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THE ENGLISH IN INDIA.

BY SECOND LIEUTENANT G. H. JAMERSON, SEVENTH INFANTRY.

THERE is so much to be said on this subject that, for a short paper like this, I have found it very difficult to know just where to begin, and what to include. I have thought, however, that it might be of interest to say a few words as to how England came into possession of India, how she can, in pursuance of a line of policy so vastly different from that of her home government, maintain, so easily, her grasp on such a vast and fertile empire so far from home; also to give briefly the strength and organization of her Indian army.

The influence of European nations on India can be said to date from the arrival of Vasco da Gama on its shores, 1489, but the British influence may be said to date from 1600, when the Dutch, who were then firmly established in the East, raised the price of pepper against the English. The result of this was that a number of the principal merchants of London formed themselves into an association for the purpose of trading directly with India, and applied for, and obtained, a charter and certain reasonable privileges and exemptions. The company had the power to purchase land from the na-

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tives for the establishment of factories; and in 1615 it, through the King's ambassador to the Great Mogul, obtained permission to establish factories throughout the empire. With the incorporation of the company difficulties began, and continued to arise in the shape of conflicts with the traders of other nations and interlopers.

In 1640 Fort St. George was erected by the company at Madras for defense against the Dutch. English traders in Bengal were now restricted by the native princes to a military establishment of an ensign and thirty men; and this may be taken as the germ of the splendid army which now occupies India.

In 1657 the company received a new charter confirming their possessions and giving them authority to make war and peace with all powers, not Christian, and to raise troops in England for their service.

In 1668 the company's position was very much strengthened by the transfer to it of the Island of Bombay, which had recently been ceded to the King of England as a part of the dower of his Queen, the Infanta of Portugal.

Some militia organizations were now established at Bombay and Madras, and all civil servants of the company were instructed to apply themselves to the study of military discipline. The company had plenty of money, so it had no difficulty to enlist into its service the natives, who, since their motives were purely mercenary, were at the service of any who would pay them and who could win influence over them. They were, and still are, divided into a variety of castes and religious sects. They had no jealousy of a foreigner, no sense of national unity, and, like our Indians, have always shown more eagerness to fight each other than to fight England. And it was by taking advantage of this disposition, by mingling in their quarrels, and by playing one tribe against the other, that England successively subdued them, and then effectively used them as soldiers in her service.

In 1692 the company obtained a cession of territory and built Fort St. David. Later it purchased several villages, among which was Calcutta, and established factories in them. All this time company after company of English merchants had been formed in opposition to the original one, but each in succession either united with the original company or was compelled to dissolve in its favor, and in 1702 we find them all incorporated under the title of "The United Company of Merchants Trading to the East Indies." French merchants, enterprising and grasping for commercial supremacy, could

not sit quietly by and see the English, Dutch and Portuguese merchants growing rich through trade with a country open alike to all adventurers. So, soon after the formation of the first English company, the French incorporated a company, and then several others were formed; and the companies of the different nations traded side by side for many years without either active rivalry or territorial ambition. In 1744, however, this period of tranquility was brought to an end by the commencement of the great struggle between the French and English in India, which led to the ascendancy of the latter nation. Although their interests now came into conflict, and serious struggles began between them, they did not carry on their operations on their own account, but appeared as auxiliaries of some of the princes of the country. It is not thought that the dream of empire yet existed. That came as a result of the long and continued struggle which gave the supremacy to the English. The idea of conquest did not yet exist. Their purpose was trade, and though the forces of the two companies often came into conflict, they fought for the sole purpose of supporting trade.

To follow the fortunes of the troops of the East India Company through all their stormy passages, would take more time than I imagine you would cheerfully give, so I will only give a brief description of two or three of the most prominent engagements, including the battle of Plassey, which I regard as the turning point of the struggle.

In 1748 the French had become masters of almost every part of the Carnatic. They had, under the leadership of DUPLEX, been successful everywhere. Assisted by the numerous followers of one of the pretenders to the throne of the Deccan, the wealthiest and most extensive province of the Carnatic, DUPLEX had succeeded in making his ally, the above mentioned pretender, viceroy of the Deccan, and now the triumph of the French arms and the French policy seemed complete. The English, in their unsuccessful attempt to stop the brilliant and rapid career of the rival company, had fallen into contempt among the natives. At this moment, however, the valor and genius of an obscure English youth suddenly turned the tide of fortune. ROBERT CLIVE, twenty-five years of age, and a clerk in the East India Company, but who was soon to be considered the founder of the British Empire in India, was sent with 200 English soldiers and 300 Sepoys, armed and disciplined after the English fashion, to attempt to wrest from the French Arcot, the capital of the Carnatic. The garrison, in a panic, evacuated the fort, and the

English entered without a blow. The garrison, after being heavily reinforced, returned that night and camped near the town. CLIVE made a night attack and routed them, but the French and allies, after recruiting their ranks to the number of about 10,000, invested, and laid siege to the town. After a siege of fifty days, and after CLIVE's forces were reduced to 320, they advanced to the attack, driving before them elephants whose foreheads were armed with iron plates. These huge beasts no sooner felt the sting of the English musket balls, than they rushed furiously away, trampling on the multitude which had urged them forward. CLIVE made a sortie, and his victory was complete, and from this time on he met with success everywhere.

In 1756 the Nabob of the Province of Bengal, who hated the English, and who had exaggerated notions of the wealth he might obtain by plundering them, marched against them in Fort William at Calcutta. At the sight of the overwhelming forces of the Nabob, the governor of the city and the commandant of the fort fled. The fort was taken, and the English captives, to the number of 146, were thrown into the prison of the garrison, a small room twenty feet square, and known by the fearful name of the Black Hole. Even for a single European malefactor, says MACAULEY, the dungeon would, in such a climate, have been too close and narrow. It was the summer solstice, and the air-holes were small and obstructed. The prisoners entreated the guards; they cried for mercy; they strove to burst the door, but all in vain. The answer of the guards was, that nothing could be done without the Nabob's orders, and that he was asleep, and would be angry if anyone woke him. When the day broke, only twenty-three of the 146 were alive. As soon as the intelligence of this reached Madras, where CLIVE was, he set out with an expedition for Calcutta, and soon recaptured the fort and recovered the city.

The next year, 1757, this same Nabob, whose dissoluteness and folly had disgusted all his subjects, and against whom confederacies were being formed, assembled his forces and marched to encounter the English under CLIVE, near Plassey. His mighty force, twenty times as numerous as CLIVE's, lay in a short time only a few miles from Plassey. CLIVE, who had been promised, and who expected the assistance of the conspirators, was now in a painfully anxious situation, for the conspirators, even at this late hour, still delayed to fulfill their engagement, and returned evasive answers to the earnest remonstrances of the English general. He now realized

that he could place no confidence in the sincerity of his confederates, and that whatever confidence he might place in his own military talents and in the valor and discipline of his troops, it was no light thing to engage an army twenty times as numerous as his own. Before him lay a river which separated him from the enemy, and over which it was easy to advance, but over which, if things went ill, not one of his little band would ever return.

On this occasion, says MACAULEY, for the first and for the last time, his dauntless spirit shrank from the fearful responsibility of making a decision. He called a council of war. The majority pronounced against fighting. Long afterwards CLIVE said that he never called but one council of war, and that, if he had taken the advice of that council, the British would never have been masters of Bengal. Scarcely had the meeting broken up, when he was himself again, and, after some thought, he determined to put everything to hazard, and gave orders for all to be in readiness for passing the river on the morrow. The river was crossed, and that night he took up a position in a grove near Plassey, and within a mile of the enemy. At sunrise of the day, which was to decide the fate of India, the army of the Nabob began to move towards the grove where the English lay: 40,000 infantry, armed with firelocks, pikes, swords, bows and arrows, covered the plain. They were accompanied by fifty pieces of heavy ordnance, each tugged by a long team of white oxen, and pushed from behind by an elephant. There were some smaller guns, under the direction of the French, who had allied themselves with the Nabob, and about 15,000 cavalry.

The force that CLIVE had to oppose this multitude, was only 3,000, but 1,000 of these were English soldiers, and all were led by English officers and trained in English discipline. Conspicuous in the ranks of this little army were the men of the Thirty-ninth Regiment, which still bears on its colors the name of Plassey, and the proud motto. "*Primus in Indis.*"

After several volleys from CLIVE's artillery, and after several of the most distinguished officers of the Nabob's army had fallen, disorder began to spread through his ranks. Advised by one of the conspirators, he ordered his army to fall back. This order decided his fate. CLIVE snatched the moment and ordered an advance. No mob, attacked by regular soldiers, says MACAULEY, was ever more completely routed. In an hour the forces of the Nabob were dispersed, never to reassemble. Only 500 of the vanquished were slain, but their guns, baggage, wagons and cattle, remained in the hands

of the conquerors. CLIVE, with only seventy killed and wounded, had scattered an army of about 60,000, and subdued an empire larger and more populous than Great Britain itself.

The French were now virtually dislodged, and it was now that the vision of conquest first dawned upon the East India Company.

It might be said that the arts of both war and policy which were employed with such signal success by the English, were first understood and practiced by the ingenious and aspiring Frenchman, DUPLEX. He was the first to see that it was possible to found an empire on the ruins of the Mogul Monarchy. He saw that any force which the princes of India could bring into the field, could be no match for a small body of trained and disciplined men. He also saw that the natives of India might, under European commanders, be formed into armies that could be used to great advantage, and it was by so using these natives that England finally conquered India. So it can be said, with a good deal of truth, that India conquered herself, rather than that she was conquered by England.

The battle of Plassey, while it virtually dislodged the French and placed the English in power, did not end the strife. Several more hard-won fights had to be fought before the superiority of the British arms was admitted even by all the natives.

CLIVE was now appointed Governor General of all the company's settlements, and these settlements, which were increased from time to time, were ruled by the Governor General until 1857, the date of the great Sepoy rebellion. In 1858, the date of the suppression of the mutiny, the company's possessions were transferred to the Crown, and from that time to the present they have been governed by, and in the name of, the sovereign of England, through one of the principal secretaries of state, assisted by a council of fifteen members. The Governor General now has the title of Viceroy.

Of the various motives assigned for the mutiny some are as follows: The policy of Lord DALHOUSIE, Governor General from 1848 to 1856, was utterly distasteful to the native mind. Repeated annexations, the spread of education, the appearance of the steam engine and telegraph wire, all alike revealed a determination to substitute an English for an Indian civilization. The natives had money in abundance with which they could buy the assistance of skillful intriguers. In fact, they thought they had everything to gain and nothing to lose, by a revolution. So when, in this critical state of affairs, the rumor ran through the cantonment of the Bengal army that cartridges had been served out, greased with the fat

of animals, unclean alike to Hindu and Mohametan, nothing could quiet the minds of the Sepoys. Fires occurred nightly, officers were insulted by their men, all confidence was gone. Europeans, or persons of the Christian faith, and sometimes women and children, were cut down wherever met. The revolt spread like wild fire throughout the northwestern provinces and Dudd, down into lower Bengal. The main interest of the war gathers around the three cities, Cawnpore, Lucknow and Delbi. The massacre of Cawnpore, the siege of Lucknow and the storm of Delbi, are familiar to you all and need no description.

During this rebellion the Sikh population never wavered, and the native armies of Madras and Bombay remained true to their colors. And it was due to the fact that so many natives remained loyal, that England was finally able to suppress the rebellion.

Peace was not proclaimed, however, until July, 1859. It may be noted that this great mutiny occurred just one hundred years after the battle of Plassey, which decided India's fate. This was the greatest struggle England has ever had in the East, and it was a struggle with men and officers whom she had trained for her own service.

The government now has all the elements of a military despotism, and for administrative purposes India is divided into three general presidencies: Bombay, Madras and Bengal. Each of these, together with the Northwest Provinces has a governor, and a separate organization for local government. Final decisions upon affairs, however, are in the hands of the Viceroy and his council, their acts being subject to the final approval of the home government.

To maintain her supremacy in India, England keeps there a large standing army of British troops and about 190,000 native troops. The returns of 1894 show the strength of the British army in India to be about 80,000, and these, with the 190,000 native troops, make a total of 270,000 troops to keep in subjection about 275,000,000 of people. Her army is distributed among the three presidencies. The largest part is in the Bengal command. The new command of the Punjab comes next. The remainder is distributed among the Bombay and Madras commands, and Burmah. With the exception of forty-eight mounted guns, all artillery in India is British. There are about 22,000 native cavalry and 160,000 native infantry, besides some militia and a few volunteer organizations.

A regiment of native infantry has about 720 officers and men, of which there are eight British officers, viz: a commandant, two wing officers, two wing subalterns, an adjutant, a quartermaster and a medical officer. The wing officers act in the capacity of our majors, and are assisted in their duties generally by the wing subalterns. English officers in India receive handsome pay and allowances. A commandant of a regiment of native infantry receives \$620 per month, while the pay of the native officers is quite small. That of a senior captain being \$62.50, and that of a junior captain being \$33.50 per month. First and second lieutenants receive respectively, \$17.50 and \$15.00 per month. The senior non-commissioned officers receive \$9.50 and the juniors \$6.00 per month, while the pay of the Sepoys (the privates) is almost nothing.

The pay of the British officers, serving with British troops, is a little more than when serving with native troops. A colonel commanding a brigade of home artillery receives \$879 per month. A lieutenant-colonel commanding a regiment of British cavalry receives \$718 per month. A lieutenant-colonel commanding a regiment of British infantry, \$701 per month. The commander-in-chief receives \$50,000 per year.

In the Indian service great distinction is made between the pay of officers in command and at the head of departments and the pay of the grades next below, but the fact that a sub-lieutenant on probation in a native regiment, receives \$165 per month is sufficient to show that officers, if serving in the worst of climates, are better paid than those of any other army in the world, while the pay of the non-commissioned officers and privates of the British regiments is not even as much as in our service. The total annual cost of a British regiment in India is about \$174,000, while that of a native regiment is about half this sum. The Indian government defrays the expense of all troops. It may be mentioned that there is not a single permanent staff corps in the army of India. Staff positions, in each presidency, are filled for a term of years, by officers from the "General Staff Corps." The same corps furnishes, by detail, the seven combatant British officers of the regiments of native infantry and the eight combatant British officers of the native cavalry regiments.

The military policy of the government imparts a variety of military knowledge and experience not possessed by any other army. Officers are intrusted with the diplomatic relations of India with

Persia and Arabia: and occasionally they are appointed military and civil governors of millions of people. General Upton says that when he was in India, 1875, he met a colonel who was a civil and military governor of 4,000,000 of people. They are continually acting in spheres of responsibility far greater than those occupied by officers of other armies, and there is always more or less activity in this service for them when with their regiments. For these places of responsibility they are specially selected for their zeal, abilities and intelligence. The term of service of the British troops in India is ten years, two years of which are passed at one of the Hill stations. The troops are moved about considerably, and as a regiment's term of service is expiring, it is gradually moved towards the port of embarkation.

The people of India are, as a rule, uneducated, and, as has been said, are divided into many religious sects and hundreds of communities. There are many languages and race differences. They are passive, and have been dragounaded by foreign military government until the very conception of resistance seems to have been lost. But no element of the strength of England's Eastern Empire resides in the attachment of the natives. Still they apparently see nothing to prefer in the rule of Russia, the one power which is continually menacing England's eastern possessions.

England's control of India has resided, and still resides, in the variety and separation of the natives. That is, the same causes which led to the subjugation of the people of India, still exist to keep them in subjection. The population seems wholly incapable of common action. But, as religious animosities are gradually disappearing, as the ties which bind the natives to their sects and castes and which make separation so distinct, are growing weaker year by year, and since there is no community of interests, no community of religion, no community of race, no mingling between the natives and the English, it seems an illusion to suppose that, in the face of all these opposing influences, the natives will forever submit voluntarily to foreign rule. It would seem that the only hope of a permanent British Empire in India lies in a future development of attachment of the people to a system of government which must of necessity be, and remain, despotic, and in their voluntary adoption of English ideas and views of empire. For many years it has been predicted that so long as the races remain separate in religion and feeling, just so long will it be possible for England to rule. Once the people of India breathe the breath of one people, once the idea

of nationality is infused into them, by whatever cause, the power of England in India will be brushed away, and her Eastern empire will dissolve like vapor.

Note.—The strength of the European army in India at the present moment is 74,000, of whom 70,500 are non-commissioned officers and privates. The cavalry amounts to 5,670, Royal Artillery 12,319, Royal Engineers 273, and infantry 22,760. Of the non-commissioned officers and men, 44,214 are quartered in Bengal, 13,801 in Madras and 12,985 in Bombay. The artillery consists of eighty-eight batteries. The native army, including European officers, is 146,000. Of this number 4,551 are artillery, 23,230 cavalry, 3,225 sappers and miners, and 113,813 infantry. The total of native officers and privates is 144,571. Of the latter 22,571 are in the Bengal command, 31,329 in the Madras and 24,471 in the Bombay. In addition to the European and native army there are 17,000 imperial service troops, with two batteries of mountain artillery. This gives a grand total of nearly 237,000 men, exclusive of the volunteer force, which includes eleven corps of cavalry, six of artillery, two of engineers, eight of mounted rifles, and fifty-three of infantry.

The weak spot in the native army is the small number of European officers, one to every hundred men. It is absolutely necessary for British officers to expose themselves in leading native soldiers. Even the Goorkhas, who have never been known to waver or turn their backs on the foe, will not advance unless led by British officers. One can therefore imagine how soon, in a modern battle, the eight European officers in a native battalion would be removed by death or wounds.—*Army and Navy Journal*.

THE REMOUNT SYSTEM FOR CAVALRY IN DIFFERENT COUNTRIES.

BY LIEUTENANT W. S. SCOTT, FIRST CAVALRY.

THE horse has been used for war purposes for many centuries. About the earliest record seems to be found in the Bible. From this source we learn that about 1500 years before CHRIST, PHARAOH pursued the Israelites with 600 chosen chariots and with all the chariots of Egypt (Exodus xii), and that he also pursued them with horsemen. History does not, to my knowledge, enter into the details of how the supply of horses was provided for armies at that time, nor for many centuries later. Did we know, it would probably be of no particular benefit now. However, knowing the small regard that people in olden times had for other's property in general, we may well assume that the custom of "swapping" horses similar to that in vogue in the Confederate army during the Civil War prevailed to a large extent among the warriors of old, who, no doubt, were not troubled with tender consciences.

On the assumption that progressiveness in methods applies as well to this subject as to others, we may ignore past systems and come down to the present and see what methods the leading nations are applying in procuring remounts for their armies.

With this in view, I have prepared a few remarks on the subject of our own system and that of European countries. I have compiled and translated such articles as I have been able to procure. Fortunately these articles touch only the main features, and will not tax the patience of the reader with details.

REMOUNTS—IN TIME OF PEACE AND IN TIME OF WAR.

In Time of Peace.

In order to classify the production of horses we must divide the countries into three groups: 1st. Where the production rests entirely in the hands of private breeders without any interference by

the government; 2d. Where the breeding institutions are under the supervision and direction of governments; and, 3d. Where we find these two systems combined.

To the first group belong England, Belgium, Sweden and Norway, Holland, Denmark, Switzerland, and those countries constituting the Balkan Peninsula, as well as all the countries of the New World. Many of these countries—England, Belgium and the United States, for instance—produce excellent horses, but the object of their production and the results obtained only remotely touch the question of their military service. We find in these countries magnificent horses for cavalry remounts, but the majority are intended and bred for other purposes.

France, Germany, and Austria-Hungary, form the second group; Italy, Spain and Russia, the third.

Spain and Italy differ from the other countries mentioned in that they produce more burros and mules than horses. In Spain, we still find traces of the ancient Moorish breed, the same traces that are noticed in nearly all horses which are found in the south of France.

In this article, however, we shall only consider Germany, Austria-Hungary, Belgium, France, Italy, Russia, Great Britain and the United States.

GERMANY.

Horse Supply.

Germany possess 3,522,600 horses, of which number 2,417,000 belong to Prussia alone. These considerable resources give the government all the horses necessary for the mobilization of its army.

In East Prussia we find the Trakehnen half-breed prevailing among the stallions, and serving as a model for the breeding of the native horses. In this district the transformation is already an accomplished fact. In West Prussia, as well as in the Province of Posen, the assimilation has already made great progress, and it is progressing in East Silesia; while in the western part of this province the raising of native horses for agricultural purposes predominates. The regeneration advances but slowly in Brandenburg, in Pomerania, in Prussian Saxony, in Hesse-Nassau, in Westphalia and in the Rhine provinces.

The horses of all these countries are still very much mixed in breed and very unsuitable. In Hanover and in Schleswig-Holstein the horses belong to a class totally independent of those of East

Prussia. In Hanover they are principally big half-blood draft horses; in Schleswig-Holstein they are also draft horses, but not so heavy. The preponderant influence of Prussia makes itself also felt, in the breeding of horses, in the other countries which compose the German Empire. The Military Boards on Remounts are the strong intermediate agents of this influence. Among the German countries, Oldenburg and Wurtemberg deserve special mention, the former producing the well known draft, and the latter full blood and half blood animals of a very distinguished type. The class of horses which prevails in Prussia—the East Prussian—contains nearly fifty per cent. of pure English blood and twenty-five per cent. native blood (Lithuanian, which are of oriental origin). In its nature, as well as in its looks, the "East Prussian" resembles very much the "Tarb en," which constitutes the class of horses we find in the south of France.

The more celebrated studs of Prussia are the Trakehnen, founded in 1732, and situated in East Prussia. Here they breed horses of pure English blood. We mention also those of Graditz and Beberbeck, which furnish mares and stallions of pure blood. These three studs belong to the government, and comprise 32 stallions and 627 mares. We find further, in Prussia, studs owned by provinces (provincial studs) and those owned by private parties, and depots of stallions, which contain more than 2,000 head of stock. The Prussian government has tried, in the interest of the defense of its country, to divide equally, as far as possible, the breeding of horses over all its territories. In order to do this, it has founded depots for the breeding of stallions throughout the whole monarchy. But, as we have already seen, the results obtained vary greatly. While the majority of these depots contain 100 stallions, and some of them even double that number, one contains only about eighty stallions, which must suffice for the whole Rhine Province. We must therefore come to the conclusion that local circumstances, the immense manufacturing districts, and the industries to which people are devoted, are not favorable to the breeding of military horses.

The depots of stallions are divided as follows: For East Prussia, at Rastenburg, Susterburg and Gudwallen; for West Prussia, at Marienwerder; for Brandenburg, at Neustadt; for the provinces of Saxony, at Lindenau; for those of Posen, at Zirke and at Guesen; for Lower Silesia, at Leubers; for Schleswig-Holstein, at Traventhal; for Hanover, at Celle; for Westphalia, at Werendorf; for Hesse-Nassau, at Dillenburg, and for the Rhine Provinces, at Wichrath. With the object of encouraging breeding, Bavaria has founded

studs at Munich, Landshtut, Augsburg, Ansbach and at Zwerbrucken, and for the stables of the court, we find studs at Bergstetten, Rohrenfeldaur, Neuhof.

Remounts in Time of Peace.

The effective strength of horses of the German army, in time of peace, is 96,844 (not including the mounted police, which do not belong to the War Department). The average length of service of a horse is nine years in the light artillery, and ten years in the cavalry. The battalion of the "train" (wagon trains are a separate arm of the service), take their supply from these horses, which are surplus in the light artillery and cavalry.

For the fiscal year 1894-95, the acquisition of horses amounted to 8,328, the average price of which was fixed at \$179.35. Expenses are added to this price. Again, during the year 1892-93, the sums needed were in excess of the appropriation by \$215,347; the 8,039 horses purchased, came to about \$205.90 a piece, instead of \$179.35. In the Prussian War Department exists a special management for remount horses, which has its chief, a cavalry officer of high rank, who bears the title of "Inspector General of Remounts." All the business that pertains to this important branch of the service is transacted there.

The purchase of the necessary horses for the army is made by a purchase board, which numbers five, composed of one permanent president, one first and one second auxiliary officer. Each commission has, besides these, other assistants, one veterinary surgeon, one clerk and one or two orderlies.

The commissions buy in the districts assigned them, horses from three to four years old, which are sent for one year, or, exceptionally, two years, to the depots of remounts.

The minimum height for horses destined for remounts has been determined upon as follows: For the regiment of cuirassiers, including the *Garde du Corps*, (*Guard*) 15½ hands; for the *Uhlans* of the *Guard* and of the *Line*, the *Dragoons* of the *Guard*, and the *Hussars* of the *Guard*, 14½ hands; for the *Dragoons* and *Hussars* of the *Line*, 14½ hands; for draft horses of artillery, 15½; for saddle horses of artillery, 14½ hands.

In the depots for remounts young horses live continually in the open air. Prussia has seventeen of these depots, which supply also the *Thirteenth Corps* of *Wurtemberg*. This constitutes the property of the government, and has a special administration. Of these depots, eight are situated in the two *Prussias*, at *Jurgatchen*, *Neuhof Rag-*

nit, *Kattenau*, and *Brakupönen*, *Preussisch-Mark*, *Sperling*, *Liesken*, and *Weeskenhof*; two in *Pomerania*, at *Neuhof-Treptow* and *Ferdinandhoff*. The others are in *Barenklen* (*Brandenburg*), *Wirnitz* (*Posen*), *Wehrse* (*Silesia*), and *Oberseener* (*Upper Hesse*). After one year's stay at these depots the horses are assigned by the Chief of Remounts to the different regiments. Such of the horses as have not been sufficiently developed are retained for another year.

Mecklenburg, looking to the profits of breeding, has formally the right of supplying its two regiments of dragoons and its artillery. Actually, however, it makes no use of this privilege. Finally, to return to the needs of the army, the military authorities of *Bavaria* bought in the beginning of this century a stud in *Poland*; it has furthermore created another one in its own country and also a depot for fillies. These establishments are under the supervision of special administration. At the time of the adoption of the *Prussian* military regime *Bavaria* had transformed these establishments into depots for remounts, and had given the inspector of the *Bavarian* cavalry the functions of an inspector of remounts.

A purchase board, which has been placed under the orders of this officer, like in *Prussia*, travels during springtime through the kingdom of *Bavaria* and *North Germany*. A part of the horses, especially draft horses, are furnished by *Bavaria* itself, while those destined for saddle purposes are nearly exclusively obtained from the northern part of the empire. After purchase these horses are generally sent to the remount depots of *Benediktbeuern*, *Fursteufeld*, *Schleissheim* and *Schwaiganger*. The personnel of these establishments comprise generally two to four civilian employees and one veterinary surgeon. After one year's stay in these depots the horses are sent by the Inspector for Remounts to the different corps of the army.

In *Germany* if a remount horse of the last or second last annual delivery should be found unserviceable by the regimental commission which has been charged to pick out horses for officers, he may, with the approval of the commander of the brigade, be publicly sold at auction. The price obtained is then turned into the fund for improvement of horses belonging to that particular regiment. The horse sold can, during one year from date of sale, be carried on as missing, and the commutation of forage and rations thus economized can also be turned into the above mentioned fund. By means of the sum obtained from these sales, also by the saving of the forage ration, the regiment may buy a suitable horse.

The brigade or regimental commander must see on his responsibility that those funds do not unduly accumulate, but he may use them at opportune times to improve the regimental effective force. They may besides request that horses that have been destined to be sent direct to the depot, be sent direct to them, and instead of buying them in the trade markets they pay to these depots the determined average price for horses for that particular arm of the service, as well as the value of forage rations for one year. They must also pay the expense of their installation in these depots, and the expense of their transport to these places. All, however, only in cases where the resources of the depots permitted them to give up the animals in question.

All that is left now to speak of is the remounts for officers. First and foremost we find in Germany a class of horses (chargers) which are given to certain officers whose duties require them to be mounted. These horses constitute a class between those which are personal property of officers, and those which are only ridden by them when on duty.

Chargers are only given to lieutenants of cavalry and light or horse artillery and to those captains of the same arm, who, in exceptional cases, draw the salary of lieutenants. At the end of the fourth year these horses become the property of the officer: they can then dispose of them after receiving a new remount. Additional horses are also allowed for the remount of officers of the cavalry or horse or light artillery when they lose by death horses which are their property, and for which they have neither received a bounty nor an indemnity under the law relating to the subject. They may, by authority of the Secretary of War, accept horses, as auxiliary horses, for remounts which have faults which do not permit them to be distributed among the corps of the army. This authority is accorded, as is well understood, only in those cases where such horses are to be found in depots for remounts. In order to make a requisition for these remounts, the officer must prove that his horse died in the service or as a result of service, and that at the time of its death he did not possess a greater number of horses than that for which he was allowed forage.

Captains and lieutenants of artillery are mounted on "service horses," which are put at their disposal by the organization to which they belong. Regiments of field artillery receive for this purpose in their yearly lot of remounts a sufficient number of horses fit for this purpose. In regard to battery commanders, besides horses which are their property, they are authorized to use service horses.

The officers of the train are mounted in a totally different way. Each company receives yearly one horse suitable for an officer, which is taken from the troop horses of regiments of cavalry belonging to the corps of the army to which the train belongs. This horse must not be under three years of age and not over nine. In order to permit a good application of this system the battalions of the train are permitted to address to the commander of the corps a letter on the 1st of January, in which they furnish data in regard to the strength and horsemanship of officers for whom these horses are required.

Mounted officers of foot troops, of mounted artillery, and the train, below the rank of regimental commander, receive an indemnity for each horse they are required to own. This indemnity has been fixed at \$375 per horse. It is renewed every eight years, the term fixed for the average length of time of service of a horse, and is paid to them monthly at a rate of about \$4.00. A payment in advance which must not exceed \$375 can be made to an officer who has to buy a horse. In this case the monthly payment is withheld until the sum paid in advance has been recovered.

Every officer who is obliged to remount himself at his expense, who loses a horse in service or by service, receives an indemnity of \$375. If an officer lose a horse by accident or sickness, the Secretary of War is authorized to grant him an indemnity on the recommendation of his superiors. The report must show the most minute circumstances of the accident.

General officers, regimental commanders of all branches of the service, field officers and captains of cavalry and horse artillery receive neither indemnity for horses, nor service horses. They are however allowed a double ration of forage for each horse to which they are entitled (\$7.00 per month). Those of these officers who are entitled to increased rations and only have one horse receive only a commutation of forage for two horses.

AUSTRO-HUNGARY.

Resources.

Horse breeding is one of the principal branches of national economy in Austro-Hungary, where the number of horses reach 3,800,000. More than half are raised in more or less hap-hazard ways. In the countries situated in the east of the empire, Galacie, Bukovine and the northeast sections of Hungary, the horses are

similar to those of the native race of Russia. They have probably the same origin as those, for annually a large number of Russian horses are introduced into Austro-Hungary. In the Provinces of Salzburg and Styria they raise principally heavy horses of Pinzgau and Pongau belonging to the Noric race. Bohemia produces a solid horse for draft, the type of which has been carefully preserved in the studs for more than a century.

There exists in Austro-Hungary three kinds of studs. The government studs, imperial studs and local studs. These last are distributed in the different parts of the monarchy. We mention specially the private studs of the Emperor, at Kladruss (Bohemia), where they raise the Spanish horse crossed with the Neapolitan. The progeny constitutes the type of horse used for court carriages. These establishments contain also stallions and brood mares of pure English blood. In the royal studs of Kisber (Hungary) there are found excellent and pure-bred and half-bred English horses. At the royal stud of Togaras (Transylvania) there are pure-bred Spanish and the cross of Spanish and Arabian, destined for the improvement of the Carpathian horses. The same race is found at Lipitza near Trieste (government stud). The dry pastures and warm climate of this region is specially adapted for the eastern races of horses.

The government studs at Babolna (Hungary) furnish also Arabian horses of pure and half-breed. At Mezohegyes (Hungary) they have the pure-bred Arabian or Anglo-Norman, producing the half-bred English for light draft, and the Norfolk type for heavy draft. Finally at Radantz (Cisleithanie) we find the cross between the English and Arabian. There are other depots for stallions where they raise pure-bred and half-bred English and Arabian, the Norman, the Spanish, the half-bred Spanish and the Norfolk horses.

The depots of stallions are distributed as follows:

(a.) In Austria and in the dependent countries: At Pisek (with stations at Prague, Nemoschitz, Alt Burzlau, Pilsen, Pisek, Bay and Tans); at Klosterbruck, near Zwain, (with stations at Klosterbruck, Hatschien and Trappan); at Drohowyze in Galicia (with stations at Drohowyze and Alzbowee); at Gratz (with stations at Gratz, Ossiach, Sello and Siny); at Stadl, near Lambach.

(b.) In Hungary, in Croatia and in Slavonia: At Nagy-Koros (with stations at Nagy-Koros, Werschetz, Mezohegyes, Baja and Dozama); at Stuhlweissenburg (with stations at Stuhlweissenburg, Babolna, Bajna, Nagy-Atad and Palin); at Brareczin (with stations at Tperjes, Debreczin, Tuwa-Remete and Rimaszonbal); at Szepsi-Szeat-Gyorgy (with stations at Hamorod, Szepsi-Szent-

Gyorgy and Dees); and at Agram (with stations at Goldood and at Kutjevo).

In Austria and in Hungary the government studs are under the surveillance of the Secretary of Agriculture: in Croatia and in Slavonia, of the governors. Most of the government or royal studs are under the supervision of a military organization. The personnel is composed of officers, non-commissioned officers and soldiers of the stud service. The officers are taken from the active list and landwehrs, forming in both countries a special corps. The men are recruited in all the provinces of the monarchy, except in the Tyrol and in the Vorarlberg, and are incorporated directly in the service of the studs. The supervision and military inspection of the studs are confined to a general, having the title of Military Inspector of the Horse-raising Establishments.

Each establishment is under the direction of a field officer or a captain, who has under his orders a section of the "stud service." In the government studs in Hungary there is another administrative commission, composed of civilian employees, charged with the care of the farms. Each depot of stallions is subdivided into several posts, commanded by captains or by old subaltern officers. The sections of the service of the studs report, in military matters, to their immediate chiefs, and to the Secretary of War as to economy, and for all that concerns the raising of horses, either to the Secretary of Agriculture or to the Governors of Croatia or of Slavonia.

Remounts in Time of Peace.

The number of horses for the Austro-Hungarian army on peace footing, is placed at 52,496. The length of service is eight and a half years for saddle horses and ten years for draft horses. Consequently, the remount requires the purchase of about 6,000 horses per year.

There is appointed for the acquisition and distribution of horses among regiments, four commissions of remounts sitting at Pesth, Szegedin, Lemberg and Rzeszon. Each commission is composed of a field officer of cavalry as president, a field officer as assistant, a subaltern officer (generally retired), an accounting officer, and a veterinary surgeon. However, the corps of cavalry and artillery can be authorized by the Secretary of War or by the Secretary of National Defense to buy directly the necessary horses. In this case the purchase board is composed of a field officer or captain as president, a subaltern officer, for keeping the accounts, and a veterinary surgeon belonging to the corps.

The greater number of horses are bought in the autumn; in spring and summer, only those can be replaced which have failed. For the remounting, notice is given to all producers, and advantage is taken of the competition. It is only in case of this means not giving a sufficient supply that they can be purchased from dealers. Finally, to favor more directly the producers and obtain choice horses, the president of the board, or his assistant, visits the studs.

The animals purchased should fulfill the following conditions: In age, not less than five nor more than seven years. Of minimum height, as follows: For cavalry, 15½ hands; for artillery saddle horses, 15¾ hands; for the train, 15 hands; for pack, 14½ hands; for draft, 15¾ hands. Horses of the minimum height, however, can be accepted only when they are very well formed.

The minimum age is five years, but they can be accepted at four and a half, and even at four in limited numbers of robust and well-built animals. The mean price is fixed each year by the Secretary of War. In 1893 it was \$125 for saddle horses, horses for the train and pack horses. This price was advanced to \$175 for draft and artillery horses. The remount board and organizations authorized to buy direct can, however, vary from the mean, on condition of not going beyond the lump sum which is allotted. The purchase boards have at their disposal a certain sum which they can employ to purchase horses of a superior quality.

Draft horses for the train accrue partly from the remounts and partly from animals condemned in the cavalry and artillery. As to the saddle and pack horses destined for the train, they come directly from the remounts.

As it is difficult to procure, at the price fixed, subjects of five years, strong and well formed, the commission buys colts also, from two and a half to three years, at a mean price of \$112.50. These are cared for in special depots, and are turned over to their organizations when they have attained the age of five years. There are three of these depots as follows: At Nagy-Daad (Hungary), at Bilak (Transylvania), and at Klexa-Dolna (Galicia). They raise there, respectively, 800, 500 and 400 colts. Each of these depots is commanded by a field officer of cavalry, having under his orders a quartermaster, a veterinarian, six to ten non-commissioned officers, and thirty to seventy hostlers. The management of the remounts is under the supervision of a general, residing at Vienna, who has the title of Inspector General of Remounts. He is an assistant to the Minister of National Defense. Special attention is attached to the training of horses intended for remounts for officers.

It is proper to remark that the right of obtaining from the government a horse without cost, is granted in the different arms to officers of grades, as follows: To adjutant-majors of foot troops and of fortress artillery, to subaltern officers of cavalry, not comprising troop commanders, to subaltern officers of field artillery and of the train. The other officers must buy their horses; they can, however, receive them from the purchasing commission, at a price varying from 812 francs 50 centimes, to 1,000 francs. (\$162.10 to \$200.00). Commutation of forage is allowed to officers who have to buy their own horses. The officer who has kept a charger for eight consecutive years, can obtain a new one, and the old one becomes his property. The right of receiving a new charger is accorded an officer who has lost his at the end of five years, on condition, however, that the loss is not his fault.

RUSSIA.

Every year, towards the 1st of September, a certain sum is allotted to the administration of the cavalry reserve brigade. This sum varies according to the price assigned for each new horse; thus 300 rubles (\$150) are allotted for each horse of the Cuirassiers of the Guard; 185 rubles (\$92.50) to 207 rubles (\$103.50) for light cavalry horses of the guard, and 125 rubles (\$62.50) for each horse of the cavalry of the line. This sum includes, besides the price paid for the horse, the cost of maintenance until its delivery at the depot of the cavalry reserve. The remount sum is placed at the disposition of the officer in charge of the remount; he has the right of purchasing the horses where and when he pleases, of paying higher or lower prices than those assigned by regulations, on condition that the horses reach their places of destination at the appointed time, and that they fulfill all requirements. The officer in charge of the remount has no account whatever to give of the sum allotted him for the purchase of horses. The general supervision, however, of his actions, is imposed upon the chief of the cavalry reserve brigade. Each of the officers in charge of the remount has his remounting depot, to which the purchased horses are brought; they are organized at points designated by the Chief of Military Districts, with the authority of local governors.

Every year, on dates fixed by the Inspector General of Cavalry, the officers in charge of the remounts must deliver the designated number of purchased young horses to the cadets of the cavalry reserve brigades. These horses are kept for about one year in these

depots, where they are trained so as to be perfectly calm, quiet and tractable by the time they are to be delivered to the regiments. They ought not to shy at local objects, water, or on firing, should not have any vicious habits, should obey their riders (they are ridden with a snaffle), leave the ranks calmly, and their gait, both walk and trot, should be even; great attention is given to proper care of the horse, as well as to its complete training in the work required of it.

These young horses are examined in autumn by special committees (each committee consists of a general—one of those attached to the Inspector General of Cavalry—a chief of brigade of a cavalry division and the chief of the corresponding cavalry reserve brigade) which decide how many and which of them are to be sent and to what regiments, all horses being entered upon lists signed and countersigned by the members of these committees. The transportation of the horses to the regiments is imposed upon the cadres of the cavalry reserve. This is effected by special commands (for each regiment separately) consisting of one private for each two horses, who are placed under the command of a captain of the corresponding regiment. These commands are transported partly by rail and partly marched to their place of destination; in the latter case half of the horses are ridden and the others led, the horses being changed daily. Upon the arrival of the horses at their regiments they are minutely examined; none of them, however, are condemned. The command, after having delivered its horses, returns to its depot.

The condemnation of old horses takes place before the arrival of the new ones. All horses which have served twelve years are condemned, whatever their qualities may be; all vicious younger horses which cannot be properly trained are next condemned, and lastly, horses are condemned which have served from ten to eleven years. The horses which are to be condemned are designated by the commander of the regiment, and his action is later on approved by a committee consisting of the president—chief of the cavalry division—the chief of brigade, and the commander of the regiment whose horses are being condemned.

As these horses are mostly condemned on account of their age, and as many of them are perfectly good for infantry officers' service, the latter are allowed to choose the best of the condemned cavalry horses for their use. These horses are purchased at a price fixed by the military council for every three years, varying from twenty-five to forty roubles (\$12.50 to \$20.00) each. All the remaining horses

are sold at auction or private sale by a commission consisting of three officers, and presided over by a captain. The money brought by a sale of these horses is transferred in full to the nearest district treasury.

All cavalry horses are registered in books in which are given their age, height, and the date of their entry into service, as well as other details concerning them. One of the books is kept at regimental headquarters; the other in the staff of the cavalry division. All the horses are branded on the left side of the neck under the mane, with two figures indicating the year of their incorporation in the regiment, thus, 87, 88, etc. Each horse has its number and name, both being entered on the rolls. The name is not changed throughout the whole term of service of the horse.

FRANCE.

R. sources.

The statistics of 1870 gave France a horse population of three millions. The enormous depletion during the war diminished this number by one million. Since that time breeding has received such an impulse that a total of about three million is again on hand. In the campaign of 1870 and 1871 the government was obliged to purchase horses abroad for the remount of its troops.* The purchases were made in America and did not give satisfaction; the imported animals were badly formed, irritable, and incapable of prolonged work. It was decided to have recourse solely to national production, and in order to encourage this, the government gave privileges. At present, to satisfy the needs of mobilization, there are draft horses in plenty, but it is not thought the required number of cavalry horses can be procured in the country. In the north and northeast part of the country the Anglo-Norman type predominates. In the southern part, the Tarbes. The horses of the Anglo-Norman type are larger and more robust. They are particularly good as draft horses, but are used for both purposes. The Tarbes type, on the contrary, is lighter, of Oriental shape, and are suitable only for

*The attention of the reader is called to an article in the CAVALRY JOURNAL for December, 1906, by Dr. TREACY, Veterinary Surgeon Eighth Cavalry, on the subject of a French commission purchasing remounts in Indiana. In it he states that although the rejections were probably eight or ten to one accepted, the average horses of the former category would have been gladly accepted for the American cavalry service. They were buying stallions, geldings and mares, but preferred the latter. The price averaged \$150, but ranged from \$110 to \$225. It appears from this that France does not produce enough horses for the army, or that ours are more suitable.

saddle horses. The French cavalry is remounted with horses of both kinds, but principally those of the latter type. The half-blood French horses of the Anglo Norman type are produced by the direct or indirect fusion of the pure English blood in the veins of native horses of the north and northeastern part of France. The proportion of English blood varies: in good harness horses there is about fifty per cent.; in those destined for the saddle, there is at least three-quarters, and sometimes more. The Tarbes horses are created by the fusion of three bloods, viz: the Arab, the English and the native of southern France, the latter being of Oriental extraction. Lastly, the Boulogne and Percheron horses serve for the artillery and train; they are equally good for the saddle and heavy cavalry. The Ardennes race is good for artillery, light cavalry and even cavalry of the line. Among the southern races we must also mention the Poitou type, which furnished remount horses fairly good for cavalry, artillery and train. Also, the Limoges type, which furnished partly light cavalry.

Remounts in Time of Peace.

In time of peace the French army possesses about 122,050 horses (the gendarmes not included); the annual remount is about 14,000. For the service of remounts the country is divided into two regions. The first is as follows: The seat is at Caen, and comprises the remount depots of Cen. St. Lo, Alençon, LeBec-Hellouin (annex at Auor geville), Guingamp (annex at Les Nevar), Angers (annexes at Montoise and at Boval), and Paris (annex at St. Cyr).

The second consists of the following: The seat is at Tarbes, and comprises the remount depots at Tarbes (annexes at Baza, Sadiac, Le-Gardos), Agen (annexes at Lastours, Aynet and Lavigne), Marijnak (annex at Le Gibaugh), and Gaeret (annexes at Bonnavois, Bella, St. Guinen, and Debusson). There are also remount depots placed at different places directly under the direction of the Supervisor of Remounts. We must also mention the Hippic establishment at Suippes, where colts are placed until they attain the age of five years, and the establishment at Algiers and Tunis, which comprise the remount depots of Bligax, Mostagnan, Constantine and Tuniz, the stallion depots of Blieda, Mostaganen, Constantine, and the depots of mares of Tiaret. All establishments of remounts are placed directly under the Minister of War. Questions touching them belong to the second bureau of the cavalry department. The commandant of the regional conscription and the direc-

tors of hippic establishments at Algeria have the grade of colonel or lieutenant-colonel. The remount depots of France are commanded by chiefs of squadrons (majors). A veterinarian is attached. The accountability falls upon cavalry officers of the rank of captain or lieutenant. In the different establishments of remounts, as well as military and training schools, service is rendered by eight companies of remount cavalry, charged solely with the care and training of horses destined for the army. The first four companies are especially attached to establishments of remounts in the interior. The fifth is employed in military schools, and the three others are stationed in Algeria. The cadres of each company consist of four officers and a certain number of non-commissioned officers and privates, varying from twenty-nine (fourth company) to seventy-one (first company). The number of men depends upon the importance of the remount depot and the number of detachments they have to furnish. The commanders of companies one to four are permanent, but the men are simply detached from regiments (eight from each). The companies of the remount service are placed as to advancement, police, discipline and administration, under the direct authority of the Director of the Remount System. The commandant of the cavalry school at Saumur has analogous functions concerning the fifth company. Cavalrymen, called riding hall masters, are especially charged with the grooming and care of chargers and riding hall horses at the cavalry school at Saumur, the special military school at St. Cyr, and the higher war school at Paris, as well as a military prytaneum at La Flache. They form part of the cadre of the establishments and are recruited among the men of the troop having reached their last year of service, and among old men in the service who have served in the cavalry and not under thirty-two years of age. Purchase of horses is made by cavalry and artillery officers, detached or permanently serving in remount depots. Each cavalry regiment proposes annually the names of two officers of the grade of captain or lieutenant for service at the remount depots. These officers must have followed a course of instruction at the school of application for cavalry at Saumur, or have been instructors, or under instructors, or possess a special knowledge of the horse. The captain commandants cannot be proposed except on their own applications.

