WEAPONS AND MUNITIONS OF WAR

PART II

CAVALRY WEAPONS

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CAVALRY WEAPONS.

Modern cavalry fights both mounted and on foot.

For mounted, or shock action, the cavalryman has his horse, and is also provided with sabre and lance, or pistol.

For dismounted action the cavalry soldier is armed with carbine or rifle, and in some instances with the bayonet.

The horse in battle.

A study of cavalry weapons naturally begins with the horse which has always been considered the principal weapon of the mounted man.

Historical Note.

It is impossible to determine when the mounted fighting man first appeared in battle, but historians generally agree that the scythians were the first to use the horse for riding, and it is also quite certain that the horse was very generally employed to draw the war chariots which were in common use among the nations of antiquity for many centuries before cavalry became a factor on the battle field.

From monumental records discovered in recent years, it is evident that when first mounted, the horse was employed merely to save the fighting man from fatigue. The art of riding was little understood and the horse was led about the field by an attendant on foot while the rider discharged his missile weapons from the horse's back. At a later period the speed of the horse was employed to enable the rider to rapidly approach or retire from the enemy, but the value of the shock action of the horse seems not to have been recognized until about the time of Alexander the Great, who is credited by many authorities

with having been the first to employ the momentum of the horse in the cavalry charge.

In battle, the cavalry horse not only serves as a weapon against mounted or dismounted troops, but also confers upon his rider certain advantages which materially increase his fighting power and his moral courage. The speed of the horse, which enables his rider to escape from the danger which he may be unable to oppose or overcome, makes him bold in confronting danger, while from his elevated position on the horse, the cavalry soldier is able to deliver his blows with greatest effect, i. e. from above downward, and thus has a distinct advantage in combat with the foot soldier. The body of the horse also protects the rider from many hostile blows.

The horse as a weapon.

As a military weapon, the horse has both a moral and physical aspect, and these elements vary in relative importance with the character and condition of the troops opposed, and whether they be mounted or dismounted.

Physically considered, the action of the horse in the charge is similar to that of a projectile, and his striking energy is proportional to the product of his mass and velocity at the instant of impact. $\left(\frac{MV^2}{2}\right)$.

Against dismounted troops.

While the projectile force of a horse moving at high speed is enormous and capable of producing great destruction, yet, due to the unfavorable ballistic conditions under which this force is exerted against a dismounted man, the actual casualties resulting from the impact of the horse in the charge are relatively few, and the great and decisive successes so often achieved by cavalry charges against infantry in the past were in the main due to moral causes. The rapid approach of a mass of rushing horses, a visible danger against

which the foot soldier had but poor means of defence and little hope of escape, often inspired such terror in new and untrained troops as to cause demoralization and panic, and result in the rout, surrender, or capture of greatly superior numbers. Where the infantry formed square to resist the charge, the cavalry had only to ride home to insure success, the ranks once broken by the impact of the charge, organization was destroyed, leadership and concert of action disappeared and the foot soldier finding himself no match for the mounted man in individual combat either surrendered or was cut down and crushed under the feet of the horses.

Improved fire arms, with better tactics and higher training and discipline, have greatly increased the confidence of the foot soldier in his defensive power against the cavalry charge and the great successes of former times can not now be expected unless conditions exist which impair the morale or defensive power of the infantry.

Against Mounted Troops,

In the charge of cavalry against cavalry, the physical result of the shock will often determine victory, and the projectile force of the horse is of greatest importance. Weight and speed are the qualities desired and the most effective type of horse is the one in which these qualities exist in such relation as to produce a maximum product. The larger breeds of saddle horses, particularly the hunter type, best fulfill the conditions.

Heavy Cavalry.

Formerly it was the custom in most continental armies to maintain special bodies of heavy cavalry armed and trained for the charge alone, large and powerful men wearing armor and mounted on extra heavy horses; such horses were often of the draft type and slow and clumsy in movement. Because of the great weight

of the rider and the character of the horse, such cavalry could not charge at high speed, but the mass and strength of the horse enabled them well to resist the shock of opposing cavalry and in the hand to hand combat following the charge, the size and strength of the rider with the protection afforded by his armor were important factors tending to success. Regiments of heavy cavalry still exist in the armies of the great nations but the term is now only relative, armor has disappeared and with it the very heavy horse.* The present tendency is toward the establishment of a uniform force of cavalry made up of medium weight horses and men.†

Modern Cavalry.

