not accustomed to this movement, it would be dangerous to perform it for the first time under fire. Consequently the commander would have to continue his march until his whole column is unmasked and form to the left in line; and, if he has a battery or the enemy's cavalry on his flank, it is probable that he will not execute the manœuvre without disorder: at all events he will have lost time, which is always disastrous. It is, therefore, very essential that the cavalry should be practised in forming line in the inverted as well as in the natural order. Many troops have received notable checks by not being able to fight in the inverted order; the Seven Years' War gives several examples.* Decidedly our infantry should be practised in these inversions, as they may be needed. The new French battalion drill insists upon their importance. See "*Ecole de Bataillon*," pp. 117 and 84.

* General Dufour, *ubi supra*.