In artillery, propositions are made on the same conditions as in the cavalry. The officers designated are attached to depots from October 1st to May 15th, and then go back to their regiments. The cavalry corps stationed in Algiers proposes three captains or lieu-

tenants for each two regiments; they are detached from January 15th to July 1st; these officers must prepare themselves for the role of purchasers. Those who are recognized as likely to become good purchasers are reported to the Minister for selection to make purchases from fairs, exhibitions, etc.: these purchases are made without any intermediary, and it is strictly forbidden for officers to enter into any business relation with merchants. The horses are generally bought at the age of three and one-half and placed in depots where they are well cared, for and gradually trained for the purposes for which they were purchased. At four and one-half years they are distributed among the different regiments; depots contain 7,200 horses, and 7,000 are annually distributed among the troops. Ministerial instructions determine every year the number of horses to be bought, the regiments to which they are to be sent, and the time of purchase, as well as the average price. For 1894 the price was \$232 for reserve cavalry; \$206 for line cavalry; \$182 for light cavalry, and \$120 for horses of African race. The price of draft horses was fixed at \$200. By instructions issued in 1892, each cavalry regiment receives yearly seven officers' horses and ninety-one troop horses; each regiment of the normal contingent, seven officers' and eighty-three troop horses; the total number of remount horses for the artillery was 4,135, and 104 mules; cavalry regiments, horse batteries and officers of artillery cannot receive remounts under five years of age. Animals found deficient for cavalry or artillery service are given to the train. The chief of corps of cavalry gives authorization for remounts of field officers under his orders; however, they cannot authorize above the allowed number. These chiefs of corps must ask permission of the commander of the army corps when their own personal remounts are in question: each of the cavalry and artillery regiments is obliged to keep a reserve for the special remount of officers belonging thereto; these horses belong to a special category, and the delivery is made at the price of purchase: when they have passed the age of ten they are given over with a reduction of one-seventh of their purchase price; later, the horse is given over by a reduction of one-seventh for each increase in age: the total diminution, however, cannot exceed five-sevenths: the average price of cavalry horses for officers is as follows: Reserve, \$280; line, \$252; light, \$228. For artillery, engineers, military train, infantry, gendarmes, officers without troops and detached persons (except the horses of African race), \$252. Horses of African race (no matter what branch of service), \$152; the gratis remount constitutes a right for generals and superior officers of all arms, as well as for certain functionaries.

Captains, first and second lieutenants are mounted gratuitously, and they must conform to the regulations given relative to the limits in which their choice may be made.

Generals and superior officers have the right of exacting from the state the number of horses to which they are entitled: the generals have to submit for the purpose a reduction of \$3.00 per horse from their monthly pay. The horses delivered in this way remain the property of the state, and those which die or become unfit are replaced; after eight years' use of the same horse it becomes the property of the officer. The officers authorized to get their horses by monthly pay have the right to present to the remount commission animals bought at private sale, and which are fit for immediate service. If the price of the horse chosen exceeds \$200, the surplus is paid by the officer at the time of delivery: officers belonging to the active army have the right to the ration of forage determined by a special tariff: an annual allotment of \$36.00 is allotted to all non-commissioned officers possessing one or more horses: this money serves wholly for harness; for superior officers, mounted at their own expense, the indemnity comprises a sum not exceeding \$36.00: officers having become proprietors of horses can obtain indemnities for them in time of peace if they are lost by extraordinary causes, the same being left to the decision of the Minister.

BELGIUM.

Resources of Horses.

According to the annual statistics the horse population of Belgium is 271,975 head, distributed through the Provinces of Hainaut, Brabant, Namur and both Flanders. Studied in its past the horse race of Belgium, not including the Ardennes race, which tradition says is of Arab origin, may be considered as belonging to one type; it comes from the Flemish horse, which formed a separate race, and had some renown in ancient times: from this race has sprung the different varieties of horses now existing in Belgium. In occidental Flanders we meet horses of Furnembach (Verne-Ambacht): they are tall, very strong, very enduring, and are good for draft purposes; in the neighborhood of Courtrai, Audenaerde, Gang, Grammot, another variety, less heavy and less sought after, is raised: the best is that of Bruges, which is distinguished by more regularity of shape, more real energy, more rapid gaits, considering the size. We must also mention the horses of Hainaut, Annamur, which com-

prise almost one-third of the horse population of the country, and possess solid qualities; these horses are exceedingly apt for draft (heavy), and some of them are also built for service necessitating rapidity of action; they are also tall, and attain 1.64 meters. Moreover the horses of Brabant, of Hesbaye and Condroz are also strong, and good for heavy draft; the Ardonais race, principally met in Namur and Luxemborg, are also good for draft; the horses of this race are of average height, well proportioned, robust, frugal and intelligent; they have much endurance and rapidity; unfortunately training is not good, and moreover part of the best are bought every year from owners at fairs and markets, and sent abroad.

Remounts in Time of Peace.

The contingent of troop horses of the Belgium army in time of peace is 4,904 cavalry horses, 2,106 for the artillery, and 291 for the train, making a total of 7,301. There are also 1,767 officers' horses: the annual remount is about 1,000 head; the average service of the horse is a little over seven years; the sum of \$199,590 per year is allotted for the service of remounts. Every year, in the spring, the Minister of War informs proprietors and horse dealers that they may present cavalry and draft horses in all towns where regimental and staff of cavalry or artillery have headquarters. He designates the conditions required, as well as the price; each chief of a corps of cavalry or artillery forms a commission over which he is president, and attaches to it two officers and the chief veterinary; this commission is charged to effect the remount of the corps by direct purchases when horses are to be replaced; the commission is also authorized to buy as soon as losses take place, native and foreign horses presented to it if the same are perfectly good for service: these purchases are effected up to the 31st of December for cavalry, and to the 1st of November for mounted artillery; the commission may deal with all merchants that present themselves, laborers, owners of studs, horse dealers, etc. Officers are not allowed to present horses for the remount of the army; cavalry horses must fill the following requirements: Mane and tail to be long; geldings or mares, not younger than five nor older than six years; four-year-olds can be accepted, but must not exceed half of the number purchased; horses with prominent noses, as well as white, gray, piebald and different colored faces are refused; dark grays and roans are accepted; the horses must be well formed, strong and well proportioned all through, and without any flaw; they must possess the qualities of a good war

horse; the height must be: For the chasseurs, from 1 meter 52 to 1 meter 54; for the lancers, 1 meter 54 to 1 meter 56; for the cavalry school, 1 meter 56 to 1 meter 60; for artillery, 1 meter 53 to 1 meter 56.

For the train the horses must not be less than five nor more than seven years of age: the condition required is the same as for saddle horses. The animals must be without any flaw which could make them useless for the service for which they are destined: Irish horses must be short-backed, and must serve both for the saddle and draft. Native horses must be 1 meter 48 to 1.55 in height: the Irish from 1.50 to 1.56: the price of purchase is fixed as follows:

	<i>Foreign.</i>	<i>Native.</i>
Chasseurs and lancers.....	1,000 to 1,100 francs.	1,050 to 1,150 francs.
Cavalry School.....	1,050 to 1,150 francs.	1,100 to 1,200 francs.
Saddle Artillery.....	1,050 to 1,150 francs.	1,100 to 1,200 francs.
Artillery draft.....	1,000 to 1,150 francs.	850 francs.

Besides the regimental commissions, there exists a commission composed of an artillery colonel as president, one major, two captain commanders and two veterinarians as members; they go to the markets of Namur and Luxemborg for the purpose of buying native draft animals which are distributed when necessary among the four artillery regiments (field); to this commission are attached two lieutenants, two non-commissioned officers and eight hostlers; they are charged with the care of the purchased animals, the freighting on railway cars, etc. The train is supplied with cavalry and artillery horses which no longer possess the necessary qualities for cavalry and artillery service.

We must mention the special remounts for the cavalry school at Ypres. A certain number of English pure blood are especially purchased for this establishment, and are paid for at the rate of \$360 each; officers of all grades and all branches of arms may, under condition of reimbursement, obtain horses belonging to artillery and cavalry regiments; officers of the general staff, aide-de-camps and adjutants, cavalry and artillery horses of any age whatever: mounted infantry officers without troops, and officers of the train battalions are authorized to choose horses aged not less than eight years; troop horses are given to them at purchase prices: in mounted service officers (with very few exceptions) receive their forage in kind: the other officers receive an indemnity for the feed of the horses necessary for their service; the sum of this indemnity varies between \$100 and \$400, according to the rank and position of

the officer. In addition, infantry officers attached to the general staff and detailed to a corps of mounted troops or those who temporarily fill the offices of general staff receive an indemnity of \$8.00 per month; on the same conditions officers belonging to siege artillery and to the engineers receive an indemnity of \$4.00 per month.

ITALY.

Horse Resources.

Italy is one of the great powers of Europe where the horse supply is the poorest. The census of 1890 gives only 755,000 horses and 302,000 mules; for some time the government has been aware of the situation, and has created depots of stallions at Cremona, Ferrara Reggio, Peas and St. Mary of Capua. Large sums have been expended for the improvement and training of the horse. During the past four years more than \$5,000 have been spent for this purpose, and Parliament has recently voted the necessary credit for raising the number of stallions from 537 to 800. Thanks to unceasing efforts, the indigenous race has been improved, and the production of horses is sufficient at present. The mules of Sicily, the animals of Naples and Gaynor, are excellent. The troop horse is found especially in the small and nervous races of Maremma, Tuscany, the environment of Rome and Naples, the Capitanate Calibre and Sardinia. The Roman race has been particularly improved by Arab blood. Crossing with the pure English blood has given products failing in resistance and body, far inferior from the standpoint of the army, to those obtained with a pure or a hard blood Arab.

Remounts During Peace.

The effective of horses in the Italian army is 47,866 during peace. An average service of the cavalry horse is ten years. In 1884 the government was obliged to buy, at a very high price, especially in Hungary, more than half the horses intended for the army. But since that time the supply of the country has been sufficient for the service of remounts. Cavalry regiments receive every year from studs, the necessary number of horses; artillery regiments, on the contrary, buy their horses where their garrisons are situated, or (a very small number) abroad. There are two kinds of remounts in Italy, viz: the general remount, where colts, three and four years old, are bought and sent to training depots, and the

special remount made by the regiments on their own account. When the colts from the depots do not possess all the qualities necessary for cavalry service, they are given over to the artillery regiments. There exists at present six depots, established at Norva (Sicily), Grossetta (Tuscan March), Parsano (Province of Naples), Palmanova (Venetia), and Porta Vecchio (Province of Modena). They possess in all about 8,000 head. The personnel of each is composed of a field staff officer or captain, one lieutenant, two veterinarians, one officer of accountability, two secretaries, and a certain number of grooms. Formerly the six depots were placed under the supervision of a colonel of cavalry; at present the inspection of the remount service is made by two inspectors, each of whom is charged with part of the territory. A royal decree of June 26, 1887, established under the direction of the Minister of Agriculture, a hippic (horse) council, presided over by the Inspector-General of Cavalry. The duties of this council consist in the regulation of the stud and training depots, the study of types of horses to be bought in Italy and abroad, and, lastly, the relation of the state to the hippic establishment, organized by private enterprise and industry. In order to remount the Italian army with native horses, and to encourage the production of cavalry horses, the decree of 1870 specifies that the age of purchase for cavalry horses must be between three and four years. This measure is for the purpose of preventing the proprietor from overworking young animals for the purpose of personal gain. The colts are bought by remount commissions, which go to the most important centers of production, where the trainer is informed of their arrival, and present their horses. The height of three-year-old colts must not be under 14½ hands. For the four-year-old the minimum is 14½ hands. Horses, which happen to be bought after reaching four years of age, are directly distributed to regiments. Horses are sent to the cavalry in February and May. They must be half broken, and allow themselves to be groomed, shod, and must walk calmly when mounted. A special officer is designated to superintend, during six months, the trainers charged to obtain these results. Wild animals are trained and broken by being placed between cavalry horses, used expressly for that purpose.

The remount of artillery is made in the following manner:

(a.) They are purchased on the spot where the regiment or detachment is stationed. In case, however, that the locality does not offer sufficient numbers, the Minister designates another place where they can be secured.

(b.) The average price is fixed by the Minister at the time purchases are to be made.

(c.) The regimental commission named by the colonel for the purchase of horses consists of the president (major or lieutenant-colonel), and two members, a captain and a captain-veterinary or a lieutenant-veterinary.

(d.) The horses purchased by regimental commissions must meet the following conditions: The height must not exceed sixteen and a half hands and not be less than fourteen and three-fourths. The horses must be able to perform the duties of draft animals; allow themselves to be harnessed; be over four and less than eight years old. Half of the purchases must be geldings; no distinction of race is made in selection, but preference is given to native horses.

These officers may also receive horses furnished by the army, the conditions of the transfer being regulated by the Minister. In order to facilitate the purchase of horses, the government makes advances to officers from \$200 to \$480, varying in accordance with rank. The non-commissioned officers of cavalry and artillery are allowed to use troop horses; in such cases they do not receive the forage ration, the horse furnished by the troop being counted in lieu of the ration. Forage is distributed either in kind or in money as preferred by the officer. In the latter case the ration is fixed at twenty cents.

As to remounts for infantry captains, the law of February 22, 1892, made modifications in the existing state of affairs. Captains acting as majors are mounted, and receive indemnity for remounts and forage. When an officer remounted on his own animal loses his horse during service, the government gives him an indemnity equivalent to two-thirds the value of his horse, but not exceeding \$160.

ENGLAND.

The remount service of the British army is under the charge of an inspector-general of remounts (a major-general), with a staff of eight officers (assistant inspectors of remounts) and four veterinary officers. The remount section of the War Office is charged with matters pertaining to the purchase and distribution of remounts, casting of unserviceable horses, record of reserves of horses, and accountability pertaining to the remount service.

Remounts are purchased from four to seven years of age, must be between fifteen hands two inches and sixteen hands in height,

and are either transferred direct to the regiments or sent to the remount depots. The average service of the horse is about eight years and nine months, and about nine per cent. are cast yearly. The average price of a remount is about \$245. The annual contingent of remounts comes to about ten per cent. of the strength of horses.

UNITED STATES.

The law for the supply of remounts in this country is to be found in the acts making appropriations for the purchase of horses for the army.

The act making appropriations for this purpose for the fiscal year ending June 30, 1899, reads as follows: "For the purchase of horses for the cavalry and artillery, and for the Indian scouts, and for such infantry and members of the hospital corps in field campaigns as may require to be mounted, and the expenses incident thereto, one hundred and thirty thousand dollars: *Provided*, That the number of horses purchased under this appropriation, added to the number on hand, shall not at any time exceed the number of enlisted men and Indian scouts in the mounted service, and that no part of this appropriation shall be paid out for horses not purchased by contract after competition duly invited by the Quartermaster's Department, and an inspection by such department, all under the direction and authority of the Secretary of War." (G. O. No. 9, A. G. O., 1898.)

Under the heading, "Purchase of Public Animals," paragraphs 1028 and 1029, Army Regulations, we find the following:

"1028. Purchase of horses for the cavalry and artillery, for Indian scouts, and for such infantry as may be mounted, will be made by contract, after competition duly invited by the Quartermaster's Department and an inspection by such department—all under the direction and authority of the Secretary of War.

"1029. The cavalry horse must be sound and well bred; gentle under the saddle; free from vicious habits; with free and prompt action at the walk, trot and gallop; without blemish or defect; of a kind disposition; with easy mouth and gait, and otherwise to conform to the following description: A gelding of uniform and hardy color; in good condition; from fifteen and one-fourth to sixteen hands high; weight not less than 950 nor more than 1,150 pounds; from four to eight years old; head and ears small; forehead broad; eyes large and prominent; vision perfect in every respect; shoulders long and sloping well back; chest full, broad and deep; fore legs straight and standing well under; barrel large and increasing from girth towards flank; withers elevated; back short and straight; loins and haunches broad and muscular; hocks well bent and under

the horse; pasterns slanting and feet small and sound. Each horse will be subjected to a rigid inspection, and any animal that does not meet the above requirements in every respect must be rejected. A horse under five years old should not be accepted unless a specially fine, well-developed animal."

The succeeding paragraphs under this heading pertain to the purchase of artillery and other horses, and to the purchase of mules. Describes how they shall be branded, transferred, condemned, sold, etc., together with character of descriptive books, etc., to be kept. We have here the specifications of an ideal cavalry horse, and by the regulations any horse that does not meet the above requirements in every respect must be rejected.

The method now pursued is about as follows: The Quartermaster's Department advertises in the papers in various localities throughout the country that a certain number of horses are to be purchased by the government by contract to the lowest bidder: all persons who desire to bid are furnished with blank proposals, which specify in detail the conditions, place of delivery, character of horses, amount of bond to be furnished, and in fact all the data necessary in making the contract. On a specified day the bids are opened, and the contract awarded. An officer of the Quartermaster's Department is given the duty of purchasing and inspecting the animals, assisted by a veterinary surgeon. The horses are purchased and generally retained until they can be shipped in car-load lots to their destination, that is, directly to the post where they are received for by the post quartermaster, and issued on memorandum receipt to the commanding officers of the organizations for which they are intended. There is no definite length of service: they are retained until reported unserviceable by the commanding officer of the organization to which assigned, when they are placed on an inspection report, inspected by the inspector of the district on his next visit to the post: if adjudged by him unfit for service, they are condemned, and ordered by him to be sold, which is done by the post quartermaster, the sale taking place after advertising it for a period of ten days. If he does not consider them unserviceable, they are continued in service.

If sold, horses are generally purchased by parties running delivery wagons, drays, a line of herdies to the neighboring towns, or even put to some work more degrading than any of the above. Thus ends his career. It is not the object of this article to criticise, but simply to outline the methods pursued in obtaining remounts. However it is impossible to leave a subject in which every good

cavalryman is so much interested, without commenting on the method outlined. Several methods have been followed at various times to procure remounts for our service, and in turn abandoned. The one which has met with most favor by cavalry officers is the purchase in open market by a board for that purpose. This was tried in some departments after the purchase by advertisement, and contract failed to give satisfaction. Boards of officers were appointed from the organizations requiring horses, and were permitted to visit districts where suitable horses could be procured, and purchase acceptable ones. There was no restriction placed other than the average price to be paid for all horses to be purchased. The Quartermaster's Department, I have been told, objected to this method, and not being backed by law, it was abandoned. Certainly this seems to be the method with some modification that would be most acceptable to cavalry officers. At other times boards were appointed without apparent regard to the qualifications of officers placed on the duty. Not infrequently infantry officers were so detailed. While there is no question that certain officers possess a fair knowledge of the horse, independent of the arm of the service to which they belong, certainly a concession ought to be made as a matter of *esprit de corps*, if for no other reason, to allow purchase boards for cavalry horses to be composed of cavalry officers.

Formerly the appropriation bill allotted a certain amount of money to be expended for the purchase of horses for the army, but recent acts have specified that it shall be done by the Quartermaster's Department, and the inspection made by the same. The cavalry is thus compelled to twirl its thumbs while this department supplies it with the most essential element of its equipment, and has no voice to check this method in case the horses supplied do not reach the standard laid down in the army regulations. So long as the post quartermaster will receipt for the horses, as serviceable, nothing can be done. Should the animals, on arrival, be found, by a casual inspection, to be, on account of disease or injury, wholly unfit for service, the cavalry can then come to the front, in the shape of a board of survey, to recommend that the animal be submitted for the action of an inspector, with a view to condemnation.

I criticise this method, not the individuals who do the purchasing, some of whom are thoroughly familiar with the horse, and competent to supply the army with standard horses, but we all know that purchasing officers have seldom been selected on account of their special fitness for the work in hand, but as a matter of convenience. Referring again to the regulations, specifying the quali-

ties which the horse must possess, and whether or not those purchased under the contract system, with its civilian inspectors, compared favorably with those purchased by cavalry boards, it has been my experience that they were much inferior to those purchased in the open markets. Quoting from an able article on this subject, by Major HARRIS, First Cavalry, now retired, my observation has been the same as his: "On the contrary, many of them have partaken of the character of the Clydesdale, Percheron and Norman stallions, clumsy, loggy, heavy-limbed brutes, calculated to break the hearts and destroy the usefulness of any cavalry soldier so unfortunate as to be obliged to ride them. While others, of weedy growth, with their long legs and backs, appear to have been the refuse progeny of trotting stallions, bred to inferior mares. Both classes equally unfit for cavalry service, and likely to be abandoned on the first march in which the powers of endurance of cavalry horses should be at all tried."

The fact that this country does not breed for military purposes, and that horses suitable for cavalry are scarce, makes it all the more necessary that a system be adopted by which by patient and careful work on the part of officers whose profession has taught them to know a horse, we may be provided with suitable remounts.

The method until recently in vogue is similar to that followed at the opening of the Civil War. The older officers are familiar with the effect of it, and history will inform the younger ones how deplorably it failed at a time when the country was in peril.

The history of our cavalry in the early period of the war is replete with disaster and inefficiency, not a fault with the cavalry itself, but for other reasons, and very largely due to the indifferent and worthless mounts, few of which survived a campaign, and many of which died before they could be sent to the front. This evil was remedied by the establishment of the cavalry bureau which placed the responsibility of inspections upon cavalry officers.

This was the turning point, and from this time the cavalry continued to improve. We are all familiar with its brilliant exploits during the remainder of the war, and we all know what an important part it played in the last acts of the struggle for the maintenance of the Union. This system proved eminently successful. I do not believe that we can ever get civilian inspectors who will fulfill the requirements in that respect in time of urgent need.

For the past two years there has been a marked improvement in the character of horses furnished the cavalry, for the reason that civilian inspectors have been discharged.

The entire purchase of horses for the army is placed in the hands of one officer of the Quartermaster's Department, who during sixteen years' duty in the cavalry prior to transfer to the Quartermaster's Corps, made himself a proficient judge of the horse. He now combines the duties of purchaser and inspector, still assisted by a trusted veterinarian, who inspects for soundness only. He is authorized also to restrict purchases and contracts to that section of the country where the most suitable mounts for cavalry can be obtained, and authorized to visit the necessary localities to make inspections. So long as this continues no complaints will be heard, except that it was to be done under contracts; but this is a temporary detail: the officer so well qualified for this purpose may at any time by the stroke of the pen of the Quartermaster-General be placed on duty in a clothing depot, and replaced by an officer whose training has not been such as to make him a competent horse buyer.

While one officer can purchase and inspect all horses, under the present system, that we need under existing conditions, we are threatened with a foreign war, and should a large increase in horses become necessary, what method will be adopted. Will we return to the pernicious system formerly in vogue with its civilian inspectors? Will additional officers of the Quartermaster's Department be placed on this duty regardless of their qualifications, or will cavalry officers be selected for this important duty?

Will our horses have to be purchased under contract, allowing unscrupulous dealers to thwart the best efforts of the purchasing officers, and compel them to buy indifferent mounts, or will suitable officers be selected to purchase in open markets?

The system should be one that would apply in peace or war, for when war is declared it is certainly an inopportune time to experiment. The system with its civilian inspectors failed once. Let us hope that it may never again be referred to except as one of the mistakes of the past.

If the Quartermaster's Department insists upon disbursing the fund for this purpose, allow it to continue to do so, but not in contracts by which the producer gets less than the value of his horse, the government an inferior animal, and the contractor the benefits, but by purchase in open market by officers selected for their fitness, with no restriction other than an average price for the whole number to be purchased. Make this price the same from year to year, and it is believed that in due time producers in suitable localities will furnish us with horses in ample numbers, filling all the requirements necessary for excellent remounts.

We must have depots in time of war; whether or not they would be advantageous with our small force of cavalry in time of peace, is an open question. There is no doubt of their advantage as places for training remounts, but their establishment and maintenance would be an additional expense to an already expensive arm—a matter to be considered at the present time.

MILITARY INSTRUCTION IN COLLEGES.

BY FIRST LIEUTENANT G. E. STOCKLE, EIGHTH CAVALRY.

ONE of the noticeable features of our military history, is the necessity which has obliged us, in every war of any magnitude we have undertaken, to depend on the people at large, in whom resided a very slight knowledge of military affairs, for the majority of the officers, as well as the men who were to do the fighting. This state of affairs, unpromising as it appears, has fortunately, not, as yet, led us into any great national disaster, though the historians tell us we were perilously near to the greatest in the earlier years of the Civil War.

Since that epoch, the government has committed itself to two measures, aiming to extend and popularize military training and discipline. It has built up our present fairly effective National Guard system on the slender framework of the anti-bellum militia system, and has greatly extended and improved the system of military school training. In the event of war, though we expect to draw many officers of volunteers from the National Guard, yet it is probable that the organizations will enter the Federal service with their integrity practically unimpaired, and the greatest number of volunteer officers, in the lowest grades at least, will be taken from among those volunteers who can show more or less knowledge of military affairs. Herein lies, in my opinion, the true field of military work in colleges, to prepare young men for duty as officers of volunteers.

It is a waste of time to devote from two to four years to the training of a boy in the duties of an enlisted man only. It is, of course, impracticable to have each individual become a cadet officer, but if the object of the cadet's course, his preparation for the duties of a volunteer officer, be kept prominently before his eyes, it is probable that the cadet privates will be as well fitted for their future

duty as the cadet officers, especially if the theoretical course for upper-class men be thorough and a good state of discipline be maintained throughout the course.

The military professor, on assuming his duties, will find himself seriously handicapped by lack of time if he is limited to the minimum required by law, which is two hours practical and one hour theoretical work per week. At most colleges this is exceeded, and at probably all of them the theoretical work is confined to the winter season. If I may judge by the apparent attitude of the colleges, I think there would be little complaint if the minimum were raised to four hours practical and one theoretical per week, which is not an extravagant allotment of time, considering the importance of the course and the amount of work to be done.

At most colleges the attitude of the authorities is satisfactory, as shown by the inspectors' reports. There are a few, however, where the support, financial or moral, or both, is not what it should be. The attitude of some governing bodies, due perhaps to their failure to appreciate the importance of military training and its value to the nation, is one of tolerance merely. In the case of some of the agricultural colleges the substantial support received from the general government, through the Morrill act, is the strongest reason for maintaining a department. In most of the colleges, also, the personal and official relations existing between the executive head of the college and the military professor, are unduly reflected in the status of the military department and the support it receives. If it be found, after a fair trial, that the authorities of any college are not disposed to recognize the military department as coordinate in importance with each of the others, or if political or personal motives lead them to place it in a secondary position, the detail should be at once withdrawn and the arms and equipments called in.

There is a strong demand for the services of officers by schools and colleges not so favored at present, and there seems to be no reason why a school which does not carry out the spirit of the law should monopolize a detail to the prejudice of some more well-disposed institution. The instructions for the government of officers on college duty should be more detailed than at present, and should prescribe more definitely the kind and amount of work required: in a word, should prescribe a schedule of work, elastic as to time, but rigid as to requirements, and each college, before receiving a detail, should agree to adopt the schedule as the minimum requirement in its military department.

Among other important matters which should, I think, be definitely settled between the college authorities and the War Department before a detail is made, are that proper financial support be given to the department; that the military course be compulsory on all male students of the college (except those excused for physical disability) for a specified number of years, three school years, or an equivalent number of full semesters being, I think, a reasonable time, and that graduation from the military department be required. No argument is needed to show that a reasonable annual appropriation is essential to the well-being of the department, yet this is one of the stock complaints of officers on this duty.

Another serious complaint is that at many schools a disproportionate number of students are entirely or partially excused from the cadet course for reasons which seem insufficient. This affects the cadet establishment by reducing the effective force, often to a considerable degree, and so interfering with the work, and it also creates a class which is looked on by many cadets as a privileged one, and so dissatisfaction is aroused.

The system in force at some colleges of requiring that temporary excuses from military duty should be endorsed by the military professor before final action, is an excellent one, and should be a requirement at all colleges. It seems to be the aim of the Adjutant General to bring about the requirement of graduation from the military department for a college diploma, and it is to be hoped that he will succeed, for nothing that can be done will give the department firmer standing with both cadets and faculty.

The report of the Inspector-General for 1896 states that there has been an appreciable improvement in the discipline of the cadet corps inspected. It seems to be well established that the training in self-control, manly bearing and courtesy, which the cadets receive, distinguishes them noticeably from those who do not take the course. The military course has, in fact, recommended itself to many professors who were originally indifferent to it, because, as one has said, "It is not necessary to teach the student promptness in his work, regularity in his methods and neatness in his dress, if he has had a year's cadet training."

There is a great diversity in the methods adopted in the various colleges for enforcing discipline, due probably to the varying conditions. The most complete, and probably most satisfactory, systems are those in force at colleges where the students reside in dormitories under military or semi-military control. This favorable condition, of course, cannot obtain at all colleges, but in my opinion,

it is practicable at all of them to extend the application of military discipline, and to establish, in the schedule of work before referred to, a uniform system of punishments. Marching formations, as to chapel, meals and recitations, extend the sphere of military influence, and are an aid to discipline.

A system of punishments, approximately uniform for all colleges military in their character, and recognized by each college faculty as an integral part of the cadet system, would be one of the greatest possible aids to discipline. The most usual punishments are demerit, reprimand, suspension and expulsion. Less common are fatigue duty, extra tours, confinement and public degrading from rank or dropping from military roll. Fines are still more unusual. Any of these are suitable, though there may be a question as to the military character of demerits, as well as to the advisability of using them where the civil government of the college does not recognize them.

But whatever be the system adopted, it should rest on the firm basis of previous approval by the college: the standing in military discipline of cadets should effect their standing in college discipline, and there should most emphatically be no neglect or delay in awarding and enforcing adequate punishment for such serious offenses as disobedience of orders, disrespect to superior officers, or chronic absenteeism. Offenses of this character should, I think, be everywhere matters for faculty action, on account of the moral weight such action would have, while minor infractions of rules should have punishments assigned from cadet headquarters after opportunity for explanation has been given.

There are not, as a rule, many serious military offenses committed, especially if the cadet officers have responsibility, and are allowed a reasonable degree of freedom, and if the esprit de corps be strong, as is apt to be the case. Absenteeism is commoner and harder to control than any other offense, and because it is so, it ought to be severely punished.

The prescribed uniform should, of course, be worn at all military formations, and I think there would be little difficulty in enforcing a requirement that at no time should a cadet wear mixed civilian and cadet dress. It would be desirable that the uniform should be worn at all times on the college grounds, but this is, for several reasons, an impracticable requirement at most places. Cadets should not, however, be permitted to make themselves and their uniform ridiculous by wearing the hybrid costume some of them indulge in. The kind of insignia of rank is not important,

but inasmuch as the average boy is fond of the pomp and circumstance of war, I think, where expense is not prohibitory, the chevrons should be of gold lace, and commissioned officers should wear a red sash. An overcoat is, in my opinion, a more important article of cadet uniform than a dress coat and should be first provided.

At all the schools the organization is that of a company or battalion of infantry except four, which have regimental organizations. At most of them the artillery detachment is a separate organization, and there are some cycle, cavalry and signal detachments, but not all having independent existence. As in other respects, there is a deal of variety in the organizations, some having more and some less than the regulation number of non-commissioned officers to the company, some with large battalion staffs and some with small. The aim is generally to approach as closely as may be to the regular infantry establishment.

At a few schools, having battalions, the companies seem too small for effective work, having less than four sets of fours in double rank, which seems to me to be the minimum allowable. A clause in the 1897 report of the Inspector-General to the Secretary of War, seems to foreshadow a requirement that schools receiving details shall have an actual attendance of 100, not merely capacity to educate 150, as at present, and this will limit the detail of officers to schools where a battalion or at least two large companies, with commissioned strength and artillery, will be practicable. I do not think any smaller command would justify the detail of an officer.

The appointment of cadet officers should, I think, be regulated exclusively by the commandant and the executive head of the college. When nominations are referred to the faculty for action, it may happen, doubtless does in too many instances, that considerations of class standing will interfere with their confirmation; thus it happens that a man, who would be an excellent cadet captain, fails to become one because he is a failure as a chemist. All commissioned officers should be appointed by the president of the college, from a list recommended by the commandant, and commissions issued to them, signed by these two officers. The appointment of non-commissioned officers might well be placed in the hands of the commandant, and the non-coms. of the companies appointed on the recommendations of the cadet captains. At some schools, appointments to the lower grades are made by competitive examination, a good method in some ways, but apt to be cumbersome.

The Ordnance Department, doubtless for good reasons, has not been very liberal in the issue, or rather loan, of the 3.2 inch steel breech-loading field gun, and most of the colleges have the three-inch muzzle-loading gun, or even the old Napoleon gun. I think all officers, who have had college duty, will concur with me in the statement, that it is practically a waste of time to teach cadets the manual of a piece that would be a curiosity on any modern battle-field. It would be better, if the breech-loading guns are not available, to issue a machine gun, at any rate to such colleges as have facilities for long range target practice. The artillery is usually a favorite corps, at some schools it is made a corps d'elite, and the work only needs to be encouraged to give good results.

The question of expense makes it impracticable to give instruction in cavalry tactics, at all but a very few schools. The scouting and reconnoitering duties, which in service fall to the cavalry, can be and are performed by bicycle squads. Quite a feature is made of signaling at most schools, and the instruction is made to include telegraphy as well as visual signaling.

The regular routine drills are apt to become irksome to cadets, as to older men, after a time, and since the commandant's authority over the cadets always rests, to a considerable degree, on his personal influence and moral ascendancy over them, he finds it more than ever necessary to make the drills interesting by varying them. Hence street parades, escort of State dignitaries, and dress parades and reviews are popular with military professors. A powerful means of arousing enthusiasm is a competitive drill. Where it is practicable, drills between different colleges are the best, but I think every school should have, in addition to contests with outsiders, a contest between the different companies in the battalion, and the colors are in my opinion, the best prize that can be offered. Medals can be offered for the best drilled non-com., and the best drilled private, and I know from experience that the annual drill day will be looked forward to with great interest. Two handsome gold medals with college crest and suitable inscription, may be had for \$15.00, so expense need not be an obstacle.

I am convinced that weekly inspections under arms are of prime importance to the discipline of the cadet corps. They should be required by the War Department throughout the college year. Local circumstances will govern the choice of the day for holding these inspections, whether at the beginning or the close of the school week, though, other things being equal, the latter will probably be preferable. But, whatever the day, it should be the occasion when

all the authority the commandant possesses should be used to enforce the greatest attendance, best condition of arms and accoutrements, and neatest dress and appearance possible. Absences from inspection could well be made to count more against discipline record than absences from ordinary drills, and the policy should be adopted of excusing no cadet from the duty except for strong reasons.

I believe in recognizing the athletic organizations of the college, and granting officials and participants in the games a limited number of excuses from drill, and it is sometimes politic to extend like favors to other organizations, as the Glee Club, but it ought to be understood that no excuse from the weekly inspection will be granted on such grounds as these.

A fair proportion of colleges have suitable drill halls, either their own buildings or the armories of local National Guard organizations. Practically all have some sort of room that can be used in stormy weather, and on the whole the cadets are as well equipped in this respect for indoor drill as the regular army in its garrisons. Nevertheless, those schools in the northern part of the United States have so little good weather during the school year, which, it must be remembered, does not include the summer months, that the need for indoor drill in winter is imperative. The latter two or three months must be given up almost altogether to battalion drills, target practice, marches and camp, and there is small opportunity for company drills.

It seems to me that at the same time a minimum limit of attendance is prescribed, the college could be required to furnish a drill hall large enough for at least a company. There ought also to be an armorer at every college having government arms, and it has been recommended by several officers that an old soldier, some suggest a retired soldier, be given the place. Preference has been expressed for a man who could give instruction in trumpet calls, and I think many officers would appreciate this service.

An occasional march of a mile or so, with advance guard and flankers, is a welcome break in the monotony of the drill. It is often practicable to solve simple tactical problems in the drill hour, as for instance, starting each half of the battalion in a different direction, with secret instructions to direct their march on a common point, the force first arriving at the rendezvous to hold it against the attack of the others.

I would like to see the ammunition allowance to colleges increased from fifty to one hundred rounds per man, thirty rounds to be blank. The Springfield ammunition now in store is obsolete.

and will deteriorate in time, and this seems to be a good way to expend it with advantage to the government. It has been my experience that cadets are interested in target practice, and only need encouragement to develop into fair shots. They will get up matches among themselves, and it has lately been proven, by the experience of the University of Illinois, that it is practicable to have inter-collegiate matches.

The encampment is an important feature in the year's work, and is generally popular wherever it has been tried. The State is usually liberal in the loan of tentage, and the citizens are ordinarily hospitable to the cadets, too much so for the commandant's peace of mind sometimes, when he objects to becoming a feature at a county fair and has to refuse the invitation and take his command to some place where there will be fewer distractions to interfere with military duty.

The camp is usually the only occasion when a guard can be posted for twenty-four hours, and I think it should always be done. There is little satisfaction in a guard for instruction which is maintained only by day or for a few hours at night. Guard duty is fatiguing, and the guard should be no larger than necessary for the discipline of the camp and to ensure each cadet at least one tour during the camp.

Some schools reserve the year's target practice for the camp, and devote much of the time to it. Target practice might well be a feature of the camp, but not to exclude other work, as reconnaissance and field engineering. There are few encampments where it is impracticable to construct a shelter trench and a spar bridge, and these might be required. The camp is preeminently the military event of the year, and the more advanced work of the practical course finds its best application here. There ought to be little time devoted to routine drills that have been practiced at the college. If the annual inspection can be made during the encampment, so much the better.

A few words on the theoretical instruction will be sufficient to give my impressions of the subject. I think the drill regulations, guard manual and cadet regulations, if there are any, should be taught in non-commissioned officers' school, presided over by either the commandant or cadet captains, and need not be on the student's college record, except the discipline record. I say this, because these books must be studied from the very beginning, and studied continually, and promotion depends on knowledge of their contents, so the man is marked and graded in his company direct.

The theoretical course I should establish as part of the college course, having equal weight with any other study, would be: For Juniors: Minor tactics and military law; text-books, "Security and Information" and MURRAY'S "Handbook for Courts-martial." For Seniors: "Field Engineering," "Army Regulations" and "Elements of Strategy;" text-books, "Beach's Manual" and SARGENT'S "Napoleon's First Campaign." In addition, each Senior to be required to fill out from data furnished by cadet captains or imaginary data, a morning report, a muster and pay-roll, a clothing roll, a ration return, a discharge, requisitions for supplies on the different supply departments, and property returns. These to be made on the regular army blanks, handed in for correction, and the marks carried on the class record.

A series of lectures on military subjects, delivered to the entire corps, will be found a convenient and satisfactory way of teaching subjects, such as the organization of armies, that could not otherwise be touched on for lack of time. I have used as a basis for such a series, a volume of lectures delivered by different officers to the National Guard of the District of Columbia. The book is entitled, "The National Guard in Service," and contains lectures on the duties of officers on receiving orders for active service, muster-in, travel, camp, cooking, correspondence and returns, grand guards, outposts, reconnaissances, field fortifications, muster-out and discharge, preservation of health, care of wounded, military law, and others, by such officers as Lieutenant CHASE, Third Artillery; Captain BAIRD, Sixth Cavalry; Major CARPENTER, Fifth Cavalry; Colonel HAINS, Engineer Corps; Major DAVIS, Judge Advocate; General ORDWAY and Surgeon HENDERSON, District of Columbia militia. I know of no better series of lectures, though of course each individual commandant would change them to suit his own ideas.

The interest in military instruction in the schools of this country is increasing year by year, and I think they merit it, most of them at any rate. The standard of work can be raised considerably, without arousing antagonism from any of the institutions except a few that at present merely observe the letter of the law and not its spirit, and a little judicious pressure put on these would bring them into line, or they would drop out altogether, and the details could be transferred to others with better facilities and better will towards military instruction.

GUIDE CENTER AND LEADING.

BY CAPTAIN F. K. WARD, FIRST CAVALRY.

TWO years ago I read before the lyceum at this post* an essay, the subject of which was, "The Leader and Guide in Cavalry Movements." My present subject is practically the same, but it does not follow that I am now taking a course we have all heard of, namely, that of going down into the barrel for a back number, and dressing it up for new to save work. The subject is of sufficient importance to justify writing upon it two or three, or any number of times, necessary to bring the attention of cavalry officers generally to it, and have it fully considered and a decision reached, either for or against it. Since I wrote on the subject before, we have been furnished a new book of drill regulations, in which two methods of marching in line are authorized and prescribed. In one, the principle or method of leading, is applied, though very imperfectly. In the other, the principle of leading is not made use of.

I think no one will dispute the statement, that it is not a good plan to have two methods prescribed for marching in line, a movement which, for cavalry, is of more importance than all others combined. If two methods are given, both should be learned; that doubles the time required for instruction, which we can ill afford, and, I may add, that neither method will be as thoroughly learned as if there were but one. If both methods are not taught, some will prefer and practice one, while others follow the other, and troops may, at any time, fall under the command of officers who do not follow the method they (the troops) have been instructed in. Confusion would then inevitably result, and perhaps at a critical time. The new drill book needs revision in that particular, if no other. The present, therefore, seems to be a suitable time to take up the subject again, for when one of the methods is dropped, we are all

interested to have the better one retained. I believe the method of leading is by far the better one. I am informed that in all the principal foreign services, it has long been adopted. In most of the European services they have better opportunities for judging what is best, because larger bodies of cavalry are assembled for maneuver than in this country. But I would not advocate any method solely because it has been adopted in European services, though that is undoubtedly a good reason for considering it, for with them the efficiency of the army is more immediately a matter of life and death than it is with us. My own experience led me to believe it the best method before I learned that their vastly more extensive experience had caused them to adopt it before I began to think about it at all.

For cavalry, the march in line is very much more important than for any other arm of the service, for, unlike the infantry and the artillery, unless it is in line and in motion, it is practically powerless, unable to deliver a blow or to defend itself. And it must not only be in motion, but in rapid motion too, for its effectiveness is directly dependent on its speed, though not on speed alone. It will, of course, be understood that by line is meant any line formation, whether in a single rank or a line of columns which, essentially, is merely a line composed of two or more ranks. This march in line is not only the most important of all movements. It is also the most difficult. The difficulty increases with the front and the speed, and when advancing to the attack it is further increased by the necessity that the speed, instead of being uniform, shall be continually increasing until it nearly equals that of the charge. These facts are well enough known to every one here. They are referred to solely to bring to mind what an important matter it is to decide upon and adopt in the drill regulations the best method for the movement. And once decided upon, it should be applied in such a way as to get the full benefit of it.

One remark more with reference to the difficulty of marching in line. Paragraph 712 of the present drill regulations, reads as follows: "When line formation is used for advancing over considerable distances, the squadron habitually advances in line of fours, line of platoon columns of fours, or in line of platoon columns." I have heard this provision referred to with the inference either expressed or implied, that in action the march in line would not be found difficult for the reason that the distances to be moved over in that formation would not be great. Let us examine what they are likely to be: Certainly the formation in which the attack is to be delivered

* Fort Riley.

must be completed before the gallop is taken, for after that time any change of formation would be difficult and too likely to cause confusion. Our drill book says the gallop should be taken at from four to six hundred yards from the objective. The English drill book gives about the same distance for cavalry against cavalry. For cavalry against infantry it gives it as one thousand yards or more. I have been unable to consult any other authorities, but doubtless all agree substantially on this point. Modern firearms will certainly increase rather than diminish this distance. Now, one thousand yards, over half a mile, is by no means a short distance. It is long enough to make it probable, I may say almost certain, considering the rapid and varying speed required over the greater part of it, that a command not thoroughly instructed in marching in line, or one moving by a faulty method, would reach its objective in serious if not disastrous confusion.

All that I have said refers to cavalry, not only mounted but also in close order. The conditions and requirements for and objects of mounted action in extended or open order are entirely different, so much so that it must be arranged for by itself. We are not concerned with it in connection with what we now have under consideration. The heavy blows of cavalry, especially of cavalry against cavalry, always have been and always will be delivered in close order and in some line formation. The front being the same, whether the line is composed of one or of several ranks, makes no difference so far as the difficulties of the march are concerned, that is to say, has properly no influence in deciding what is the best method for the movement, for the order in the line throughout its depth will be determined and controlled by the front rank.

A continuous line of horsemen of any considerable front, say two or three hundred, could not advance very far, even at a slow gait, without crowding and confusion. At a rapid pace such a line would soon crush itself to pieces because of the expansion of front which always takes place at a rapid gait, and of the unavoidable irregularities of marching. On this account all cavalry movement systems provide for a division of the line into sections separated by intervals of a few yards. These intervals should be just wide enough to avoid crowding. They are expected to be maintained only approximately. With a constant interval between guides those between the sections of the lines will be variable, owing to the expansion of front at a rapid gait. Our present drill regulations provide for a maximum front of ninety-six for a troop, which constitutes one of the sections referred to. Quite likely this would prove

too great a front unless the training of men and horses should be better than we will in practice ever reach with our short term of service. However, troops will never be kept at the maximum, either in peace or war. In the European services the squadron, which in their movement systems corresponds exactly with the troop in ours, has usually a front of about sixty. In the English service it is fixed at a maximum of sixty-four, and a minimum of forty-eight, and their regiment consists of eight troops, two troops being united without interval to form a squadron. The squadron in our movement system therefore corresponds exactly with the regiment in theirs.

The squadron, using the term as in our drill book, consisting of four of the units referred to, troops we will call them, while advancing in line must have a base troop, or troop of direction. Whether or not the base be the center or a flank troop is immaterial for the present purpose. This base troop sets the gait, and defines the line for the remainder of the squadron. Now it is well known that in any troop marching in line with the guide on a flank, there is always a tendency for the opposite flank to be a little forward or back, more likely back. In other words, the line of the troop is apt to be not exactly perpendicular to the line of march. Also it is well known that the troop marching in line with the guide center, no such tendency exists, and the march is easier for the men; the alignment is therefore better, and the march steadier. For these reasons, if for no other, the base troop should always have the guide center. But there is another reason for guide center, which is still stronger, and which applies with equal force to every troop in the line.