This tendency is in accord with conditions of the modern battle field, which more than ever before, demand speed and endurance in the cavalry horse. The great range and rapidity of fire of the magazine rifle and field gun, with the absence of sheltering smoke, will compel cavalry when not in action to remain several miles from the hostile lines, if it is to act opportunely and escape destructive losses while in the fire swept zone it must be able to cross the intervening space with the greatest rapidity and still have sufficient reserve power to deliver an effective charge.

Speed and endurance are qualities resulting primarily from selection and breeding, and all European nations are now striving to improve the type of cavalry horse by the maintenance of breeding farms or other suitable regulation or supervision.

To preserve the mobility of the horse when in service, the burden which he is obliged to carry should be reduced to a minimum.

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*The average weight of the German cuirassier is 187 lbs. and of his horse 1085.

†The substitutton of medium cavalry for their thirteen regiments of heavy cavalry has recently been recommended by high authorities in the French Army.

The above conditions are recognized in the cavalry service of the United States where the cavalry recruit is limited to a weight of 165 pounds and the horse to 1150 pounds which is about the maximum limit for the saddle horse in this country. Government supervision of the breeding of cavalry horses has been frequently recommended though not yet adopted.

THE LANCE.

Historical Note.

The lance was one of the earliest weapons employed by the mounted fighting man, it was in general use in the cavalry of all the great nations of antiquity and it continued to be the favorite weapon of the cavalry soldier until about the 16th Century when the increasing effectiveness of fire arms caused the lance to be discarded for the arquebus and pistol. By the end of the 16th Century the lance had practically disappeared from the cavalry of Western Europe though retained in South Eastern Europe and particularly in Poland where it was regarded as the national weapon. In the early part of the 19th Century Napoleon incorporated several regiments of Polish lancers in the French Army and his example was quickly followed by his enemies. The effective work of the Polish Lancers and of the Cossacks in the Russian Campaign of 1812 re-established the prestige of the lance, and regiments of lancers had been organized in all European armies by the middle of the century.

Following the wars of 1866 and 1870 in which the power and efficiency of the new breech loading rifle clearly demonstrated the limitations which it imposed upon charging cavalry, a current of opinion set in against the lance and it was banished from the Austrian and French armies; Russia also discarded

the lance after the Turko Russian war but the tendency to abandon the lance in Europe has for the present been checked by the attitude of the Germans who have armed all their cavalry with it.

In addition to the German cavalry the following European regiments now carry the lance:

England, 6 Lancer regiments and 10 regiments of Dragoons, front rank armed with lance (for honorary service only).

Spain, 8 lancer regiments.

France, 31 regiments dragoons (Lance in front rank).

Italy, 10 regiments lancers.

Russia, Cossacks only carry lance.

Turkey, 1 regiment lancers.

The regular cavalry of the United States has never been armed with the lance but in the Civil War one regiment of volunteers, (6th Pennsylvania) carried the lance, during the first year of its service.

Description.

The lance in its usual form is a shaft of bamboo or other light strong wood with a pointed metal head attached. As used at present its length is from 9 to 12 feet, though in the past it often attained a length of 18 to 20 feet.

The German lance is a hollow steel tube 11 feet 9 inches long, and weighs about 4½ pounds. The head is about 12 inches long with quadrangular cross section. The butt of the lance is also pointed and is used for thrusting, or for fixing the lance in the ground when the trooper dismounts. Near the middle of the shaft (at center of gravity) a grip is provided for the hand and a leather loop is also attached which assists in keeping the lance in position when mounted.

A small Pennon is fastened behind the head of the lance which facilitates re-assembling on the field,

and is also expected to frighten the adversaries horse in the charge.