It is well known that in a charge men always and instinctively follow the officers who are leading them. The actual charge, as defined by the drill book, does not begin until within seventy-five or one hundred yards of the objective. But the rapid gait is taken considerably earlier, and so far as the men in the ranks are concerned, the conditions are essentially the same as those of the charge from that time. Then, that is with the rapid gait, begins the excitement which brings about that instinctive action or method of movement on the part of the men. Unless the movement throughout the advance to the attack is by that method, it will in some parts of a long line begin sooner than in others, and some troops will inevitably and at a most critical time be moving by one method, while others are moving by another. Can that fail to be productive of confusion? Suppose the men are so thoroughly drilled that they

can be held to the ordinary method of marching until the technical charge begins, what is to inform them when to drop one method and take to the other? The excitement at that time will be intense, and the noise will be great. The voice will be of no avail, for in all probability it would be either not heard or not heeded, and there may be no trumpeters on hand even if the trumpet would be heeded. And besides, can anything be said in favor of a system which requires any change whatever at such a critical time? But troops will never be so well drilled that they can be marched by some other method until within a hundred yards of the objective, then to change to following their leaders. They will most certainly take to that as soon as the rapid gait begins or very soon thereafter. And if that is true it seems to me indisputable that they should always move by that method to the end that the execution shall be as perfect as possible at the most difficult, the most trying, and the most important time. In all cavalry movement systems that I have any knowledge of, the officers are placed in front of the rank. If they are not to lead, if their most important duty is to supervise the rank and correct faults there, they might better be assigned positions in rear where they could better perform that duty. But they have never been placed there, doubtless because of an universal belief that their first and most important duty is to lead.

The details of the method of leading need to be considered in order to a fair understanding of what it is, before attempting to reach any decision concerning it. It is extremely simple. That is one of its strongest recommendations. But simple as it is, it needs to be systematized to make it meet the needs of a line advancing to attack. Consider, for instance, a squadron of four troops in line advancing, the right center troop the troop of direction. Each troop is a distinct, separate unit, and should have but one leader, the captain. The directing captain, *i. e.*, the captain of the troop of direction, moves on the indicated objective. Each of the other captains moves abreast of the directing captain, with an interval between himself and the captain next, him on the side toward the directing captain equal to troop front plus the interval between troops in line. The line and the pace should be taken directly from the directing captain, the interval only from the adjacent captain. In other words, an intermediate troop leader getting out of alignment should not throw the flank troop leader forward or back—this to avoid unsteadiness in marching, alternate rushing up and pulling back. Moving in this manner the four troop leaders can keep the best possible line—better than they could maintain by any other method,

especially when at a rapid and varying pace. In each troop the guide is the designated trooper in the center of the rank, who must follow in the trace of the captain at a specified distance, which should be just sufficient to enable the men on the flanks to see the captain by glancing toward him without turning their heads—ten yards would be enough. The chiefs of platoon when the platoons are united in line, should not directly lead their platoons; they should regulate entirely by the troop leader, keeping approximately in front of the centers of their platoons and five yards less advanced than the leader. By their positions they mark a line which the rank should keep two yards in rear of. They must keep their positions by regulating by the leader, and not by looking back at the rank. They must never allow the heads of their horses to pass the croup of the leader's horse. The center guide should keep his distance from the troop commander as accurately as possible. The men in the rank preserve the alignment and interval by a touch of stirrup toward the center, keep faced directly front, always observing the captain in order to conform to his gait and direction in time with the guide. The file closers should closely observe the rank at all times, and be prompt in correcting faults.

To make the supervision of the rank more effective, the present system of principal guides should be dropped and those non-commissioned officers should be assigned as chiefs of squads. Chiefs of squads should not be in the rank as now, but in rear of their squads in the line of file closers. This would give two file closers to each platoon. In an attack they should move up into the rank just before the actual contact, filling any intervals that might have occurred in the line. Should the attack be in two ranks, as would usually be the case with cavalry against cavalry, that is, by our drill regulations, in line of platoon columns, the captain should still lead his troop. His position would then naturally be ten yards in front of the center of his leading platoon, which he would lead directly, the chief of that platoon giving way to his right one yard, to enable the guide to see the captain. The chief of the second platoon would lead his platoon at platoon distance. If there were more than two platoons the chiefs of the other rear platoons would lead their platoons in like manner. A line composed of two ranks would generally be heavy enough, and for that reason a troop should be divided into but two platoons, even when of maximum strength.

It is a defect common to every book of drill regulations we have had since the single rank formation was adopted, that the weight to be given a line for attack and how it is to be done, are not

stated with a sufficient prominence and clearness. Nowhere is it stated that an attacking line should generally consist of more than one rank, particularly in the case of cavalry against cavalry. But this brings up the question of single and double rank movement systems, which is foreign to my subject. I will say, however, that the adoption of the single rank system does not imply that an attack should generally be in one rank. That system has some decided advantages in maneuvering, and it can be made as effective as a double rank system, and I believe more so, in the matter of the proper formation and weight to be given a line forming for attack.

Returning to my subject, I have made a statement of the principal features of what appears to me a proper development of the method of leading in the march in line. Whether or not this development is exactly the same as is now followed in any foreign service, I do not know. I do know that it differs in some important particulars from that followed in the English service two years ago. The method I have described seems to me the most natural, and therefore the best. The question is, should a method, based on the principle of leading, be adopted as the habitual method of marching in line. It seems to me that any one, after full consideration, would answer in the affirmative. It is the only system which involves no change at a critical time on the battlefield. It is the only system by which the captain can retain perfect control of the gait and direction under conditions sure to come, in which the voice is useless: saber signals, valuable as they are, are not exact enough, and control can no longer be exercised in any other way. I distinctly remember an occurrence on the drill ground, some four years ago, which bears directly on this subject. A battle exercise was given the squadron, which consisted of four troops. The attacking line consisted of two troops. This line was formed about a thousand yards from the objective. The left troop was the troop of direction. It so happened that when the line was formed, it faced a little to the right of the objective, so that, after the movement began, the directing troop had to veer a little to the left. The start was made in the direction the line was faced. When the directing troop began to incline to the left, the other troop did not conform. The troop commander saw the fault and made every effort to correct it. He could not control the direction. The guide in the rank could not see what the fault was, and the commands of the troop commander were so much breath wasted. The men toward the left of the troop saw the fault, and gave way some to the left. Openings in the troop line came about as a consequence, and the final result was

that the troop delivered a scattered blow that would have been totally ineffective. That was on a drill ground. Had it been a battlefield, with the attendant noise and excitement, one may imagine how much worse it would have been. The fault was not with the troop commander, nor with the guide, nor with the rank. It was primarily due to the faulty method of the drill book. Longer instruction might have lessened, but could never have entirely obviated the difficulty. Had the march been by the method of leading, the troop commander could, and would, have corrected the direction promptly, easily, and without a word of command, by simply taking the proper direction himself. This occurrence, and others, on the drill ground, bearing on the same subject, the march in line, set me to casting about in my mind for a remedy.

We already had the guide center in each troop, which properly speaking, is a consequence of the principle of leading, and points directly to that principle. And leading was authorized in the troop by itself but not in the squadron. I came to the conclusion that there was the best possible solution of the problem. My belief in the correctness of my conclusion was not weakened when I learned soon after that many others, with far better opportunities for judging, had already reached the same conclusion. I will give another instance which occurred during a squadron drill a little later, after I had been practicing a little with my troop in leading. The squadron of four troops was given a long gallop in line. The guide was right and mine was the left troop. Giving a direction to that effect I led my troop and regulated my own movement in the manner I have described for troop leaders, that is, I took the gait and alignment directly from the captain of the base troop. The intervening troops were sometimes in rear of the line, but I disregarded that. As a consequence there was for me none of that pulling back and rushing up which we have all experienced when on an outer flank. The movement was very much steadier for the troop and my control over the gait and direction was continuous, without a caution or a word of command. This may be a little thing, but such little things are very convincing pointers when they are of personal experience. I do not mean to say that the march of my troop was perfect in that movement, but it was certainly much steadier and better than I have ever gotten by any other method. Before trying to march in that way in the squadron I thought there might be some difficulty with regard to the interval, but I soon found that no great amount of practice would be required to do away with all difficulty of that kind. By selecting a distant objective for myself, as

nearly in the right direction as I could judge, it was only necessary to glance at the interval occasionally. Any fault of interval was gradually and easily corrected by a slight change in my own direction. And I found, too, that my judgment of the interval improved rapidly with such practice.

Leading has found a place in our drill book, and beyond a doubt it has come to stay, although, as I have already said, it is now very imperfectly applied. There can be no disputing the fact that if it is to be practiced at all, it should be in such manner as to get the full benefit of it. Consistently applied, it would be found far reaching in its effects, for there is hardly a movement or a formation in the whole movement system that would not be more or less affected by it. Followed to its proper logical conclusion, it even disposes effectually of all posting of guides or markers in forming any kind of a line. If we are to get the full benefit of the method it must be made a fixed habit, a second nature so strong that all officers as well as men in the ranks, will move by it without conscious effort, so strong that no matter how great the excitement, there will be no tendency to depart from it. There is no doubt that excitement only increases the tendency on the part of the men to follow, but it is needed that they do so in an order productive of effectiveness, that is in line at the proper distance from the leader and with the greatest possible cohesion. To this end the men in the ranks should never have to march in line by any other method; they should know nothing about any other method. When the troop is in line, it should always be led, and the guide should always be toward the leader.

Except for temporary purposes in changing formation, the best place for the leader is in front of the center, which makes the guide generally center, but the essential point is that the guide shall be toward the leader. When the squadron is in column of troops, the captain should be in front of the center of his troop and should lead it. When the troop, either alone or in the squadron, is in column of platoons, the platoon commanders should lead their platoons, with the single exception that when the captain takes position in front of the center of the leading platoon to lead the troop, he becomes the leader of the leading platoon as already described. When the squadron is in any kind of a line the captain should lead his troop in whatever formation it may be. At troop drill, for purposes of observation and instruction the captain may need to be elsewhere than in front when the troop is marching, in line as well as during other movements. But in that case the senior chief of platoon should always take the captain's place in front of the center with-

out command, and lead the troop so long as it remains in line, returning to his platoon on breaking into column. While a chief of platoon is leading the troop, the senior non-commissioned officer in that platoon should, without command, move out and act as chief of platoon. In column of troops or platoons, the guide should always be center without command, the leaders should be directly responsible for the distances, and each should maintain such a distance from the guide of the preceding subdivision as will give his own its proper distance. When the troop is moving in line of platoon columns or fours, the captain should still lead his troop, placing himself for that purpose at the prescribed distance in front of the guide of the platoon which is to be the platoon of direction, which he would then lead directly, and the other platoon or platoons would be regulated on the directing platoon. No announcement of a guide would be needed when in column, and none should be made. In fact, such a thing as the announcement of a guide to a troop or any subdivision of it in close order should be unknown. It would be unnecessary, because the position of the leader would be a continuous announcement of it. For the men in the ranks the rule should be without exception, *touch and dress toward your leader and conform to his movements.*

The practice of marching in line should not be confined to moving in a straight line. That is but an intermediate step. It should be continued until a platoon or troop could be led on a crooked line without being thrown into confusion so long as the changes of direction were made gradual in proportion to the extent of front. The troop would then be ready to go into the squadron. Moving by this method, when a halt is ordered the leader should halt, the guide in his rear should at once place himself at the prescribed distance, and the rank should immediately dress on the guide without command.

Being at a halt, a movement forward or back by the leader should cause a corresponding change of position by the rank. The principle of leading thoroughly applied, naturally extends itself into one a little more general, which may be stated as follows: *The men in the ranks must keep themselves properly placed with reference to their leader at all times, whether in motion or at a halt.* This would make formal commands for dressing unnecessary, and they would disappear from the drill book except in the schools of the soldier and trooper for purposes of preliminary individual instruction. Signals are more in accord than oral commands with the spirit of leading. For that reason they should be made use of in preference,

especially by troop officers, whenever they can be made to serve the purpose, the cautionary command, attention, being given if necessary to insure their being seen.

Now observe the effect of the application of what has been stated. For example: We have a squadron in column of platoons. The major orders line of platoon columns formed to the left front. At the preparatory command, each captain places himself to lead his troop. At the command of execution, they (the captains) move to their places in the line, followed by their troops which receive no commands or signals except for changes of gait. If the movement be to a halt, each captain, on nearing his place in line, signals halt, and moves up to his place on the line of captains. His troop is by that means brought into position without the posting of a guide or marker, and without an oral command. Should the command of the major be into line, instead of line of platoon columns, the procedure of the captains would be the same, except that at say thirty yards from the line, they would form their troops into line if the movement were to a halt. If not to a halt, each troop would be formed into line when its leading platoon reached the line. The procedure would be similar throughout the whole movement system. It is unnecessary to multiply examples or go more into detail. Our drill becomes a silent drill. No oral commands are needed from troop officers except for changes of the troop formation for which there are no signals. The whole movement system is simplified, especially for the men in ranks. Control is more perfect, is more easily exerted, and more likely to continue undiminished under conditions of excitement and extreme trial.

I have heard two objections urged against the method of leading. One, that it might do very well if the instruction were perfect, but that we, with our short term of service, could never have sufficient time for the requisite instruction and practice. The other that it would be too confining on the officers, and that the captain has so many other things to see to that he could not give the necessary attention to leading.

With reference to the first objection, I can only say this: I have tried the method on the drill ground, and all my experience with it has led me to the belief that very much less, instead of more, time would be necessary for instruction. I know that the men took to it readily, and that the improvement in the march in line was much more rapid than it had ever been by any other method. The principal difficulties met with were that the guide was inclined to keep too little distance, and the chiefs of platoon had so long been ac-

customed to moving along in front of the rank without any regard to the position of the captain that they were frequently too far advanced, sometimes even more so than the captain. Not long, however, would be required to overcome those faults.

Regarding the second objection: That it is confining to officers as regards their position, can be no objection. Any other method properly applied would be as exacting in that particular. If the captain has other things to see to which would prevent his acting as leader it must be because those other things are of greater importance. They were never stated to me except in general terms, that he had to supervise the rank, keep order there, organize new squads as casualties occurred, etc. But what are the file closers for? Those are properly their duties, and certainly two file closers in rear of each platoon, where they can see without looking back, can more efficiently perform that duty, than the captain alone can perform it for the whole troop from his position in front, where he must look back to see and correct faults, and forward to see where he is going. And besides, so long as the captain himself attends directly to such matters, just so long will file closers be totally inefficient in acting to keep order. But put that duty on them, and at all drills, and at other times of instruction, correct them for failing to observe faults, and correct them promptly, and they will soon acquire the habit of performing the duty better than it can be performed by any one in front of the rank. There would then be no doubt but what they could be relied on for an efficient attention to it in action. That duty cannot be as important as the duty of directing and controlling the march of the troop in the advance to attack.

As I have referred to a need for some revision of the present drill regulations, I want to say a little more in that connection, although it is not a part of my subject. It must be evident, from what has already been said, that a revision would not serve the purpose. What is needed, is a new system in which the principle of leading is consistently and thoroughly applied. Line formations should be improved. I do not mean that they should be made more complicated: they can be made more simple, and at the same time contain more effective provisions. To make my meaning clearer, I will return to one defect in the present system, already referred to. Suppose a squadron composed of troops of maximum strength is to attack, and it is judged that a single rank would be too light a line, but that two ranks would be sufficient, it would be bad tactics to make the line deeper than necessary, for that would be a waste of

strength, and should fire be encountered, it would cause unnecessary casualties. The squadron in line will not do, for that gives but one rank; line of platoon columns will not do, for the troops being at the maximum strength, that gives a line four ranks deep. And the drill regulations contain no provision to meet the case which is not in the least exceptional, but, on the contrary, is the usual case with cavalry against cavalry, except, perhaps, as regards the strength of the troops, which probably will be at three-fourths the maximum, and that would give a line of three ranks, still too deep. The troops must be reduced to half strength to meet the case properly; otherwise the commander has the choice of wasting a part of his force or improvising a formation—not a very desirable choice, certainly. This is the ground for saying the troop should be divided into two platoons only, even when of maximum strength. There are other reasons for it, but this is sufficient. There are other desirable changes, but I have mentioned enough to support my statement—that what we need is not a revision of the present book, but a new system.

Some may be inclined to think that I have ascribed undue importance to the march in line, have been making a mountain out of a mole-hill. Study of the subject cannot fail to remove that impression. Its importance is so great that it cannot be exaggerated. It is the only way cavalry can act. It makes no difference whether they are right or wrong, who claim that the days of cavalry on the battlefield are past. A cavalry which cannot act effectively in considerable bodies, cannot perform the duty of a screen or any other duty of security and information efficiently, when opposed by a cavalry which can so act. The march in line must always be of paramount importance, for, no matter what may be the changes in fire-arms, shock tactics must always be the tactics of cavalry, especially of cavalry against cavalry.

SOME NOTES ON TRAINING REMOUNTS, GAITING AND LEADING.

BY FIRST LIEUTENANT J. W. FURLONG, SIXTH CAVALRY.

I SELECTED this subject for an essay, because I finished another year's work in a frame of mind resembling very much that of a youngster of my acquaintance, who, when brought to his meals, always insisted that he wanted something better.

I had been out from West Point four years, when I came to the Cavalry and Light Artillery School, and although I had read some, and drilled more, it was not till I had been here some time that I realized how much constant work in the right direction meant to cavalry, and what abilities it could and should possess.

It is only by constant work that we are able to solve the practical problems which are constantly arising. The time is fast approaching when we must solve those which are bound to arise when large bodies of cavalry are employed, and it is to be hoped that the higher authorities will soon see their way clear to station more cavalry at this place, where every facility exists for, and the greatest interest is manifested in, the practical solution of such problems.

As I remember my former drills, they were confined principally to executing the movements in close and extended order, laid down in the drill regulations. Gait was a matter of some indifference. No thorough, decided effort was made to gait the troops. The gait of the troop in column depended on the natural gait of the horse of that chief of platoon who was at the head of the column, and in line upon that of the guide, the officers using such a gait as would keep them out of the way of the rank. Frequently all these gaits were different in speed.

I class myself amongst the delinquents, as I never had my horse properly gaited until I came here. The marching of the troop was sometimes good, but the gaiting was not uniform in the troops: not

sufficiently so to ensure that steadiness necessary for the successful advance in line of a large body. Moving in line, the direction was also a matter of chance. The charge was somewhat unusual, and generally the scene of some disorder, caused by the bolters of the troop breaking up the line just before the critical moment. The successful charge is the desire of our hearts. This and the ability to successfully maneuver for advantage while at speed are the aim and end of all our instruction and training.

To preserve the steady advance at the trot and gallop, we have been devoting ourselves to gaiting the horses. To ensure the proper direction being taken and kept, we have been developing the system of leading.

To be able to successfully maneuver for advantage while at speed, or to oppose such maneuvers of the adversary, we must devote more time to another thing, *i. e.*, training the remount. I looked up some old cavalry drill regulations to see how they prepared for the charge. In 1841, the charging line advanced at a walk until about 310 paces from the objective. The trot was then taken for 150 paces, followed by the gallop for 100 paces, and the charge was sounded at a distance of sixty paces from the enemy. Necessarily, the short advance at the more rapid gaits did not much impair the steadiness and compactness of the line. It was not necessary to maneuver at speed, and therefore but little training of the horse was demanded.

It was only essential that the men remain united, and retain control of their horses. To insure this latter fact, three classes of bits were furnished, issued to each troop in the following proportion, one-sixth mild, four-sixths medium and one-sixth severe. Thus in many cases, severity of the bit took the place of training.

The only training the horse received was as follows: "The horse should be gentle to mount, should march in a straight line and circular line at all paces, back, make a few side steps to right and left, suffer pressure in the ranks and not be afraid of noises."

The spur was used altogether as a mode of punishment. "If the horse does not obey the legs, it is necessary to employ the spur. The spur is not an aid, it is a means of chastising. Both are used vigorously at the moment a horse commits a fault."

There were no lessons in suppling, circling on forehand and haunches, getting the horse into equilibrium between hand and legs. In the regulations of 1861, however, all this is taken up.

Here it is laid down that the cavalry advance to within 200 paces of the enemy at a trot. Hence more flexibility of the line

was desired and more attention paid to the means by which it was to be obtained, *viz.*: the training of the horse.

How much more necessary for us to pay attention to it when we have to pass over such long distances at a gallop, often at a time when the formation of the advancing enemy is undeveloped. We are developing the gaiting of the horse and the system of leading, and I think everyone will agree with me that our advance in line has, and is, improving very much as a result. Would it not be as well to devote as much attention to the flexibility of the line?

The old system of guides was, to my notion, radically wrong, and I never saw any improvement in the advance in line of the squadron or regiment until the system of leading was adopted. Before, the direction was delegated to one man and the gait to another. How much better to have all depend on one man, whom all follow, who is in front, can see everything, and whom all can see, and who is besides the *natural* leader. I speak now of the troop leader. I have heard it urged that a captain has other things to look after besides leading the troop.

I think that when the time comes to advance to the attack, it is too late to be correcting faults, etc. All that must have been done before. The leaders of the several lines should also be leaders in fact: be they captains, majors, lieutenant-colonels or colonels. Each leader knows where he wants the center of his line to hit: he rides for that point and takes the center of his line with him.

On the other hand he points out to some one else where he wants it to hit. His direction may be understood and it may not, for there is noise and excitement. He may have to change his objective, as the formation of the enemy develops. This involves giving new directions and new commands.

If he leads himself, he can put his line just where he wants it, and change his objective at will without giving commands or directions, and without confusion.

Of course I am now speaking of the commanders of the several lines, and not of the commander of the whole, who not only should, but *must* keep aloof, in order to watch the progress of the action, time the pushing in of supports and reserve, and also something of equal importance, the rally.

The cavalry officer of to-day must do more than keep out of the way of the rank. He is the one who fixes where the rank is to go and the speed at which it is to go. To do this he must ride a trained and gaited horse. No less so must the horse in ranks be trained and gaited, that the whole may be kept compact, yet flexible. When I

say trained I do not mean that a horse shall be taken to the top notch of the *haut école*, but he must be worked with until he is perfectly balanced between the legs and hand of the rider, and he must be further trained to maintain this balance at all speeds, and to avoid all rigidity. This rigidity is one of the worst things we have to contend with in our horses.

Our drill regulations contain all the essential steps used in training, but are lacking in explanations as to reasons therefor, and how to combine them for the further education of the horse.

One of the first things we should have is a proper training bridle. Any one who has tried to work with the halter and snaffle now issued, knows how hard it is to adjust well and how generally unsatisfactory it is. We need a bridle so that the bit can be carefully adjusted, and which will fit the head and remain in place, so that a pull on one rein will not slip the whole thing out of place, as happens with the halter. It should have an adjustable nose band on it, for in no way does the green horse do more to make himself insensible to the action of the bridle than by stretching open his jaw and bearing against the bit. We have all observed this in teaching the bending lessons. An attachable running rein should also be at hand.

It is not my intention to go into a minute description of any system of training for remount, for I do not pretend to know much about it practically. I trained my own horse, and can see where I made mistakes. I have read and done enough practical work to wish that I knew more about the subject. We ought to be able to go to work slowly with our remounts, and not be obliged to put a curb bit in their mouth and send them to drill before they are trained, for then they learn to do just what we want to prevent. They are not used to carrying weight. We have to make them move at the faster gaits before they are ready for them. They seek support on the bit, bear on it, and become the rigid things, some examples of which are always unpleasantly forced on our notice at drill. In time they become about as easy to maneuver at speed as a ferryboat. If we could have the remounts for from two and a half to three months and give them two lessons a day, morning and evening, of about thirty minutes each, they would enter the ranks at the end of this period very well trained horses.

It may be asked who we have to do this training? We have a number of officers who are well up in the subject theoretically. (personally I know none who are practical horse trainers) who would become practical masters of the subject in time, and we have hosts

of others who would be glad to take courses of instruction under them.

As to men, we have few very good horsemen. We have excellent riders, and it is our own fault that we do not make excellent horsemen of some of them. After a man has developed into a good rider, try to make a good horseman of him, not a circus rider.

I do not wish to be understood as decrying our system of making fearless riders, but there is a point beyond which I think is a waste of time to carry it.

In handling our horses, I also think we devote too much time to the throwing of the horse. There seems to be a craze to get horses to lie down together, and too much time is devoted to it for the advantage obtained. It is not found in any place as an essential element of the horse's education. It is an excellent and effective method of subduing a vicious or thoroughly unruly horse before proceeding with his training. But there it should stop.

If, by continued throwing of an already docile horse, it is claimed that he will become more so, such will also be the effect of the systematic training of the horse, in addition to which we are all the time proceeding with the education of the horse. Finally, I do not believe the pulling and hauling on the reins, necessary to accomplish it, improves the horse's mouth any.

The whole object of the training of the horse, and to which every exercise leads, is to get him into perfect balance. At the halt the different exercises make him light, supple and quick, that is, light in hand and light on his feet.

He is well taught, to be so balanced that a pressure of the legs forces him to step forward to preserve his balance, or a pressure on the bit makes him similarly step backward. He is in condition to move quickly in any direction at proper indication of hand or leg. All future instruction is to confirm this, and insure his keeping this balance at all gaits and to avoid rigidity.

Were all our horses put through this course of training properly, and not put into the ranks until completely trained in it, we would have none of that tiresome rigidity, no horses who require a width of three or four yards to gallop in. We could maneuver at speed for advantage, or to oppose similar movements on the part of our adversary, and our lines would be solid, yet perfectly flexible.

A STUDY OF THE CAVALRY OF THE UNITED STATES OF AMERICA.

BY LIEUTENANT-COLONEL RAOUL DUPUY, SECOND REGIMENT OF DRAGOONS.

PREFACE.

DURING a recent visit to the United States I had the pleasure of witnessing the extraordinarily brilliant celebration of the fourth centenary of the discovery of America. In the majority of the festivities growing out of this occasion, the military establishment was worthily represented, and in consequence I had an opportunity of taking a general view of the detachments of the different arms (regulars and militia) that took part in them. The parades or reviews of New York, of Brooklyn, etc., particularly attracted my attention. Later, thanks to the kindness of some of the officers, I made a more serious study of the organization of the cavalry. It is of this branch that I shall treat more particularly, after outlining the general organization of the army of the United States.

CHAPTER I.

ORGANIZATION OF THE UNITED STATES ARMY.

In its recruitment, organization, and also in its functions, the regular army of the United States differs essentially from other modern armies.

In ordinary circumstances, it has more especially a mission of supervision and police. In reality, scattered in small groups over an immense territory, it has to keep the Indian tribes in tranquility: the latter penned up in reservations assigned to them by the government, are often intractable or rebellious.

The military forces of the United States consist of (1) the regular army, (2) the militia.

The President of the United States is the commander-in-chief of the land and naval forces, the Secretary of War is his representative, and, assisted by the different bureaus, assures the execution of the laws and regulations governing the army. All the military forces are under the orders of a general-in-chief, stationed in Washington; at the present time that officer is Major-General NELSON A. MILES.

The maximum strength of the United States army on the peace footing has been fixed by Congress at 25,000 men, commanded by 2,168 officers. The 2,168 officers are composed as follows: Nine generals: 863 officers of infantry: 436 officers of cavalry: 297 officers of artillery: 563 officers belonging to other services and to the staff.

The total strength of the enlisted men of the different arms is as follows: 12,123 infantrymen, 6,050 cavalrymen, 3,675 artillerymen, 3,150 men distributed among the different departments or depots, and not formed into regiments. In reality, this number is not always strictly maintained. On the 31st of last October, of the total strength of the army, it was found that only 20,554 men were really available for field service.

In September 1,229 officers were on duty with their regiments or corps and 402 on detached service.

Recruitment of Enlisted Men.

The army is recruited by voluntary enlistments, from men between twenty-one and thirty-five years of age, fitted for the military service. This limit of age does not apply to soldiers who reenlist. The duration of the enlistment is variable. It is determined by the Adjutant-General of the army, who habitually fixes it at five years.

The total strength of the United States army is relatively insignificant. However, as the pay and allowances are considerable, the career of arms is much sought after. The conditions required to enter it are, however, so difficult, that most of the candidates presenting themselves are rejected.

The essential conditions which every private soldier must satisfy are the following:

1. He must be able to read, write and speak English.
2. He must be unmarried.
3. He must have a good character.
4. He must have an excellent constitution and, especially, good eyesight.

In all the large cities, as well as in each garrison, recruiting officers charged with examining the fitness of the candidates, are to be found.

Recruitment of Officers—Promotion—Honorary Distinctions.

The body of officers is recruited in the following three ways: (1) From cadets instructed at the West Point Military Academy, which supplies all arms indiscriminately; (2) From the successful candidates in competitive examination of meritorious non-commissioned officers; (3) By appointment to the grade of officer, made by the President.

The first case is the usual one; the last is exceptional, save in case of war. The second case—the appointment of meritorious non-commissioned officers to the grade of officer—is rare; it takes place only when there are vacancies in the army after the assignment to regiments of all the cadets having been graduated from the Military Academy. Moreover, the appointment depends upon a very severe examination held by officers.

The promotion of officers is made by arm, but it is so slow that a large number of West Point graduates leave the military service very early. But this has no effect on their future career, since they easily find opportunities to utilize the scientific instruction acquired by them during their stay at the Military Academy.

Appointments to the grade of general officer are made only by the President, and not always by seniority.

The officers are relatively better cared for than those of any other army in the world. Their pay is very large, and the government also furnishes them with handsome quarters, always arranged for an entire family, as the majority of them are married.

Although there exists no regular order of knighthood, certain decorations are approved and recognized by the government; such are the decorations of the Grand Army of the Republic awarded to the soldiers, and those of the military order of the Loyal Legion, limited to the former officers. Others are held in certain esteem, such as the hereditary order of the Cincinnati, and that of the Sons of the Revolution, also hereditary.

There are also medals of the Society of Colonial Wars, and those of the Association of Military Surgeons.

CHAPTER II.

The United States army comprises: (1) The troops of the line (regiments); (2) The staff and administrative services. The troops of the line consist of twenty-five regiments of infantry, ten regiments of cavalry, five regiments of artillery, one battalion of engineers.

Infantry.

The infantry is composed of twenty-five numbered regiments. Two of these regiments, the Twenty-fourth and Twenty-fifth, are composed entirely of negroes; the officers only are of the white race. These two regiments are stationed continuously in the garrisoned posts of the West.

A regiment of infantry has at present ten companies. A division into battalions is contemplated, so that in the future each regiment will contain three battalions, each of four companies.

A company of infantry contains one captain, two lieutenants, of which one is a first lieutenant, one first sergeant, four sergeants, four corporals, two trumpeters, two artificers, forty-six privates. The ten companies of the regiment are designated according to the first ten letters of the alphabet.

The infantry of the United States is armed with the Springfield rifle, caliber forty-five, with the triangular bayonet. The bayonet is carried in a scabbard attached to the waist belt.

Cavalry.

The cavalry of the United States consists of ten regiments, numbered like those of the infantry; the last two, Ninth and Tenth, are composed of negroes, with white officers, and are stationed permanently in the garrisoned posts on the western frontier.

We shall not dwell longer here upon the cavalry, that arm is to be the subject of a special study.

The veterinary service in each regiment of cavalry is performed by a veterinary surgeon. The veterinarians, who have no rank as officers of the army, are not counted in the effective strength of the regiment.

Artillery.

The artillery is organized into five regiments, each comprising twelve batteries, of which two are field batteries; the latter have sixty-five men each, the foot batteries sixty.

Its *material* is composed as follows: For the field artillery, the light 3.2 in. field gun; the heavy,* 3.6 in. field gun; the 3.6 in. field mortar; the siege artillery, a 5 in. gun and a 7 in. howitzer.†

In 1892 the number of guns on hand was as follows: 3.2 in. gun, 125 pieces, with carriages; 3.6 in. gun, 24 pieces, with carriages; 3.6 in. mortars, 16 pieces, with carriages; 5 in. gun, 10 pieces, with carriages; 7 in. gun, 10 pieces. (with experimental carriages). All these pieces are steel breech-loaders and possess ballistic qualities, which place the artillery abreast with modern improvements.

Smokeless powder is easily manufactured in the United States, and a new powder for mortars has been tried with success.

The men of the field batteries are armed with the curved saber and the revolver. Those belonging to the siege batteries receive the same instruction as infantry, and are similarly armed.

A battery of artillery has one captain, two lieutenants (of which one is a first lieutenant), one first sergeant, four sergeants, two trumpeters, one wagoner, and forty-six privates. (Field battery, sixty-five men).

The twelve batteries of the regiment, like infantry companies and cavalry troops, are designated by the first twelve letters of the alphabet.

Upon a peace footing, the battery has four guns, a field forge, and a battery wagon. In the field, the number of pieces to the battery is increased to six.

Engineers.

The single battalion of engineers which the United States army possesses, is not, strictly speaking, included in the line of the army. The corps of engineers, of which this battalion forms a part, appears among the different departments, depending directly on the Secretary of War. The battalion has four companies, with a total strength of 16 officers, 38 non-commissioned officers, and 160 men.

The different forces which I have enumerated, are scattered over the entire territory of the United States. The latter is divided into army corps districts, as follows:

1. Department of the East, headquarters, New York.
2. Department of the Missouri, headquarters, Chicago.
3. Department of the Platte River, headquarters, Omaha, Neb.

*The inch is equal to 25.4 millimeters.

†The army also employs Hotchkiss rapid firing guns.

4. Department of Dakota, headquarters, St. Paul, Minn.
5. Department of Texas, headquarters, San Antonio, Tex.
6. Department of California, headquarters, San Francisco, Cal.
7. Department of Arizona, headquarters, Los Angeles, Cal.
8. Department of the Columbia, headquarters, Vancouver, Wash.

CHAPTER III.

STAFF AND ADMINISTRATIVE DEPARTMENTS.

In the United States, by the designation "staff," is meant the whole of the personnel charged with assisting general officers, and with supplying all the needs of the army. It is divided into general staff, and special staff or administrative departments.

The general staff comprises the general officers, the chiefs of staff, the aides-de-camp and the officers of the Adjutant-General's Department and of the Inspector-General's Department.

To the special staff, or administrative departments belong the officers charged with the pay, clothing, lodging and transportation of the troops, with the furnishing of war material and of supplies of all kinds, and with the treatment of the sick and wounded.

General Staff.

The organization of the United States army embraces a list of nine general officers, as follows: One General-in-Chief, stationed at the headquarters of the army; one Lieutenant-General; three Major-Generals; four Brigadier-Generals.

The army corps districts are commanded by brigadier-generals and colonels.

Periodic or unlooked for inspections are made by a major-general inspector. They bear principally upon the total strength, police, discipline, observance of regulations, and employment of funds pertaining to the different services, etc., etc.

The extreme posts of the western frontier are the objects of special inspections.

Special Staff or Administrative Departments.

These departments are nine in number, and are as follows:

1. *Judge Advocate General's Department.*—This department centralizes and examines the proceedings of the various military tri-

bunals. Its staff is composed of five members: (1) A Judge Advocate General, with the rank of brigadier-general, chief of the bureau. (2) Four judge advocates, with the rank of major.

2. *Quartermaster's Department.*—This department has under its charge the equipment, clothing, lodging, bedding and fuel of troops, forage, remounts, storage and transportation of supplies of every nature, the movements of troops, the various means of transportation, etc., and is charged with the construction of all buildings pertaining to the quartering of troops. There are about sixty officers in this department, assimilated in rank to the grades of the army proper.

3. *Subsistence Department.*—The Subsistence Department has charge of the purchase, maintenance and distribution of rations and forage. It is composed of twenty-six members.

4. *Medical Department.*—The medical organization of the United States army embraces two categories of officers: the military surgeons properly speaking, and the medical purveyors. The latter are charged with the purchase and distribution of medical material and supplies. In urgent cases they perform the duties of surgeons. The Medical Department embraces nearly 200 officers and 200 non-commissioned officers. A military hierarchy exists in the Medical Department as in the other branches of the army. The hospital duties of non-commissioned officers are administrative as well as medical. The hospital attendants and nurses are taken from the army and from the civil population.

5. *Pay Department.*—The Pay Department attends to the payment of the officers and enlisted men.

6. *Corps of Engineers.*—The Corps of Engineers executes all surveys and reconnaissances of a military character. This corps has a staff of 110 officers. Sixteen of them are detailed to command the battalion of engineers.

7. *Ordnance Department.*—The Ordnance Department has under its charge the construction of arsenals as well as the purchase and manufacture of arms. It also manufactures the articles of equipment and harness used in the regular army and militia, the munitions of war whatever they may be, the tools, the machinery and material necessary for the artillery service. This department is composed of fifty-five or sixty officers and 400 non-commissioned officers and men. The chief of the department is a brigadier-general. He has colonels, lieutenant-colonels, majors, captains and lieutenants under his orders, to perform the duties of his department. The non-commissioned officers perform the duties of store

keepers and take care of the material belonging to the garrison or post to which they are assigned.

8. *Signal Corps.*—In the American army this corps is considered as one of the most important. It collects information of every nature, and procures intelligence of the most varied character. In the field, the officers of this service must have a perfect knowledge of the terrain over which the army is called to operate. They collect and transmit information of all kinds, which they obtain by means of posts of observation, spies, guides, etc., etc. For this purpose 400 Indian scouts appear in the war budget. These scouts receive the pay and rations of a cavalryman of the regular army. This corps has also promptly to transmit orders, dispatches, intelligence, etc., between the different lines of the army, a purpose for which it makes use of the electric telegraph, relays of couriers and bicyclists. Finally, by means of suitable apparatus this corps makes known the direction and force of the winds and atmospheric disturbances. One colonel and four lieutenants belong to this corps. The non-commissioned officers and men, including the scouts, which we have previously mentioned, are not embraced in the total strength of 25,000 men, the number fixed as the maximum strength of the United States army.

9. *Chaplain's Department.*—The duties of this department are carried out by a certain number of chaplains residing in the places and forts to which they are assigned. In addition to these the four negro regiments have each a chaplain. They have the rank of captain, and must belong to a recognized denomination.

Besides the different departments enumerated above, some 650 or 700 men are employed in the capacity of clerks, and known as the General Service.

CHAPTER IV.

MILITIA AND VOLUNTEERS.

Militia.

I have thus far spoken only of the regular army of the United States. It remains yet briefly to describe the local militia and volunteers, which will be called on in case of war, as in 1862, to swell the ranks of the regular army.

According to the requirements of the law, all citizens of the United States between eighteen and forty-five years of age, fitted

for military service, are carried on the militia muster-rolls of the State in which they reside, and may be called on for active service in case of insurrection or invasion. The time of actual service is limited to nine months.

The militia is divided into: (1) Active, or organized militia; (2) Non-organized, or reserve militia. The militia embraces troops of all arms, whether exempt or not from responding to a call to arms, honor alone binding them in certain cases. In some States—notably that of New York—certain regiments receive a subsidy from the government; in this case, the men are compelled to serve five years, and to respond to every call for troops. After three failures, not justified, they are dropped from the muster-rolls. The militia troops receive no pay; they are clothed at their own expense, and very often contribute to a voluntary assessment. The armory (military club) is maintained, sometimes very luxuriously, by raising these contributions. The armament belongs to the Federal government; it is kept in the armory, where it is cared for. This establishment contains a library and apartments for theoretical and practical exercises.

The militia have their own special staff. Many of their number fought in the War of Secession, or are old officers of the regular army. Besides this staff, one meets a throng of generals, colonels and captains who are old officers of the War of Secession, or come from the staffs of the governors.

The governor of each State forms his own staff and appoints to the highest grades men who have never seen military service. Each election is followed by a new series of generals and colonels, and, as by courtesy, these titles are maintained, it is easy to calculate the number of officers of all grades not belonging to any army, nor ever having served in any.

The militia have a regulation uniform for every State. In time of peace each State is free to adopt the one which it pleases, consequently the most varied and odd ideas are allowed full sway.

In the parades of New York and Brooklyn I saw militia of every arm. Some of the regiments, very well kept, are remarkable for precision in the manual of arms and regularity of movements.

What is wanting in the United States is a school for militia, like that of West Point for the regular army. Each State should also avoid increasing, beyond certain limits, the number of militia troops, by enrolling them in permanent and fixed organizations. If this end were attained, a force which is yet in the latent state might be relied upon. Means have been sought to realize this end.

Since 1866 the government has been interested in the advantages to be drawn from military instruction given to students of certain colleges. It does not appear, however, that the results obtained have been very satisfactory, as I have been informed that the young men, in contempt of discipline, have refused to accept this special education. The American press comments to-day upon this interesting question, and urges the military authorities, without interfering with the liberty of instruction, to introduce certain essential exercises in the curriculum of schools. Officers were at first detached from their regiments to twenty colleges, but while in some of the colleges they were perfectly successful, in others they were relegated to the secondary positions of professors of gymnastics. Still less could they introduce military discipline, and the thousands of students that have passed under their orders have been graduated with practically no military instruction whatever.

It is demanded that the government grant special commissions to private professors coming from the army. The colleges having these professors could then so instruct their students as to make them available as future officers and non-commissioned officers of militia. It would thus be possible to offer instruction fully as military as that furnished by our preparatory schools. The young men would work with greater energy, would accept the weariness of discipline, and the officer would be better situated to exact something from their good will.

According to the information that I have been able to procure, the organized militia embraces at present 150 general officers, 1,000 staff officers, 8,000 regimental, 100,000 men.

The number of men fit for war service, and not organized, is said to be about 8,000,000.

Independent Militia.

Besides the regular militia, there is a species of independent militia, which has an acknowledged existence and which is recruited by nationality. Thus I found, in New York, the Lafayette Guards, who are Frenchmen and wear the uniform of the *chasseurs à pied*; in Brooklyn the zouaves and riflemen recall, by their appearance, our Algerian troops. The commands are generally given in French.

The militia regiments and independent militia have two stands of colors: one is the United States flag, the other that of the State to which the organization belongs. These two flags are carried side by side. While noting this fact, I am happy to render homage to

those of our compatriots, who, enrolled under the Star Spangled Banner of the United States, know well how to prove under all circumstances that they are true Frenchmen. It was with a noble pride, that in the parades of New York, Brooklyn and Chicago, the proudly unfurled the flag of France.

Each regiment has its band, its drums and fifes. The independent militia would never think of going to a parade without being preceded by a drum major of imposing air, bedecked with gold lace upon every seam, and provided with a bear-skin cap of exaggerated dimensions. They appear to make it a point of honor to attract public attention, and, in this respect, compete zealously with one another. A Brooklyn regiment has for a long time succeeded in winning universal admiration and applause; and why not, seeing that its brilliantly uniformed drum major, as we can affirm from personal verification, is a handsome young woman of from seventeen to eighteen.

Volunteer Army.

When the regular army assisted by the militia does not appear sufficient to repress insurrection or repel invasion, the government issues an appeal to the citizens, and by means of voluntary enlistments with bounty organizes a second army, which is called the volunteer army. The volunteers must be at least eighteen years of age. The officers are chosen by election; the regimental commanders are named by the governor.

Military Cyclists.

Military bicycling is attracting at the present time a great deal of attention. At a large meeting held on the 15th of last October in New York an important society was formed for the purpose of contributing to the national defense of the United States in case of war by developing the application of the bicycle to military necessities. At this meeting much interest was manifested in the Paris-Bordeaux competition of automobile carriages, as well as in the folding bicycle, invented by Captain GÉRARD and in the services rendered by soldiers mounted on bicycles at the time of the last grand maneuvers in the Vosges.

CHAPTER V.

REGULAR ARMY.

Cavalry.

Recruitment of Cavalry.—The cavalry of the United States, like all the regular army, is recruited solely by voluntary enlistments for five years, among men of all nationalities, from twenty-one to thirty years of age. Young men who have not attained their majority (twenty-one years) cannot be enlisted without the consent of their parents or guardians; besides, those from sixteen to eighteen years of age are received only in the capacity of musicians. Married men, or the fathers of minor children, cannot be enlisted or reenlisted without the permission of the Adjutant General.

The conditions of height and weight which the recruit must satisfy, vary according to the needs of the service. At present the minimum height is fixed at 5 ft. 3 in., and maximum at 5 ft. 9 in. The minimum weight required is fixed at 119 lbs., and the maximum at 163 lbs. The recruit must have a chest circumference of at least 31 in. (Cm. 775).

Finally he cannot be enlisted if he is incapable of clearly distinguishing a black circle three feet in diameter (about 1 meter) on a white background at a distance of 600 yards (548 meters). This test is made by means of pasteboards upon which have been traced a certain number of black circles, having a diameter of one centimeter (39 m.); the recruit must be able easily to count these small circles at a distance of twenty feet (6 m. 60 cm.).

Depots.

The depots are center of assemblage, of instruction, and of distribution of the young soldiers. There are at present two for the troops of all arms, except the cavalry, which has only one, established at Jefferson Barracks, Missouri.

All recruits, after their enlistment, pass through the establishment of Jefferson Barracks, from whence they are afterwards assigned to the different regiments. As far as possible, they are retained at this depot for a period of four months. The instruction during the first three months is devoted to dismounted exercises; mounted exercises are not begun until the fourth month.

Composition of the Cavalry.

The cavalry of the United States is composed of ten regiments, each of twelve troops. Each group of four troops constitutes a squadron, commanded by a major. The troop is the unit of administration and of combat. In maneuvers the squadron corresponds to a French regiment, and the regiment to one of our brigades of three regiments.

The regiment is commanded by a colonel, assisted by a lieutenant-colonel. Two lieutenants, either first or second, are assistants to the colonel in the capacity of aide-de-camp and secretary.

Total Strength of a Regiment.

A regiment is composed of one colonel, one lieutenant-colonel, three majors, one adjutant, one quartermaster, twelve captains, twelve first lieutenants, twelve second lieutenants, one chaplain with the rank of a captain of infantry (forty-four officers); one sergeant-major, one quartermaster-sergeant, one chief musician, one saddler-sergeant, one chief trumpeter (five non-commissioned officers for the regiment); twelve first sergeants, sixty sergeants, forty-eight corporals, twenty-four trumpeters, twenty-four farriers, twelve saddlers, twelve wagoners, 600 troopers (792 enlisted men for the twelve troops).

Composition of a Troop.

One captain, one first lieutenant, one second lieutenant, three officers; one first sergeant, five sergeants, four corporals, two trumpeters, two farriers, one saddler, one wagoner, fifty troopers (sixty-six enlisted men).

On a war footing the troop is increased to 100 men. Two of the ten regiments of cavalry, the Ninth and Tenth, are colored, the officers only being white.

The negroes make good soldiers, and are natural born cavalrymen. Everything pertaining to drill and manual of arms is promptly grasped by them. I saw a troop which had been organized only a few months drill in a satisfactory manner. Regarding bravery, I have been told that they are in no way inferior to the white soldiers. Troops formed of Indians have quite recently been attached to some of the regiments. For the cavalry they are easy to enlist, but they serve with repugnance in the infantry, accustomed as they are to riding.

Responsibility and Initiative of a Captain of a Troop.

As in the French army, the captain is in all respects responsible for his troop. To this end he is allowed the greatest initiative and independence.

Administrative accounts are inspected only twice a year by inspectors appointed by the Secretary of War. As a rule the lieutenant colonels of the regiments to be inspected are so appointed.

Pay.

The pay of the enlisted men, like that of the officers (with the exception of general officers), increases with length of service, and is subject to only a slight retention for washing, gloves and a few minor items of equipment. Payments are made monthly. A special table appended hereto, gives the rate of pay of officers and enlisted men.

Articles of Clothing, Footgear and Kit.

In order to supply his clothing, each trooper receives an annual allowance of eighty dollars (about 400 francs). This sum serves to pay for all his clothing, underclothing, foot gear and kit. He is therefore the owner of all his effects. He has an interest in making them last as long as possible, because at the end of each six months he is given that part of his semi-annual allowance which has not been expended.

Arms, Headdress, Horse Equipment, Camping Outfit, Etc., Etc.

The arms (carbine, revolver, saber), waistbelts, cartridge boxes, headdress, horse equipment, camp outfit, hobbles, tents, saddle-bags, pickets, canteens, tin cups, are the property of the government, and are issued to the men by the captain, who alone is responsible for them.

Uniforms.

In the United States cavalry the officers and enlisted men have three uniforms, as follows: 1. Full dress; 2. undress; 3. field dress.

Full Dress.—The full dress uniform includes an English cork helmet, covered with black cloth, with horse-hair trimming; eagle in yellow gilded metal, with the number of the regiment; chin strap of yellow metal, yellow plume. A dark blue tunic, with standing collar fastened with hooks; with two rows of buttons, and

skirt trimmed with yellow facings; upon the shoulders, squares of yellow cloth with the number of the regiment. Light blue trousers, with a yellow stripe. Dismounted, the foot gear is the same as that mounted, that is to say, the ordinary heavy leather boot, without spurs; when mounted, the boot is provided with a brass spur. Yellow aiguillettes, yellow helmet cord; short yellow gauntlets.

Undress Uniform.—The undress uniform embraces an American forage cap with curved visor; a short blouse of dark blue cloth, bordered with a wide trimming or braid. On the collar, preceded by the two letters U. S. (United States), are the emblems of each arm. When in summer the men wear the cotton duck trousers, the officers wear them also.

Field Dress.—The field dress is almost optional. Officers and men are allowed to dress quite as they wish. The men generally procure goat skin clothing. A soft hat, with a wide brim of the Grant pattern, has been adopted for a headdress in the warm seasons, and a fur cap for cold weather. The overcoat of dark blue is long and split up behind. It is fitted to the figure without being tight. The cartridge belt may be worn on the outside.

Besides the articles described above, the men receive others, according to the necessities of the climate and service. In cold regions, fur overcoats, gloves and boots are issued. In warm climates straw hats and cotton clothes are used. All the articles of equipment are of black leather.

Stable Dress.—For grooming and interior service, the American trooper wears a cotton blouse and trousers, with a soft felt hat.

Armament.

The cavalry of the United States is armed with a carbine, revolver and saber.

Springfield Carbine.—The Springfield carbine, caliber .45, is very handy; it is optional for the officers. When mounted it is suspended from a shoulder strap by means of a carbine swivel; the shoulder strap is long enough to allow the trooper to aim without unhooking the carbine. When the trooper moves at a walk, he carries it suspended on the right side, behind the leg, without touching it; at the faster gaits he holds the stock in the right hand, in order to prevent the carbine from tossing about. When the trooper wears his overcoat he carries his carbine slung.*

*Since this was written the U. S. Cavalry has been armed with the U. S. carbine, cal. 30. Krag-Jorgenson pattern, which is carried in a sling on the off side of the horse, passing under the trooper's leg.—[Ed.]

Revolver.—The revolver is a strong weapon, easily kept in order. The Americans speak very highly of it.

Saber.—The saber used in the cavalry is slightly curved, with a shell guard hilt. The scabbard is of steel. When mounted, the saber is always attached to the saddle, under the left thigh of the trooper; on foot, it is hooked up by two slings.

After the War of Secession, General SHERIDAN, in consequence of various reports, obtained a decision that the saber should not be taken into the field. Some time ago the question came up again for discussion, and lately it has been decided that the cavalry should again take the saber on field duty.

Cartridge Belt.—The cartridge belt used by the cavalry is of blue webbing. It is very convenient, and will hold one hundred cartridges. It is carried buckled closely around the body outside all the clothing, including the overcoat. The revolver, in its holster, is attached to the right side.

Subsistence of the Men.

The captain has full control of the mess, and regulates all the details thereof. The provisions needed for the mess are supplied by the government in great abundance. They consist of bread, meat, vegetables, spices, sugar and coffee. Although the men have three meals per day, it is impossible for them to consume all the allowance; the captain, therefore, sells the provisions not used, and the proceeds of this sale constitute the savings fund of the troop. With this fund the captain maintains the mess outfit, which is generally very well provided for. He also uses it to purchase anything that might be useful or agreeable to the men.

At the cavalry depot of Jefferson Barracks, Missouri, there are three men to each company of instruction, trained especially in the duties of cooks. The United States army is not the only one in which special care is given to the varied preparation of the food of the soldier; in the English army, at the camp of Aldershot, there exists a cooking school, from which a sergeant cook is assigned to each regiment of cavalry.

Horse Equipment.

The saddles used in the United States service are of two models: (1) The McClellan; (2) The Whitman. In principle, the Whitman saddle is officially adopted, but it will not be used entirely in the service until the stock of McClellan saddles is exhausted.

McClellan Saddle.—This saddle is simple in construction; it has a very high pommel and cantle. "boxing in" the trooper. It is short, which places the trooper upon his crotch, and obliges him to use long stirrups. The point of attachment of the stirrups forces him also to carry his legs forward. This saddle, open throughout its length, is really nothing but a saddle-tree which undoubtedly has the merit of heating the horse's back less. It is light and sits well upon the saddle blanket. The stirrup is of a single piece of wood. Although very light, it is very strong, makes no noise, and is not cold under the foot. A large hood is fitted to it. This stirrup has the disadvantage of contributing to the bad position of the trooper, in permitting the introduction of only the toe of the foot.

Whitman Saddle.—The Whitman saddle is made up in the style of the McClellan saddle. The difference consists in its length, which permits the trooper to be better seated. On the other hand it is held that its poise upon the back of the horse is not so good as that of the McClellan saddle, and it is to be feared that the man being thrown backwards, will wound the horse in the loins. The stirrups are the same for the two models of saddles used in the service, that is to say, of wood and hooded. The Whitman saddle with its accessories weighs only fourteen American pounds (6 kil. 356 gr.).

Bridle.—The bridle used is of black leather, in the style of the old French cavalry model of 1854, which it resembles very much. It has only a single pair of cheek pieces and a bit, without bridoon, and of course only a single pair of reins. For the cavalry the brow band is yellow. The curb is not of metal, but consists of a thick leather strap, buckled to the upper ends of the branches of the bit. In the clapper ring on the left side of the bit is fastened a strap, carrying a snap hook at its extremity, which is snapped into the upper buckle of the cheek piece. It must, therefore, be sufficiently taut. At the moment of dismounting to fight on foot, the trooper disengages the snap hook, and snaps it into the right ring of the bridle bit of the horse next on his left. In this way a single trooper can without inconvenience hold several horses, and this very simple method appears to us quite practical.

Packing.—In front of the pommel is placed the overcoat, rolled up in an oil cloth casing. There is also at the pommel a very wide, short strap used to attach the carbine across the saddle. Behind, upon the cantle, the saddle-bags of black leather are placed. These bags contain: On the right side, a flannel shirt, a pair of drawers, a towel and a pair of shoes; on the left side, rations contained in a cloth bag; besides, the free space remaining in the bag is employed to

carry the grooming kit. Shoe pockets are found on both sides of the saddle; on the right side is hung a double side line to hobble the horse by the lateral feet. Upon the saddle-bags are rolled and packed the blouse and blanket of the trooper. The tin cup is fastened to one of the straps. The nose bag is placed upon one of the pockets of the saddle-bags.

Nose Bag.—The nose bag of water-proof canvas, is made with much care; it has a leather bottom much like the crown of the French light cavalry shako. This bottom is pierced by two small holes, through which the horse breathes when he is fed oats in the nose bag; the latter being attached to the head by a strap. The oats, protected against dust and other foreign substances, are thus completely eaten. By stopping up the holes in the bottom with small wooden pegs, the nose bag is transformed into a very convenient bucket for watering the horse.

Grooming Kit.—The United States cavalry uses the same articles for grooming as are used in France. A horse brush with a heavy leather back is used. This leather, although quite stiff, nevertheless yields slightly under the action of the hand. The brush, therefore, follows the shape of the different parts of the animal's body, and may be made to reach all the folds of the skin.

CHAPTER VI.

HORSES OF THE UNITED STATES.

The horses used in the United States cavalry are strong and heavy, and of very nearly the size of those of our dragoons. As the American cavalry rarely fights mounted, it does not make a point of having speedy, quick and spirited horses. On the contrary the colonels of the regiments demand strong and tough horses, able to withstand long marches under heavy loads in severe climates. The cavalry is easily mounted, but not always with good animals, because it does not pay enough for them.

According to American officers, the horses of Kentucky and Tennessee are preëminently the best fitted for the saddle. The horses of these two States are generally characterized by their size and spirit. The neck is long, withers prominent, chest deep, girth well developed and elbows wide apart. They are often deficient in the loins, as well as in fullness of the croup, but they make, nevertheless, saddle animals of the first class.

In the States of New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Wisconsin, Iowa, Missouri and Kansas, the production is very great, especially of draught animals. Height and stockiness are found; spirit, however, is rare. The introduction of English blood, several years ago, appears to produce horses having more vigor and life. On the other hand, horses are so abundant in these immense regions that excellent and beautiful animals can be found.

Texas produces a considerable number of horses. The offspring of those which the Spaniards brought over with them, they are generally ill-natured, difficult to train, and incapable of carrying heavy loads. The trials made with them by the American cavalry have been very unsatisfactory. They are objected to as lacking in roundness of side and of thigh, and as having weak limbs and defective hocks. On the whole, the form of the animal is not pleasing.

In Texas, within the last few years, American mares and full and half blood English stallions have been introduced. But these experiments are too recent to have produced appreciable results as yet upon the whole of the species.

California has not yet furnished good material for the military service, although it is improving. Its horses are small, but during the past twenty or twenty-five years full blooded English stallions have been imported into that State, and are already producing good results, and in time, these cross breedings will produce excellent horses, not lacking in good blood. In Maine, New Hampshire, and Vermont, the horse does not exceed 15½ hands in height. He is gentle, coarse and tough. In Vermont, especially, the type is remarkable for speed and strength. Horses for artillery, dragoons and light cavalry, can be obtained there. Several regiments of cavalry and artillery are supplied with horses from these States.

The English Full Blooded Horse and the Half Blood Anglo-Norman.

English thoroughbreds are found in great numbers in the United States. They are met with nearly everywhere in North America, but principally in Kentucky and Tennessee. The stallions have a very great influence upon the local production. They are nearly all admirably well muscled, low, and add to these qualities symmetry of curves and length of forearm.

The Anglo-Norman half blood is but rarely seen in America; it would be desirable, however, to import some of them into the United States. All our good Norman horses have now a large admixture of English blood, and moreover, are distinguished by the

symmetry and strength of their hind quarters. Now as it is precisely the length of and bad form of loin that so often disfigure the horses of the United States, it may be seen how useful some good Anglo-Norman stallions would be.

American Trotters.

The Americans have a passionate fondness for trotters. For a mile (1,609 meters), these animals have great speed: they are not raced over a longer distance. This class of horses is never used except in harness: racing them mounted, as was done several years ago, has been wholly discontinued. These horses are not graceful: they have Roman noses, narrow lower jaws, ewe necks, badly formed withers, short shoulders, long backs, narrow loins badly put on, short, narrow and sloping croup, long legs and no articulations.

Their production stocks the country with broken-down horses, unfit for military service. A horse fancier will buy a trotter for an enormous price, without even having seen him, on the affirmation of authentic testimonials that he trots a mile in so much time.

Remounts.

All horses for the army are purchased by the Quartermaster's Department (remount commission), taking only those broken to the saddle. They are tried mounted before purchase. They must be able to travel in three gaits, to turn to the right and to the left, and to be easy to mount. Consequently, they are thoroughly broken when they arrive in the regiments. Once assigned to the troops, the captains complete their training, which is done very naturally by daily exercises. The United States army uses only geldings. Mares are not purchased. Officers procure their mounts at their own expense.

Average Price of Horses.

Horses are cheaper than they are in Europe. The remount service generally buys every year from 1,500 to 1,600 horses (saddle and draught) at an average price of 730 francs. Full blooded horses, the fast trotters which we have previously described, bring, on the other hand, much higher figures.

Forage.

Forage is purchased by public contract from the lowest bidder, but the contractor makes his delivery only to the quartermaster, who issues it to the troops.

In the United States cavalry, the regulation forage ration consists of fourteen pounds of hay (6 k. 356); twelve pounds of oats, corn, barley or maize (5 k. 450); also three and one-third pounds (1 k. 520) straw per day for bedding.

The Americans consider maize a stimulant, and believe it should enter into the daily ration in small quantities. They often mix it in the proportion of one-tenth. In the United States a horse never eats straw; it is not fed to him either in the army, in large establishments, or by the farmer.

Shoeing.

Many patterns of horseshoes and methods of shoeing are used in the United States. As a general rule the farriers are not experts.

The army uses the Goodenough horseshoe; it is of soft iron and forged by machinery. By a single stroke of the hammer, the branches may therefore be separated or brought closer together. Situated between the outer edge and the punch holes, on the surface resting on the ground, there is a series of small studs or projections to prevent the animal from slipping.

In cold climates, in winter, rough shoeing is constantly used. In the United States, three calks are simply added to the ordinary shoe. They are parallel, very high, and very wide (from right to left) and placed at the quarters and toe. In freezing weather, they are shaped to a long point, thus transforming them into true quadrangular pyramids, flattened from front to rear. They are sharp, especially the one at the toe, and it is necessary to put on new ones every four or five days.

CHAPTER VII.

Quarters.

The installing of troops in barracks in the American army is remarkable. With respect to situation and comfort, handsomer and better arranged quarters cannot be imagined. The military posts always occupy large tracts of land, in admirable localities, and as far as possible, situated on the banks of large water-courses. Hand-

some and well arranged cottages are designed for the officers; each family has its own; the bachelor officers are placed two and two. The headquarters building contains a library.

Officers' Mess.

The quarters for the officers' mess is comfortably arranged. It has a reading room, with papers from all parts of the world.

Hospitals.

The hospital, magnificently equipped with all the apparatus required by modern medical and surgical science, is located at a certain distance from the other buildings.

Barracks.

The barracks, assigned as quarters for the enlisted men, are situated at some distance from the officers' quarters and hospital. The rule of quartering in barracks, with some slight variations, is always the same: each company has its separate establishment, which contains an orderly room (corps de garde), often unoccupied, unless perhaps by an orderly; a room for the first sergeant; rooms for the non-commissioned officers and men who lodge together; rooms for disciplinary purposes; a mess room for non-commissioned officers; a mess room for the men; a kitchen; a wash stand and bath room; a work room for the mechanics of the troop; a library well supplied with newspapers and periodicals; water closets, admirably arranged, without odor, like those of the best kept houses in France.

Appearance of Barrack Rooms.

The barrack rooms are kept in excellent condition. During the day the bedding is rolled up on the foot of the bed. Every man has a locker, of which he keeps the key; this locker is attached to the wall, and holds not only his regulation effects, but everything he possesses. There is no bread board, the latter being kept in the mess room. Neither saddles, bridles nor anything which might vitiate the air are ever kept in the barrack rooms. In each barrack is a steam laundry, which is used by all the troops.

Stables.

The stables are generally situated at some distance from the quarters. They are not paved, and do not have huge litters. They

have neither racks nor mangers. The horses are placed two and two in fixed stalls. A box attached to the stall receives the oats, corn, or chopped hay for the horse when he eats in the stable, which rarely happens, since he passes only the night there. On the picket line he eats from the nose bag, which has already been described.

Saddlery.

There is a saddle-room in the stable of each troop, where the horse equipments are kept. In a small room opposite the saddlery lives a corporal, who has charge of the saddlery and stable; he is also charged with all details concerning the horses. He has in his care all the medicines necessary for the treatment of horses not sent to the veterinary hospital. There is a veterinary hospital, isolated from the dwelling houses. Riding halls are rarely found, except at the service schools.

CHAPTER VIII.

Discipline.

The discipline is severe, and the number of men punished considerable. Seeing that all the men serve voluntarily, that the pay is very high, and that the conditions of existence are the best possible, the number of deserters is incredible.

The punishments inflicted in the United States army are: Confinement in quarters; confinement in guard house (a man so confined has a blanket and sleeps upon the floor; the room is heated); solitary confinement (in cells); putting in irons (solitary confinement). Every man punished for drunkenness is confined in a cell.

Rates of Pay and Allowances.

OFFICERS.

Grades.	Monthly Pay.	No. of Rooms Allowed.	No. of Rations for Horses.
Colonel.....	\$291 00	5	2
Lieutenant-Colonel.....	250 00	4	2
Major.....	208 00	4	2
Captain.....	166 00	3	2
First Lieutenant.....	133 00	2	2
Second Lieutenant.....	125 00	2	2

NOTE.—These are the pay and allowances of the first five years of service. Each succeeding five years brings a ten per cent. increase of pay. Retired officers receive three-fourths of the last pay received in active service.

ENLISTED MEN.

Grades.	Monthly Pay.	Monthly Clothing Allowance.	Grades.	Monthly Pay.	Monthly Clothing Allowance.
Sergeant-Major	\$23 00	\$5 55	Saddler, Shoemaker, Tailor	\$15 00	\$5 31
Saddler Sergeant	22 00	5 46	Wagoner	14 00	5 31
Chief Trumpeter	22 00	5 46	Trumpeter	13 00	5 31
First Sergeant	25 00	5 55	Private	13 00	5 31
Sergeant	18 00	5 46			
Corporal	15 00	5 43			

NOTE.—This is the pay of the first five years of service. Every trooper who reenlists is entitled each time to an increase of pay. Men who have served thirty years are, upon their own application, placed by the President on the retired list, with a pension equal to three-fourths of the last pay received in active service, extra pay included.

Conclusion.

To sum up, nothing in France can give an idea of the American cavalry, unless it is perhaps our dragoons.

The American trooper is steady, but his seat is not that adopted by French equitation; he is on his crotch, with legs stretched out, the toes resting on the stirrups; this position is brought about by the shape of the saddle-tree. Generally the trooper rides with a low hand, with his weight resting on the horse's shoulders.

In the maneuvers, our theories have been very closely followed, that is to say, the movements are analogous to those of our old regulations of 1829. Formations in line are made in single rank.

Raids are always held in high esteem, but in these expeditions the horse is only a means of transportation sacrificed to the advance. The instruction dismounted, to which but little importance is attached, is not so good as that mounted. Small arms practice is carefully carried out; for good shots there are distinctive badges and special insignia.

The uniform is neat and well cared for. The great event of the day is the parade, which is the same in cavalry and infantry.

Last year, 14,491 magazine rifles, Krag-Jørgenson pattern, were manufactured at Springfield; this year the number will be brought up to 30,000, and the manufacture of a reserve supply will be begun. In a short time the cavalry will receive the new carbine.

For several years the saber was taken away from the American cavalry, its place in hand-to-hand fighting being taken by the revolver. This method of action has been discontinued, and the saber restored to the cavalry.

The cartridge belt appears practicable, as well as the link straps by which the horses are fastened together for dismounted action.

The horse brush, with leather back, lighter than that used in the French cavalry, is excellent and very serviceable. Finally, the nose bag, with stamped leather bottom, pierced by two small holes, and susceptible of transformation into a very convenient bucket, is admirably contrived and fulfills its double function to great advantage.

At the present time a board of field officers is considering the measures to be taken to increase the efficiency of action of the American cavalry. It is to be hoped that it will succeed in improving the situation, because, in spite of all the progress realized since the War of Secession, there undoubtedly remains yet much to be accomplished.

PROFESSIONAL NOTES.

THE CARBINE VERSUS THE RIFLE.

It is a source of congratulation that the hue and cry which we used to hear about the inferiority of the Springfield carbine, cal. .45, as compared to the Springfield rifle, has been silenced by giving us a carbine which has essentially the same range and trajectory as the rifle. The features of trajectory, range, etc., of an arm are such important factors in its efficiency that a comparison of these in the two arms may not be uninteresting.

We now fire the same ammunition, and from the latest report of the Chief of Ordnance, we find that the difference in muzzle velocity of the rifle and carbine is but eighty feet per second, while the maximum range, time of flight, etc., compare as follows:

	<i>Maximum Range.</i>	<i>Time of Flight.</i>	<i>Elevation.</i>	<i>Weight.</i>	<i>Length.</i>
Rifle	4006 yds.	34.6 seconds.	44 degrees.	9.355 lbs.	48.14 in.
Carbine	4016 yds.	34.3 seconds.	44 degrees.	7.563 lbs.	41.14 in.

Through the courtesy of the commanding officer at Springfield Armory, the undersigned has secured a table giving the ordinates of the trajectory of the carbine bullet, caliber .30, above the line of sight.

A comparison of this table with a similar one prepared for the rifle, caliber .30, and published in General Order, No. 36, A. G. O. 1897, shows for the carbine a flatter trajectory at every range from 300 up to 2,000 yards.

The two tables, however, were calculated by different officers, but this with the other data given above, is sufficient to demonstrate the fact that the trajectories, as well as the ranges, are essentially the same.

Thus we see that the cavalry are now carrying an arm which is seven inches shorter, and nearly two pounds lighter, than the infantry, with shooting qualities which are practically the same.

The difference in distance between the front and rear sights is in favor of the rifle. In the target season of 1896, when 11,000 infantrymen and 5,000 cavalrymen were firing, we find the infantry in the lead at the 200, 300, 500 and 600 yard ranges, the difference in average percentages varying from 3.5 to 4.4 per cent.

At 800 and 1,000 yards, as well as in skirmish and volley practice, the cavalry took the lead—in volley practice by over ten per cent.

This falling behind on the part of the infantry, however, has been explained by the fact that in 1896, and since then the back position has been no longer allowed, but the infantry have been obliged to assume the prone position in firing at the longer ranges and skirmishing—a position which the cavalry had, on account of the shortness of their weapon, been compelled to assume.

In 1897, therefore, we find, as might have been expected, that the infantry improved in their practice, and they lead the cavalry in all the various firings. At no range, however, was the difference as great as five per cent. For rectangular targets the difference was three and four-tenths per cent.; skirmish, six-tenths per cent.; volley, one per cent.; while for all classes of firing combined, the shooting of the infantry was the better by only one and seven-tenths per cent.

I have gone into these statistics somewhat in detail, with view to comparing the efficiency of the two arms, rifle and carbine.

It would seem from the above that while the rifle is the better shooting weapon, it is only slightly so, and not enough to compensate for the difference in length and weight.

In fact, if I were starting on an active campaign to-morrow in command of a company of infantry, I would rather have them armed with carbines than with rifles.

W. C. BROWN,
Captain 1st Cavalry.

MAXIMS OF BAUCHER.

The following are some of the maxims of the celebrated horse-trainer, BAUCHER, and should be remembered while training a horse. They are common sense, and should be well impressed upon the mind of one who essays to do any horse-training. Applying these maxims, one's task is simplified, and the results will amply repay one who follows the instructions. Of training, he says:

"In training, one always wishes to go too fast. To accomplish it quickly, do not hurry, but assure solidly each one of its steps. Demand often; be contented with little; reward much.

"A lesson ought to be, for the horse as well as for the rider, a solitary exercise, as instructive play, which never leads to fatigue.

"When sweat appears on the horse, it is because the man has passed the limit."—*Translated by J. W. Furlong, First Lieutenant Sixth Cavalry.*

REPRINTS AND TRANSLATIONS.

OMDURMAN AND KHARTOUM—THE GREATEST BATTLE SINCE WATERLOO.

By GEO. C. CRAIG, Editor *Defense Review*, Sydney.

THE LULL BEFORE THE STORM.

As the foemen's drums continued to beat the troops cried unto "ALLAH" for victory, with mad shouts of "ALLAH RASUL" and "ALLAH EL MAHDI." As they did so, at the three mile distance, their massed voice resounded over the intervening space like the sound of Corcovetran upon the seashore, "sounding when the storm was high." It was a proud moment for all ranks in the Sirdar's army, for the hour for smashing the Mahdi had come. The colonels looked to their position and range finding; the infantry got their cartridges ready and gripped their Lee Metfords with a fresher touch; the men had slept the night upon their rifles, but few really enjoyed the balm of rest, for the minds of all were human, and were filled with thoughts of next morning, for well they knew that the crucial test had arrived. Sir HERBERT had seen his brigadiers and generals, explained to them his plan of battle, and gave them final instructions. They knew that victory would be theirs, but who should live to tell the tale was another question. It was wonderful to note the perfect confidence which the native soldiers had in their European officers, and what pride and affection they felt in going into battle with the Queen's army. The Sirdar, HUNTER, RUNDLE, MACDONALD and MAXWELL, were everywhere received with genuine respect and enthusiasm. The night was spent without disturbance, and long before dawn the men had a good breakfast. Such experienced heroes like GATACRE, WAUCHOPE, LYTTELTON, MONEY, MURRAY and LONG, were early amongst their gallant soldiery. WAUCHOPE's brigade was as well balanced for the fight as it was at Atbara. The rank and file of LYTTELTON's brigade were new to war, but they were the doughty warriors of old England—her rifle-men, Fusileers and Guardsmen. The Lincolns and Warwicks had new colonels. Colonel FORBES, of the Warwicks, arrived at Nak-

helia in time for that fight, but with fine gentlemanly feeling, he would not supersede Colonel JONES until the battle was over. It was the maiden fight of each colonel, as MARTIN, of the Lancers, MONEY, of the Fusiliers, COLLINWOOD, of the Lancashires, and HATFER, of the Guards; but FORBES had been with Sir DONALD STEWART in Afghanistan, and all the Hepburns and Dugald Dalgettys of the native regiments had borne the brunt of the fighting in Lower Egypt, around Suakim, in the Dongola, Berber, and Atbara campaigns. Before the battle, a son of Lord ROBERTS—BOBS—arrived in camp.

THE SIRDAR'S ORDER OF BATTLE.

The brigade formation was changed from yesterday, the 1st. As it stood ready to meet the tremendous onset early on Thursday morning it pictured four brigades in the front firing line with two native brigades behind it; the whole looking the shape of a crescent, so as to deliver their crushing fire from three directions. The line and order of battle was a long front—two and one-half miles. On the very left, next to the river, stood the Egyptian Maxims and Nordenfeldts of Colonel LONG, under Majors YOUNG and LAWRIE, and next to them the Thirty-second Field Battery of Royal Artillery under Major WILLIAMS. The artillery mustered forty-four guns and twenty Maxims. Then stood Brigadier LYTELTON'S Second British Brigade, *i. e.*, the Second Battalion Rifle Brigade under Colonel HOWARD, the Second Battalion Lancashire Fusiliers under Colonel COLLINGWOOD, the Second Battalion Northumberland Fusiliers under Colonel C. G. C. MONEY, and the Second Battalion Grenadier Guards under Colonel VILLERS HATTON, with the Maxim detachment of the Royal Irish Fusiliers under Captain CHURCHER on their right. Next to these four Maxims stood the war-worn and battle-trying brigade of General WACHOPE, *i. e.*, the First Warwickshires under their new Colonel FORBES, the First Battalion Cameron Highlanders under Colonel G. E. C. MONEY, the First Battalion Seaforth Highlanders under Colonel MURRAY, the First Battalion Lincolnshires under their new Colonel LOWTH, with the five-inch Lyddite shell-firing howitzers of the Thirty-seventh Battery Royal Artillery under Major ELSLIE, and a detachment of Maxim guns, worked by a section of the Sixteenth Royal Garrison Artillery, under Major MUNN. The Sirdar's right order of battle consisted of Brigadier MAXWELL'S Second Soudanese Brigade, *i. e.*, the Twelfth Regiment under Colonel TOWNSHEND, the Thirteenth under Major GODDEN, the Fourteenth under Major SHEKLETON and the Eighth Egyptian under BIMBASHI FUSOF BEY; and next to it on the right the First Soudanese Brigade of General MACDONALD, *i. e.*, the Ninth Regiment under Major WALTER, (that old heroic Ninth), the Tenth under Major NASON, the Eleventh under Major JACKSON, and the Second Egyptians under BIMBASHI PINK. On the rear-center-right, held in reserve, stood the Third Egyptian Brigades of General D. F. LEWIS, *i. e.*, the Third Regiment under Colonel SILLEM, the Fourth under Colonel SPARKER, the Seventh under Colonel IBRAHAM BEY, and the Fifteenth under Colonel HICKMAN; and Brigadier COLLINSON'S new Fourth Egyptian

Brigades, *i. e.*, the First Regiment under Colonel DOBAN, the Fifth under Colonel BORHAM BEY, the Seventeenth under Colonel BANBURY BEY, and the Twelfth under Colonel MATCHETT, with Captain PEDLEY as Brigade Major. To the right of MACDONALD'S Brigade were drawn up the Egyptian Artillery under Captain BOUGEMONTE, and the No. 4 Maxim Battery under Captain PEAKE. All the Egyptian batteries had now the new twelve-pound field guns. The Third Hussars were not present, but 1,500 cavalry and camelry were protecting the flanks and rear.

THE FIRST DERVISH DEFEAT.

The last effort to crush the British line had lasted for some time. Again and again had the Emirs and Dervish leaders rattled and lead on their brave followers, but only to be decimated by a fire seldom seen for destructive power in war. The man behind the guns and rifle was the true soldier of the day. Rifemen and gunners with their disciplined nerve power, and accurate aiming, were winning the victory. Upon each side it was a fight of heroes—savage and civilized. In this first action, their cavalry, despite their courage and fleet steeds, never got nearer than 600 yards from the lines of GATACRE and HUNTER, who had been everywhere under fire, stimulating, encouraging, and directing the defeat with their great personal example and military intelligence. WACHOPE and LYTELTON had their firing line well in hand, and directed the fire on points of the rush with excellent effect. All the colonels and majors showed how fit they were to guide and take advantage of every phase of the impetuous Dervish advance, which at times seemed to come on like advancing waves on the seashore. MAXWELL and MACDONALD were the chief objects of the death-defying Emirs. MAXWELL'S brigade was especially spotted in the first great rush, and some of the gallant Dervishes reached to within 250 yards of his bayonets. In front of his Second Native Brigade the foemen took some cover which the ground afforded, whilst others raced westward towards the low hills in their mad charging, all the while enduring the deadly fire of the 303 Lee-Metfords, Maxims, and 12-pounders. The Americans no longer can boast of their accurate gunnery, as our guns on land and river could not have been better aimed. The Dervishes, now charging first to our right, had a steady eye upon the Khedival regiments to give them an El Tib or Marabia coup, without thinking that the Egyptians, in 1821, had defeated them badly at Bara. The last charge was being defeated by the heroic valor and great firing power of our troops all along the line. So far the point of victory had been reached. Some bodies more lucky and daring than the rest in the midst of that fire of carnage would readvance by leaps and bounds, with flags and spears in hand, only to be smitten down like other thousands, leaving heaps of killed and wounded in front of the British and Native brigades. Their rushes had never been allowed to close with us. No bayonet had tasted blood as yet. Captain KEPPEL had landed

some howitzers on the river bank, and made splendid practice against the walls of Omdurman and the Dervish rear.

About 7:45 A. M., the enemy seemed to waver—their power of assault was shaken, and they began to retire with as stoical a courage and stubbornness as they showed in the helpless and be-moaned charges. They had fought like Trojans—like the best heroes of Europe. But, whilst they fought with heroic desperation, what must be said of the noble heroism and devoted bravery of those British, Soudanese, and Fellah regiments that had defeated them—who had breathlessly admired their noble qualities, and had made such a sure and intelligent use of modern arms. They, too, had shown a noble heroism equal to the best days of Spain, Flanders, and India. The Egyptians had wiped out the blots of El Tib and Marabia. Colonel COLBOURNE must now recognize them as gallant soldiers like the Turk and Afridi. They did, not now fall upon their knees in battle to plead for mercy from the spears of OSMAN DIGNA or YACOB. They were no longer cowed men by oppression, nor were the brave regiments of Soudanese of the MAXWELL and MACDONALD brigade a second behind in their brave and highly disciplined defeat of the Khalifa troops that day. The Dervish divisions and cavalry fled behind the hills. The battle was ended at Egega. Was the victory complete? Would the Khalifa fight at Omdurman? The white and black troops cheered when they saw the first route of the Emirs, and the bands played their national airs and regimental tunes as victorious troops only can. But the defeat was only to be a lull in battle.

THE BATTLE OF OMDURMAN.

The battle of Egega, after the defeat of the first Dervish attack in the morning, was soon to become turned into a second battle which may be termed the battle of Omdurman, as the circumstances connected with it arose out of the general and final advance upon that city of the Khalifa. The Dervish force had retired to behind the hills and ridge on the western side of the valley, intersected by low, swampy ground. They had rallied there, and re-formed in masse to the extent of 20,000 men, headed by their surviving Emirs, and covered by their heroic Baggara horsemen, game to ride to their death. The courage of a RUPERT or a MURAT was nothing to the blind daring of those savage horsemen. The whole had silently formed up under the sacred Black Flag of the Khalifa, which was also symbolical of Mahdism. This second battle was worthy of the brave tribes that had followed that flag for fifteen years. The troops that could re-form behind that low ridge were veteran soldiers. After the tremendous losses they had suffered that very morning, they now rallied to retrieve the tide of battle to the number of 22,000 men. They had resolved to break through what they considered to be the weakest part of the Sirdar's line: but what they thought was that weak link in the chain turned out to be as strong as any portion, viz: the Egyptian brigades. The Dervish

gathering was to make another bold and formidable rush to break through the lines of LEWIS and COLLINSON, then no longer in reserve formation, but about to take the lead in the advance upon the battlements of Omdurman. The Khalifa chiefs had also designed by this proposed rush to divert the attention of our riflemen, batteries, and regiments on our left, whilst they rushed our right flank. It was a bold, yet mad conception, which they, when too late, found out to their cost. It was like unto charging a whole army—bad tactics against modern weapons—but there was no task from which Dervish chivalry recoiled that day. So thick was their formation along that ridge of rock and slope of valley that they looked terribly impressive and threatening with their long array of spears, and the noonday sun sparkling joyously upon the steel blades. Some hundreds of Baggara cavalry screened this movement in front, and the Sirdar, after having rested his troops for an hour, was about to probe that hill movement.

"THE LINE WILL ADVANCE"

The Sirdar, having re-dressed his ranks for the forward movement upon Omdurman, he gave the order, "The line will advance!" The troops were anxious to go forward and "finish the thing" that day. At 11:30 A. M. the line of brigades moved off the Egega battle ground, towards the ridge between the two hills and to cross the valley leading to the capital, in *echelon* of battalions. The advance had not gone very far when the right wing became furiously attacked, just as our left wing mounted and were crowning the hill next to the Nile. This second battle was as keenly contested as the first, and developed into two great combats—on the left and right, especially on the right, where the 22,000 Dervishes fell, with a serious and supreme effort, upon the native brigades of General HUNTER, mostly officered by Britishers. The Sirdar and staff saw the new development in attack, so he promptly ordered a change of front to catch his foe in a semi-circle of fire, and thus annihilate them. Sir HERBERT swung round the center and left of the Sudanese, captured the rocky hill, and ordered the reserved brigades of General MACDONALD and MAXWELL to join the firing line, a movement which only took ten minutes. This move had its desired effect. This cream of the Dervish army were caught in the depressed terrain, and became subject to a rifle and gun fire, which, for death-dealing and destruction, was only equalled to that of the morning fight. The foe charged and recharged with repeated acts of heroic valor, striving with might and bravery, all that men could do, to reach the Highlanders, artillery, and the black brigades. They fell in scores and crowds, as if death to them was a blessing. Every rush they delivered was stopped. Their main body was practically destroyed by salvos of artillery, and the cross fire of Maxims and Lee-Metfords, the bullets of which have effective staying power at all ranges. The Baggara horsemen charged and recharged, and the spearmen planted their flags, whilst all around them died beneath the iron hail of WILLIAMS, ELMSLIE, LONG, MAXWELL, MACDONALD

and WAUCHOPE, leaving heaps of dead over the ground like "dotted snow drifts." In the midst of fight, their broken and cut-up ranks would re-form and launch themselves against the Anglo-Egyptians, led by their gallant Emirs, like mail-clad knights of old, despising death, and before casting off their mortal coil, would even be guilty of firing a last shot against their hated foes.

THE LOGIC OF FLAT TRAJECTORY.

The glorious battle charges on both sides must be separately described, as the Dervishes got dangerously close, and our combined fire settled down to its killing work. The Arabs fell in droves. The chiefs still leading, falling, and followed with astounding ardor by their brethren. Their devoted gallantry and convincing bravery continued undaunted. All along the well dressed lines of white and black infantry, from left to right, the long combat surged steadily, and the crack of rifle and Maxim was the crack of Dervish doom. But stay! The Dervish attack when it changed from "direction straight" to that of "oblique," throwing itself upon our left and center, a strong division of their horse and footmen crowd up to overlap the line on the Sirdar's right flank. Now was the moment supreme in battle. Bravely did Sir HERBERT KITCHENER, Generals GATACRE, HUNTER, WAUCHOPE, MAXWELL, MACDONALD and LYTTLETON answer the new and terribly threatening formation before the very nose of our troops engaged in desperate volley firing. The oblique rush of Dervish seems to charge right up to our guns, up to the Lee-Metford rifles, up to the firing line of Cameron and Seaforth men, the brave sons of Lincoln and Warwickshire grenadiers, the sturdy and unflinching ranks of Fellah and Soudanese. Quick and deft as the draw of saber from its sheath, the right wing and British center is pushed forward in beautiful style to meet the foe, even in closer combat, to defeat their sudden, yet not unexpected tactic of the stubborn Khalifa military brain. Both sides are full of enthusiastic fight. A series of battles is going on at once. The British in solid form and the Soudanese regulars vying with them in battle discipline. The Dervish charge was impetuous, and most determined to look at, but the conduct of MACDONALD's Soudanese was magnificent. MACDONALD enters the tactical battle like the hero of Chilian-Wallah. He rushes to the rescue of MAXWELL's pressed brigade and the King's Camel Corps with true Aberdonian resolution, knowledge of BRUCE HAMLEY and old MOLKE. By splendid rifle fire and skillful handling of his troops, he defeats everything before him. The Sirdar, in his white uniform, and gay Arabian grey charger, followed by his cool, yet ever efficient staff, is at the front post of danger, inspiring all to "fire well," and do their duty. MAXWELL, as usual, is in the thick of the fight. The heroic RUNDLE and HUNTER are everywhere with their tactical skill and stubborn determination to stop the Dervish rushes before the bayonets are reached. Generals GATACRE and LYTTLETON on the left, with their proportional artillery, keep peppering the foe on front and flanks. The

Lincolns and Grenadiers, at long range, mow down the hordes of Dervish, whilst the heroic "ANDY" WAUCHOPE with the Camerons and Seaforths gallantly assist and suffer for the defense on the right.

The black brigades do not jeopardise the new defense, but by instinct keep up with the British infantry, the steadiest cross fire ever seen in the memory of the oldest soldiers present that day. A steadier, gallant, better and more patient body of men, no brigadier wished to lead in the battle thunder and flame, or when the heroism and interests of England were at stake. Sheikh and Emir rode to the front in vain, shouting out they were invincible and promising them "paradises" if they broke the British line and flank, but "their faithful and misguided followers fell in circles around those they blindly followed." How? By the splendid courage of the Sirdar's troops and "stern logic of flat trajectory" fire. I am glad to see our colonial boys so often at the butts, learning the value of good aim and battle firing. The shooting of VICAR's q. f. field gun, did great execution in the Dervish ranks. It was tried with great success for the first time, at the late battle of Nakhelia, at less than 1,000 yards range. The Egyptians had purchased six complete batteries of these q. f. guns, which could use either twelve and a half pound shell or the twenty-pound double shell, and some of which were on the field that day, and were capable of firing 125 rounds per second, which mowed them down, and hundreds over them, in death agony; and MACDONALD's heroes were punishing them awfully. "Saddle after saddle was emptied, until not a score of them rode on." Their Cardigan, with black face, white teeth, and flowing mane, rode up to almost our bayonets, but a pot shot soon brought him down for such daring. At one time it was thrilling to see the hundreds of white flags all bearing down on MACDONALD and MAXWELL's brigades, and trying to cross the front of General LEWIS's all Egyptian brigade. So great was the mass of Dervishes around the black flag, that, had it not been for the arrival of the Lincoln battalion, under Colonel LOVETTE, to support him, the Dervish impetus might have reached the bayonets of LEWIS, and, perhaps, those of the first Soudanese brigade, which was always in the thick of battle that day. Major YOUNG, of the Egyptian Horse Artillery Battery, had also to ease off the rush then being pressed upon the Egyptian regiments; but his battery had so many men and horses knocked up with over work and fight, that he had, at one period of the battle, to dismantle two of his guns, with the hope to recover them when the right flank had been safely rescued. The naval squadron had not been idle, as their guns demolished the walls of Omdurman with good result. The Dervish fort fire only bit the Fateh once, penetrating a fore armored plate.

BATTLE AROUND THE STANDARD.

The pages of HOMER, BYRON, SCOTT nor NAPIER can tell no greater story than how the Dervish army—those that were left in it before the Khalifa retreated—died. It was a death feat as noble as the fatal Hill of Albuera, the fate of ISANDULA and MAINWAND,

of GUNDAMUK and SHARAGHARI, of SARAN SAR, or the death of WILSON and FORBES near Bulwayo. They died around the Black Standard with their faces bright, open and unconquered to their foe, and disdained to surrender. The government of the Khalifa was black-guardish, but the heroism of his troops at Omdurman will live forever. The complete annihilation of their cavalry by the brigades of General HUNTER did not cowardice the remaining footmen. The unyielding heroism of YACOB, the brother of the Khalifa, was wonderful to behold in such a savage brain. The battle around the standard was the grand finale to a lost cause and reign. Their courage was reckless still. YACOB seeing that all was lost, did not fly, like his brother, nor NAPOLEON. This noble leader made for the last stand at the Black Standard, whilst the infantry were still fighting, under HUNTER and WAUCHOPE'S fire, and stealing along the hillside like a crowd of soldiers without any orders. This time they strove to fire their mixed band of rifles and a field gun at the Anglo-Saxon ranks, but they did not aim like the soldiers of GATACRE or HUNTER, MAXWELL and MACDONALD. Their bullets went "pinging" over the heads of the men, though the Soudanese, Egyptian, Camerons, Seaforths, Lincolns and Rifle Brigade had lost heavily. The Black Flag was carried in the midst of this last charge. The Maxims of CHURCHILL, YOUNG, PEAKE, LAWRIE, WILLIAMS, ELMSLIE, and all, joined in the last destructive fire. It rattled from flank, front, ridge and billock, and mixed in awful grandeur with the sharp, grim detonations of the rifle infantry, against which no flesh nor blood could stand. After such pounding work the Sirdar let his guns advance into the plain to give the foe parting and conquering action shocks.

The personal heroism of YACOB—never did man die better facing fearful odds, for the spirit of the Mahdi and the temple of the Islamic gods. The standard was seen to remain stationary yet high held amidst the din of murderous fight: "the strength of civilization without its mercy." Around that fated banner lay heaps of slain and Moslem souls passing in their way into the Mahdi's presence in Paradise. In this modern age few men would so die for the light of the world as these ignorant heroes died for ALLAH and the Khalifa. Lieutenant CHURCHILL, the gallant and literary son of "RANDY" CHURCHILL, wrote of this strange blind devotion and belief which he witnessed in the Indian tribeland war last year, as instanced in the case of the mad Mollahs of Hadra and Sufi. The infidel guns did not stop firing, as the Khalifa said. The Maxims and Lyddite shells had proved that the Mollahs and Khalifas were wrong in the result of that day. The bullets did hit the sons of the Mahdi, and the jibba uniforms were highly penetrative or vulnerable. In Moslem belief many had migrated to Paradise, and others simply wanted to do so under the black flag. As OMAR KHAYYAM said:

Some sigh for the prophet's paradise to come,
Ah! take the cash and let the credit go,
Nor heed the rumble of a distant drum.

Our Maxims and Lee-Metfords at last left two devoted heroes on each side of the standard, standing with it in hand like iron-cast

soldiers which nothing could hurt, or like the Roman sentry at Herculaneum. The Khalifa or OSMAN DIGNA were not there to die game and be at rest with the Mahdi in Paradise! The curs had fled, as they had often done, leaving their two standard-bearers alone, to face the last salvos of lead and iron. At last one hero fell, shot through the body. He let go the flag, and receiving strength he clasped it once more. He held it up on high until death closed his devoted bravery. The other hero, alone of all the moving crowd of 60,000 men, stood boldly by the flag, to await his *do-mer* and death, along with thirty bodies upon that fatal spot. This last of the noble Mahdists fell with a dozen bullets through his body. Like CHARLES EDWARD, at Versailles, I wonder if the Khalifa in the wilds of Kordofan exclaims, "Oh the brave and noble, that have died in vain for me!"

YACOB'S HEROIC CHARGE AND DEATH.