When not in use the lance is carried in a vertical position on either side, the butt being supported in a socket attached to the stirrup and the loop passed over the arm.

Use and employment.

The lance is essentially a shock weapon and depends for its effect upon the impetus of the horse. For the charge the lance is held in a horizontal position with the hand in carte and closed against the body by the pressure of the right arm.

Advantages.

In the hands of a trained horseman skilled in its use and with space for free movement the lance is a very effective weapon and generally conceded to be superior to the sabre in single combat or in the pursuit of a beaten enemy.

In the charge in line the lance is mainly valuable for its moral effect which is undoubtedly great when employed against infantry or inferior cavalry.

Disadvantages.

In the close fighting of the melee the lance is almost useless and it is for this reason that in many continental armies only the front rank is provided with the lance, the rear rank being armed with the sabre.

THE SABRE.

Description.

The sabre is a weapon designed for cutting and thrusting and consists of a pointed, single edged steel blade about 3 feet long and provided with a handle. The blade of the sabre is usually slightly convex, and the degree of curvature is varied to insure greater cutting or thrusting effect in accordance with the national traits or training of the troops. Among the Oriental nations, the curved blade is preferred, and the favor-

ite weapon is the scimitar, having a curvature of about 1 in 7. In Europe the sabre has only a slight curvature or none at all. Heavy cavalry, or cavalry of the line is generally armed with a straight sabre, 40 inches or more in length, commonly known as the cuirassier sword. Light cavalry generally carries a shorter, curved blade. Both England and France have recently adopted a straight sabre for all classes of cavalry.

Construction.

The construction of the curved sabre depends upon the following mechanical principles:

1. *The penetration* of a thrusting arm depends upon the power of the wedge at its point, and also upon the position of the axis of the wedge with reference to the thrusting force. To insure greatest effect, the point should be as fine as possible, consistent with rigidity, and the blade should be straight. For facility in handling, the center of gravity should be well to the rear, and the blade should be light.

2. *A cutting edge* has the greatest effect when it opposes fewest points to the object, a blade with a convex edge is therefore better for cutting than a straight one. To give force to the blow the center of gravity should be well forward.

The above principles being conflicting, a compromise is effected in the sabre by giving a keen point for thrusting, a slightly convex edge for cutting, and distributing the weight so that the center of gravity will fall about 4 inches in front of the handle.

Use and employment.

At the present time the sabre is a part of the armament of all cavalry soldiers, even those who carry the lance being armed with the sabre also.

For the charge, the sabre is held in the position of charge sabre and, like the lance, depends for its

penetration on the impetus of the horse. In the melée or pursuit the sabre is used for cutting, thrusting, or parrying hostile blows. The sabre, being intended for mounted action, is usually attached to the saddle.

To develop the greatest efficiency of the sabre it should of course have a keen point and a sharp cutting edge, and these qualities should be preserved by the use of a scabbard which will protect but not blunt the weapon.

The new sabre and scabbard recently issued for trial to the U. S. Army conforms to the above requirements; the sabre is lighter and straighter than the model now in use, the point and edge are sharp enough for effective service and the scabbard is made of wood and covered with leather. For mounted troops the blade is 32 inches long. For dismounted officers several shorter blades are provided.

THE PISTOL.

Historical Note. The pistol was devised in the latter part of the 15th Century to meet the needs of the mounted man for a fire arm that could be conveniently managed on horse back. The development of the pistol was in line with that of the larger hand gun until the early part of the 19th Century when the invention of the percussion cap made possible the application of the revolving principle, and the revolver quickly displaced the single shot pistol as a military weapon. Pistols with groups of barrels revolving on a single axis, and also with single barrel and revolving breech mechanism, were manufactured as early as the 17th Century, but owing to mechanical defects did not come into general use at that time The development of automatic pistols in recent years marks a step in advance and it seems probable that the revolver will soon give way to the new pistol for military purposes.

From the time of its invention until the latter part of the 18th Century, the pistol was very generally a part of the armament of European Cavalry. During a great part of this period, shock action was disregarded, and cavalry relied mainly on fire effect; the charge if delivered at all was made at the trot. When the Cavalry of Frederick the Great, riding at full speed and depending upon the sword alone, demonstrated its superiority over all opposing cavalry using fire action, the value of shock action was recognized and the pistol gradually lost its important position. At the present time the pistol is only carried by officers, non-commissioned officers and trumpeters in the Continental Armies.

In the army of the United States, the pistol has always formed a part of the armament of the cavalry soldier, efforts have been made at times to combine the pistol and carbine by the use of extension stocks but such efforts have failed because of the different functions of the two arms.

Use and employment.

The pistol is a short range weapon intended principally for mounted action. In battle it may be employed wherever the soldier has opportunity for individual action, as in the open charge as foragers, on the mounted skirmish line, or in the close pursuit of a defeated enemy.

The value of the pistol as a weapon for the charge in line has been frequently discussed, and the arguments offered gain force with each improvement in the arm.

The following extract from an opinion of the Cavalry Board approved by the Chief of Staff on November 8, 1905, sets forth the official views now held by our War Department on this subject:

"But, in the case of a charge in a confined space, or of a charge over open ground of large bodies of cavalry against each other, where there is no room for

deployment, the contest is usually decided by the shock of men riding boot to boot at full speed against each other. In the melee which follows this collision, the troops are more or less jammed up against each other, horse against horse. In this melee a pistol, discharged at an enemy, may easily kill a friend, and, in any case, the pistol is no match at arm's length for a sharp sword. The pistol may hit five times; it is then useless. The saber, on the other hand, can strike an infinity of blows, and, if sharp, its wounds are terrible. Such combat will be decided by the most determined men and the strongest horses, and by the most skillful use of the sharpest sabre."

For personal combat at close quarters the superiority of the pistol over the lance or sabre is undoubted, the advantages of the pistol being longer reach, impossibility of parrying its blow, and greater disabling effect. To insure these advantages the pistol must have;

1. Certainty of action.
2. Sufficient stopping power to bring down man or horse within fifty yards.
3. Accuracy at short ranges.

For military service the pistol should also have;

1. Simplicity of construction and great strength.
2. Rapidity of action.
3. Lightness.

The pistol now in use in the U. S. Army is the Colt double action 38 calibre revolver; this weapon has been the subject of much criticism* because of its small calibre and consequent lack of shock effect or stopping power.

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*A recent vote taken by the U. S. Cavalry Journal on the question of the adoption of a larger calibre and the substitution of the automatic pistol for the revolver resulted as follows:

(421 Cavalry Officers of all grades voting)

To retain present weapon (.38 cal)	8
To adopt .45 or .50 Cal.	413
For the automatic pistol	104
For the double action revolver	303

A government test of revolvers and automatic pistols has recently been concluded by a Board of Officers at Springfield Arsenal. The ammunition for the test being furnished by the government and having a calibre of .45, initial velocity of 800 ft. and bullet weighing 230 grains.

This ammunition gives a muzzle energy of 328 ft. pounds as compared to 175 ft. pounds for the 38 calibre, now in use.

The following findings of the board set forth very completely the relative merits of automatic pistols and revolvers:

The principal advantages of automatic pistols are:

1. Reduced shock of recoil, increasing accuracy, and reducing tendency to flinch.
2. Facility of recharging, especially in cold weather or when mounted.
3. Greater number of rounds in magazine than is carried in any revolver cylinder.
4. Great rapidity of fire.
5. Trigger has but one function, that of releasing striker.
6. Relatively short total length, increasing ease of carrying and drawing.
7. Superior accuracy and ballistic qualities.
8. Reduced chance of misfire.
9. Favorable location of center of gravity.
10. Desirable balance and grip.
11. Comparative ease of putting arm into action after severe rusting.

The principal disadvantages of automatic pistols are:

1. In case of misfire, the use of two hands is necessary to deliver the next shot.
2. Ammunition in good condition and manufactured with special care is required.
3. Accuracy of construction and delicate adjustment of parts are required.
4. Impracticability of firing blank cartridges for instruction and at maneuver.