The deaths of YACOB and the Khalifa's son, EL DUS, were worthy of the historic gods of Egypt. For ten minutes more after the fall of the Black Standard, our firing continued, but the Dervish force was shaken and broken. Many escaped, and a few laid down their arms in blank despair. The charge of YACOB immortalized him, and he is no doubt a Moslem saint by this time. He did his best to wipe out HUNTER, MAXWELL, and MACDONALD, when they were out of touch for a short time, by 1,200 yards, with the British brigades, when changing front on the left. The Sirdar and HUNTER were equal to the occasion, as they soon linked the line of fire; and, when YACOB'S troops got "dangerously near" MACDONALD, his Soudanese regiments remained firm and true as steel to the task before them, even when they were about reduced to their last cartridge, before the enemy broke in general retreat, and before the Sirdar sent WAUCHOPE'S Highlanders to help and give the blacks "white confidence." YACOB died braver than TIPPO or NUNOOMAR. YACOB rode at the head of that valorous cavalry charge against HUNTER'S division, which I have described, and which latterly melted away in utter destruction. He did his best to break HUNTER'S square, and gallop through the lines. They charged five times, and five times were they repulsed by "flat trajectory." When our rifle and artillery fire raged highest and was most deadly, their cavaliers scorned to retire out of range, but with unexampled devotion they willingly gathered around their Emir's person and his standard "under a rain of lead," all the while shouting "ALLAH," and "Death to the English dogs." They rallied for the last time. They re-advanced with loud shouts, brandishing glittering spears, and raced at the full double across the zone of fire after their brave leader, evidently to die with him as near the Egyptians as possible. YACOB and OSMAN AGRATA both fell in the charge. They gathered and stood over YACOB'S body like young Pennycuicks, refusing to lay down their arms. They stood to the last man, or "foremost fighting fell." SLATIN PASHA, who had been his slave at Omdurman, recognized the banner of YACOB, and after the combat rode

up to where he fell. He was still alive. He recognized the Pasha, and died stoically in his presence. Several of the Emir's body guard, who lay expiring, fired at the Egyptian escort, and they were at once dispatched. But the charges were spent. The surviving Dervishes slunk away. The Emirs had no more men to follow their mad leading. The war drum throbbed no longer. The field was strewn with dead and dying. The Khalifa had fled to Omdurman; all that was blind in following and noble in manly courage were no more. Silence gave a unique funeral requiem to the miles of dead Arabs. The Khalifa host that started from the Khor that morning no longer existed. The Sirdar, Sir HERBERT KITCHENER, and his gallant army had conquered the Khalifa. The drums and bugles were sounding the advance, and the pipes and bands the gathering of the regiments for the march to the capital and the historic city of Khartoum.

HEROIC ACTION OF MACDONALD.

His First Soudanese Brigade was right in front of the great second attack of YACOB in the afternoon. Their 19,000 footmen were covered by 3,000 Baggara cavalry, all prancing and eager to be let loose against our thin native lines, to make a gap for their infantry. Suddenly the horsemen started at a rapid gallop toward MACDONALD and MAXWELL. General HUNTER was near at hand and supported them by bringing up the rear. General GATACRE also supported him on the left, the Camerons and Seaforth's, of WAUCHOPE'S Brigade, all of which became generally engaged, repeating in the most galling and sweeping manner the dense fire on the shouting and onward advance of Dervish horse and foot. It was a most anxious and exciting moment—as fierce as Abu Klea or Ahmed Kheyl. The battle began to rage more furiously than ever, and both sides took as their talisman the huge Black Flag, with its Koranic quotations and proud folds floating in the Soudan breeze before the enemies of Mahdism. This re-formed army rush in two strong dense divisions of 23,000 men was reinforced by the Sixth Khalifa Brigade, just arrived from Omdurman, the last reserve of the Khalifa, and the both combined had started to crush our rear brigades, delivering it in true Dervish fashion on our right. MACDONALD had formed up, with his Maxims and WILLIAMS' Thirty-second Battery, to meet the great array. Rapidly rode the Baggara Horse, and nearer they came to MACDONALD. There was seen the British left and center swinging round, which left WAUCHOPE'S brigade in charge of MAXWELL'S baggage and animals. The Dervish general advance sent a silent yet admiring hush over the valley amongst our disciplined troops. But this silence soon gave way to a sterner sense of duty. The Sirdar's, on the left, was about to act in unison with his central guns and other brigades, all fighting as one grand military scheme of destruction. General MACDONALD, on his side, waited until the Baggaras were up to his 250 yards range. "Fire! fire!" went the order along his line of four regiments. Two leading horsemen galloped up near, but they

fell to rise no more, and their horses also fell. On they came, with false hope of breaking our lines. Volley after volley, from gun and rifle, knocked them over.

MAXWELL'S GOOD FIGHT.

YACOB and EL DIN had "set" the brigade of MAXWELL, as also those of Brigadiers LEWIS and COLLINSON, which were now in the front advance, as doomed to destruction. They crept round and down the slope of the hill on the right, with an unmistakable objective and avalanching force. MAXWELL threw forward his four battalions into good firing position, and told his Soudanese to stand or die there. The order was obeyed with spirit, and the troops poured in a dreadful fire upon the racing and plunging mass, struggling to go forward like a dancing ship caught on the Goodwin sands, with the stormy wind beating over it. Whilst ordered to move on after the leading brigades of LEWIS and COLLINSON, MAXWELL and MACDONALD'S regiments met the full force of the new Dervish attack across their line of march. MAXWELL advanced to seize the hill from whence the Dervishes came, with MACDONALD after him in the firing line. For ten minutes the two brigades formed part of the Sirdar's new disposition to smite those 23,000 Dervishes with his tremendously developed cross and concentrated fire. The Sirdar caught them like rats in a hole, and they battled and ran about to get out of it. "Zuish! fly a couple of shells, followed by the sharp bang of a section of howitzers. Eagerly we watched the effect. The shells had been nicely timed, but they seemed to make but little impression in bursting. Breaking from cover, the enemy sweeps with an inward curve on the right and center, his extreme flanks converging towards the opposing angles of our two native brigades. File-firing commences from the front directly assailed, the men having been cautioned to aim. Nearer they swept, horse and foot closing on either flank; but as they came within our zone of fire, they butted forward hit to death. The Maxims, Nordenfeldts, and twelve-pounders have now got to work, and within a few minutes the leading mob, for it was only a mob, fell in piles. But fanaticism knows no check. The chosen chiefs of the Khalifa were there, followed by their own chosen benchmen. And what gallant men were they! Right up to the cannon's mouth, right up to the rifle muzzle, dauntless they rode, encouraging their fellows with the promise of Paradise to break our squares. Sheikh after sheikh went down with his banner, although the Khalifa had assured each that he was invulnerable, and their faithful, but misguided followers, fell in circles around the chiefs they blindly followed." Nobly they tried to reach MAXWELL'S brigade, falling, reeling, yet still advancing, despite the accursed hell fire they were getting from almost the three sides of our army square, assisted by the brave gunners and marine artillery of the Royal Navy on barges and steamers on the River Nile.

HEROIC CHARGE OF LANCERS.

This was a cavalry charge of the Scarlett and Union Brigade type, in which a CURETON, THACKWELL, HODSON, or BATTY would have gloried. It was not a noble six hundred, but a three hundred affair. It became a wild and heroic charge. It was not ordered by the Sirqar, and did not mean part of his plan. It was quite *impromptu* and unexpected. Men of valor, like the Twenty-first, could not be held back in close touch of the foe. It was "British, you know," and the gallant colonel did the best thing at the moment with his two small squadrons. It was the demonstration of the old Homeric instinct and British valor. MARTIN, like WOLSELEY, did not believe it right to turn their backs upon the enemy, as Lord GORGE said, "be they ever so many," or as old Sir COLIN said at the Alma, "It is better for everyone to die than turn their backs on the foe;" in fact, they were obliged to charge home, and cut off the retreat. It was the maiden fight of the noble Twenty-first Lancers, and was worthy of the best traditions of the British army. It only proved what our much abused cavalry can do when they get the chance in war. This half regiment charged an army of horsemen. At first it acted as light cavalry, then as heavy horsemen, then as mounted infantry, and finally, Colonel MARTIN, who kept a cool tactical head, used the intelligence of the three arms by driving his numerous combatants within the zone of gun and rifle fire. MARTIN'S conduct was fine leading and direction. The primary object of the charge was to cut off the Dervish retreat, and prevent a storming of Omdurman fortifications, as also to force a wholesale surrender of the foe before they could escape into the far desert. A victory must be followed up by close pursuit, hard hitting, and by giving the foe no time to rally. The pursuit of the Sikhs by GILBERT, and of ARABY PASHA'S troops were cases of success, and the want of cavalry prevented a hot pursuit of Pandies at the final capture of Lucknow. This charge was the Ramnuggar phase of the battle, or the honors are shared with the charge upon MACDONALD'S Soudanese brigade. When the order was given for the line to advance at 11:30, the Lancers, of course, led the way from the left center with a trot and gallop. Several volunteer beau sabers rode with the Lancers.

The main Dervish division in front were concealed in a depression, with patrols extended in front, to invite either they or the infantry on into an enlarged surprise. They had also designed a similar trap for the Camel Corps on our advancing right. The Lancers only numbered 320 strong, but the rank and file were of the true British grit—of the race of those who immortalized our HENRIES and EDWARDS, our MARLBOROUGHS and WELLINGTONS, and they faced the 700 Dervish cavalry in front as "decoy ducks" to the 3,000 cavalry hidden by the rise of hill and undergrowth, with swampy ground between them. Colonel MARTIN just discovered them in time, and charged them at once. He scattered the 700 "decoy ducks" like chaff, but pulled up for a moment at the sight of the warlike and unshaken 3,000 horsemen, the remains, with

others, of YACOB'S squadrons. The dashing Colonel, with all the fire and heroic ardor of a PAGET or SOMERSET, WOOD of the Tenth Hussars, or a MCGREGOR, he shouted out, "Steady the Twenty-first," and then his bugle sounded the "charge." Trot, gallop, jump and over the watercourse three feet deep, as if going over country in the Midlands, he led the way, sword in hand, followed by his orderly officer, and then other officers, very numerous, leading their troops and sections behind them. They were armed with lance, sword and magazine carbines—the latter out of the socket and swung over their backs. I have yet to learn how they used their lance or sword in the impact. The ranks of the foe are said to be twenty deep, but this 320 British horsemen threw themselves upon the 3,000 just as if they were Russians at Balaclava, or Frenchmen at Waterloo.

Theirs not to reason why,
Theirs but to do, and die,
Noble three hundred.

PERSONAL COMBATS.

Smartly picking out their men to go at they slipped in between the next Dervish trooper, taking them by heroic surprise. The Lancers slashed and cut about them to the right and left, "giving gascon good," and receiving many themselves in blow for blow. The lookers on again exclaimed, "God help them; they are lost." They were seen to forge themselves through the dense mass of cavalry like a wedge, smartly cutting their way forward and through, driving the charge home, whilst horse and hero fell, and those which had gone through puffing, blowing, and the horses foaming at the mouth after the hard work going through, back again, through again. They were getting it pretty hot, losing Lieutenant GREN-FELL, a nephew of the British G. O. C. in Egypt, and leaving many of their dismounted men by the two-edged swords of the Baggaras, who cut them to pieces in true Moslem fashion.

The horses had got stuck in the sandy or boggy Khor water-course. Colonel MARTIN then changed the nature of his charge to that of mounted infantry. It was a happy thought in the midst of mortal combat on both sides, but the Anglo-Saxon blood told in the bloody fray. It was the regiment's first battle, and they were going to make it a historic combat of the most brilliant character. Officers and men appear to be one on this point. The fatalities and narrow escapes were many. It was British valor on horseback over again. The regiment won much glory. The men saw the best way was to "fight-fight," like old GRAHAM at Barosa. In the slashing work the troopers' horses were hamstrung as they struck the soft sand, and as the Lancers fell over them, they were cruelly hacked to pieces by numerous Dervishes. Only two dismounted men, Surgeon-Major PINCHES and Major WYNDHAM got out alive from the swampy ground. His horse fell, and the doctor was thrown right into a crowd of savage swordsmen. Sergeant-Major BRENNAN, riding and butting bravely ahead of him, looked back, saw his

plight, and veered his charger round to save the surgeon-major. **BARNHAM** gripped his trusty blade, and with a heroic heart made a clearance about him by his vigorous sword arm. After a tough fight and killing many he got **Dr. PINCHES** on his horse, carrying him safely back to the regiment, then keeping the **Baggara** foemen back with their magazine carbine fire, and driving them back into the line of Egyptian brigade fire, then steadily advancing to support the lancers. **Major CHOLE WYNDHAM** got unhorsed, and he was saved by the heroic troopers in a similar way. After going through once **Lieutenant GRENPELL** was missed. He was seen slashing out "like a young 'un," but his horse fell, and he got killed early in the charge. The gallant **Captain KENNER** and **DE MONTEMORENCY**, son of General Lord Frankfort (lately in Sydney), and **Lieutenant PERIE** charged with four men to where he fell, used their revolvers and recovered the body, killing five Dervishes and wounding others. In the excitement and combat they lost the body off the saddle, and charging again, safely recovered it. Trooper **BYRNE** fought with the desperate valor of his race until he received a severe sword cut and got shot by a bullet, but he refused to fall out and "fought on." A junior doctor told him "to come inside," but the brave fellow replied, "Oh, Doctor, do let me have one more go at them, sir." The non-commissioned officers fought with conspicuous gallantry from first to last. **Sergeant-Major VEYSEY** was savagely cut by a powerful Dervish, smashing his nasal organ, and was also speared through the chest. He was covered with blood, but he rode throughout the charge, cheering the men as if unwounded, and until the fight was over. **Sergeant FREEMAN** got terribly wounded by a sword, but he, too, fought on, and only sought the doctor when the fray closed. **Sergeant LOVE** received two cuts, but told no one, in fear that "he would lose all the fun." All the troopers showed great gallantry, picked out their men, and killed them.—*From Mailand Daily Mercury.*

THE PROTECTION OF OUR TROOPS IN THE TROPICS.

Lieutenant-Colonel R. M. O'REILLY, the surgeon sent recently to Jamaica to study the methods employed there for the protection of the British troops from disease and the deleterious effects of the climate, has made a report to **Surgeon-General STERNBERG**, embodying the following recommendations: 1. The troops for service in Cuba should, as far as possible, be recruited in the Southern States, and a large proportion of these troops should be colored, with white officers. They should be thoroughly protected against smallpox before embarking for the island. 2. They should be sent there very shortly after the close of the rainy season, say at some time in November. 3. They should be quartered in barracks, the dormitories of which are raised above the ground, the ground underneath which is cemented, and most liberal ventilation afforded. All underbrush within practicable distance should be removed. The earth-closet system

should be used in preference to cesspools, and the excreta removed by contract. The kitchens should be detached and protected against infection. Mosquito bars should be furnished. Abundant water-supply should be provided, and all drinking-water should be filtered or boiled. Each man should be allowed a minimum of seventy-five feet superficial and six hundred cubic feet of air space. Bathing facilities should be provided, and their use made compulsory. Drainage should be carefully provided for. Amusements, games and athletic sports should be provided for the men. 4. Clothing. Although there are objections to the khakie, the testimony is generally favorable to its use, and it is therefore recommended, but the blue flannel shirts and light flannel drawers should always be worn. Light cork helmets, made so as to shade the back of the neck, should be issued. Waterproof overcoats should be provided in limited numbers for use of the necessary guard and orderlies during the rainy season. The other articles of our clothing fulfill the requirements. 5. No improvement on the present ration can be suggested. If it errs at all, it errs on the side of too great liberality. Post troops should be saved from all exposure at night and in the early morning, and no one should be called on for any duty at night or early in the morning without being given at least a cup of coffee. 6. Rigid discipline should be enforced, communication with the towns should be reduced to a minimum, and every means used to impress upon officers and men the fact that indulgence in spirituous liquors and excesses of any kind are exceptionally dangerous.—*Medical Record, Feb. 4, 1899.*

ENGLISH AS SHE IS TAUGHT IN PORTO RICO.

Lección 3ª de Inglés:

Pronunciado.

What is your name? nat iz iua neim..... Como se llama Vd.
How old are you? hou ould aa iu..... Que edad tiene Vd.
What is the price of this? nat iz ze prais ov zis..... Cual es el precio de esto.
It is very dear..... it is veri dia Es muy caro.
I will give you a dollar..... ai uil giv iu ei dola..... Yo la daré un peso.
That is not enough..... zet iz natt ináf..... No es bastante.
Speak slowly..... spik shóuli..... Hable despacio.
You speak too fast..... iu spik tu fast..... Vd. habla muy ligero.
This is a fine house..... zis iz ei fain háus..... Esta es una casa bonita.

Lección para hoy—Memorizar las palabras:

price	enough	fast	slowly	house
precio	bastante	ligero	despacio	casa
speak	yes	dear	this	fine
hable	si	caro	esto	bonito

Traducir al inglés per escrito:

Hable ligero.

Como se llama su hijo.

Esta casa esta cara.

Esto es muy bonito.—*From San Juan Times.*

BOOK NOTICES AND EXCHANGES.

NOTES ON MILITARY HYGIENE FOR OFFICERS OF THE LINE. By Alfred A. Woodhull, LL. D., Lieutenant-Colonel Medical Department, United States Army. New edition, revised and augmented. John Wiley & Sons, New York. London: Chapman & Hall, Limited.

This comprehensive treatise was issued this year, the year of the Spanish War, when so many of our troops were encamped at the various places throughout the country. Camps of instruction, so to speak, in which should have been learned the essentials necessary to keep the soldiers fit for field service, and above all else the school where the elementary instructions of hygiene should have been imbibed for the safety and health of the respective commands.

From the records and reports of the different camps, there evidently appears to have been no well organized system to obviate the evils attendant upon congregating large bodies of troops, viz: camp fevers, diarrhoea and other maladies. While it was too much to hope that every disease could have been prevented, still it was no more than might be expected that by the usual precautionary methods the evils could have been mitigated, and the different commands have made a far better showing than has actually been the case. The author says, "the whole military fabric rests upon the physical character of the individuals composing it." As the men in the volunteers were subject to a physical examination, this first requisite was complied with, in that everyone was in good physical condition. What followed was evidently due to the first primary condition, that of keeping the men in the same condition, being violated. Even if the requirements had been only partially enforced by some one, we would not have had this hue and cry raised as to unhealthy conditions, surroundings, bad water, etc. The blame rests upon someone's shoulders, and it should be fixed, in order that in the future the same mistakes can be avoided.

A diligent and careful study of this book by every one, from the subaltern to the highest in command, and the necessary action to enforce its requirements, will be, in the future, the means of saving

life and money to the government. No treatise, however good it may be, is of any practical benefit, unless it is everybody's business, who is directly responsible to some one higher in authority, to see that the requirements of the principles of military hygiene are enforced to the strictest letter of the law. Then, and only then, can we ever expect to see any radical change in the proper selection of camps, as regards location, water supply, kitchen and sinks, to comply with the essentials of health, comfort and safety. This treatise should be in the hands of every one in whose care troops are likely to come, and be the A, B, C, so far as it relates to the subject of which it treats. Let us hope we shall have no more such records, "like curses coming home to roost," of the sad and unsavory scenes of these past summer months.

It would take too long a review, going too much into detail, to point out the essential features of this treatise. Enough has been said to induce everyone interested to procure a copy of this valuable and important work, and then having provided himself with a copy, to study and digest it thoroughly, and to make it a rule to see that its provisions are enforced. (See Chapter IX, on "The Care of Troops in the Field.") The results would show for themselves, and bring credit upon our military service, by the record we could show in faithfully and conscientiously carrying out the dictum of military hygiene.

J. A. A.

THE CIVIL WAR. Volume II. By John Codman Ropes. G. P. Putnam & Sons, 27 and 29 West 23d St., New York.

This volume takes us through the various scenes of 1862, and gives a thorough and comprehensive account of the different army operations. It is invaluable, and especially to those who have not the advantage of a large library, because it is the epitome of all literature bearing on the course of military events during the period in question. All military students read with great pleasure all military subjects treated by Mr. Ropes, because they feel assured that all the pros and cons have been considered, and the result is an impartial statement of the case—a just criticism after weighing all evidence. So much has been written on this great struggle, that to the reader who does not care to sift for himself—who cannot do it as well—this Part II is a great boon, and places before him a correct and accurate account of what was going on. He feels it can be relied upon, as the author has made a life-long study of military history. The book is laid aside with great regret, and makes one eager for the completion of the remaining two parts. The plan of having the maps in a separate packet adds much to an intelligent reading and understanding of the text, without having to turn forward or backward in reading, always a great inconvenience to the reader, who should always have the map spread out before him, if he is to read with profit to himself. The situation is thus ever before you.

J. A. A.

THE GATLINGS AT SANTIAGO. By John H. Parker, First Lieutenant Thirteenth U. S. Infantry. Hudson-Kimberly Publishing Co., Kansas City, Mo.

This, as the title indicates, is a history of the "Gatlings" at Santiago. It is well written, and gives an excellent account of the campaign by one who was an active participant in all the stirring scenes attending the capture of that stronghold. The book is beautifully illustrated, and is of interest to everyone who desires to post himself on this short, sharp and decisive campaign; and one is enabled to get a clear and intelligent account of all the operations.

Of what is more interest to the professional man, is the use of machine guns for the first time in civilized warfare. It is a matter of note, that almost simultaneously with the appearance of this book, appear two articles on the use of machine guns. Lord Wolseley says, "If made use of intelligently on active service, the machine gun of infantry rifle caliber, that will fire with smokeless powder and be sighted at 3,000 yards, will mark a new era as pronounced as that when rifle or when breech-loading small arms were first adopted," an expression of opinion far ahead of what the books have up to this period advanced. This subject has not heretofore received, from those high in authority and power, the attention or importance the possibilities of this auxiliary arm deserves. The author quotes what the books say in regard to the use of machine guns, and his conclusions thereon are a trifle strained, it is believed. It is understood what he means—the apathy and neglect of those in power to organize and equip a machine gun battery—the opposition, so to speak, without ignoring the possibilities of such a battery.

The energy displayed in bringing his views to a focus is worthy of all praise, and certainly entitles the author to all the glory and credit resulting from the use of this particular battery. To one fired with zeal and the ambition to make a trial in this particular direction—the trial of a machine gun battery—it was, to say the least, discouraging, disheartening, in the beginning, "to be sat upon" and turned adrift. He is to be congratulated that by persistent talking, coupled with indomitable perseverance, he was permitted to organize and to use the first machine gun battery in civilized warfare, and to carry out his ideas.

The result showed conclusively the great advantages and importance of this auxiliary arm, during all the successive stages of attack, on and with the firing line. All accounts and reports agree, and the consensus of opinion was, and still is, that the work cut out was well done; and it is within the bounds of reason to claim an equal share with others in the victory, due, in a great measure, to the splendid handling and work of this battery.

Their possibilities were formerly very faintly conjectured. Those high in authority did not seem willing to assume the responsibility for their use, as was evinced by the labor expended in organizing and equipping such a battery. It was fortunate that such an enthusiast had it in his power to develop the theory into an established

fact, that where the firing line could go, there were the machine guns, doing more than was dreamed of by their most ardent advocates.

The campaign has demonstrated the fact conclusively, viz: that the machine gun has its proper place and sphere of action, and that there ought not to be any more theory in the expression of what might be possible. It has come to stay; it must be considered in organizing any and every expedition, and our country is to be congratulated on being the first to show its proper use and worth. It is believed that its importance cannot fail to be recognized, and that there should not be the slightest doubt as to regularly organized batteries being formed, giving another auxiliary arm of great importance.

Reports confirm what confidence was given the firing line in the charge on San Juan Ridge, with no artillery support of any kind to aid in preparing the way beforehand, at a time when artillery was absolutely necessary. Where was it, what was it doing? At this juncture the Gatlings appeared, and covered the advancing troops by their rapid and murderous fire, from the fire of the entrenched Spaniards, thus enabling our men to climb the hill slopes. Could a better or more severe test be demanded, in its maiden effort? Certainly not.

Since the value of machine guns has been established beyond shadow of doubt, proper attention should be given to devising a more mobile carriage, as light as is consistent with strength required to make the carriage serviceable under all conditions. Let there be no more theorizing, but let us put the practical experience gained in actual warfare into tangible shape. Let this government be the first to assign these guns to their proper place; and if properly organized and handled, add another most important auxiliary arm for use on the battlefield.

J. A. A.

MANUAL FOR CYCLISTS. For the use of the Regular Army, Organized Militia and Volunteer Troops of the United States. By Captain Howard A. Giddings, Brigade Signal Officer, Connecticut National Guard, author of "Instructions in Military Signaling." Hudson-Kimberly Publishing Co., Publishers, Kansas City, Mo.

This complete manual for cyclists appears at an opportune time, when so much has been written and talked about the use of the wheel for military purposes. It has been recognized that the wheel could be used to advantage, and in nearly all foreign services, at the maneuvers, a select body of men have been used for couriers, advance guards, scouts, with the consensus of opinion in its favor, under ordinary circumstances. The great advantage such a body of men would give to a scouting force would be celerity, an important element. In a hasty reconnaissance, a trained sketcher can increase his usefulness. In this country no effort has been made other than

to test the wheel under varying conditions of climate and country. The results have shown that probably, at some future date, when the army is reorganized, a place will be assigned to the wheel, and the proper attention given to organize a force of wheelmen for duty with each regiment. These detachments, at times of concentration, can then easily be given the proper organization, and prove a valuable addition to the means employed in security and information.

J. A. A.

PRIVATES' HANDBOOK OF MILITARY COURTESY AND GUARD DUTY. By Lieutenant Melvin W. Rowell, United States Army. Hudson-Kimberly Publishing Co., Publishers, Kansas City, Mo.

This book is in a handy and convenient form, embracing all that pertains to a sentinel's duties, and will prove a valuable companion to all enlisted men, and more especially to all National Guardsmen and Volunteers. With this information so easily attained and always at hand, there should be no excuse for a man not knowing the duties and requirements of a sentinel.

J. A. A.

CATECHISMAL EDITION OF THE INFANTRY DRILL REGULATIONS, UNITED STATES ARMY. Prepared by Major Wm. F. Spurgin, Twenty-third Infantry. Hudson-Kimberly Publishing Co., Publishers, Kansas City, Mo.

This little book embodies in a compact form all questions pertaining to extended order drill, formation for attack and defense from a squad to the division, and will prove a useful adjunct in connection with all practical work in the field. It will be a help to all, and to those who are not familiar with the infantry drill regulations. This practice has not received the attention its importance demands at the hands of the National Guard of the United States, and it is hoped that much more attention will be given it in the future, at the expense of fine drill and manual in close order—to which so much importance has been given in the past. A body of men not familiar with the extended order formation is not in touch with modern requirements, and is of very little use on the field of battle.

J. A. A.

JOURNAL OF THE MILITARY SERVICE INSTITUTION (Governor's Island, N. Y. H.). May, July, September, and November, 1898; January, 1899.

THE UNITED SERVICE MAGAZINE (13 Charing Cross, S. W. London). October, November, December, 1898; February, 1899.

THE BIENNIAL REPORT OF THE ADJUTANT-GENERAL OF COLORADO (Denver, Colo.). December, 1896, to November, 1898.

ALDERSHOT MILITARY SOCIETY (26 Cockspur St., Charing Cross, S. W. London). April, November and December, 1898.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION (22 Charing Cross, S. W. London). April to December, 1898.

JOURNAL OF THE UNITED STATES ARTILLERY (with Index for 1897-8) (Fort Monroe, Va.). March to October, 1898.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE (Annapolis, Md.). March, June and September, 1898.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA (Simla, India). January, April, July and October, 1898.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION (Woolwich, England). April, 1898, to January, 1899.

KANSAS STATE HISTORICAL SOCIETY. Eleventh Biennial Report, November 1, 1896, to November 1, 1898.

ANNUAL REPORT OF MAJOR-GENERAL H. C. MERRIAM, Commanding Department Columbia. 1898.

THE INDUSTRIALIST (Manhattan, Kan.). March, April, May, June, July and October, 1898.

OUR DUMB ANIMALS (Boston). April to December, 1898; January and February, 1899.

JOURNAL DES SCIENCES MILITAIRES (30 Rue et Passage, Dauphin, Paris). December, 1898.

THE IOWA HISTORICAL RECORD (Iowa City, Iowa). April, July and October, 1898.

THE MAITLAND DAILY MERCURY. June, September and October, 1898; January, 1899.

REVUE DU CERCLE MILITAIRE (Paris). March to December, 1898; January, 1899.

REVUE DE CAVALERIE (5 Rue des Baux Arts, Paris). March to December, 1898.

THE PENNSYLVANIA MAGAZINE (Philadelphia). October, 1898; January, 1899.

MILITAR WOCHENBLATT (Berlin). March to December, 1898; January, 1899.

THE RIDER AND DRIVER (New York). April, 1898, to February, 1899.

SEVENTH REGIMENT GAZETTE (New York). April to November, 1898.

KANSAS STATE PENITENTIARY. Eleventh Biennial Report. 1897-98.

THE MAINE BUGLE (Rockland, Maine). January and April, 1898.

MEDICAL RECORD (43 East 10th St., New York). January, 1899.

KANSAS STATE AGRICULTURAL COLLEGE. Catalogue 1897-98.

CANADIAN MILITARY INSTITUTE. Selected Papers. No. 8.

NATIONAL INTELLIGENCER. April, May and June, 1898.

THE ORGANIZED MILITIA OF THE UNITED STATES IN 1897.

BALTIMORE LIFE. April, 1898, to February, 1899.

THE NEW PANAMA CANAL. November, 1898.

THE INDIAN FENCING REVIEW. April, 1898.

SELECTED PROFESSIONAL PAPERS. January.

ANNUAL MEETING.

Due to the fact that there were no members of the Association except the Vice-President present at Fort Leavenworth, an election could not be held, as the Constitution requires all, except the President, to be residents of Fort Leavenworth. See Sec. 3. Art. VI. of the Constitution. Sec. 1. Art. VII.

The officers who hold over until the next election are as follows:

Major-General WESLEY MERRITT, President; Major J. A. AUGUR, Fourth Cavalry, Vice-President.

When enough cavalry officers are available, the Executive Council will fill all vacancies on the Executive Council.

J. A. AUGUR,

*Major Fourth Cavalry,
Acting Secretary.*

NOTICE TO ALL MEMBERS.

It is presumed some explanation is in order to the subscribers of the JOURNAL to tell them why the JOURNAL has not appeared since the March number, 1898.

All the officers, no-doubt, understand, but to the other subscribers at home and abroad some reason is necessary, and this first opportunity is taken to give an explanation. A notice was inserted in the *Army and Navy Journal* last summer, stating the JOURNAL had suspended temporarily, but from numerous inquiries, it is supposed the notice was not far reaching.

When the war with Spain began, every officer connected with the JOURNAL, except the Vice-President, was relieved from duty at this Post, and went to the front. The numerous and onerous duties that came unsought to the Vice-President, precluded his giving the time and attention the publication of the JOURNAL demanded, and while it was his wish and desire to continue the issue, he was powerless to do anything, much to his regret, and he was forced to see three issues fail to appear. It is only by the greatest effort he has succeeded in getting this number published, and hopes to give the June number, after which it will depend upon the members of the Association whether or not any future numbers appear. Our material is at an end, and to the members we must look for articles and support. When there are so many who are able and capable of furnishing interesting articles, it is hard to understand why it is necessary to make this appeal, yet such an appeal has to be made, and it is hoped some good results will follow. Everyone is interested,

or should be, but let me tell all that one man, the last prop and stay, is powerless to do everything unless supported by the large number of members. To be a "Pooh Bah" is well enough, if he has enough instruments under control to bring a response to his demands, otherwise it is an empty title—one in name only. Therefore this appeal seems to me an absolute necessity, and it is hoped the hands of one, who is trying to do his part, or rather more than his share, will meet with a hearty response, and that enough material may be furnished to last until we can get down to a firm base again.

Our cavalry, dismounted and sent to the front as infantry, certainly deserves some attention. Our work was well performed and showed, that as infantry, we were able to do the work out for us. Some one certainly should have his arm of the service enough at heart to induce, I should use the word compel, him to lay before the readers of the JOURNAL, the brilliant service performed by his branch. The subscriber to this could suggest many instructive and interesting articles, which ought to be forthcoming, and he closes with the hope that the few reasons he has advanced for the welfare of the JOURNAL, will meet with a generous and hearty response. If so, he will feel repaid for his efforts in trying to keep the JOURNAL on its feet. Do not let it be said we are compelled to suspend for good and all; rather let us show we can rise to the occasion, and are abundantly able to keep our publication in circulation. It was thought best to begin with a new volume, Vol. XII, instead of the second number of Vol. XI, so as to keep the volumes current with the year, in place of beginning a new volume with the December number of this year.

J. A. AUGUR,
Major Fourth Cavalry,
Acting Editor.

THE UNITED STATES CAVALRY.

FIRST CAVALRY—COLONEL ABRAHAM K. ARNOLD, Brig. Gen. U. S. V.
Adjutant, G. T. LANGHORN. Quartermaster, W. C. RIVERS.

HEADQUARTERS, FORT ROBINSON, NEB.

Troops—A, B, C and L, Fort Robinson, Neb.; G, H, I and M, Fort Meade, S. D.; K, Fort Niobrara, Neb.; E, Fort Washakie, Wyo.; D, Fort Yates, N. D.; F, Fort Keogh, Mont.

SECOND CAVALRY—COLONEL HENRY T. NOYER.

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HEADQUARTERS, CIENFUEGOS, CUBA.

Troops—B, E, H, I, K and L, Cienfuegos, Cuba; A, C, D, F, G and M, Mantanzas, Cuba.

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Adjutant, First Lieut. F. J. KOESTER. Quartermaster, JOHN W. HEARD.

HEADQUARTERS, FORT ETHAN ALLEN, VT.

Troops—C, E, F, G, I and K, Fort Ethan Allen, Vt.; A, D, H and M, Augusta, Ga.; Band I, Fort Sheridan, Ill.

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Adjutant, FLOYD W. HARRIS. Quartermaster, T. H. SLAVEN.

HEADQUARTERS, PRESIDIO, SAN FRANCISCO, CAL.

Troops—B and M, Presidio, San Francisco, Cal.; A, Fort Walla Walla, Wash.; C, E, G, I, K and L, Manila; D and H, Fort Yellowstone, Wyo.; F, Boise Barracks, Idaho.

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Adjutant, J. M. JENKINS. Quartermaster, _____

HEADQUARTERS, MAYAGUEZ, PORTO RICO.

Troops—Band and D, Mayaguez, Porto Rico; A, Camuy, Porto Rico; B, Utuado, Porto Rico; E, San German, Porto Rico; G, Caguas, Porto Rico; K, Yales, Porto Rico; C, F, H, I and M, San Juan, Porto Rico; L, Ponce, Porto Rico.

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Troops—A, B, D and M, Fort Grant, Ariz.; C and I, Fort Duchesne, Utah; E and G, Fort Apache, Ariz.; F, K and L, Fort Huachuca, Ariz.; H, Fort Wingate, N. M.

TENTH CAVALRY—COLONEL S. M. WHITSIDE.

Adjutant, 1st Lieut. S. D. ROCKENBACH. Quartermaster, 1st Lieut. J. G. HARBOR.

HEADQUARTERS, FORT SAM HOUSTON, TEXAS.

Troops—Band and A, G, H and L, Fort Sam Houston, Tex.; C, D and M, Fort Clark, Tex.; E, Fort McIntosh, Tex.; F, Camp Eagle Pass, Tex.; I, Fort Bliss, Tex.; K, Fort Brown, Tex.; J, Fort Ringgold, Tex.

CAVALRY OF THE NATIONAL GUARD.

NOTE.—The following have no mounted troops: Alaska, Arizona, Connecticut, Delaware, District of Columbia, Florida, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, North Carolina, South Dakota, West Virginia, Vermont, Wyoming.

ALABAMA.

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Adjutant, Captain A. G. Forbes. Quartermaster, Captain J. F. Burns.

HEADQUARTERS, CAMDEN.

Troop "A," Montgomery. Vacancy; Troop "B," Camden, Captain Stonewall McConico; Troop "C," Selma, Captain V. P. Atkins; Troop "D," Birmingham, Captain J. B. Morson.

ARKANSAS.

Troop "A," Panola, Major M. C. House; Troop "B," Jacksonville, Captain S. W. Murtshaw.

CALIFORNIA.

Troop "A," San Francisco, Captain Marius Burnett; Troop "B," Sacramento, Captain John Cooke; Troop "C," Salinas, Captain Michael J. Burke; Troop "D," Los Angeles, Captain Charles H. Howland.

COLORADO.

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Adjutant and Acting Quartermaster, First Lieutenant A. H. Williams.

HEADQUARTERS, DENVER.

Troop "A," Leadville, Captain C. H. Macnutt; Troop "B," Denver, Captain Wm. G. Wheeler; Troop "C," Denver, Captain James H. Brown.

GEORGIA.

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Adjutant, Captain Wm. G. Harrison. Quartermaster, Captain Albert S. Eichberg.

HEADQUARTERS, SAVANNAH.

FIRST SQUADRON, FIRST REGIMENT—MAJOR PETER W. MELDRIM.

HEADQUARTERS, SAVANNAH.

Troop "B," McIntosh, Captain Willard P. Waite; Troop "E," Johnston Station, Captain Joseph W. Hughes; Troop "G," Darien, Captain Benjamin T. Sinclair; Troop "I," Jesup, Captain Harry W. Whaley.

SECOND SQUADRON, FIRST REGIMENT—MAJOR JAMES J. BREWER.

HEADQUARTERS, OLIVER.

Troop "A," Savannah, Captain Belrne Gordon; Troop "C," Springfield, Captain Daniel G. Morgan; Troop "D," Sylvania, Captain Jesse T. Wade; Troop "H," Waynesboro, Captain William H. Davis.

FIRST BATTALION OF CAVALRY (INDEPENDENT)—MAJOR JOHN M. BARNARD.

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HEADQUARTERS, LAGRANGE.

Troop "A," Augusta, Captain Albert J. Twigg; Troop "B," Atlanta, Captain J. Stapler Doster; Troop "C," LaGrange, Captain Thomas J. Thornton; Troop "D," Hamilton, First Lieutenant John M. Bruce.

ILLINOIS.

CAVALRY SQUADRON—MAJOR EDWARD C. YOUNG.

Adjutant, First Lieut. Alvar L. Bournigne. Quartermaster, First Lieut. Milton J. Foreman.
HEADQUARTERS, CHICAGO.

Troop "A," Chicago, Captain Paul B. Lino; Troop "B," Bloomington, Captain Will F. Butler; Troop "C," Chicago, Captain Metullus L. C. Funkhouser; Troop "D," Springfield, Captain John S. Hart.

MASSACHUSETTS.

FIRST BATTALION OF CAVALRY—MAJOR WILLIAM A. PERRINS.

Adjutant, First Lieut. Albert E. Carr. Quartermaster, First Lieut. Walter C. Wardwell.
HEADQUARTERS, BOSTON.

Troop "A," Boston, Captain D. A. Young; Troop "D," Boston, Captain John Perrins, Jr.; Troop "F," (Independent), North Chelmsford, Captain Elisha H. Shaw

MISSISSIPPI.

FIRST SQUADRON OF CAVALRY—MAJOR J. H. COOKE.

Adjutant, First Lieutenant B. B. Hardy. Quartermaster, First Lieutenant D. A. Outlaw.
HEADQUARTERS, ARTESIA.

Troop "A," Crawford, Captain J. J. Prowell; Troop "B," Sessumsville, Captain A. F. Young.

MONTANA.

Troop "A," Billings, Captain J. C. Bond; Troop "B," Bozeman, Captain J. F. Keown.

NEBRASKA.

Troop "A," Milford, Captain Jacob H. Culver.

NEW HAMPSHIRE.

Troop "A," Peterborough, Captain Charles B. Davis.

NEW JERSEY.

First Troop, Newark, Captain Frederick Freilinghuysen; Second Troop, Red Bank, Captain John V. Allstrom.

NEW MEXICO.

FIRST BATTALION OF CAVALRY—MAJOR FRITZ MUEBER.

Adjutant, First Lieut. Sherrard Coleman. Quartermaster, First Lieut. Leon Hertzog.
HEADQUARTERS, SANTA FE.

Troop "C," Artec, Captain Lawrence Welch; Troop "E," Santa Fe, Captain W. E. Griffin; Troop "F," Los Lunas, Captain Maximiliano Luna.

NEW YORK.

SQUADRON "A"—MAJOR CHARLES F. ROE.

Adjutant, First Lieut. John Isaac Holly. Quartermaster, First Lieut. Louis V. O'Donohue.
HEADQUARTERS, NEW YORK CITY.

First Troop, New York City, Captain Oliver B. Bridgman; Second Troop, New York City, Captain Howard G. Badgley; Third Troop, New York City, Captain Latham G. Reed; Troop "C," (Independent), Brooklyn, Captain Bertram T. Clayton.

OHIO.

Troop "A," Cleveland, Captain Russell E. Burdick.

OREGON.

Troop "B," Graham, Captain Charles Cleveland.

NOTE.—Another troop, to be called Troop "A," will soon be organized, and a squadron organization will be completed.

PENNSYLVANIA.

Philadelphia City Troop, Philadelphia, Captain John C. Groome; Governor's Troop, Harrisburg, Captain Frederick M. Ott; Sheridan Troop, Tyrone, Captain C. S. W. Jones.

RHODE ISLAND.

FIRST SQUADRON OF CAVALRY—MAJOR GEORGE S. TINGLEY.

Adjutant, First Lieut. Leo F. Nadeau. Quartermaster, First Lieut. Lucius H. Newell.
HEADQUARTERS, PAWTUCKET.

Troop "A," Pawtucket, Captain Edward T. Jones; Troop "B," Providence, Captain Wm. A. Maynard.

SOUTH CAROLINA.

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Adjutant-General, Major T. G. Disber. Brigade Quartermaster, Major R. H. Sweeney.
HEADQUARTERS, SUMMERVILLE.

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Adjutant, Captain A. R. Speaks. Quartermaster, Captain T. E. Cimer.
HEADQUARTERS, HAMPTON.

Troop "A," Brunson's, Captain R. A. Brunson; Troop "B," Varnville, Captain W. M. Steinmeyer; Troop "C," Brunson's, Captain G. M. Bowers; Troop "D," Stafford's, Captain R. M. Daley; Troop "E," Stafford's, Captain K. S. Long; Troop "F," Peoples, Captain H. E. Peoples; Troop "G," Gillisonville, Captain J. E. Robinson; Troop "H," O'Katie, Captain W. N. Barnes; Troop "I," White Hall, Captain S. A. Marvin.

SECOND REGIMENT OF CAVALRY—COLONEL G. P. ALLEN.

Adjutant, Captain R. C. Roberts. Quartermaster, Captain W. A. Collett.
HEADQUARTERS, ALLENDALE.

Troop "A," Barnwell, Captain J. A. Hays; Troop "B," Dunbarton, Captain P. M. Carter; Troop "C," Allendale, Captain A. W. Owens; Troop "D," Edgenfield, Captain L. R. Brunson; Troop "E," Edgenfield, Captain J. R. Blocker; Troop "F," Orangeburg, Captain J. A. Riley; Troop "G," Cedar Grove, Captain R. T. Newman; Troop "H," Hamburg, Captain J. P. De-laughter.

THIRD REGIMENT OF CAVALRY—COLONEL J. R. SPARKMAN.

Adjutant, Captain H. L. Smith. Quartermaster, Captain W. C. White.
HEADQUARTERS, GEORGETOWN.

Troop "A," Bonneau's, Captain J. A. Harvey; Troop "B," St. Stephens, Captain E. T. Guerry; Troop "C," Georgetown, Captain H. T. McDonald; Troop "D," Jeddburg, Captain C. H. Wilson; Troop "E," Conway, Captain L. D. Long; Troop "F," Lake City, Captain J. J. Morris; Troop "G," Georgetown, Captain J. H. Detyens.

SECOND BATTALION OF CAVALRY—LIEUT. COLONEL D. W. BRANFORS.

Adjutant, Unknown. Quartermaster, Unknown.
HEADQUARTERS, PANOLA.

Troop "A," Eutawville, Captain Jeff D. Wiggins; Troop "B," Panola, Captain R. C. Richardson; Troop "C," Silver, Captain J. H. Dingle; Troop "D," Holly Hill, Captain R. F. Way, Jr.

NORTH DAKOTA.

Troop "A," Dunseith, Captain George W. Tooke.

UTAH.

Troop "A," Salt Lake City, Captain Joseph E. Caine.

TENNESSEE.

Cavalry Troop, Nashville, Captain George F. Hagar.

TEXAS.

FIRST CAVALRY REGIMENT—COLONEL J. R. WATIES.

Adjutant, First Lieut. James M. Burroughs. Quartermaster, First Lieut. Frederick Rhodes.
HEADQUARTERS, HOUSTON.

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VIRGINIA.

Troop "A," Richmond, Captain E. J. Euker; Troop "B," Surry, Captain Geo. A. Savedge.

WASHINGTON.

Troop "A," North Yakima, Captain Marshall S. Scudder; Troop "B," Tacoma, Captain Everett G. Griggs.

WISCONSIN.

Troop "A," Milwaukee, Captain William J. Grant.

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CONTACT SQUADRONS.*

BY FIRST LIEUTENANT P. D. LOCHRIDGE, SECOND CAVALRY.

PHILOSOPHERS have said that "he who profits by the experience of others, virtually adds their lives to his own," and that, "experience keeps a dear school, but fools will learn in no other way." Doubtless these observations are correct, but he who spends his time trying to copy others will never amount to much. We can be ourselves better than we can be anybody else. We study other men's experiences in war as we study other men's problems in mathematics—not that we may remember and copy them, but in order that we may have active minds to solve the problems that come up in our own experience.

The most interesting and instructive problems pertaining to contact squadrons, that I know of, are to be found in the detailed ac-

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counts of our Civil War. They show that such problems may be of infinite variety, and that the best solutions of them depend mainly on the courage, skill, and enterprise of commanders, and on the morale and preparation of their troops.

American cavalry in the Civil War followed reason. English cavalry in the Crimean War followed rules. Our drill regulations are certainly right in giving great latitude to commanders of contact squadrons. Conditions are so variable that nothing else would be practicable. However, under given conditions, there are tactical problems and matters regarding supply, control, marching, camping, obtaining and transmitting intelligence, dealing with non-combatants, etc., which may be very clearly foreseen and profitably considered.

When a contact squadron is detached from a screening cavalry division, the squadron commander will be informed of what is known of the enemy, what it is specially desired to ascertain about him, as nearly as practicable the direction of investigation, what route the division intends to follow, where reports are to be sent, and how the squadron is to be subsisted.

It certainly should be unnecessary for such instructions to be cumbered with general principles of scouting, which all officers are presumed to know. No officer should be sent out with a contact squadron who would need to be told to examine post and telegraph offices for papers giving military information; to maintain contact with important bodies of the enemy met with, to send back reports of important occurrences, etc.

There should be a division order prescribing that dispatches from contact squadrons be addressed to the division commander; that the bearers of such dispatches deliver them to the first officer commanding troops, or staff officer of the division, whom they meet, and that such officers provide the necessary relays for transmitting these dispatches to their destination. It would be a great mistake to attempt sending these dispatches through regimental or brigade headquarters. Regiments take their turns in marching at the head and rear of the division. Even in the most favorable case—where the regiment to which a contact squadron belongs is at the head of the column—there would frequently be dangerous delays if dispatches were not sent directly to the division commander. If there is any information which it is important for the commander of the troops at the head of the column to know immediately, squadron commanders may be trusted to furnish it accordingly.

While a squadron is detached on screening duty, each of its four troops should have its full complement of officers and men—all as well mounted as possible. It would seem advisable to attach two extra lieutenants to the squadron to assist the major in the capacities of adjutant and quartermaster. These functionaries are absolutely necessary, and no contact troop can spare any of its officers without diminishing its efficiency.

As soon as a contact squadron advances beyond the outposts or advance guard of its division, it will cover its front, rear and flanks. The major will intrust the front and flank protection to a troop. The captain of that organization will direct one of his lieutenants to cover the squadron with his platoon as advance guard, and will give orders for such detachments from the other platoon—which will march at the head of the column—as may be necessary for flank protection. This should leave at the captain's disposal, one officer and several troopers for patrols and for reinforcing threatened points.

The captain ordered to furnish protection in rear, will detach one of his platoons for rear guard. By rotating the duties of troops and platoons, the safety of the squadron on the march may be well provided for without much hardship to any one.

Screening cavalry divisions will ordinarily be about twenty-five miles in front of their armies, and contact squadrons about fifteen or twenty miles in front of their divisions.

In order to have concrete cases for consideration, it will be supposed that the enemy is falling back into his own country after a defeat, and that it is desired to regain contact with him as soon as possible, in order to learn his plans in time to thwart them. That was about the task of part of the German cavalry in 1870, up to the investment of Paris, September 19, 1870. From then until February 28, 1871, it was quite different.

Let us suppose that our contact squadron is about fifteen miles in front of its division, when retiring hostile cavalry patrols are first sighted by our advance guard—say about 4 o'clock in the afternoon. The march will be kept up and this information sent back to the squadron commander. He will immediately wish to know how many, and what kind of troops are in front of him. To ascertain this he may send officers' patrols rapidly around a flank of the hostile troopers; or if the topography of the locality does not lend itself to this, it may afford good points for observation from which much information may be obtained. If no better plan suggests itself, we should push straight forward and drive this cavalry in on

the force it covers. If the cavalry soon moves to the side of or behind an infantry force deployed for action—and this is about what would happen under the conditions supposed—it would indicate that we had overtaken a small cavalry detachment covering an infantry force which had fallen behind its army. No large body of cavalry would have unmasked its infantry in that way, and the main army would have been covered by a greater depth of cavalry.

Suppose the force overtaken has three or four hundred infantry posted so its flanks cannot be easily turned. Being late in the afternoon we would estimate the force in front of us, fall back a safe distance, go into camp or bivouac, and report what had happened, and what had been learned about the enemy. The major would also report his plan for the next day. Usually it would be to pursue the enemy, if he had retired, or to pass by him if he had not done so. Of course it would never do for a squadron to keep trailing along behind such a body of infantry, and never gain contact with the enemy's main army. As a rule the infantry would resume its retreat after our withdrawal. It should be observed until well on its way. There is no use following it, as it can be easily overtaken next morning.

If the major has not done so before, he should now warn his men that some of them are liable to be captured, and inform them that it is their right and duty to refuse to answer any of the enemy's inquiries; that their own honor and the safety of their comrades are at stake, and that they must never give the enemy any information whatever.

Next morning the squadron would march early. The infantry collided with the afternoon before, might be several miles ahead, but its cavalry, with the intention of observing, delaying, misleading or injuring us in some other way, would probably be only a short distance in front of us.

Suppose as our advance guard approaches a forest, a vedette is discovered sheltering in its edge. If we see no chance of capturing the vedette, we should turn the woods at once. If the country is broken, a small patrol under cover might pass rapidly around and capture the vedette, while our point is feigning a timid reconnaissance along the main road.

Suppose the prisoner tells us that there is a troop of cavalry in the woods, and that it covers four companies of infantry which are quite a distance ahead. Something might soon confirm enough of this story to make us believe all of it. However, the major would doubtless decide on turning the forest to avoid the danger of an

ambuscade, and to cut off the troop said to be in our front. Such a maneuver would generally fail to capture the troop, but it would certainly make it careful enough thereafter to save us much annoyance, and would probably cut it off from the route followed by its infantry. In such a case after we overtake the infantry, officers' patrols should have little difficulty in finding out all about it. This done, we should march past it and endeavor to gain contact with the enemy's main army.

While passing the delayed infantry, we must keep at a safe distance from it, and at the same time observe any of its actions which would throw light on the enemy's plans—*e. g.*, change in direction of march.

We must report all we can find out about every detachment we pass. Where we find forces in villages it may be quite difficult to determine their composition and strength. When we cannot do this by ordinary reconnaissances we may have recourse to stratagems.

We should have little difficulty if in our own country, or where we had any civilian sympathizers who could learn and tell us what we wish to know. If necessary we can convince non-combatants of the enemy that their interests depend on us enough to justify them in furnishing us the desired information, or at least in assisting us to obtain it.

In his "Conduct of a Contact Squadron," Captain BIENSON, while describing the reconnaissance of a town believed to be occupied by the enemy, said: "But the squadron commander was not satisfied that he had done enough to carry out the order which directed him to reply clearly to the question, 'Is the town occupied, yes or no, and by what force?' He therefore resolved to get the information in another way. Taking a few dragoons, and an intelligent sergeant with him, he entered the nearest village, and arrested the first inhabitant he met. 'Take me,' said he, 'to someone who has a cart and a good horse, otherwise I will carry you off a prisoner.' The villager after some hesitation, conducted him to a butcher, and the major taking the butcher apart in the midst of his escort said to him, 'You will at once put your horse in the cart and place yourself at my disposal, otherwise I shall take your turn-out by force and shall carry you off prisoner, and the village will be mulcted in a heavy fine by the corps d'armée which follows me. You must also give me one of your everyday suits of clothes.' The butcher, being intimidated, obeyed. The sergeant put on the civilian clothing, and took his loaded revolver and some spare cartridges. Thus disguised he got into the cart, took the reins and made the butcher sit beside him.

His plan was to enter the town, drive through its streets and make certain whether the enemy occupied it, and if so, with how many troops, and what arms, and what were their uniforms and numbers of their regiments."

On his return the sergeant reported: "I got into the town without any trouble. Two National Guardsmen were on post at the entrance. I drove through the whole town, having warned my companion that I would kill him if he made the slightest sign. I did not meet a single soldier anywhere else in the city except in the square, where there was a post of some twenty National Guardsmen who allowed me to pass without saying a word. I did not see any regular soldiers anywhere."

No one should be ordered to act as a spy, but if officers and men are interested in their work—and experience seems to show they usually are when properly led—they are generally ready enough to volunteer for whatever risks may be necessary to accomplish important undertakings.

It seems best for the commander of a contact squadron to communicate his objects and plans to his captains. They will then take more interest, cooperate to better advantage, and be better prepared for succeeding to command.

As a squadron is gaining contact, it is apt to be in the midst of straggling detachments, whose movements must be watched. The patrols for this purpose should be small. This will facilitate their movements and observations, lessen the fatigue on men and horses, and enable the major to keep his squadron better in hand.

While close to the enemy, it is particularly important to be exact in specifying when and where patrols are to rejoin their commands. Non-commissioned officers can never be reliable patrol leaders until they can readily read the sketches which officers make for them to follow.

The program for topographical instruction prescribed in this department should enable our non-commissioned officers, not only to follow sketches, but also to make them, well enough, at least, to represent topographical information of military importance, which they acquire on their scouts. The value of this accomplishment in non-commissioned officers—particularly those of cavalry—is immense.

When armies are advancing against each other, the independent work of squadrons is short after contact is established. In that case each screen should hasten to concentrate for battle. But under the conditions considered in this paper, it would probably be quite a

long time before the pursuing cavalry could bring about such an issue. Meantime its contact squadrons should make vigorous efforts to secure information.

While improved firearms have increased cavalry's danger in this kind of work, they have also increased the importance of, and necessity for it. Advantages are now more valuable, and disadvantage more dangerous than ever before. To obtain the former, and avoid the latter, we need to know more of the enemy than he knows of us.

In our efforts to penetrate the enemy's screen, it is probable that we shall find it formed either on the fan-shaped plan advocated in various text books, or with the main body of the screening cavalry held concentrated, pushing out contact squadrons well to the front and flanks. In the first case we should be able to accomplish much and suffer little. We should find plenty of small bodies of cavalry everywhere, and few large ones anywhere. In the second case we should have more trouble and less success.

However, if we could not get through the screen by squadron, then detachments might be able to slip through; and if detachments could not succeed, then individuals might—if not in day time, possibly at night. For stealthy work of this kind, some of our Indians would be superb. Of course such parties are liable to be lost, but some will probably return with the desired information, which may be more valuable than the existence of a whole brigade of cavalry.

In case of pressing need for information, our officers have always been intrepid and skillful enough to obtain it, sometimes by daring individual reconnaissances, and sometimes by dangerous, stealthy enterprises.

In 1863, a squadron of the Fifth United States Cavalry not being able, by ordinary means, to obtain information regarding the strength of the Confederates in trenches along the Rapidan, the commander of the squadron, Captain Ash, placed his men under cover, galloped rapidly forward alone under a furious fire, and made a gallant reconnaissance which secured the desired information, and brought forth enthusiastic applause from the admiring enemy.

In an official report of his operations about Cerro Gordo, General Scott said: "I am compelled to make special mention of Captain R. E. LEE, engineer. This officer was indefatigable during these perilous operations in reconnaissances, as daring as laborious, and of the utmost value." According to JOHN FITZWALTER, during one of these reconnaissances, LEE went so far into the midst of the hos-

tile army that he was forced to take refuge beneath a fallen tree. Here he remained in observation until the coming night enabled him to retire.

There is little use for us to obtain information unless we send it back to our division in time to be of value. This is often very difficult. Connecting posts, signals, etc., may sometimes assist us in this matter, but they are seldom practicable. I am satisfied that while it has many defects, the old method of sending troopers directly through with dispatches is generally the best.

It is usually advisable to send information by two or three bearers traveling different routes; and in case of very important information, it should be repeated in all subsequent dispatches until its receipt is acknowledged.

Bearers of dispatches should be returned to their regiments unless needed to guide some one from the division to the squadron.

Camping will be a simple matter until we get in the neighborhood of dangerous bodies of the enemy. We must keep at a safe distance from them, but should not fall back any further than is necessary. Under the conditions supposed, we should remember that the enemy is usually tired, and as loath to engage in night operations as we are. When he does not know our dispositions for defense, the size of our force, nor how closely it is supported, we have little to fear from night attacks.

On going into camp or bivouac, the first thing to do is to provide protection. The major will outline the plan for this, but should leave the execution of details to the commander of the outposts. Every functionary in the squadron, from the commander to the junior corporal, has his own proper sphere of action and responsibility. If a commander fails to see that his subordinates are instructed well enough to be trusted to perform their proper functions, then he is responsible for such inefficiency, and superfluous directions from him are not calculated to be beneficial. Unless he confines himself to his own proper sphere he is certain to diminish the value of his subordinates and have less time for his own duties.

The major would next turn his attention to securing supplies. Unless paying our way, something like General Scott's troops did in Mexico, we should probably have to convince contributing communities that they could best serve their interests by complying fully and promptly with our demands. We should remember that non-combatant subjects of our enemy have no right to aid us voluntarily in any way, but that the customs of war authorize us to require a great deal of them. In 1871, French non-combatants were

even required, under penalty of death, to repair railroads for the military use of their invading army. If we have a right to requisition the supplies we need—and doubtless we shall be ordered to do this—then we certainly have a right to enforce such demands by whatever coercion opposition renders necessary. As a rule, leaders of communities would rather collect supplies for us than have us seize them.

Men and horses should be fed as well as possible; but we must never disregard DEBRACK's maxim: "In peace wastefulness is a wrong; in war it is a crime."

The collecting and distributing of supplies would be under the supervision of the quartermaster, who would demand necessary carts for the purpose. Very often it may be desirable to have the cooking, or part of it, done by the citizens. Captains would look after this, and they should carefully supervise the feeding of their horses. Forage may frequently be limited in quantity, but it will rarely be lacking in variety. Under such circumstances great attention to feeding is necessary. From carelessly feeding fresh clover during the Russian campaign, the French cavalry lost over a thousand horses in a single night.

While the quartermaster and troop officers are looking after supplies and caring for men and horses, the major and adjutant will be busy examining seized letters, newspapers, and other sources of information, and in preparing reports, dispatches, etc. If matters are properly conducted, there will not be an idle person in the squadron, so long as any work he is capable of doing remains undone.

No one has an easy task. The horse has the hardest one. He must go at all gaits with a load on his back; must stand saddled while he sleeps, and endure all manner of hardships without any of the excitement which helps man so much. Under such circumstances a horse should certainly have every practicable care and consideration. The points to be specially looked after are his back and feet. In the first place saddles should be carefully fitted to the horses under the supervision of an officer who will apply them to the naked backs and have men mount and move the animals around in order to be sure that the bars fit, so the pressure on them is distributed equally over their whole bearing surfaces. Then with our light packs—the lightest of any cavalry in the world, with one exception, normal backs are not apt to be injured if troopers saddle and ride their horses properly.

A fault too frequent in our saddling is putting the side bars far enough forward to interfere with the free movement of the horse's

shoulder blades. This is very injurious, and should be carefully avoided. Our regulations regarding saddling, riding and shoeing horses are excellent, and should be strictly observed.

In our service there is quite a difference in opinion among well informed and experienced cavalry officers regarding the advisability of using the higher gaits on ordinary marches. Many officers—perhaps the majority—favor frequent alternations of the walk and the trot. They claim that this rests man and horse, accomplishes marches quicker, and thus gives more time for feeding, resting, etc. Others, while admitting much of this, still insist that, when it is properly performed, the easiest marching for a horse is at his easiest gait—the walk—particularly when the animal is ridden with a packed saddle.

Remarking on this matter, Captain NORDSTROM, of the Tenth United States Cavalry, said: "Ordinarily when the infantry column has marched fifty minutes it is halted for rest, which is taken either sitting or lying, according to the degree of fatigue experienced by the individual. What can you imagine would be the feeling of that individual if the commanding officer were to come along and say, 'Smith, you are pretty tired, I know, but we will ease you pretty soon with a little double time.' Let us suppose that in addition to the dead weight of his pack, the soldier, being a married man, with children, is compelled to transport one of them astride his knapsack, and thus harnessed, seeks rest and ease in the double time for a quarter of a mile or so, will not every step he takes at the increased pace cause the added burden to bob up and down, and will not the downward movement, when arrested by the knapsack, communicate a shock to the bearer which would not be felt at the ordinary pace? 'This,' he claims, 'illustrates precisely what happens when the horse, with a man on his back, takes the trot.'"

Captain NORDSTROM has had much practical experience, including three years with the First Maine Cavalry during the war. If his observations are entitled to weight, horses should never be trotted for the purpose of resting, and contact squadrons should habitually march at a walk, except when faster gaits would enable them to perform their work better.

However, with the best care practicable, some horses, on account of natural defects, or necessary hardships, are apt to get in bad condition. If we cannot replace them, we must continue to use them. They are valuable as long as they can be ridden. A weak, emaciated horse, with his back perfectly stripped of skin, enabled his rider to kill the Prince of Prussia at Saalfeld.

Consideration for man or horse must never be allowed to diminish our efficiency. To be of value with a contact squadron, an officer must be determined to succeed at any cost. This will stimulate the morale of his men; and a good morale is the climax of military excellence. It will fall when any of its supports, such as discipline, interest, proper leading, etc., are removed. It is a high morale that enables a few men to conquer many, and that prevents troops from being conquered, even after they are overpowered, cut off and almost destroyed. So long as a contact squadron can preserve a good morale, its usefulness can almost defy losses. This moral tone depends so much on leaders, that it is not always possible to have it. But moral magnetism in a leader is not enough. Men must be properly controlled, and interested in their work; and they must be properly cared for, and their gallant deeds duly recognized and rewarded.

While officers and enlisted men should be subjected to rigid control in all matters requiring it, they should not be annoyed about trifles. Generally, men are controlled by the hope of reward or the fear of punishment. We should remember that we have a peculiar, sensitive and intelligent people to deal with—one little influenced by fear. The harsh methods of FREDERICK THE GREAT, would not promote discipline in our army.

Of course while a troop is detached, its commander may occasionally have to employ unusually severe measures to maintain proper discipline; but if he is just and impartial in his punishments, all men endowed with soldierly instincts will soon learn and manfully accept the fact that all offenders must be punished—not because commanders enjoy seeing them suffer, but in order that offenses may be diminished, and the organization kept efficient. But when some are allowed to offend and go unpunished, it is ruinous to discipline. If one escapes punishment, others expect to do so, and take the risk. If they are then punished, they recognize the partiality, and become rebellious and worse than worthless. This will be the deplorable condition not only of the men who have been thus punished, but it will be the condition of most others in the command who are intelligent enough to realize that their treatment depends more on the caprice of their commander than on the nature of their conduct.

I know of the theory that every man needs different management according to his temperament. This is correct in so far as particular individuals are concerned, but it should not be practiced in military organizations. Here it is not so much the effect of pun-

ishment on individual offenders as on the entire organization that should be considered.

Where officers are constantly backed up by courts-martial, and where the effects of good discipline and high morale are less noticeable than in detached troops, commanders may make the mistake of discriminating between individuals without ever having a good opportunity to realize their error.

Cavalry is so frequently detached in small bodies on screening and similar duties, that discriminating discipline is peculiarly pernicious for that arm.

Under similar circumstances everyone in the same grade should be held to equal account for the same offenses. Men who are fit to be soldiers will be well pleased with, and easily controlled by this method. Any officer or enlisted man—particularly an officer—who does not properly submit to such impartial measures as are necessary to maintain discipline, is enemy enough to our efficiency to justify us in getting rid of him immediately.

Notwithstanding the annoyances, drudgeries and hardships of service with contact squadrons, it is very desirable duty. Perhaps no other kind of military operations affords junior officers better opportunities for usefulness. CURELEY, after serving in ranks for fifteen years of actual war, was made a lieutenant of French cavalry. Soon after, in 1806, while twenty leagues in advance of his army, and at the head of twenty men of the Seventh Hussars, he struck terror into Leipeig, where three thousand Prussians were stationed; and in 1809, while fifteen leagues in advance of his division, with one hundred men of the Seventh Chasseurs and Ninth Hussars, he passed unperceived through the Austra-Italian army, which it was his object to reconnoiter, and penetrated as far as the headquarters of the Archduke, the general-in-chief: and again, in 1812, at Pultusk, with one hundred men of the Twentieth Chasseurs, he captured from the enemy twenty-four pieces of artillery and made a prisoner of the general-in-chief of the Russian army.

SINGLE OR DOUBLE RANK FOR CAVALRY.

BY CAPTAIN FREDERICK K. WARD, FIRST CAVALRY.

IN the military services of all the great powers, except the United States, a double rank formation is still in use for cavalry. We adopted, many years ago, a single rank system, and our drill regulations of to-day is a single rank system. Which is the more effective, well deserves careful consideration. For all the service our cavalry has had for many years the single rank has served perfectly, and has doubtless been superior. A single rank system is more simple, and more flexible, and consequently must be superior if it does not fail in any other essential particular. But all of our service since the adoption of the single rank, has been against Indians, where even a single rank, if in close order, makes a heavier line than is needed. We may have in the future to meet the cavalry of civilization, of one of the great powers, and as they, without exception, use the double rank, we need to consider whether our system could stand against theirs. Not whether our present drill regulations are equal to or better than theirs, but whether a single rank system could be devised that would prove equal or superior on the battlefield to a double rank system. If the conclusion is in favor of the former, we may then consider whether our present system meets all of the requirements, and if not, wherein it fails.

On the battlefield is the final test. Any system which appears likely to prove inferior there must be condemned, no matter how well it may be adapted to the other work of cavalry, to partisan or Indian warfare. And further: In the cavalry engagements which will generally precede the battle when armies meet, a cavalry which cannot hold its own against the opposing cavalry, will be whipped out, and made of no value on the battlefield, even if part of it, through accident or good luck, should get there. Consequently we must for our present purpose consider primarily cavalry against

cavalry on the battlefield, and we must consider it in close order, for heavy blows are what decide matters, and the heavy blows of cavalry against cavalry are always given in close order.

Shock tactics must forever be the tactics of cavalry. It makes no difference whether or not the actual shock ever takes place. We have heard it said that actual contact so seldom takes place as to justify the assertion that one side or the other is sure to give way before they come together. Whether or not that is true makes no difference so far as what is now under consideration is concerned. That side which advances, confident of its ability to win in the shock, is not going to be the side to turn tail and run. If both sides hold confident, the shock will take place. In either case the action will have been by shock tactics. Fire action mounted, and in close order, will never be successful tactics, and there is, therefore, no choice for cavalry but shock action.

When the actual shock takes place between equal forces, it will never happen that one side will bow out the other and proceed victorious, while the unfortunates are left to pick themselves up, crushed and beaten. Instead of that, while a few individuals may pierce, the two lines will certainly be brought to a stop, both in more or less of confusion, and victory will rest with the side in the best condition for the *mêlée* to follow. The supposition is of course that the opposing lines are equal as regards horses and men. The relative merits of two systems can be best judged by a contest in which all other things are equal.

First, consider two such lines meeting, each consisting of a single rank. Each line will be at full speed at the instant preceding contact, and in each there will have been some inaccuracies in marching, resulting in some opening out of intervals in parts of the lines. Those will be the weak points, but unless the intervals are great it is not likely that those parts of the lines will be ridden down outright. The opposing line, even if closed where it meets such a weak point, will probably be checked and thrown somewhat into confusion, be somewhat broken up, as it crashes through, and certainly each line as a whole will be brought to a standstill, in contact, and more or less intermingled with the other, for each is in single rank, and they are supposed equal in every respect.

Next, consider what would take place if one line were a single rank, the other a double rank of the same front. The principal advantage for the double rank lies in the fact that the men of the rear rank will ride into and fill any openings occurring in the front rank, thereby insuring that there shall be no weak points in

that rank when the collision takes place. This must turn the scale largely in favor of the double rank line. The men remaining in the rear rank, however, cannot add to the force of the blow delivered by the front rank. That could be done only by the rear rank horses pushing those of the front rank, something horses will not do, and efforts by the men of the rear rank to make them do it by trying to force them into the front rank where there is no room for them, would doubtless do more harm than good. But they must keep well closed on the front rank, not more than two or three yards from head to croup, or they will not be in reach to fill intervals occurring at the last moment. The front rank, except that it will be closed throughout, will have little or no advantage over the single rank of the other side. The men and horses are supposed equal. The single rank, knowing its weak feature, will make all effort to keep closed, and throughout the greater part of its length it doubtless will keep closed. Its momentum, except at its few weak points, will be equal to that of the opposing front rank.

When the collision takes place both ranks will be brought to a standstill, except at the weak points of the single rank line where the solid rank will break through, though it will doubtless be more or less broken up and thrown into confusion. Still, the men who get through with their horses yet on their feet will be in position to fall upon the rear of their opponents. The rear rank of the greater part of the line, being too close to avoid it, must go headlong into the struggling mass of horses and men in their front with more damage to friend than foe. However, as soon as extrication takes place, the double rank line will have the preponderance of force in the *mêlée*, and as other things are assumed equal, it must be victorious.

But now suppose that the single rank line has another single rank following it at such a distance, say fifty or sixty yards, that it is able to avoid the crash and still come up before the two lines are extricated. It will be in good order, ready for the *mêlée* at once. The forces are now equal again in numbers as well as quality, and the two-rank line (using that term to distinguish it from the other, the double rank line) has half its force in good order and condition, while of the opposing side, the rear rank, as well as the front, has suffered more or less from the collision. Can there be any doubt which side has the better of it now? Surely the two-rank line ought to win.

Flank operations cannot properly be considered in this connec-

tion. The best formation for the attacking, or first line of the line of battle, is the subject of our inquiry.

The reduction in the number of ranks, which has been going on in all armies ever since the introduction of firearms, appears to have reached its limit. By universal judgment it has stopped at two ranks for cavalry as well as for infantry; and the judgment in this country does not differ from that of the remainder of the world. We still have a double rank system for infantry, and the adoption by us of a single rank movement system for cavalry does not mean the adoption of a single rank line of battle.

If a two-rank line, such as just described, is stronger than a double rank line, and I for one firmly believe it is, the double rank movement systems are undeniably inferior, because the essential idea of all of them is that the second rank must be kept closed on the front rank—must, in fact, be a rear rank. What we want, is a system that will give a two-rank line, each rank being separate, and yet the two working as one, naturally, and without confusion, and without any difficult, or cumbersome, or improvised formations on the field of battle. A single rank system can fulfill these requirements perfectly, though it must be admitted that we have never had one which did. The particular formation in the single rank system which gives us what we need, or at least can be made to do so, is called, in our drill regulations, "a line of platoon columns." If each troop be organized or divided into two platoons, and two only, regardless of its strength, the line of platoon columns becomes just such a two-rank line as is desired, and the subdivisions in the second rank have their own leaders to regulate their march and direct their action. A front of forty-eight is not too great for a platoon. The distance between the ranks would ordinarily be platoon distance, but that could easily be increased by the leaders of the second rank when advancing to the attack. There is more than one good reason for dividing a troop into two platoons, whatever its strength, but that just stated is the principal one.

By our present drill regulations, if a troop has a greater front than forty-eight, it is required to be divided into four platoons, or three, depending on whether the front does, or does not, exceed seventy-two. Consequently, a line of platoon columns will consist of two, three or four ranks, depending on the strength present in the troops: or, with unequal troops, it may consist of two ranks in one part of the line, of three in another, and four in another. With full troops, or troops more than half full, there is no provision for a line two ranks deep, and yet that is the depth that will be most

often needed. In the first edition of these drill regulations there was such a provision, namely, the column of wings in the squadron: but with an odd number of troops in the squadron, that was defective, and whether the number of troops was odd or even, it would have resulted in a mixture of troops in action—something to be avoided if possible. This defect, with reference to a proper formation for line of battle, is neither the only nor the most serious defect in our drill regulations, but it is the principal one relating to the subject now under consideration.

It will probably be admitted that in a war with any of the great powers a single rank line of battle would seldom or never be heavy enough. If more than two ranks should be judged necessary, the preference would probably be for successive lines. Therefore, the two-rank line should be the usual line formation. We need to be most familiar with that which will be most often used in action. There are excellent reasons for not making a line more than two ranks deep. It is desirable to cover as much front as possible without making the line too light. With a given or limited front, the more force that can be held in reserve the better. Deep lines, or lines deeper than necessary, if brought under fire action, suffer needless casualties, a waste of strength, and a waste of life.

For action against artillery, some kind of extended order is usually if not invariably made use of by cavalry. The facility and rapidity with which a suitable extended order can be taken, is at least as great in a single as in a double rank system.

For cavalry against infantry a heavy line is never needed. Frontal attacks have succeeded, and they have failed. The failures have never been because the lines were too light. It will not be disputed that a single rank of cavalry in close order is more than heavy enough to ride down any line of infantry if it gets to it. Successive lines might be needed to insure success and to complete it, but never a double line, never a rear rank, and this is true of flank as well as frontal action.

An important particular in which a single rank system is decidedly superior, is in re-forming after having been dispersed in the mêlée. The rally is generally to meet a threatened counter attack from cavalry, and time is a most important item. A single rank can be re formed and ready in less time than a double rank. If it is to meet cavalry in double rank, the rally can be as quickly executed in two ranks (the troop in column of platoons) as in one.

The facility with which a command can be dismounted for action on foot is at least as great in a single as in a double rank system.

probably greater in point of time required, and the command after dismounting would be in an equally effective formation. If required for action in extended order, no rear rank would be needed. For action in close order, the two-rank line for all the purposes of cavalry dismounted would doubtless be as effective in every way as a double rank.

The facility with which line can be formed from column to either front or either flank is another important consideration in favor of a single rank system for mounted troops. Officers whose experience extends far enough back will remember the principle of inversion found in the older movement systems, tactics, as they were then called. It was by all regarded as something which it was very desirable to get rid of. The infantry has succeeded in getting rid of it with a double rank, but mounted troops cannot do so without taking to a single rank system. When a double rank line on foot wheels about by fours, the front rank remains in front. The same movement by a mounted double rank places the rear rank in front.

I have never read or heard any discussion of this subject of single or double rank for cavalry, but I have heard a few officers of experience express the opinion that our single rank would be found weak if it should come in contest with the double rank of one of the great powers. Whether or not that would prove true is certainly of great moment to us all. Study of the subject has convinced me that a single rank system may be made superior in every respect. The process by which this conclusion was reached is briefly set forth herein. It is mainly theory, of course, but no other method is available. Even if the two systems should come into conflict, a single action would not decide the question, for in service the necessary condition, all other things equal, would never obtain. To those officers who have had an extensive experience in war, we may look for the best judgment as to the relative merits of the two systems.

THE SWISS CAVALRY.*

BY LIEUTENANT E. L. PHILLIPS, THIRD CAVALRY.

INTRODUCTION.

THE present army of Switzerland is the product of two opposing forces. On the one hand are the thoroughly democratic instincts of the people and their aversion to needless expenditure, which make the Swiss by nature opposed to the idea of a standing army. On the other hand is the peculiar position of the country—a bit of territory in the very midst of the military powers; under such circumstances she naturally absorbs some of the martial spirit of these great neighbors; at any rate this perpetual menace to her independence compels her to set aside her prejudices to a certain extent, and take up arms. To this end, compulsory military service is imposed upon all citizens, and the essential features of the French and German systems of organization have been adopted. The population of Switzerland is about 3,000,000 and the result of their military laws is a force as follows: Active army, 103,000 officers and men; landwehr, or first reserve, 84,900; landsturm, or final reserve, including the landsturm unarmed and a small number of garrison troops, 284,000; or a total of 472,000 men liable to duty, all more or less familiar with military service.

The active army, numbering 103,000, is organized into four army corps, each complete in all particulars, fully equipped for service, and supplied with first-class modern weapons. The landwehr and landsturm are, in theory at least, each a counterpart of the

*This essay was forwarded under existing regulations, to the Military Information Division of the Adjutant General's Office, and is published in the JOURNAL of the Cavalry Association, by permission of the Adjutant General. The publication of the essay is not to be understood as a mark of official sanction of the opinions expressed therein, the author alone being responsible for the views set forth in his paper.

active army, each corps district having its landwehr and landsturm corps as well as its active corps. Service in the active organization lasts in general from the twentieth to the thirty-second year, when the citizen passes into the first reserve. At the age of forty-four he enters the final reserve, and at the age of fifty liability to service ceases.* A very few days would suffice to place in the field an army of 100,000 men fully equipped and trained ready for battle; and in a few weeks this number could be doubled, and possibly trebled—a force sufficient to guarantee considerable respect for the little republic.

This army, as might be expected, presents a peculiar combination of characteristics. In organization, armament, and discipline, it is a regular army; while its personnel, the simplicity of the drill, and the brief period of actual training, make it in reality only a militia. Even in the active army the soldier puts on the uniform for only a short period, varying from a few days every second year to a few weeks each year, depending upon the period of service already completed and the arm to which the soldier belongs. At all other times he follows his vocation as a private citizen. This is true, not only of the soldiers, but of most of the officers as well, who belong in general to the educated and professional classes of the community. They are, as a rule, men who command respect in civil life also, and as the military system has been imposed upon the country as a public necessity by the citizens themselves, it commands much the same respect as the civil institutions of the republic. Accordingly there is little difficulty in maintaining a good degree of *practical* discipline, though there is often carelessness in some matters of mere military etiquette.

In view of the limited amount of training with the colors, the Swiss army could not be expected to take rank with the regular standing armies; in its proper role, however, that is, as a practical militia force for war service, it is unquestionably the finest body of troops in the world.

CAVALRY ORGANIZATION.

The full complement of cavalry in the active army is 3,500 men, organized into thirty-three squadrons. Of these, nine squadrons are called guides (French guides) and these are set apart for special duties, though in organization and equipment they differ in

*A somewhat different rule obtains with respect to the commissioned officers, who remain in service longer.

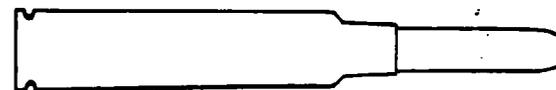
no way from the regular cavalry. The squadrons of guides are wholly independent of each other, and are always distributed among the various corps and division headquarters, sometimes a half-squadron, sometimes a squadron, to each. The advantage is obvious; the requisite mounted men for escort and orderly duties are thus always provided for without drawing upon the regular cavalry organizations. The remaining twenty-four squadrons, the cavalry proper, are organized into four brigades. Each brigade, then, consists of six squadrons, which are organized into two regiments of three squadrons each. One cavalry brigade is assigned to each of the four army corps. There is no divisional cavalry, the brigade acting as a unit, directly under the orders of the corps commander.

The squadron itself, which is the tactical unit, consists of one captain, three lieutenants, seventeen non-commissioned officers, and 102 men. Each squadron has four trumpeters, two blacksmiths, one saddler, and four teamsters. There is also a farrier, who has the grade of a non-commissioned officer, and ranks all the other non-commissioned officers of the squadron, the first sergeant alone excepted.

The cavalry regiment consists of three squadrons, as already stated, and a major is the commander. Two regiments constitute the brigade, which is commanded by a lieutenant-colonel or colonel, assisted by the usual staff.

ARMAMENT.

All the squadrons, both cavalry and guides, are armed and equipped alike. They carry but two weapons, viz: the saber and the magazine carbine. The saber is very similar to our own in style and weight. The carbine is a modified form of the Swiss rifle, known as the Schmidt, with shortened barrel; but the magazine of



the cavalry carbine holds but six cartridges, whereas that of the rifle holds twelve. In loading the magazine the six rounds are all inserted at once from a pasteboard packet in which they are carried. The piece can be used as a single shot also. The bore is 7.5 millimeters, equal to a calibre of .294. The cartridge shell has no flange

at the head, but a groove instead, which permits the cartridge to lie flat in the packet. Smokeless powder is employed, and the blank cartridge used in the maneuvers has a red wooden bullet, which looks very business-like, but is really harmless, owing to the fact that it breaks up into shreds when fired. (See figure, page 147.) On campaign each trooper carries sixty rounds. The carbine sight is a coarse one without great accuracy. The officers only carry the revolver.

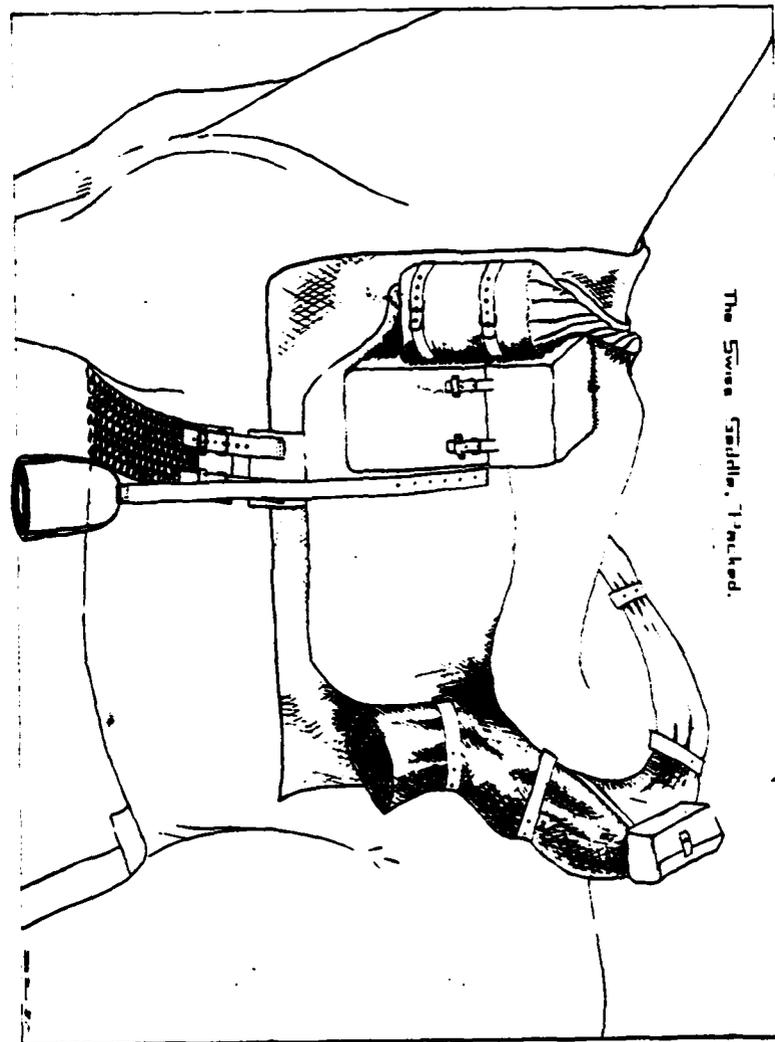
EQUIPMENT.

The saddle is made of fair leather, throughout. The tree is practically of the English pattern, and the stirrups are of light steel. The bridle is of fair leather also. Indeed, the Swiss show a strong preference for this kind of leather, even the artillery and draught harnesses being made of it. The bit resembles the German in pattern, with the bridoon and double rein common in European cavalries. The saddle blanket is a heavy wool one, similar to ours, but dark brown in color, the shade being nearly that of a bay horse. It shows dirt and wear less than our own blanket, and is much neater in appearance.

In arranging the pack the Swiss have noted the fact that a trooper always sits in the back part of his saddle, which is very marked with their style of seat, and have tried to equalize matters by placing most of the weight of the pack upon the front. To this end the saddle pouches are placed upon the pommel, which is built broad and large to receive them. They are not readily detached, but are compact, rectangular boxes of stiff leather, attached solidly upon the saddle so there is no shifting or flapping. (See plate.)

The regulation contents of the pouches are as follows: In the right one are the extra clothing (trousers and shirt), towels, soap, and other toilet articles, and materials for the repair of clothing. In the left pouch are carried a pair of shoes, the currycomb and brush, and, in a separate compartment, spare horseshoes, horseshoe nails and a spare curb chain. Halter and nosebag may be carried here or in the grain-bag.

Upon the cantele are carried merely the overcoat, tin can and forage cord. The overcoat is rolled and strapped in the usual manner, and the forage-cord, or lariat, is carried as with us, but the can is placed in a leather case attached to the right side of the cantele, above the overcoat roll. The carbine and saber are carried upon the saddle, as in our service, but the carbine boot covers the whole piece, from the muzzle to the small of the stock.



The Swiss Saddle, finished.

Provision is made for carrying a reserve ration of grain, and the system adopted is very satisfactory.* Imagine a long cylinder of dark brown canvas about three feet in length and six inches in diameter, closed at both ends, with a slit about ten inches long midway between the ends of the cylinder and lengthwise of it, and you have the Swiss grain-bag complete. Holding it up at the middle and letting the ends hang down, you can put in the grain, one-half in each side, and then holding one end fast and turning the other, the middle portion is twisted tightly down upon the grain at either end. The bag is carried upon the extreme front of the saddle, where there is a place to receive it. (See plate.) It is suspended across the saddle in front of the pouches, against which it is firmly held by ordinary coat straps. The advantages of the bag are obvious. It is extremely simple; whether much or little grain is carried, the load is readily balanced; it is tightly closed without the use of strings or straps; and its position—far forward and well up—makes it difficult, if not impossible, for the horse of ordinary build to get at it—at any rate, they seldom seem to attempt it.

Each cavalryman carries upon his person a large cartridge-box and a haversack. In the latter are placed the canteen and the soldier's daily rations. The reserve rations, when carried, are placed in the case on the cantle of the saddle.†

Each squadron is supplied with two light baggage wagons and a portable kitchen, which allows the cooking to be done during the march.

PERIOD OF TRAINING.

The Swiss citizen is enrolled for service at the age of twenty, and if he desires to serve in the cavalry arm, he makes application and submits proof of his financial ability to support a horse. Some time during the first year the new conscript leaves his civil vocation for the time being and goes through the recruit course. This consists of instruction in drill and horsemanship and the general duties of the soldier, and continues for the period of eighty days, at the end of which time the soldier goes back to civil life, taking his horse and equipments with him. The following year his squadron is again

* A reserve forage ration consists of five kilos. of oats. One reserve ration is carried on the horse and another in the squadron wagons.

† The regular service ration consists of: 750 grammes of bread (or 500 grammes of hard bread), 375 grammes of fresh meat (or 275 grammes of smoked or preserved meat, or 250 grammes of cheese), 150-200 grammes of vegetables, 20 grammes of salt, 15 grammes of coffee, 20 grammes of sugar.

The reserve ration consists of: 250 grammes of preserved meat, 250 grammes of hard bread, and 100 grammes of soup tablets. Two reserve rations are carried in the tin can on the saddle, and two more in the squadron wagons.

turned out for a short course of drill, this time but ten days in duration. This is called the course in repetition, and is repeated each subsequent year until the course has been taken ten times. The soldier afterwards passes into the landwehr, or first reserve. The period of actual training with the colors is thus seen to be very brief, but this is partially compensated for by the trooper always having his horse and equipments with him at his home, where he can use them at his pleasure. The result is a degree of proficiency that is somewhat unexpected, in view of the limited training received. The trooper generally manages his horse with ease and rides fairly well, using the loose seat, however, common in European services.

In addition to the regular courses, there is provided an extensive system of brief special courses, some of which are for the training of non-commissioned officers, others for various grades of commissioned officers. The time devoted to these is in addition to that consumed in the regular work with troops. And, finally, each year one of the four army corps of the active army is turned out for maneuvers in the autumn, lasting two or three weeks.

The drill regulations are simple in the extreme. The commonest movements sure to find practical use in every-day warfare are inserted, but such only. The result is that the troops know well all they are expected to know, in short, all there is to know in the way of drill, and confusion from attempting unfamiliar movements seldom occurs. Double rank formation is authorized and used, and the troopers march and drill by threes instead of fours. Accordingly, when dismounted to fight on foot but two-thirds of the men are available. This method of fighting, however, seems not to be encouraged.

HORSES.

One-sixth of the animals necessary for mounting the troops are purchased in Switzerland, the remaining five-sixths are imported—chiefly from northern Germany. They are bought at the age of four years, and are first taken to the remount depot, where they remain a year before being sent to the various squadrons. During this period they are acclimated and given a course of training by competent horsemen. They are then issued to the soldiers. Each man, as a guarantee for the proper keeping of the horse, is required to pay to the government on receipt of his mount, one-half of its value, and when not in use in the government service, either during the

courses or the autumn maneuvers, he has to support the horse at his own expense. He is, however, allowed to use the horse at will, being merely responsible for his serviceable condition at all times. Each year the government returns to the soldier one-tenth of his original deposit, so that at the end of the period of active service the deposit has been returned, and the horse is then donated outright to his master. Should the animal become disabled in the meantime through fault of the trooper, the latter is held financially responsible for the damages.

A BOUNDARY SURVEY.*

BY FIRST LIEUTENANT WILLIAM H. BEAN, SECOND CAVALRY.

A COMPLETE re-survey of the boundary line between the United States and Mexico, from the Rio Grande near El Paso, Texas, to the Pacific Ocean, has recently been made. The work was begun in February, 1892, and was conducted by commissioners representing each of the governments interested. The United States commissioners were Lieutenant-Colonel JOHN W. BARLOW and First-Lieutenant D. D. GAILLARD, both of the United States Engineer Corps, and Mr. A. T. MOSMAN, of the Coast Survey. The representative of the Mexican government was Señor JACOBO BLANCO, a distinguished civil engineer, whose home is in the City of Mexico.

The line from the Pacific Ocean to the Colorado River was fixed by the Guadalupe-Hidalgo treaty in 1848, as follows: "A straight line drawn from the middle of the Rio Gila, where it unites with the Colorado, to a point on the Pacific Ocean distant one marine league south of the southernmost point of the port of San Diego, according to the plan of said port made in 1782 by DON JUAN PANTOJA." This line now determines the boundary between the State of California and the District of Lower California. The same treaty provided that the middle of the Rio Grande should be the boundary line from the Gulf of Mexico to a point beyond El Paso, at which the southern boundary of New Mexico intersects the Rio Grande, thence westward on that line along the whole of the southern boundary of New Mexico, thence northward along the western line of New Mexico to the first branch of the Gila River, and thence down the middle of such branch until it empties into the Colorado.

*This essay was forwarded under existing regulations to the Military Information Division of the Adjutant-General's Office, and is published in the JOURNAL of the Cavalry Association by permission of the Adjutant-General. The publication of the essay is not to be understood as a mark of official sanction of the opinions expressed therein, the author alone being responsible for the views set forth in his paper.

The original survey of the boundary line was begun on the Pacific Coast in July, 1849. The line separating Lower California from California was determined, and in 1852 and 1853, the line along the Rio Grande was surveyed and mapped. The line from the Rio Grande to the Colorado had not been surveyed, when the treaty of December 30, 1853, negotiating what is known as the "Gadsden Purchase," was completed. This materially changed the boundary. It described the line from the Rio Grande to the Colorado as follows: "From a point where the parallel $31^{\circ} 47'$ north latitude crosses the Rio Grande, due west one hundred miles; thence south to the parallel $31^{\circ} 20'$ north latitude, thence along the parallel $31^{\circ} 20'$ to the 111th meridian of longitude west of Greenwich, and thence in a straight line to a point in the Colorado River twenty English miles below the junction of the Gila and Colorado Rivers, and thence up the middle of the Colorado until it intersects the line from the middle of the mouth of the Gila to the Pacific Ocean."