The principal advantages of double action revolvers are:

1. In case of misfire, but one hand is required to deliver the next shot.

2. Practical certainty of firing contents of cylinder.
3. Ammunition of wide divergence in characteristics, including blanks, may be used.
4. Ease of cleaning.

The principal disadvantages of double action revolvers are:

1. Extreme shock of recoil with large calibers, impairing accuracy and tending to produce flinching.
2. Practical impossibility of reloading in combat, when mounted, in cold weather, or when wearing gloves.
3. Difficulty of partial reloading.
4. Double function of trigger, causing derangement of aim.
5. Relatively great total length, causing difficulty in carrying and drawing.
6. Inferior accuracy and ballistic qualities.

The board believes that the advantages of the automatic pistol and the disadvantages of the double action revolver are such as to require the adoption of an automatic pistol, if practical certainty of action is attained. None of the weapons tested were entirely satisfactory to the board tn this respect.

The board was of the opinion that the pistol finally adopted should be of caliber .45.

The board recommended:

That troops in the Philippines be armed with Colt .45 double action revolvers as soon as practiable and that 200 Colt Automatic (Cal. .45) and 200 Savage automatic Cal. .45 be issued to selected cavalry organizations for a service test extending over one year to determine their suitablity for military service.

THE CARBINE.

The carbine is similar in principle and construction to the infantry rifle, but made shorter and lighter to minimize the burden on the horse and to facilitate the carriage of the weapon by the mounted man.

(*For discription see Infantry rifle.*)

Use and employment.

The carbine is intended for dismounted action, though opportunities may arise where mounted firing can be profitably employed and such use of the carbine is

recognized in the Cavalry Drill Regulations of our army, but limited to extended order formations.

When mounted, the carbine is carried in a leather boot attached to the saddle, or is slung across the back of the trooper.

The use of cavalry for dismounted fire action was an outgrowth of the system, first employed by Marshal De Brissac, about 1550, of mounting infantry on horses to give increased mobility. This practice rapidly extended throughout Europe and such troops came to be known as Dragoons. In the beginning, the dragoons were intended for dismounted action alone, but they gradually assumed the arms and methods of fighting of the cavalry and the term dragoon soon came to mean "Cavalry bearing fire arms and trained to fight mounted and dismounted." As Dragoons assumed more and more the characteristics of cavalry, the practice of dismounting to fight on foot gradually disappeared until, when we come to the Franco-German War in which more than 80 regiments of cavalry armed with the carbine were employed we find only one or two small affairs in which the dragoons employed dismounted fire action.

The experience of the wars of the last half of the 19th Century, particularly the Civil War in the United States, which demonstrated positively the value of the dismounted action of cavalry, and the Franco-German War which was equally instructive as to the weakness of cavalry not provided with fire arms, has led to the universal adoption of the carbine for all classes of cavalry, heavy as well as light, and instruction and training for its employment on foot.

As the belief in the future importance of the dismounted role of cavalry gains ground there has developed a tendency to replace the carbine by the more efficient infantry weapon, and the cavalry of

Russia, Great Britain and the United States are now armed with the rifle.

THE BAYONET.

There is no uniformity of opinion or practice at the present time with respect to the use of the bayonet by cavalry.

History gives many instances of the arming of dragoons with the bayonet in different European armies in the past, but the practice has never been general and the Russian and Italian are the only great nations whose cavalry now carry the bayonet.

Those who advocate the bayonet for cavalry generally agree that the weapon should be short and light, permanently attached to the gun and so arranged that when not in use it may in no way interfere with the carriage or handling of the carbine mounted. The rod bayonet issued several years ago with the new model Springfield rifle meets these conditions very satisfactorily. The Italian bayonet is attached to the carbine by a hinged joint near the muzzle and when not in use is folded back under the barrel into the stock. The Russian bayonet is carried in a scabbard joined to the sabre scabbard.

The bayonet is not carried by the cavalry of the United States Army.

In addition to the personal weapons of the cavalryman just considered, bodies of cavalry usually have automatic rifles, machine guns and Horse Artillery attached as a part of the organization.