This line gave us a pan-handle in southern New Mexico, and the peculiar bend in the line in southern Arizona. It added an area of about twenty-six thousand square miles to our domain, gave us a practicable line for a military and emigrant road from Texas to California, and afforded an excellent route for a railroad to the Pacific. This last consideration, forcibly presented to our government by Major EMORY, led to the purchase. This line was run in 1855 by joint commissioners, Major W. H. EMORY for the United States, and Señor JOSE SALAZAR Y LARREGUI for Mexico.

The Rio Grande was a natural feature to become a portion of the boundary. The southern boundaries of New Mexico and California were approximately fixed. These, with the Gila River, originally formed the boundary. The necessity for a military road from El Paso to Yuma, and the desire for a practicable railroad route, giving rise to the Gadsden purchase, the line $31^{\circ} 20'$ was probably chosen so that the country immediately tributary to such projected line should be within our country. Major EMORY, in his report, pointed out the fact, that in nearly all the mountain ranges in southern New Mexico and Arizona, and northern Chihuahua and Sonora, there are good passes in the vicinity of the thirty-first parallel. There is now a fairly good roadway close to the line from the Rio Grande to the Colorado, and from it to the Pacific.

The peculiar bend from the 111th meridian to the Colorado River was probably made so that the Mexicans might retain a partial control of the Colorado River, and also that it might be possible to go overland from Sonora to Lower California without travel-

ing upon soil of the United States. It was undoubtedly a mistake that our government did not originally take Sonora and Lower California.

The total length of the line from the Rio Grande to the Pacific Ocean is approximately seven hundred miles. On this line there were originally fifty-two monuments. These, with few exceptions, were crudely built. One could not be seen from another, and some were soon destroyed. In consequence, for years the exact location of the line was not known to the inhabitants of the two countries who lived in its vicinity. Only forty-five of the old monuments were found in 1892-93. A re-survey and a more accurate marking of the line before serious international complications might arise, therefore became an urgent necessity. A treaty to accomplish this was negotiated in 1852 and again in 1859. The necessary appropriations were made, and in 1892 the work began. The forty-five old monuments were rebuilt, and two hundred and three new ones added. As a rule, from each monument the next in prolongation can be seen, the average distance apart being less than three miles. With few exceptions the rebuilt monuments are of masonry, eleven feet high, four feet wide at the base, and two feet at the top. The new monuments are of cast iron, six feet high, with a concrete base. Because of the inaccessible character of some points on the line, a number of monuments were made in sections and packed on mules to their site. The monument on the eastern bank of the Colorado River is of sheet iron, with a stone base. The monument nearest the Pacific is of white marble, and that near Tia Juana, south of San Diego, of California granite. All the monuments, except these two, are painted white, and each bears its number, beginning at the Rio Grande. Plates, securely fastened to the monuments, are placed on the American and Mexican lines, bearing the following inscription: "Boundary of the United States. Treaty of 1853. Re-established by treaty 1852-1859. The destruction or displacement of this monument is a misdemeanor, punishable by the laws of the United States or Mexico." and in Spanish: "Límite de la República Mexicana. Tratado de 1853. Restablecido por tratados 1852-1859. La destrucción ó deslocación de esto monumento es un delito punible por México ó los Estados Unidos."

The work of the original survey was attended with great difficulties. The country was unknown. Bases of supplies were El Paso, Yuma and San Diego. Indians were numerous, but apparently not troublesome, and the gold fever was so high that it was with the greatest difficulty that soldiers and civilian employees

could be retained. The later commission having the advantage of a railroad comparatively near the line, had few annoyances, save those caused by the nature and climate of the country in the immediate vicinity of the line. They, therefore, were able to determine with the greatest accuracy what the line should be. Longitudes were obtained by what is known as the telegraphic method. This consisted in transmitting by telegraph the sidereal time of two places, whose longitude was known, to the station whose longitude was desired, and, by comparison with its sidereal time, the difference of time was obtained, and consequently the longitude. Five of these stations were used in the re-survey of the boundary located at El Paso, to determine the longitude of the east end of the parallel $31^{\circ} 37'$; at the west end of the same, which also determined the east end of parallel $31^{\circ} 47'$, at Nogales; whence by triangulation the western end of $31^{\circ} 20'$ was determined; at Yuma, embracing by triangulation the ends of the two lines terminating on the Colorado and at San Diego, from which was obtained the initial point on the Pacific.

The treaty under which the re-survey was made, provided that it was to be a relocation of the old line as run by Major EMORY, Lieutenant MICHELE and their associates. It was also agreed that neither government would claim any advantage in the way of territory by reason of any errors that might be detected. Two lines were determined—that connecting the old monuments and the true line as defined in the treaties. Each government also had made a topographical map of its side of the line for a distance of two and a half miles from the line throughout its extent, and took one or more photographs of each monument.

Fort Huachuca, Arizona, is the only military post in the United States between El Paso and San Diego, in the immediate vicinity of the boundary line. It is situated in the Huachuca Mountains, about fifteen miles from the line, and near the railroad running from the Southern Pacific at Benson to Guaymas, on the Gulf of California, and is located as a strategical point with reference to this railroad and port and the State of Sonora.

At first a detachment of the Tenth Cavalry, later a troop of the Second Cavalry and a company of the Twenty-fourth Infantry, and finally detachments of the last two regiments constituted the escort from El Paso to San Diego. The Mexican army was represented by detachments of the Fifth Regiment of Cavalry, stationed in Chihuahua, and of the Twenty-fourth Battalion of Infantry, sta-

tioned in Sonora; and the field work was done by officers of the General Staff and Engineer Corps.

The line crosses in succession the Mimbres, Playas, Animas, San Simon, Sulphur Spring, San Pedro, San Rafael and Santa Cruz Valleys, the Sasabi and Ventana Flats, the Valley of the Sonoyta, and the desert country to its east and west. It passes through or near Hachita, San Luis, Guadalupe, Chiricahua, Mule, Huachuca, Patagonia, Pajarito, Freswal, Ajo, Cabeza Prieta, Tule and Gila Mountains: while the great landmarks of southern New Mexico and Arizona—Animas Peak, Castle Dome, College Peak, Dos Cabezas Baldy of the Santa Ritas, and Baboquivari—loom up in succession towards the West.

From Baboquivari, a huge mass of bare rock, visible from the Gulf of California, and standing like a sentinel over the home of the Papago, there extends for nearly two hundred miles to the Colorado River and Gulf of California, a country but little known. It is the land of the patient, wandering Papago; of fragments of the fierce and intelligent Yaquis, and of the River Indians, the Yumas and the Cocopahs. Its mountains are the haunts of mountain sheep; its forests are the grease wood, palo verde, palo fierro and giant cactus. It is the home of the mythical "Peg Leg" Mine. On its arid bosom many an emigrant and his family have perished. Its eastern border only was ever known by the Apache. He was master of eastern Arizona, and was feared in Chihuahua and Sonora, but the rare oases in this great desert of the southwest were never raided by him.

Probably the most primitive settlements on or near the line are those on the Sonoyta River: Sonoyta, Santo Domingo, Quitobaquito and Agua Dulce are three pueblos and a ranch, containing, all told, about two hundred people. The Sonoyta is the only running water from the Colorado to the Santa Cruz, a distance of about 250 miles. Here a small settlement was made by the Ortega family, on their return from California, after the gold excitement. The houses are all one-story adobes, dirt floors, and, with two exceptions, have no glass in the windows. The people lead a simple life, owning a few cattle and horses, raising their own vegetables and cereals and a little fruit, and washing some placer gold. A few men own the small "tiendas" on each side of the line, and all the rest are their "peons." They have no priest nor doctor. A small Mexican custom house and a bi-monthly mail from Altar keeps them in communication with an outer world which but few have seen. Near Quitobaquito was found an old Indian, who remembered, when a boy, the

signal fires used by Lieutenant MICHLER'S party in running the original line in 1854.

From El Paso, until the home of the Papago, south of Tucson, is reached, there are now no Indians in the immediate vicinity of the line. A few renegade Chiricahua Apaches, that did not surrender with GERONIMO in 1886, make their home in the fastnesses of the Sierra Madre of Mexico, and they and the "KID" and "MASSE" range in the vicinity of Guadalupe Cañon, in which Arizona, New Mexico, Chihuahua and Sonora meet. COCHISE, NACHEZ, JUS, VICTORIO, CHATTO, NANA, GERONIMO, and their fellows, who were the scourges of the Southwest, and recognized no boundary lines, are all either dead or far away. Many Papagos and a few Yaquis are living in southwestern Arizona. The Yumas and Cocopahs are near Yuma, and a few fragments of the Digeños are in the mountains of California.

The Papagos and Yaquis subsist by agriculture, cattle raising, and placer mining. The Papagos, off and on their reservation, probably number four thousand. They have their little settlements near permanent water in the mountains. In the rainy season they go out on the plains, and raise "six weeks" crops of corn, beans, and melons, which they pack to their mountain homes. The Yumas, who number about eight hundred, live on their reservation in California, opposite Yuma, and send nearly all their children to the government school at old Fort Yuma. They subsist on fish from the Colorado, which they also sell; and plant small crops of corn, vegetables and melons, as the waters of the Colorado recede. They also work in and about the town of Yuma. The Cocopahs are only a remnant belonging in Mexico. They are similar to the Yumas, but more degraded. The Diegeños are very few, and live in small settlements in the mountains of California, subsisting by primitive agriculture, a little hunting, gathering nuts, placer mining, and working for local ranchers.

One of the best remaining game districts in the West is on and near the boundary line. The valleys of the Animas and Playas in the panhandle of New Mexico abound in antelope, and the mountains adjoining them contain many deer, and not a few turkey and bear. In the Gila Mountains, the range on the line nearest the Colorado River, and within four hours' ride of the railroad, are many mountain sheep. West of the Colorado, quail came into the camps, and were very plentiful, while on the lagoons formed by the overflow of the Colorado, were thousands of ducks, and almost all other species of water fowl. In the mountains of California, there

are still a few deer, some quail, and many squirrels and rabbits. Dr. EDGAR R. MEARNS, Assistant Surgeon United States Army, with a slight interruption on duty with the Commission from March, 1892, to October, 1894, has made as complete a collection of the fauna and flora of the region through which the line passes as probably ever can be made. The collection is now at the Smithsonian, and his report on the same will be both interesting and valuable.

The entire country in the vicinity of the line is a favorite one for the prospector. Hachita, Tombstone, Bisbee, Harshaw, Oro Blanco, Quitovaquito, the Desert of the Colorado, the mountains of the Coast, and almost every mile between these localities, have been the working ground of the miner. The field parties of the Commission were followed by a party of prospectors, whose methods and equipment were as primitive as in the days of 1849. At Sonoyta in Mexico, and Campo, California, the Indians bring in to the local dealers considerable quantities of placer gold, and occasionally fine nuggets. The entire belt is undoubtedly rich in material, but only the few ever obtain more than enough to encourage the "grub-staker."

A striking contrast between mining localities is presented by Bisbee and Ajo. The mines at the former place are owned by a company shipping thousands of tons over its own railroad over thirty miles to the Southern Pacific, and the place itself is a bustling, thriving mining settlement. Ajo, however, was a mining locality before the Civil War, when its products, reduced in a crude way, were shipped overland by teams to San Diego, over three hundred miles of sandy waste and rough mountains. There is still good ore there, but the great reduction in the value of copper, and the remoteness of these mines, have resulted in the total abandonment of the locality. The crumbling walls of the once "live" town of Ajo are all that remain.

Probably the most remarkable feature in the vicinity of the line is the "Tinajas Atlas," or High Tanks in the Gila Mountains, about forty miles from the Colorado River. They are about ten miles north of the line. The only surface water in these mountains and in the Tule Mountains is found in such rocky cavities as have been worn by rushing water during the rainy season. Generally but a few, and they of small capacity, are found together. But the Tinajas are a succession of large and small tanks, eleven in number, worn into the granite, with a capacity of about twenty thousand gallons. The largest has a capacity of almost seven thousand gallons. The tanks in these two mountain ranges contain the only surface water

from the Sonoyta to the Colorado, a distance of about one hundred and ten miles. They supplied the needs of both American and Mexican parties on this part of the line, the water being siphoned into the lower tank from those almost inaccessible above.

These tanks have undoubtedly saved the lives of many famished travelers, and likewise have been the cause of death to many, who, because of the existence of such tanks, undertook the journey from Sonoyta to Yuma, and became exhausted before reaching them, or reached them to find the lower tanks empty, and were too weak to climb to the water above. In the immediate vicinity are the stone crosses marking the death spots of over fifty dead people, principally Mexicans. From Yuma to Sonoyta are similar marks of over three hundred people who died on this desert. Such deaths are now extremely rare, but in the desert beyond the Colorado in southern California, every year adds to the roll of lost and famished travelers.

While crossing from Yuma to the mountains of California in the spring of 1894, an incident occurred illustrating the chances that men continually take in crossing this region. Two old soldiers left San Diego for Yuma with a one-horse vehicle containing all their worldly possessions. After leaving the mountains, there is a distance of about ninety miles to be crossed, about twenty miles of which are below the sea-level. The roadway is frequently obliterated. There is an abundance of water not far from the road in lagoons, and a few wells, but unobservant or uninformed travelers can readily pass them by unnoticed. Such travelers were the old soldiers. They quarreled as to the best road to take, and finally separated, both leaving the road, one going toward the distant mountains with the team, and the other in what he thought was the direction of the Colorado River. The man with the team became bewildered, wandered into the sand dunes that extend for many miles, abandoned his wagon and property, rode across two lines of pipe carrying water from the Colorado to mines, but had so far lost his faculties that he failed to follow either, and finally gave the horse his head. After forty-eight hours of wandering, the instinct of the animal led them to the banks of the Colorado at El Rio, about six miles south of Yuma. His companion, without horse, water or food, wandered about the sand hills, and soon became exhausted. The advance wagons of the monument party had been sent out from the engineer camp with a load of monuments. They carried an extra barrel of water, and on pulling up from the main road to the line, which here runs on a sandy mesa, they rolled off the barrel of water to lighten the load. On their return next day, a half-famished man

was found lying by the water barrel. It was the old soldier, who, in his wanderings had become bewildered, lost his reckoning, and, although but a few miles from a large lagoon, would have died but for the almost miraculous finding of the barrel of water.

He was brought into camp, and, after a few days' rest and careful nursing, went on his way to find his "partner." The latter, after a few days' rest, made two trips to find his wagon and property, and, on the second, located it. Seven days had elapsed since its abandonment, and on his return, he found his little dog, that he had left at the wagon, still there, very thin and thirsty for his seven days fast in the desert, but alive, and in charge of the property.

If desert heat, absence of shade, sandy waste, scarce and impure water, and hot sand-storms were sources of annoyance, they were all forgotten when once in the Coast Range. The first fine water is Mountain Spring, at the head of a cañon and near the summit. The first valley is named Jacumba. From Jacumba until within sight of San Diego, the country is a succession of rugged mountains, rolling hills, running streams, shady oak groves, green cienegas and healthful mountain valleys. Numerous ranches, and the small settlements, Campo, Potrero, Dulzura, El Nido, point the way. When about thirty miles from the coast, the first grove of orange trees, loaded down with ripe fruit, was reached, and from there to San Diego, each mile gave some additional indication that we were once more in the land of milk and honey, of fruit and flowers; and finally, when Point Loma loomed up, and the beautiful Bay of San Diego lay before us, we knew that the work of the Boundary Survey was nearing its end, but could not know beforehand, the joy and contentment of the ideal life that is led by the side of the sea in this remote corner of the Southwest.

SIX HUNDRED MILES OF FRIED CHICKEN.

BY THEODORE F. ALLEN, FORMERLY CAPTAIN SEVENTH OHIO CAVALRY,
BREVET COLONEL, U. S. VOLUNTEERS, WILSON'S CAVALRY CORPS.

THE rain was pouring in torrents as night fell over our camp at Somerset, Kentucky, June 30, 1863. We were hugging ourselves in congratulation over the fact that we had a good dry camp, and pulled our tent flaps tight to keep out the storm, as we settled down to a quiet night's rest, at peace with all the world—for that night anyhow. We were light-hearted youngsters, and "home" was wherever nightfall overtook us, or wherever our colonel decided to stop.

In a lull of the storm the quick gallop of a courier was heard. In an instant he reined up at the tent of our commander, Colonel ISRAEL GARRARD, of the Seventh Ohio Cavalry, to whom he handed an order, which read: "You will report for duty with your regiment within one hour from the receipt of this order, your troops to be supplied with two days' rations and forty rounds of ammunition per man; one ambulance to accompany your regiment." This order had a business-like look, and in less time than you can say "caterpillar" the regiment was astir.

Under the adjutant's order the chief bugler sounded "Boots and Saddles." As the notes of the bugle fell upon the camp, the cavalymen thrust their heads out of their little shelter tents and gave a cheer. This was followed by "Officer's Call" from the bugle, and the commander of each company, coming on a run, reported at the adjutant's tent, where orders were given to prepare the regiment to move as indicated, while the medical officers made ready with ambulance and "tools of trade." Within a few brief minutes we were looking back with lingering eyes upon our nice dry camp, as we rode away in one of the heaviest downpours of rain we had ever experienced.

Reporting to the commander of our brigade, we were informed that General JOHN MORGAN, with his division of "Rebel Raiders," was expected to cross the Cumberland River on one of his periodical raids through Kentucky. This information was given to the troops, and was received with tumultuous cheers, as we were particularly anxious to have a tilt with "MORGAN's men."

Our regiment, the Seventh Ohio Cavalry (1,200 strong), was recruited in southern Ohio, in the counties bordering the Ohio River. A considerable portion of MORGAN's command was recruited from the counties of northern Kentucky, bordering the Ohio River, directly opposite our homes. Thus we were by no means strangers to each other, and may be said to have been neighbors.

Our rubber "ponchos" were drawn tight over our shoulders as we took up our night march through the downpour of rain. By midnight we had come to "Fishing Creek," near Mills Springs, Kentucky, the scene of General THOMAS's victory and ZOLLICOFFER's death. This mountain stream was sending down a torrent of water, with heavy driftwood, thus precluding our further progress that night. We bivouacked as best we could till daylight, when, under great difficulty, we forded the raging torrent, with the loss of only one horse—the rider promptly obeying the quick call from a dozen officers and from more than a hundred of his comrades, to "grab a root," which, fortunately, he found protruding from the shore in an eddy of the angry torrent, whence he was quickly rescued by the willing hands of his comrades.

Arriving at the Cumberland River, above Burksville, we found MORGAN with his division of cavalry occupying the south bank of the river. For a day or two we had skirmishing—"give and take." It was impossible for us to picket the entire length of the river, and by July 3d MORGAN had succeeded in transferring his command to the north bank of the Cumberland River, crossing his force mostly at Turkey Neck Bend and at Scott's Ferry, some fifteen miles below Burksville, and we were called in from our picket duty to join in the pursuit. This was the start of MORGAN's famous raid, which extended across the States of Kentucky, Indiana and Ohio.

This bold dash of the Confederate cavalry, hotly and most persistently pursued by the cavalry of the Union army, for a distance of nearly a thousand miles, reaching into and across the Northern States of Indiana and Ohio, at the high tide of rebellion, was one of the most interesting, and certainly one of the most picturesque, events of the Civil War; and a particularly striking feature of this raid was that it came under the observation of, and was seen by

more people than any other military operation of the entire war, as thousands, even tens of thousands of people in Kentucky, Indiana, and Ohio, thronged the line of march taken by MORGAN and the pursuing force under General HOBSON. It was also one of the most talked of, of the great events of those days, when startling events crowded upon one another in rapid succession.

General MORGAN and his troopers were the *beau ideal* raiders of the South. MORGAN and his chief lieutenant, General BASIL DUKE, were very skilled in misleading their pursuers, and previous to this time had been universally successful in their raids, inflicting much damage upon railway lines supplying our armies in the field, and had become overbold in their operations.

As soon as MORGAN took up his line of march northward from the Cumberland River, the officers in command of the cavalry in pursuit determined to follow him right in his own trail, if it led them even to the State of Maine, and not at any time to seek to head him off, and not to be drawn aside on false scents for a single moment. MORGAN and DUKE were exceeding fertile in producing false impressions regarding their movements, but our pursuing force ignored all the alluring temptations thrown out by these skilled and artful raiders, and we stuck close behind them on their broad trail day and night.

It sometimes happened at night, when we came to diverging roads, we would be at a loss to know which road to take. As it was midsummer, and exceedingly hot and dry, MORGAN'S 2,000 horse-men could not avoid leaving a broad trail of dust. At diverging roads all we had to do was to scout the roads for a short way till we found the heavy trail of dust which had settled on the weeds and bushes on the roadside, but generally the country people were present in large numbers, ready and anxious to guide us.

As MORGAN proceeded northward across the State of Kentucky, he came across small garrisons of Union troops guarding important places. On July 4th, at Green River, near Columbia, Kentucky, MORGAN called upon Colonel MOORE of a Michigan regiment, to surrender his force to save the effusion of blood. This Union officer replied that the *Fourth of July was not a good day for surrendering*, and that his superior officer had stationed him at that point for the purpose of effusing blood, and the effusion would begin right away if MORGAN desired. MORGAN accepted the challenge, made the attack, and was speedily repulsed, losing heavily in officers and men. Among the Confederate killed were Colonel CHE-NALLT, of the Eleventh Kentucky; Major BRENT, of the Fifth Ken-

tucky, and Captain TREBEL, of the Eleventh Kentucky. Colonel MOORE'S loss was small. MORGAN left his wounded in Colonel MOORE'S hands. MORGAN did not have time to renew the attack, and withdrew, continuing his march northward.

On the morning of the 5th of July, MORGAN attacked the Union garrison at Lebanon, Kentucky, upon its refusal to surrender, and with severe loss captured the garrison. In the list of killed was Captain TOM MORGAN, a brother of General MORGAN'S, who was serving at the time of his death on General BASIL DUKE'S staff.

Thereafter MORGAN avoided direct assaults upon the Union forces which he met in his path, and with skill and adroitness avoided giving battle to the Union troops.

We expected MORGAN to turn east before striking the Ohio River, but in this we were mistaken, as, upon arriving at Brandenburg, Kentucky, some forty miles below Louisville, he seized passing steamboats and landed his force in Indiana. Following his trail we reached Brandenburg just in time to see MORGAN'S rear guard disappear over the river bank, going north in Indiana. His rear guard stopped just long enough to wave their hats at us and bid us good bye. The steamboats they had used in crossing were at that moment bursting into flames, and burned to the water's edge, tied fast to the Indiana shore.

Other steamboats were hurriedly obtained, and our pursuing force hastily transferred across the river, men and horses being tumbled aboard the boats in quick order, and tumbled off the boats as quickly when on the other side. There were many laughable instances of men and horses falling into the river, but everything "went" in these days, without a murmur of complaint.

The appearance of "MORGAN'S men" on the north bank of the Ohio River created great consternation in Indiana and Ohio. The Governor of Indiana called out the "Home Guards," to the number of 50,000, and as MORGAN'S advance turned towards Ohio, the Governor of the "Buckeye State" called out 50,000 "Home Guards" from his State. At Corydon, Indiana, the "Home Guards" gave the invaders a brisk little battle, and delayed their advance for a brief time.

General HOBSON'S pursuing column, of which the Seventh Ohio Cavalry was a part, arrived at Corydon within a few hours after MORGAN'S departure. The citizens of Indiana received us with the greatest joy and enthusiasm, and from the time of our arrival at Corydon until the end of our march at Buffington Island, Ohio, a distance of about three hundred miles, our line of march was between two lines of patriotic people, occupying each side of the road

—men, women and children—laden with good things for us to eat, the principal article being *fried chicken*. In truth and literally, there were *six hundred miles of fried chicken!*

We have all heard the story of the "chaff" between the soldiers of the Western and Eastern armies, when the Western man, mindful of the hard bread and salt pork he had consumed as his daily rations for weeks and months without variation, asked the soldier of the Eastern army if the report was true that McCLELLAN issued *champagne and oysters* to the Army of the Potomac.

Without answering this disputed question, I am in position to state, without fear of contradiction, that fried chicken and blackberry pie were issued to General HOBSON'S three thousand cavalry every hour of the day for the entire distance of our march across the States of Indiana and Ohio, and that after our two days' rations, with which we had started from Somerset, Kentucky, had been exhausted, we lived entirely upon the rations issued to us by the patriotic citizens, as we marched along. *All the soldier had to do was to fill his stomach and his haversack—the enthusiastic citizens did the rest!*

One of my regiment, a most excellent soldier, named GEORGE LLOYD, tells that, having been surfeited with fried chicken and blackberry pie—having it for breakfast, dinner and supper, with half a dozen lunches of the same between each meal—he one day rode off the line of march, hoping to find a farm house where he could get some bacon and corn bread. He soon came to an inviting farm showing every sign of prosperity. He rode up to the house, and told the lady of the manor that he was hungry, and asked for food. With the greatest alacrity the lady brought him—what do you think?—fried chicken and blackberry pie! "Good Lord, madam!" said LLOYD, "won't you please give me some bacon and corn bread: *the pin feathers are beginning to grow on me*. I have eaten so much fried chicken?"

It would seem that the telegraph had announced our coming in MORGAN'S rear, and at this announcement every man, woman and child in Indiana and Ohio began to fry chickens for us (though I desire to say here that we did not belong to the colored troops, and there was not a preacher in the whole command) as the best thing they had to offer us. At first this article of diet was acceptable, but six hundred miles of fried chicken was more than we could stand. We begged the good people to telegraph ahead to stop this awful slaughter of chickens for our benefit, and provide some hard tack and salt pork, or they would kill us with their well-meant kindness.

It was under the conditions above described that we had the most convincing demonstration that veteran soldiers complain only when they have a *superabundance of food*. The same men had not a whisper of complaint to make, when, later in the war, seven nubbins of corn were issued to each of them, this issue being intended as a full meal for both the trooper and his horse. But when each trooper was fed with at least twenty meals a day for nearly three weeks, and each meal consisting of fried chicken, blackberry pie, strawberry short cake, crabapple jelly, home-made bread fresh from the ovens in slices two inches thick, and spread with butter half an inch thick, all washed down with sweet milk or buttermilk, then it was that the veterans complained bitterly, crying out in distress for their sustaining food of "hard tack and sow belly."

In our procession of three hundred miles between this double line of excited and patriotic citizens, these tens of thousands of citizens greeted us with one song, and only one, always the same, viz: "Rally Round the Flag, Boys." This we heard by day and by night.

When we halted to feed, we tried to catch forty winks of sleep while the horses were eating. The country people gathered around the sleeping men, and soothed their slumbers with "Rally Round the Flag, Boys." In view of the fact that none of us had more than two hours' sleep out of each twenty-four during the three weeks of the raid, it can readily be imagined that our patriotic serenaders could have easily been dispensed with, but their songs didn't bother us, as we were too deep in the "land of nod" for such trifles as a few hundred people singing *at us*, to be disturbed, and their singing served the useful purpose of keeping the weary guards awake.

It is related of General HOBSON, truthfully no doubt, that being exhausted by the strain both mental and physical, induced by the responsibility of the command and the hardship of the march, with barely one hour's sleep out of each twenty-four for three weeks, he had leave of absence for a few days at the close of the raid, and went to his home to recuperate. Arrived at home, one of the first things that greeted him was a household servant passing through the hall, singing, "Rally Round the Flag, Boys." The General's nerves were on edge, and he called out, "Stop that singing. I have heard a thousand miles of 'Rally Round the Flag,' and don't want any more of it for a few days, anyhow." Pretty soon the General was in a fitful sleep, from which he woke, saying the clock in his room was ticking "Rally Round the Flag." His wife stopped the clock, and the General rested quietly till evening, when he became a little delirious, and surprised his wife by telling her that

sixty thousand katydids had followed him from Indiana and Ohio, and had swarmed into their yard, where they were all singing "Rally Round the Flag." He insisted that she go out in the yard and stop the katydids singing this song. He was only quieted by closing the doors and windows, shutting out the songs of the katydids.

Although it has been nearly thirty-five years since the occurrences I speak of, I can hear them singing "Rally Round the Flag, Boys," yet, and *I have never had a longing for fried chicken and blackberry pie from those days to this.*

It must be borne in mind that in MORGAN'S sweep across three States, a distance of nearly a thousand miles, he swept his line of march, and for some distance on each side, almost clean of horses, giving his command frequent remounts, and almost daily remounts, leaving us, his pursuers, to secure our remounts with extreme difficulty. Boiled down to a few words, MORGAN'S force had two horses for every man, while General HOBSON'S pursuing force had two men to each sadly worn horse. MORGAN'S force, when it started from the Cumberland River, was exceedingly well mounted, having some of the best blooded horses from Kentucky—horses capable of long and rapid marches. He set the "pegs" for us and set them high every day. The longest march made by MORGAN'S command at one stretch was nearly one hundred miles in thirty-five hours—this being a jump he made from a point in Indiana west of Cincinnati to Williamsburg, Ohio, east of Cincinnati.

At Vernon, Indiana, Governor MORTON had posted a strong force of "Home Guards" to meet the invaders. MORGAN made a demand upon the commander of this force to surrender. This was refused, and two hours' time asked in which to remove the women, children and non-combatants. MORGAN very generously granted the time asked for, but while the women and children were being placed out of danger, MORGAN made a detour around Vernon, and at the expiration of the two hours was eight or ten miles away.

On this big one-hundred-mile march in the rear of Cincinnati, MORGAN passed through Glendale, Ohio, one of the beautiful suburban villages, where many Cincinnatians have their homes. This suburban village is within a few miles of the corporate limits of Cincinnati, and "MORGAN'S men" could plainly see the city lights, and if it had been daylight, could have seen the city spires.

MORGAN'S force was not to exceed 2,000 troopers when he invaded the States north of the Ohio River. Now, 2,000 horsemen make a big showing, and to the excited male citizens whose horses were

being seized right and left, and to the excited female citizens whose loaves of bread were being seized at the oven doors, this number was easily magnified to 10,000, and this was the number uniformly reported to us by the excited citizens, when they stopped long enough from singing "Rally Round the Flag, Boys," and *handing out fried chicken*, though we knew this number did not exceed 2,000.

Our march across the State of Ohio was in many ways painful, as our horses were failing rapidly, and the men were greatly exhausted for want of sleep. Twenty-two hours' marching out of each twenty-four was more than the horses could stand in their exhausted condition. Our ambulance had been dropped long ago, but our medical officers, mounted on the ambulance horses, were with us.

We were now at home in southern Ohio, and many of the troopers of our regiment passed their own door-steps, stopping only long enough to kiss the members of their families, and for a brief time listen to their song of "Rally Round the Flag, Boys," and partake of some more *fried chicken and blackberry pie.*

At Piquette and Jackson, Ohio, the "Home Guards" had delayed MORGAN'S advance, and we began to pick up some of his stragglers. In the literal sense of the word these were not stragglers, but were mostly men who were so worn down and utterly exhausted that further effort was impossible. When found, these men were always *asleep*, not in a gentle doze, but apparently *dead*. We would have to shake them and roll them about roughly to awaken them. Even by the roughest usage we could hardly get them wide awake. Often they would reply to questions, but in a dazed sort of a way and evidently yet asleep. When finally we got them wide awake they showed the greatest consternation and alarm, and asked how it all happened, that they could go to sleep among MORGAN'S men and wake up to find themselves prisoners in the hands of Hobson's Union Cavalry. They always wanted to know what had happened in the meantime, and what had become of MORGAN. It looked here as though we might overtake the raiders within a few hours and bring them to bay.

The "Home Guards" were now exceedingly active in "peppering" the raiders with their shot guns and squirrel rifles, and in tearing up bridge floors, felling trees across the roads, and in every way possible delaying their march. The same willing hands which thus delayed MORGAN opened the way for us, the pursuers. The roads were opened, the bridge floors were relaid, and every possible effort made to help us. One patriotic citizen, seeing the distress of

my horse, very willingly brought me a good horse, which he had in bidding, in exchange for my sadly wearied animal.

On their march across the States of Indiana and Ohio, MORGAN'S men passed through a very rich and prosperous region, as well as through many thriving towns, where a hostile force had never before been seen nor expected.

The cavalry soldier, when on a raid of this kind in the enemy's country, does not draw a fine distinction between *meum* and *tuum*. The general rule is that "whatever is out of doors is mine, and whatever is indoors belongs to my messmate." Acting upon this convenient rule, the Confederate troopers loaded themselves and their horses with every conceivable thing, taken mostly from the stores of the towns they passed through. It had been years since they had had such good shopping opportunities, and in justice to them it may be said they shopped liberally, ordering all their purchases to be charged to *Jeff. Davis*. One humorous fellow said he was glad to find the stores so well stocked, and that they compared more than favorably with the stores in Dixie, and that he found no occasion whatever to find fault with the prices. Not only did they provide generously for themselves, but they did not forget to remember the "girls they left behind them." The storekeepers thought they had left an awful lot of girls behind them, or were providing with great indulgence for the few. At all events, they loaded themselves and their horses, and even spring wagons, with a vast quantity of plunder, such as muslin by the bolt, calico by the hundred yards, boots, shoes, stockings, corsets, gloves, underwear, etc. The hardware stores were by no means neglected, and it is related that bird cages, and even skates, were choice articles of demand, though it cannot be truthfully said that they went at high prices.

On the 18th of July, nearly three weeks from our start from the Cumberland River, General HOBSON having kept himself well advised of MORGAN'S probable plans, and learning that the enemy was heading for the fords of the Ohio, at Buffington Island, ordered the picked men of three regiments, viz: the Seventh Ohio Cavalry, under Colonel ISRAEL GARRARD; the Eighth Michigan Cavalry, under Colonel WM. P. SANDERS, and the Second Ohio Cavalry, all under the command of Colonel A. V. KAUTZ, of the last named regiment, with two pieces of artillery, should be pushed ahead to make a supreme effort, sparing neither man nor horse till MORGAN was brought to bay and compelled to fight. It was my good fortune to be selected as a factor in this forlorn hope. This force of picked men tightened their belts and took up their saddle girths two holes, springing into

their saddles for the sixteenth consecutive all-night march on the evening of July 18th.

Colonel A. V. KAUTZ, the commander of this flying column, was an officer of the regular army, who had previously commanded our brigade, and with whom we had served for some time. He was a thoroughly capable leader, who had our utmost confidence, and we were only too glad to follow his flag, which we felt certain would lead to victory. As we sprang into our saddles for this supreme and final effort, General HOBSON bade us "God-speed," and assured us of his prompt support in every way with the remainder of the force under his command. Our flying column moved rapidly through the summer night, the officers and men all keenly alert, and fondly cherishing the hope that we might fully realize General HOBSON'S expectations in selecting us for this final effort. Little was said by the men or officers, as the night hours passed rapidly by. Each soldier seemed to be silently intent upon pushing forward as rapidly as possible, and wondering whether the morrow would bring us victory or defeat.

Like a phantom troop in dreamland,

"On the march, each wind-shod troop, the purple midnight through,

Now at a walk, now at a trot, as tho' passing in review,

With sabers drawn, and misty banners waving over all,

And drifting upward to the stars an inspiring bugle call,

The phantom sounds of battle float along the peopled air:

Muffled commands—the captains shouting, and hark! a distant cheer."

Just as the sky was growing gray with the coming dawn on July 19th, the welcome sounds of a half dozen shots by our advance guard told us we had struck MORGAN'S outpost. Colonel KAUTZ immediately pushed his command forward at a brisk gait. Debouching from the river hills into the valley of the Ohio, near Buffington Island, we developed MORGAN'S force, where it had been delayed by fog, waiting for daylight, to ford the river into West Virginia. MORGAN'S 2,000 horsemen were waiting in the lower end of the valley that laid between the hills and the river. The Union troops, under General JUDAH, coming up the river from Pomeroy, where the steamboat had landed them, approached the enemy about the same time our vanguard of General HOBSON'S force, led by Colonel KAUTZ, began the descent into the middle of the valley occupied by MORGAN. Colonel KAUTZ attacked immediately upon arrival, our two pieces of artillery, answering JUDAH'S guns, informed MORGAN that those who had followed him from the Cumberland River had closed in on him.

With the rising of the sun the fog lifted, showing the gunboats in the river, and to MORGAN all hope of escape by fording the narrow bar was gone. The one desperate chance of escape was by the road leading out of the upper end of the valley, and towards this MORGAN's confused, stampeded troopers swept through the standing grain fields of the fertile farm lands, with Colonel KATZ's command in hot pursuit.

We have known of battlefields of "sombre hue under leaden skies," but this field of battle in the fair valley of the Ohio surprised us greatly with its flashes of color, changing into a scene of the most superb brilliancy under the midsummer sun. We had previously experienced the inspiring sight of an "army with banners," but the banners referred to were tame and colorless as compared with the battle scene spread out before our eyes in our charge upon MORGAN that July morning. Immediately the stampede began, each one of MORGAN's troopers began to unload the "plunder" carried on his horse—boots, shoes, stockings, gloves, bird cages and skates were scattered to the winds. Then the flying horsemen let loose their bolts of muslin and calico; holding one end, each trooper let the whole hundred yards or more stream out behind him, thus showing under the bright skies, *banners galore*. In colors these were violet, indigo, blue, green, yellow, orange, white, and red—embracing every color of the rainbow—and many shades and tints quite impossible to describe. The most gorgeous kaleidoscopic view imaginable would not serve to describe the retreat of this "army with banners;" and instantly, though greatly to our surprise, we found ourselves to be "*rainbow chasers*" in almost the literal sense of the word.

No road could accommodate such a confused mass of 2,000 flying horsemen; and they spread out across the narrowing valley. Across the upper end of this valley a stream came down out of the hills to the river, cutting its way through the plain in a deep gorge. Into this gorge plunged and piled the flying cavalry, with their wagonloads of plunder, and our force close behind them. Some succeeded in getting beyond this sunken gorge to continue their flight, though many, dismounted and disabled, were captured here, while some halted a short distance beyond in the forest-clad hills to surrender rather than continue a hopeless flight from this crushing defeat.

While we were energetically engaged in gathering in the large number of prisoners captured at this sunken gorge, a flag of truce was brought to Colonel GARRARD by a Confederate officer, who stated that Colonel HOWARD SMITH, with a few other officers and

men of MORGAN's command, were in the woods near by, having been cut off from their command, and knowing the uselessness of further effort, would surrender if an officer was sent to receive them. Adjutant ALLEN and Lieutenant McCOLGEN, of the Seventh Ohio Cavalry, were sent to give them safe escort within our lines. These prisoners were received by the writer of these lines, who was greatly surprised to learn that General BASIL DUKE was in company with Colonel HOWARD SMITH. General DUKE bore himself with dignity, and I would not have known that I had him with the other prisoners if one of his own men had not accidentally disclosed his identity to me. In company with General DUKE and Colonel HOWARD SMITH were some fifteen or twenty other Confederate officers and soldiers, who surrendered under the flag of truce sent to Colonel GARRARD. After escorting this detachment to our lines, I found that during my absence, Colonel GARRARD had proceeded in pursuit of such as had escaped capture at the sunken gorge, but before going had left a detachment of the Seventh Ohio Cavalry to wait for my return, and with orders for me to wait on the river bank with the prisoners till further orders from him.

The prisoners and guards in my charge rested for a few minutes on the river bank, all gazing wistfully at the flowing water. It must be borne in mind that both MORGAN's and HOBSON's cavalry had been in the saddle for about three weeks, with scarcely more than an hour's rest on any day. Not a man of the entire five thousand troopers had had his clothes off in three weeks, during all of which time we had ridden in the cloud of dust that five thousand horses can raise on the country roads in midsummer—such dense clouds of dust that at times it was impossible to see five yards ahead. It can readily be understood that under these circumstances a bath would be very much in order, and would be most acceptable.

As we sat on the river bank, first one man and then another asked permission to go to the water's edge to wash his face, till pretty soon one half of the men, both Union and Confederate, were at the river edge washing their faces, and digging the dust out of their eyes, ears and nostrils. This proved to be such a half-way sort of business, and so unsatisfactory that the men asked permission to go in swimming.

Recognizing the merit of this request, I gave permission for one-half the prisoners and one-half the guards to go in swimming together, and the other half to stand by, and take their turn. The men stripped off, and the "Yankees" and "Johnnies" were soon splashing in the river together, enjoying *the most necessary bath they*

had ever had in their lives. The first detachment having completed their scrubbing, the second detachment took their turn.

While the men were bathing, one of the Confederate officers turned to me, and pointing to the naked soldiers in the water, said: "It is difficult to tell 'tother from which" — meaning that he found difficulty in distinguishing between Union and Confederate when they were stripped naked—a truism with which I quickly agreed. As, at the instant, I was debating in my mind if there might be any danger of "getting the babies mixed:" but a glance at the line in dusty blue on shore, with their Spencer carbines ready for duty, reassured me, and I permitted the boys to gambol in the water to their heart's content.

One of MORGAN's men, while in the water diligently scrubbing off the three weeks' accumulation of dust, being surprised at the quantity to be removed, remarked that if all of MORGAN's men were as dirty as he, the way of escape was for MORGAN to have put his whole division into the river at once, with orders to scrub themselves, and enough dirt would have been released to shoal the river, and give easy fording at any place.

After the baths, the guards shared the contents of their haversacks with the prisoners, and we spread ourselves out on the grass under the shade of nearby trees, in regular picnic fashion, resting, and waiting for orders.

One of the officers with General DUKE gave me a little Confederate flag about the size of your two hands. I accepted the flag and asked the officer his name. He replied, "Captain HINES." The Captain HINES here referred to, recently died at Frankfort, Kentucky. At the time of his death he was Chief Justice of the State Court of Appeals, and one of the best officers ever occupying this high office. His death was greatly lamented.

"He jests at scars that never felt a wound." This quotation suggests itself by reason of the fact, that under the varying fortunes of war, less than four months after the events written of in the foregoing, in a sharp cavalry engagement in East Tennessee, I found myself a prisoner of war in the hands of the Fourth Kentucky Cavalry, of GILTNER's brigade, one of MORGAN's regiments, but fortunately made my escape within twelve hours.

The prisoners captured by the Seventh Ohio Cavalry were turned over to the Union officer in charge of prisoners at Cheshire, Ohio, and with this our connection with the MORGAN raid ended. General MORGAN himself was not captured for several days later, but the raid ended at Buffington Island, Ohio, and the subsequent flight of Mor-

GAN with his detachment of a few hundred men did not avail him anything.

From the time of MORGAN's landing on the Indiana side of the Ohio River until his defeat at Buffington Island, Ohio, not less than one hundred thousand "Home Guards" were called into the field to "suppress him." The force of veterans under General HOBSON, who pursued MORGAN from "start to finish," comprised about 3,000 cavalry. MORGAN gave us a good "run for our money," but with pluck, courage and good leadership we overcame all obstacles, and had the gratification of knowing that our duty had been fully performed, and that on July 19th in the engagement at Buffington Island, we had served our country well.

One cannot but admire the dash, skill and courage of MORGAN and DUKE, which enabled them to lead their 2,000 troopers on such a raid, baffling for so long a time the efforts of more than one hundred thousand men to capture them.

It must be borne in mind that the date of this invasion was at the *high tide of rebellion*. The people of the North were in a frenzy of excitement. This period marked the capture of Vicksburg, with all of PEMBERTON's army, by General GRANT; the retreat of LEE's sullen and disappointed army from the blood-stained field of Gettysburg, and the capture of MORGAN, with his "Flower of the South." A million bonfires, celebrating the victory of our arms, burned with lurid flames in the cities, towns, villages, hamlets and cross-roads of the Northern States.

Soon after the close of this raid, our regiment, the Seventh Ohio Cavalry, formed a part of General BURNSIDE's army, which occupied East Tennessee. We had an active campaign here for six months, and saw our cavalry horses die from hunger, while our veteran cavalrymen sustained life on a small portion of parched corn; and then, more than ever before, we cherished the memory of the *six hundred miles of fried chicken* we had on the MORGAN raid.

AN IDEAL DRILL REGULATIONS.*

BY CAPTAIN A. P. BLOCKSOM, SIXTH CAVALRY.

NEARLY every officer of experience has his own, perhaps dimly outlined, but differing more or less from those authorized. When new regulations are introduced, there is for a long time much criticism concerning errors, or what are thought to be such. The main points of what follows I have heard discussed for years, although it is not claimed that they cover sufficient ground for the construction of drill regulations: the general principles refer to the manner rather than to the matter of construction.

The first and most important thing to be considered is the use of language. It should be constantly kept in mind that all instructions and commands should be written in the fewest words consistent with clear understanding. Every ambiguity, even in little particulars, is a nuisance, especially among militia and volunteers, who are more apt to split hairs than regulars.

Remembering that in the event of war the bulk of our armies will be composed of volunteers, the second requisite is that movements of the squad, troop, squadron, etc., be limited to those which will be used while in the field. Of course the preparatory training of regulars is more thorough than that of volunteers, and it might be well to note what could be omitted in case of troops having short time to learn their duties before going into active service. But even with regulars much description and many directions invariably lead to neglect.

A third requisite is that commands be assimilated; wherever possible, similar movements of different units should have the same commands, the word indicating—the unit alone changing for each case.

*Essay read before Lyceum, Fort Robinson, Season 1897-8.

A fourth requisite is that the regulations be drill regulations pure and simple, and that all extraneous matter necessary to the soldier's knowledge be taught elsewhere. A "drill regulations," so-called, of five hundred pages, may frighten the average volunteer, or even regular, into the feeling that he can never master the contents, and the result be that he learns nothing thoroughly.

I shall take a few illustrations from the cavalry drill regulations, to show how they depart from the principles enunciated.

The schools of the soldier and trooper are complete, although there is possibly too much in them for regulars, and volunteers would certainly have to omit a great deal, especially fencing (as distinguished from saber exercise), the finer points of the riding school and training of horses, etc.

Paragraph 3 says: "In movements where the guide may be either right, left, or center, it is indicated in the command." Paragraph 137 says: "In the direct march in line, the guide, if not announced to the right or left, is center *without indication*. This rule is general." As paragraph 3 is in "General Principles," the two conflict.

I think the guide should be center in all close order movements of the troop and platoon, except momentarily, when in column of troops or platoons it is desired to form line to a flank. This would almost eliminate the word "guide" from close order troop movements. A troop commander always has his troop much better in hand when the guide is center, and this particularly applies to time of war, when troops are larger. In a long and more flexible line, as when skirmishing, the necessities may be different.

Apropos of this subject, my experience has been that the troop guide center in squadron drill gives as good results as guide right or left. Prolonged squadron movements in line are at best difficult, unless made by heads of columns.

In the School of the Soldier, paragraph 36 says: "If marching—*Route order*, MARCH—or *At ease*, MARCH." The corresponding commands in the school of the trooper and troop omit *march*. Together with *rest* they may all be assimilated by leaving out *march*. The latter is unnecessary, since the commands are for relaxation, not movement. If you say, *Route order*, MARCH, why not *Attention*, MARCH? The side step, change step, and mark time in the school of the soldier are all of doubtful utility except as exercises for the feet.

The squad being in column of fours, paragraph 166 says: "By *troos*, MARCH;" paragraph 167 says, "Form *fours*, MARCH;" why not

say, "*Form twos, MARCH?*" The word *file* is more in accord with twos and fours than *trooper*, and the other command in this same series would then be "*Form file, MARCH.*" The troop being in column of platoons, paragraph 620 says: "*Platoons right forward fours right, MARCH.* The platoons unite in one column of fours."

It seems that no further explanation is necessary, but the following is added: "In breaking the column of platoons into column of fours, a platoon composed of a greater or less number of fours than the one preceding, will slightly increase or decrease its gait, to enable all the fours to take their proper distances in column, and will if necessary, slightly change direction, so as to follow the first." This movement is so simple, and it is so absolutely impossible for the platoon to get in the column of fours in more than one way, that the added directions are superfluous.

Paragraph 607 describes how a troop in column of platoons changes direction; paragraph 730 describes how a squadron in column of troops changes direction, using almost identically the same words, except that *troop* is substituted for *platoon*. It would be sufficient to say: "The column of troops changes direction according to the principles prescribed in the change of direction of the column of platoons in troop drill."

Paragraph 693 says: "At the command or signal, *Prepare to mount, MOUNT*, the led horses are conducted to the troop. * * * If deployed as skirmishers, the troopers after mounting resume their places on the skirmish line *without further command.*" The intervals in the mounted skirmish line are twice those in the dismounted line and there are one-third more men in the mounted line; the execution therefore of that part of the movement quoted is impossible; after mounting, a command to form skirmishers must be given.

It seems to me there is too much attention paid in squadron drill to the posting of guides, who are often in the way. They understand their duties better and are of more use behind their troops. If the command for the change of formation is given properly, the adjutant and sergeant-major indicating the point of rest and direction of the new line, troop commanders, who in all cases should be troop leaders, must do the rest. Of course these remarks do not apply to ceremonies, where time is long and more precision is required.

I think there should be only one method of assembling the different units in a line of groups or skirmishers: the rally. It is practically the same as the present assembly at the gallop, and just as orderly; there is no necessity for the command, *Assemble*, after

such a rally. After the rally following a charge, it may be necessary to re-form in normal order, but this can be done without a precise command.

Speaking of groups, I think the word "squad" except in the schools of the soldier and trooper, should be struck from the regulations. If the platoon can be well managed by one man in all situations, I fail to see the necessity for a further subdivision. This feature of the drill was taken from foreign books, but the fact that Americans of the rank and file are more intelligent and generally better educated than foreigners of their class, was not taken into account. They possess, too, more independent habits of thought, and in cases of emergency more readily see what is the right thing to do.

The fact is that too many leaders confuse them; at least that has been my experience in drill, and the result would probably be much worse in presence of the enemy. A squad leader is also practically lost to the firing line in extended order.

It is difficult to see where there is a compensating advantage in a smaller subdivision than the platoon; that a squad is a smaller target is not a sufficient one.

The squadron being in line of fours, paragraph 740 says: "*On second troop close in mass, MARCH.*" To re-form line of fours, the command is "*Line of fours on second troop, MARCH.*" If the first command were "*Close in mass on second troop, MARCH.*" the two would be assimilated. As they are, it requires an effort to remember in which command the words "on second troop" come first.

The squadron being in line of platoon columns, paragraph 770 says: "*On second troop close intervals, MARCH.*" and "*On second troop extend intervals, MARCH.*" Why not omit the word *intervals* and assimilate these commands with the corresponding ones in troop drill? In the regimental drill there are too many movements, and few of those that are necessary can be executed by direct commands when the regiment is moving at a faster gait than the walk. The number of movements could well be lessened and the drill made to occupy little more space than that of the brigade.

The employment of cavalry outside the drill field, marches, camping, stable duty, cavalry horses, packing, etc., are all important things to know, but they do not come under the definition of drill, and should not be sandwiched between different heads of that subject. If they must be under the same cover, they should form an appendix.

These illustrations are the result of a superficial survey only, and it is probable that careful study would develop many errors and superfluities.

However different other opinions may be as to the criticisms made, the latter are sufficient to show, in what manner at least, the regulations may be improved and abbreviated. They come from the protracted labor of a board of officers, the probability being that each member could have done quicker and better work alone. Boards are inclined to verbosity—to make compromises; many things may be done by them which none of the members wholly approve as individuals.

If the right man can be selected, it is better that he alone should do the kind of work described. He should possess war experience, be a keen tactician, a terse logician and man of culture, with toleration of the views of others and judgment to choose the best opinions on doubtful points. There are many such in our service.

If a board for revision is thought necessary, it should have power to do two things only: to abridge without substitution and to correct the few inaccuracies of language palpable to others, which the most careful student is sometimes unable to see in his own work.

In attempting to suit the argument to the title, this paper has been made longer than originally intended. If war, of which so many rumors are heard, *must* come, may it come soon, so that we shall cease to fit the description, "Mere prattle, without practice, is all his soldiership."

NOTES ON CAMP SANITATION IN A VOLUNTEER CAV- ALRY TROOP.

BY G. C. THAYER, FIRST TROOP, PHILADELPHIA CITY CAVALRY.

THERE has been so much discussion during and since the late war with Spain concerning the health of the volunteer troops in the field or in camp, that the record of the experiences in this line of a typical volunteer organization may be not entirely without interest. There was no particular novelty in these experiences, but from what was done, and still more from what was not done, may, perhaps, be drawn some inferences of value for the future.

On April 27, 1898, the Philadelphia City Troop—sixty-three officers and men—in obedience to the orders of the Governor of Pennsylvania mobilizing the State National Guard, left Philadelphia for Mt. Gretna, arriving in a blinding snow storm. After enlisting about thirty recruits, they embarked for Porto Rico late in July, and, returning on September 16th, were furloughed until November 20th, when they were finally mustered out of the United States service. During the period of their enlistment they had but one death (which took place nearly six weeks after their return from Porto Rico), and at no time did they have more than five per cent. of their men on sick report. While this record is in no way remarkable in itself, yet, in comparison with other similar organizations, it may be said to be at least creditable, and the means by which the health of the command was preserved may be of some interest to the readers of the JOURNAL.

PERSONNEL.

In personnel the officers and men of the original troop represented the best classes of the city of Philadelphia. Practically all of them had received a college education. Many of them were

wealthy, and all of them were what is called well-to-do. Physically they were an active lot of men, most of them accustomed to outdoor sports, and many of them prominent in athletic exercises, such as cricket, hunting and football. An unusually large number were considerably above the average in size and strength. All of them had the high vitality and capacity to resist disease that comes from good food, good lodging and good clothing. The recruits subsequently taken in were from the same class, except a few men enlisted as cooks, farriers, etc. The whole organization was bound together by ties of friendship, relationship, and a resolve to uphold the troop's proud record of the past, that created an *esprit de corps* of very peculiar force and value.

All the officers had served for more than ten years in the Pennsylvania National Guard, and all of the non-commissioned officers had served over five years. Both officers and non-commissions, and many of the men, had served through the Homestead riots, where they were on duty eighteen days, and practically all the original troop had served at the Hazelton riots, their tour of duty there extending over three weeks. Besides these experiences, the troop had attended the yearly encampment of the Guard where they had had a chance to acquire a certain knowledge of camp duties. This knowledge afterwards proved of great value.

In carrying out these camp duties the troop had perfected an organization that worked most satisfactorily. Under this system the troop was divided into the regulation platoons, each under its sergeant, each platoon consisting of the usual two squads under corporals. The squads were assigned to duty by roster: two squads (one platoon) furnishing the camp guard, one squad camp police, one squad stable police, etc., the roster being arranged so that the duties fell to each squad in turn.

After muster into the United States service, this system was changed to the regulation system of alphabetical detail with very unsatisfactory results. Under the old system there was a strong spirit of rivalry between the squads, each squad striving to do its work better and quicker than the other. The result was a camp and picket line that was almost painfully clean. Besides this, every man knew when and where his work was for the day, and when it was done, felt at liberty to make himself comfortable, or attend to his personal duties. The corporals having continually the same men under them could organize their squads so as to apportion the work to individuals in a way to best suit their strength and capacities, and could enforce a better discipline. Moreover, as the work fell to

each squad by roster, the first sergeant was relieved of all labor of making out details, etc., and was allowed to give his attention to his other duties, already sufficiently onerous.

Under the system of alphabetical detail, the character of the work fell off considerably, and the time taken to do it materially increased. The corporals, having different men under them every day, could perfect no satisfactory squad organization or discipline. In fact, the defects of the system became so self-evident that after our arrival in Porto Rico it was tacitly abandoned, and the old method taken up, to the very great satisfaction and benefit of all concerned.

There is no particular novelty in this system, but it is spoken of here, as the writer is convinced that a proper organization for carrying on the work of a camp not only greatly lightens these distasteful duties, but is a most essential means for securing that cleanliness upon which all camp sanitation rests.

MT. GRETNA.

Owing to delays in transit from Philadelphia to Mt. Gretna, the troop did not reach their camp ground until after nightfall. It was found impossible to get the tentage that night, and in consequence the men were subject to considerable hardship. The weather was cold and raw, with rain and sleet that later changed to snow. Some of the other organizations, that had arrived earlier in the day, and had been able to get their canvas up, offered the use of their mess tents and such room as they could spare among the men. A number of the men, however, had to spend the night in the open, bivouacking as best they could, wet through and half frozen under their rubber blankets. For men fresh from home and comfortable surroundings the trial was severe, but there were no ill effects observed.

The following day the canvas was obtained, and by 12 o'clock the tents were up and all hands under shelter. In the meantime the latrine and kitchen sink were dug by the squads to whom that duty fell. The former was placed on the opposite side of the picket line from the tents and about forty yards distant, the trend of the land being such as to carry all drainage away from the camp. The trench was dug about six feet deep, the rocky soil presenting considerable difficulties. A screen of rough boards was erected in such a manner that the whole frame-work could be lifted and put down bodily over a new sink when it became necessary to abandon the

old one. Being situated at the bottom of a low bank and on the leeward side of the camp, there was no perceptible smell, and for a long time the camp was notably free from the usual plague of fleas. The kitchen sink was also dug on the side of the cook shed farthest from the line of tents and as far away from the former as possible, consistent with due regard for the convenience of the cooks. The trench was made about five feet square and from four to five feet deep.

The main body of the camp was of course pitched according to army regulations. The men were housed in tents of the "A wall" pattern, two men in each tent. Subsequently when the troop was recruited to war strength, a number of ordinary A tents were added. Within a very short time the majority of the men had built themselves bunks about eighteen inches high, improvised from sticks and saplings cut in the neighboring woods. During the Hazleton riots a number of canvas bed-bags had been obtained. These were stuffed with hay, straw or grass, making a comfortable mattress, and adding greatly to the comfort and, incidentally, to the health of the men. They are very cheap; in fact, given the material, they can be made by the men themselves; are very easily transported, and will make the roughest and most primitively made bunk a comfortable sleeping place. While of course they cannot be carried in a campaign, they would prove a great addition to the comfort as well as to the health of troops quartered in a permanent camp.

No flooring was placed in the tents. In the opinion of the writer it is not only useless but positively harmful. Two of the men more enterprising than the rest secured boards enough to put a floor in their tent and posed as sybarites accordingly. A very short experience, however, showed that the earth underneath, deprived of air and light, speedily became mouldy and unwholesome from the decaying vegetation, a trouble that the other tents were exempt from.

In enforcing from the start a strict sanitary discipline in the camp the troop was only following out the lessons learnt in the various summer encampments. The methods adopted were put in operation as a matter of ordinary camp routine, and not until we came in contact with troops from other States who had never had such instructions, did we realize with surprise that many of them had little or no idea of the necessity of such precautions.

Every morning the camp was thoroughly policed. Each tent was cleaned up, and the earthen floor brushed out by its occupants. All paper, cigar stumps, and refuse of all sorts outside the tents was picked up by the camp police, carried off and burnt. The ground

immediately in front and between the tents was brushed over with a stable broom and the debris thrown on the manure heap. The mess tent was thoroughly cleaned and brushed out, and all table refuse picked up and thrown in the kitchen sink. An old flour barrel with a cover was placed in the mess tent as a receptacle for all such scraps as potato peelings, apple cores and orange skins. This was emptied and cleaned every morning by the camp police, the contents being thrown into the kitchen sink. A thin layer of earth, with a little disinfectant, was thrown over the contents of the sink as a preventative against flies.

The camp police was also charged with the duty of cleaning and disinfecting the latrine. Every man was compelled after using the latrine to cover the excrement with a few shovelfuls of clean earth. In addition the camp police every morning covered the whole contents with a good layer of earth, and applied disinfectants freely. The wood-work was also cleaned and disinfected. The disinfectants were furnished liberally under the State authorities, but we found it impossible to obtain any from the government. The use of clean earth seemed to answer very well, however.

As may be supposed, this duty was not very popular, and was generally reserved by the corporal of the police squad as a disciplinary measure for any member of the squad who had been derelict in his duties. The other members of the squad generally "had the laugh" on the man who policed the sink, all of which helped on the cause of good order and discipline.

When the trench became full up to two feet from the top it was filled in completely with earth, a new trench dug and the framework of the screen lifted up by eight or ten men and placed over the new trench.

The cleaning and policing of the picket line was done by the stable police squad. All manure, wet straw, etc., were taken off and thrown into the manure pile. The dry straw was forked out and piled up to be used again. The whole picket line was swept clean from end to end with stable brooms, and it was the pride of every squad to get it cleaner and do it in less time than any other squad. The refuse manure was taken away by the neighboring farmers, who were glad to get it for their land.

The camp itself was very favorably situated from a sanitary point of view. Placed at the foot of a hill, there was slope enough to carry off rapidly any ordinary rainfall. Although close to the edge of a woods, it was wisely decided when the site was first selected, to stay out in the open where the tents got the full benefit

of the sun and air. A few large trees within the camp limits gave plenty of shade for the men off duty, and a large pond within two hundred yards provided splendid bathing.

An exceptionally pure and cold drinking water was obtained from a spring within fifty yards of the camp. This spring had been walled in and was practically free from pollution. Yet to illustrate what a certain class of men are capable of, a man from one of the infantry regiments was caught here one day actually engaged in washing his feet and stockings in this spring, from which he knew several hundred men were drawing their drinking water. His justly incensed captors gave him a somewhat drastic lesson on common decency.

The weather from April 28th to June 1st was very trying for raw troops just out of comfortable homes. From the snow and sleet of the first night in camp, through every variation of rain and wet, the weather made life miserable. Out of the first twenty-six days of May there was rain on twenty-three, twenty-one of which were in succession. Up to about May 10th there was freezing weather every night. Wet feet and clothes were a matter of course. Yet the health of the men remained excellent, and with the exception of one man, who developed a very heavy cold, not a man had to report off duty.

The tents, of course, had been thoroughly ditched beforehand, and a system of drainage ditches kept the mess tent and company street as dry as could reasonably be expected.

After the weather settled and the regular drills could be resumed the condition of the men became superb. The open air and constant exercise in a clean, wholesome camp, brought a marked increase of muscle and vitality, and the men who on the 1st of May could hardly run two hundred yards without exhaustion, could put in three hours skirmish drill on foot through the mountains without turning a hair. Thanks to the attention paid to cleanliness, the hot weather of late June and early July caused no relaxation in their vigor, and when the troop left Mt. Gretna for Camp Alger there was not an organization in the army in more vigorous health, or better fitted to resist sickness or disease.

CAMP ALGER.

On July 7th the troop left Mt. Gretna for Camp Alger. They found their new location decidedly a change for the worse. The site assigned them for a camp had already been occupied by three

different bodies of troops, who had left behind them unpleasant evidences of their occupancy. Parallel to the line of the troop street, and about 100 yards away, ran a line of wooden shanties occupied by the nondescript camp-followers of a large body of men. Itinerant tailors and shoemakers, negro restaurant keepers and Italian fruit sellers made up a colony, that for filth and squalor could not be matched outside of the slums of New York. All these shanties discharged their refuse into a creek that ran through a piece of woods immediately at the foot of the camp. The edge of these woods came within 100 feet of the foot of the line of tents, and the creek itself was not fifty yards distant. The creek, befouled with every variety of refuse, including the drainage of the privies and the garbage from the kitchens, was nothing but an open sewer. The water, dammed into pools by fallen logs and trees, was covered with a blue, slimy scum, and the decaying refuse and animal matter gave forth an odor that rivaled the occasional whiffs that one gets from the mouth of a city sewer. The woods themselves for about 100 yards from their edge had apparently been used as the camp latrine, and there was hardly a square yard that did not contain evidences of the use to which they had been put. As the direction of the prevailing winds was from the woods to the camp, it may be imagined that the situation was not one conducive to the preservation of the health of the men.

The soil itself on which the camp was pitched had been so polluted by the presence of so many men that the earth in the tents gave forth a sour, fetid smell, suggestive of all sorts of filth and fever. Only by keeping the edges of the tents raised and the flaps open, could the air inside be kept sweet and fresh. Unlike the soil at Mt. Gretna, that by constant trampling became firm and compact, the soil at Alger was so loose and friable that in dry weather it became immediately worked into impalpable dust that swept in rolling clouds through the camp, penetrating everywhere, alike into the clothes and blankets, and into the food and drinking water. No doubt this dust, carrying with it the germs from the polluted soil, was the source of much of the disease noted here.

The first and most serious problem to be faced was the proper policing and purification of the woods and stream in the immediate vicinity of the camp. At first sight the job appeared hopeless. Nothing could permanently purify the creek as long as the houses were allowed to drain into it, and to clean up the woods looked impossible.

A detail of sixty men, however, was set to work, and after three

days of incessant labor succeeded in effecting a marked change for the better. First a squad, deployed through the woods for 100 yards each side of the creek, picked up on shovels or bits of boards improvised as shovels, all the filth that had been accumulating there. This was either buried or thrown into the stream. A second squad, with ropes and stable forks, cleared the bed of the stream of all logs and branches that impeded the free flow of water. A dam that had been constructed at the upper part of the stream where it first entered the woods was left intact until the bed was cleared out. The dam was then broken down, and the flood of water flushed out, and carried with it all the impurities that had been thrown in below. A third squad, with axes and hatchets, cut down all standing underbrush, and let in the air and sunlight. All dry underbrush was gathered up and burnt, the freshly cut brush being thrown in the fires when the latter were well started. The wood ashes from these fires were subsequently scattered over the most unwholesome spots, in the hope that it would act to a certain extent as a disinfectant.

The camp latrine was dug about 100 yards off and a considerable distance back in the woods. The fresh earth from the trench was brought in wheelbarrows to the edge of the woods nearest the camp, where the previous occupants had established their kitchen sinks. These had been insufficiently covered with earth, and many of them had become a heaving mass of maggots. Fresh earth was liberally dumped over them and then saturated with a solution of disinfectant, a supply of which had been sent us by an old member of the troop who had heard of our situation. With the exception of that supplied by the Pennsylvania State authorities, this was the only supply of disinfectant we were able to obtain during the entire campaign.

All the men engaged in this work were compelled to take a thorough bath, and given a heavy dose of quinine and whisky immediately upon coming off duty.

In spite of everything the camp was most unwholesome. The creek was a hotbed for typhoid and malaria. A proposition was made to cover it completely, the idea being to cut down a grove of pine saplings that grew in the vicinity, placing their stems across the creek about three feet apart, lay their branches over them like a thatch roof, and cover the whole with a light covering of earth. This was an appalling piece of work, however, for our limited facilities, and as we were daily expecting to move, the idea was given up.

The one redeeming feature of the camp was the supply of drinking water. This was derived from a driven well, said to be about

forty feet deep. The water was cold, clear, and, to all appearance, entirely free from organic or chemical pollution. A temporary bathing place, rigged up with a few short pieces of plank for a floor and three worn out horse blankets for a screen, gave the men much needed facilities for keeping clean.

The effect on the men of our stay in this most unfortunate location was marked. Glowing with health and strength on their arrival, the men's vitality perceptibly lowered day by day. Tempers were sharpened, they became fretful and restless; work was a burden, and although cheerfully performed, it was done without snap and enthusiasm. Within two weeks two men were down with fever, and were sent home to recuperate. Although both recovered rapidly, they were still too ill to rejoin on our departure for Porto Rico. Almost the entire sickness in the troop can be traced direct to this camp, and had it not been for the energetic sanitary precautions taken immediately upon our arrival, our sick list would have been still larger.

The original choice of such a locality as Camp Alger, the filthy condition in which it was allowed to fall, and the selection of the particular site assigned to the troop when plenty of clean, fresh ground was available in the vicinity, were equally discreditable to the judgment of those responsible. That typhoid and malaria fever broke out almost like an epidemic will hardly be a matter of wonder to those familiar with the locality; and to its own energetic action, and not to the wisdom of those in authority, did the troop owe its comparative immunity from disease.

NEWPORT NEWS.

On July 22d the troop left Camp Alger for Newport News, en route to Porto Rico. The weather was intensely hot, and the work of breaking camp and loading horses and equipment on the train was severe. Owing to detentions on the railroad, the journey lasted over thirty-six hours, and when the camp at Newport News had been located, the tents pitched, and sinks and latrines dug, the men were much exhausted.

The camp, which was only occupied for a few days, was on the high bluff overlooking Chesapeake Bay. The soil was very sandy and porous, with good drainage, but very dusty. The water supply was poor, and most of the drinking water was obtained from a well belonging to a farm house about 300 yards from camp. The water was apparently pure and clear, but was open to the suspicion always

attaching to water from a well so situated. The bay afforded bathing facilities, but the warmth of the water made the bath very unrefreshing. On the whole the camp was an immense improvement on that at Alger, and only the intense heat (over 100 in the shade) made the situation unpleasant.

THE TRANSPORT "MASSACHUSETTS."

On July 26th the troop embarked on the transport *Massachusetts* for Porto Rico. The eight days spent on the ship were, without question, the most uncomfortable of the campaign. In the short time that the voyage lasted, little or nothing could be done to organize a system of sanitation. Under the existing conditions, had the trip lasted longer, nothing could have prevented an outbreak of disease of some kind, but the voyage was so short that the worst features had no time to develop. With a cargo of about 1,100 men and 1,000 horses and mules, there was considerable overcrowding. This feature, however, was unavoidable, but there should have been some means adopted for keeping the ship reasonably clean. A fairly successful attempt was made the second day out to police the gangways between the stalls, but no effort was made to clean the stalls themselves, and the wretched horses and mules stood knee deep in filth at the end of the voyage. The stench permeated the entire ship.

The troop's quarters were in the extreme stern of the ship, on the orlop or bottom deck. Stanchions had been erected, between which hammocks had been swung in two tiers. Eighteen inches in width was allowed for each hammock. The hammocks in the bottom tier, when occupied, swung just clear of the floor; those in the upper tier about two feet above them. Each man's accoutrements, horse equipments and other belongings, etc., were stowed at the foot of his hammock, against the stanchions. In the morning the hammocks were taken down and rolled up, leaving the deck comparatively clear. The piles of equipments, etc., for which no other place could be found, made it impossible, however, to wash the decks or to do anything but pick up such scraps and debris as could be found. By getting a hatch cover taken off and rigging a windsail, the air in the quarters was much improved and the heat greatly reduced. By rigid policing daily, the men's belongings were kept in a fair degree of order, and the accumulation of dirt and debris was prevented as far as possible.

Meals were taken on an upper deck at the forward part of the ship, and thus the quarters were kept clear of kitchen refuse. In this way they were made fairly habitable, although the intense heat drove nearly every one to sleep on deck during fair weather. As stated above, the mess was established on the main deck at the forward hatch. The men had the regular travel ration and hot coffee from the ship's galley. Tin cups and plates were cleaned by the primitive process of throwing the scraps overboard or into the stalls behind the horses, where, at all events, they could not make matters worse. The utensils were rinsed in what water was available and polished with a wisp of hay. The greasy scum that, per force, remained on them after this primitive cleansing process, did not tend, in the intense heat, to become a source of health.

The ship's sinks consisted of two wooden troughs about twenty feet long and twenty-four inches deep, placed along the sides of the ship at the cargo ports. They were flushed at short intervals by a stream of salt water forced through a hose. The stream was forced up by the ship's pumps, and when running kept the trough free from any accumulation. Unfortunately, no provision was made for keeping the decks in the vicinity of the sink from becoming more or less fouled by the dripping, etc. Once a day the ship's crew played a hose around the place, but for the rest of the twenty-four hours it went uncleaned and became very offensive. This condition was aggravated by the fact that the decks immediately over the sinks leaked badly and let the drainage from the animals stabled there drip down on everything below.

A lack of water for both bathing and drinking purposes added much to the discomfort. The best that could be done in the way of a wash was to get under the deck hose in the morning when the decks were sluiced down. At other times there was no water available even to wash one's hands. The drinking water was always warm, and, at times, actually scalding, so as to be undrinkable. The horses frequently refused to drink it, and to make matters worse it ran very slowly and irregularly. At one time the entire supply was cut off for about six hours, causing considerable distress among those who had not had the foresight to keep their canteens filled. The grounding of the ship in the harbor of Ponce subjected the men to an additional forty-eight hours of exposure to the trying heat of the tropic sun, without the benefit of the breeze caused by the motion of the ship.

While the discomforts of the voyage were great, there was no absolute suffering, and the men, recognizing that almost all the evils

were unavoidable, accepted the situation cheerfully and contentedly. The health of the troop was in no way impaired, and, in fact, seemed to be better than when at Camp Alger.

CAMP AT PLAYA.

Up to the time of landing in Porto Rico the troop had had no camping problems to be solved that lay outside of their previous experiences. The only precautions necessary up to this time were to follow the usual rules of camp cleanliness and hygiene. Both Mt. Gretna and Newport News were naturally healthful sites, and needed only vigilant policing to keep them so. At Camp Alger, it is true, we suffered from an unfortunate condition of affairs, for which we were not responsible, but which we were able by vigorous measures to change greatly for the better. But in the lowlands of a tropical island we learned that the simple expedients we had used were no longer sufficient in themselves to make a healthy camp. The choice of ground, the character of the soil, and protection from the weather and from the malarial night air, became problems as important to health as the maintenance of a clean and well ordered camp. To ignorance and neglect in matters of this kind the troop can trace much of whatever ill-health it suffered from.

The first camp on landing was made on the stone pavement surrounding a little church in the "Playa" or harbor town of Ponce. The soil of the Plaza, or open square around the church, was little better than a morass, in which one sank over the ankles. Ditches full of stagnant water crossed the open space at right angles. On the pavement and on the raised ground at its edge the men slept, obtaining shelter from the frequent showers by various ingenious arrangements of "dog tents" and ponchos.

As an immediate move was intended, no regular camp was established. It was impossible to dig the sinks more than a foot deep, and even then they quickly filled up with water. A location for the latrine was found some 150 yards from the camp, and a temporary shelter was built around it of sugar cane stalks. Kitchen police was for the first time carelessly performed, the scraps being thrown into the open ditch along the street that served for the public sewer.

CAMP AT PONCE.

On the second day, a number of the horses having been landed, about fifty men were moved to a beautiful spot back of Ponce. Here in a little meadow, close to a considerable creek of clear water, the men and horses had their first taste of comfort since leaving Newport News. A day or two afterwards they were joined by the remainder of the troop, with the exception of one man. Typhoid, undoubtedly contracted at Camp Alger, had developed on the voyage, and its symptoms had fully shown themselves a day after landing. He was left in the hospital, and every precaution was taken to insure his recovery.

In this camp, comfortable as it was, for the first time became evident the necessity for greater care and a more elaborate system of camp sanitation than anything that had gone before. The high grass surrounding the camp, constantly wet with rain or dew, kept the men, and especially the sentries at night, constantly drenched up to the waists. A detail of men with machetes, of which a number were available, could have cleared a large area of ground in the vicinity in a short time. In the course of a few hours cots could have been built to keep the men from sleeping on the ground, away from the miasmatic gases arising from the decaying vegetation and from the fresh earth turned up in trenching the tents. The importance of such matters was not realized at the time by either officers or men.

MARCH TO ARROYO.

On leaving this camp the troop, with Troop "H" of the Sixth regular Cavalry, was detailed to escort a small wagon-train from Ponce to Guyama, about forty miles distant. The march was made in three days. The road lay along the seacoast among swampy lowlands between the mountains and the sea. The camp sites chosen were such as were best available at the end of a march, and were on both occasions on the grounds of a large hacienda, or sugar plantation. In spite of the excellent shelter offered by the large stone sugar mills, surrounded by sheds of all sorts for the storage of cane and farm implements, no attempt was made to quarter the men in them. An hour's work would have made them comfortable sleeping places, where the men would have been out of the rain, and on ground comparatively dry, and, moreover, free from the malarious influences of the earth freshly upturned in trenching the tents. It is true that many of the men, tired by the day's march,

neglected this latter very necessary precaution, but as it invariably rained every night they generally got more or less wet before morning, thus only escaping one evil by incurring another. It was said afterwards that the failure to utilize the shelter of the buildings was due to an order from Washington, based on the experiences at Siboney, forbidding troops to be quartered in any of the native structures. In consequence, many of the men of the Porto Rico expedition, even in the permanent camps, were compelled to sleep for weeks on the ground under shelter tents, only partially protected from the heavy tropical rains. That seventy-five per cent. of the sickness among the troops was due to this cause alone, the writer is thoroughly convinced. Captain JACOBSEN, of the German navy, strongly commented upon this mistaken policy in his report to his government.

ARROYO.

Guyama was reached at noon on the third day out, and after turning over the wagons the two troops marched to Arroyo, three miles further on. The camp here was placed in what, but for one circumstance, would have been a most favorable location. The soil was quite sandy and notably free from the ordinary dense vegetation and the consequent malaria. Being elevated thirty or forty feet above the bed of a small stream, the drainage was excellent, and the porous soil absorbed water so rapidly that the camp was comparatively free from mud. A terrific rain storm, with heavy winds, that broke on the camp that night, flattened out several tents and deluged their occupants, but those who had taken the precaution to drive in their tent pegs extra deep into the sandy ground, and to thoroughly trench their tents weathered the storm without difficulty.

The worst feature of this camp was the unsatisfactory character of the water supply. Several detachments of hospital corps men, teamsters, etc., under no apparent control, and with no visible discipline, established their camp about 1,000 yards up stream, and promptly proceeded to pollute the water by bathing, and washing clothes in it, and by other more disgusting means, without the slightest regard for the welfare of any one farther down stream. As the creek was the only available source of supply, we were compelled to dig a small well about ten feet from the water's edge in hopes that the natural filtration through the gravelly soil would serve as a means of purification. This method was probably

successful for the short time that we remained, as there was no sickness afterwards that could be traced to this source.

The camp had hardly been put into good shape for permanent occupancy before we were again in motion, this time to the abortive fight back of Guyama, which was broken off before it began by the news of the peace protocol.

Returning from this affair, the troop went into camp in a meadow below the town of Guyama.

GUYAMA.

The selection of this site was not a happy one. With the exception of Camp Alger, it was undoubtedly the most unhealthy camp the troop occupied during the campaign. Situated on a gentle slope at the foot of a hill, it was elevated but a few feet above the level of a swampy meadow through which, about 100 yards away, ran a sluggish stream laden with the drainage of about 250 houses of the town of Guyama. The head of the camp was within twenty yards of a large barnyard in which about fifty oxen were herded every night. A large sugar cane field lying on naturally low ground and kept in a continually swampy condition by irrigation, lay immediately to windward, so that the breeze brought the malaria directly to the camp. When we started to dig the sinks we found that the soil consisted of a layer of about one foot of rich, rank, vegetable loam reeking with miasma, underlaid with a bed of tough blue clay practically impervious to water. In consequence of the frequent rains the top soil had gotten saturated, and the clay preventing any drainage, the camp was a continual sea of mud. So thoroughly saturated was the soil that a small depression, about the size of the crown of an ordinary hat, and close to the writer's tent, remained brimful of water like a basin for forty-eight hours, during which, for a wonder, no rain fell.

An aggravating feature of the situation was the fact that not a stone's throw away, at the top of the rising ground, were two large stone sugar buildings and an open shed, all three affording ideal places for sheltering troops. A half a day's work would have cleaned, ventilated, and disinfected, if necessary, every corner, and the men would have been safe from the elements, and on comparatively dry soil. No apparent effort was made to secure their use.

On the third day after our arrival at this camp we received a number of large hospital wall tents, each accommodating from eight to ten men. These were at once erected, and furnished a much

more satisfactory protection against the weather than the shelter tents we had used up to that time. This camp proved to be more permanent than any we had so far had on the island, and it was here that our ignorance of the special precautions to be taken in a tropical climate first began to show its evil results. Heretofore, to keep the camp well policed had been enough to keep the men in good health. This the men had been drilled to do as a matter of course, and without special orders, by their experience in the summer encampments of the Guard. But the importance of refraining from sitting or lying on the damp ground during the day; of avoiding as much as possible turning up the fetid, malarial, evil-smelling earth; of improvising methods to raise their beds off the ground at night; of keeping their blankets and clothing well aired and dry, etc., was neither understood nor appreciated. One great oversight was in allowing the kitchen to be placed much too close to the tents. This was remedied as soon as the ill effects became apparent, but not before some harm had been done. The scraps dropped from the plates during meals, that on a dryer soil would have been swept up and disposed of by the camp police, here got trodden into the mud and became very objectionable. More or less of this foul stuff stuck to the men's boots and was tracked into the tents, where it certainly did not promote the cause of health. Nothing but an ample supply of disinfectants could have mitigated this evil, and of disinfectants we got not one pound from the government during our entire service.

The kitchen sinks also gave great difficulty. Owing to the character of the soil they filled up with water almost as soon as dug, and the garbage overflowing, saturated the ground in the vicinity. The same thing occurred at the latrine. The best we could do was to locate these a considerable distance from the tents and to keep the contents covered with earth as much as possible. Here also a supply of disinfectant would have been of infinite value.

It would have been of great benefit to the men had they been ordered (and compelled) to build themselves sleeping places raise a foot or eighteen inches from the ground. Without orders, the men would not take the initiative, the prevailing idea being, "Oh, well, we'll not stay here more than a day or two longer, and it's not worth while." A definite order would have set every man to work to the great increase not only to his health, but of his comfort. None but those who have slept close to the ground in this climate can appreciate the malarious, rank-smelling character of the air at the earth's surface. Although the trenching of the tent wherein we slept was

done with as little disturbance of the soil as possible, and the loose earth all gathered up and carried off, these exhalations became strongly perceptible as soon as we laid down. Sitting or standing the smell was not so noticeable. That this is a fertile source for malaria and fever is the writer's strong belief.

A great deal of carelessness was shown by the men in sitting or lying directly on the damp ground during the day. In one or two cases this resulted in slight attacks of rheumatism or fever.

A certain amount of carelessness was shown in failing to properly air or dry the blankets and clothing. Many of the blankets on this account became "fly-blown" and mouldy. The "fly-blow" was easily removed by exposing the blanket near an ant-hill, the ants eagerly carrying off the deposit. After this the blankets were all aired pretty regularly.

Fortunately there were excellent facilities for bathing in an irrigating sluice not far from the camp, besides which, every man was sent down to the seashore for a salt bath at least once every two days. The unfavorable situation of the camp, however, began to show its effects in the health of the men. In spite of the shelter afforded by the large tents, the men were more exposed to the weather, and especially to the nocturnal mists, than they would have been had they been placed under roof. Up to this point the only sickness had been minor bowel troubles, but now malarial or climatic fever began to show itself, with one case very much resembling typhoid.

A special tent was set aside for the men unfit for duty. Bunks about two feet off the ground were built for them, and by filling ponchos with dried "bagasse," or sugar cane from which the juice had been pressed, and covering them with saddle blankets, very comfortable mattresses were made. The supposed case of typhoid was sent to the central hospital, and one of the enlisted men, a physician by profession, was detailed to attend him. With the exception of this one case, there was no serious sickness, and had there been any prospect of active service, every man but this one could have turned out. In fact, the reaction from the excitement of the previous two or three weeks was probably responsible for some of the sickness.

SECOND CAMP AT PLAYA.

After about two weeks spent in this camp, the troop received orders to return to Ponce. The march back was a repetition of the march out, except that it was made in less time, and on the second day we went into camp in a marshy field just back of the town of

Playa. This field was almost a quagmire. It was impossible to pitch the tents in anything like regular order. It was necessary to scatter them indiscriminately over the field wherever a hummock or roll in the ground promised a reasonably dry spot. Hardly, however, had the camp been pitched and everything put in shape for the night, when a report came that the river, about 500 yards back of us, was rising rapidly. Horses were saddled and packed and wagons loaded, and in ten minutes the troop had reached the road and had the satisfaction of seeing the scene of their late labors two feet under water. There had been no time to strike the tents, and they were left standing like islands in the flood. Fortunately it rose no higher, and the tents were recovered a day or two later. The troop bivouacked that night in the streets of Playa, the men rigging temporary shelters from the rain with ponchos and horse blankets. This flood proved a blessing in disguise, for it rendered our proposed camp untenable. After vigorous search for another site we made a lucky find. This was a large lumber yard about fifty yards long by twenty-five wide, with a deep shed running down all one side. The shed was filled with piles of planking, joists, etc., and on top of the highest of these the men established themselves, thankful for at last being protected from the weather and raised high above the malarious ground.

A pipe from the town water main gave us an ample supply of good water, and the harbor not two hundred yards away provided bathing facilities. In other respects the situation was not so favorable. The high walls around the yard shut off the breeze to some extent, and the fall of the ground was such that a great deal of water drained into the shed, where it stood in pools under the boards. The soil of the yard was very wet, and the horses at the picket line soon stamped it into mud.

The disposal of the kitchen refuse was a difficult matter at first, as it was out of the question to dig sinks. A solution was found by throwing all refuse into a cask that was hauled away and emptied every day. The kitchen was established at the end next the street, and the ground around it drained by a ditch. The sick were sent into the city of Ponce, where a room at the hotel was taken for them, paid for out of the fund to which each man subscribed a part of his pay. Inside of a week all but two had recovered, and reported for duty, but were kept up in town as a matter of precaution.

A privy opening into a cess-pool in one corner of the yard served for the latrine. Here again is where disinfectants were badly

needed, as they were also around the vicinity of the kitchen. As usual, however, they were not provided.

On the whole, this camp seemed favorable to the health of the men. No new cases of sickness developed, and the men who had been unwell rapidly picked up. This could have been due only to the fact that they were under shelter and off the ground, as almost every other feature of the place was decidedly unsanitary.

About two weeks spent in this camp, the troop was embarked on the transport *Mississippi*, and sailed for home. Little need be said about this voyage, which was very much as described on the *Massachusetts*, except that there was much less crowding, and the water supply was ample. Two men were sent home on the hospital ship *Relief*, it being judged safer to send them that way than to expose them to the risks of the transport.

The troop brought home every man it took out, and with the exception of the two above mentioned, and the one sent home from Ponce just after landing, every man was ready for duty. Even these three men were able to meet us at the dock, having arrived ahead of us. The two men invalided home from Camp Alger had entirely recovered, and were again fit for duty.

The above record is not especially remarkable, except by contrast with that of some of the other organizations in the late war. Whatever of health we enjoyed we secured by attention to the ordinary rules of camp sanitation, learned in our summer encampments: whatever sickness we suffered was by failure, not only on our own part, but in some cases on the part of our superior authorities to apply the rules of common sense in new and strange situations. Had an effort been made to quarter as many troops as possible in the many stone buildings available: or in default of that, had camps been selected on high ground with good drainage and on proper soil, and had each man been compelled to raise his sleeping place off the ground at least eighteen inches, there would have been at least seventy-five per cent. less sickness in the whole expeditionary force. Why these simple precautions, laid down in every text book on military hygiene, were not taken, it is difficult to say.

PROFESSIONAL NOTES.

TEXAS MANGE.

Very little is known about this disease, except in certain localities where our cavalry is stationed, and my reason for treating of this special disease is, that I have had five years' experience in treating it in my troop, and therefore can speak and write about the subject with some knowledge as to its appearance, its effects, and relate what has been done with the different courses of treatment pursued by me during this time.

While I will not presage what it is, what its origin, nor why it should be confined to certain localities and districts of our country, I shall be able to state facts, give instances of its existence, and state what little I know for others' benefit, which probably may induce them to bring to light what they know. In this way, discussion would flow, and the result tend to the great benefit of all cavalry officers who have never had this plague to contend with—whose horses may be afflicted likewise, at some future day.

I make no apology for treading on professional grounds, as to origin and cause of this disease, etc. I do it simply for the benefit of the horse, in order that his beauty may not be marred, nor his usefulness be impaired, as well as to bring this important subject before us, in such shape that, it is hoped, some benefit may ensue. "Better late than never," impels me to give out my trifling knowledge, with my resulting experience, with this remark—it is hard to understand why this subject has never been treated before. There have been numbers of cases to report upon, and there are many, no doubt, who could do far better justice in explaining this disease and its mode of treatment. Thus far no one has appeared, nor do you find it spoken of, or even hinted at, in any of the veterinary books; not in the text books at the Cavalry and Infantry School. For this reason, it seems to me proper to open up the discussion and give out what is known.

We will first speak of mange as defined by the books, its treatment, and attempt to show that the "Texas mange" is different in

some respects, and not subject to the same treatment; and to combat the idea—if this is a true species of mange—that all mange is due to the same cause, and results from improper care of the horse—not keeping him in good condition, or in a state of cleanliness; in other words, due to filth and neglect. FITZWYGRAM says: "Mange results from the attack of a parasitical insect, which burrows beneath the epidermis. The acari, which are the active agents in the production of this disease, are of two kinds, the sarcoptes and demodectes. The latter parasite is the more common. The attacks of these animalculi causes irritation and itching of the skin; and as a result the hair falls off in patches." He further states that "the skin, either from want of grooming, or from poverty of the blood, or system, or from the effects of unsuitable food, or from some or all of these causes, is generally, and perhaps we might safely say, must be in an unhealthy state, before it is in condition suitable for these parasites to live in and breed. Mange is a sure sign of neglect or mismanagement. Mange is not contagious among healthy, well-groomed horses." Nevertheless, further on he states: "As the disease is highly contagious, both horse, clothing, saddlery, etc., must be strictly isolated." This is the ordinary case of mange, and as the author is an Englishman, he has probably never heard of this particular form—Texas mange, so-called. We therefore derive no benefit from him to aid us in our search of the history of this disease, or its treatment.

Certain it is, that something should be added to the work on this subject, used as a text book at the Cavalry and Infantry School, as cavalry officers are liable at some time or other to treat this disease; and now, they would turn in vain to the books for any information as to the nature or treatment of the disease.

Let us now turn to the special report on diseases of the horse, published by the Bureau of Animal Industry, Agricultural Department, page 419, and what follows, and see what Veterinary Surgeon JAMES LAW has written on mange, and whether it touches upon anything bearing upon this special case. He divides the diseases of the skin, according to their most marked features, into six different headings. So far as we are concerned we need only consider the first four. The first heading embraces eight subdivisions, according to grade or form. Following each of the subdivisions very closely, we do not find symptoms which cover our case. Taking each heading separately, we fail to discover anything which fits our case, except that in some, there is this symptom, as with this disease, itching and scratching of the mane and tail, hair coming off, etc., common to such diseases of the skin. Of the vegetable parasites mentioned we find nothing to aid us in our inquiry. Coming to the animal parasites, the writer states that the disease, mange, "varies however, according to the species of acaries which infest the skin, so that we must treat of several kinds of acariasis." In his treatment of the various forms he does not touch upon this particular form. As this publication is of recent date and embodies carefully selected reports on the diseases of the horse by well known veterinarians, it

is fair to infer that this special disease has not been reported upon, and also that it is not generally known outside of its locality.

The veterinarians who have seen it, have evidently not deemed it of sufficient importance to take note of in any other way than to say it is mange, and prescribing the ordinary recipes for that disease. They have no effect upon it. The following books have been consulted: "Diseases of Live Stock." (TELLOR); "Principles and Practices of Veterinary Surgery." (WILLIAMS); "Diseases and Injuries of the Horse" (KIRBY). All are in accord about mange, its origin, treatment, the causes which produce it. TELLOR describes mast-tetter, eczema as a non-contagious skin disease; that it is a summer disease, and horses have a return of it season after season. That it is confounded with mange, which it resembles in appearance, but it differs from it in that it is not contagious and not caused by an insect. In the treatment of this disease it is necessary to remove scabs and crust. This form, in its recurring from season to season, resembles our subject in this particular; but the affection is so entirely different that it is not the peculiar form we are looking for. After a careful examination of all the books referred to, and available here, I conclude that this particular form of so-called mange, if it is mange, does not appear to have any mention made in regard to it; that it is not generally known. We are at a loss to say definitely which is its proper name, its origin, or why it should be confined only to certain districts. We can only conjecture that it is a species of mange, but whether due to a parasite or whether it is a fungous growth, we cannot state, as no examination has been made with the microscope. All remedies tried having failed to produce a permanent cure, it was my purpose the next year, on its reappearance, to have the scurf and abrasions subjected to examination by the microscope, but a change of station prevented further investigation.

I never saw or heard of this disease until I came to Fort Supply, I. T., in 1887. Inspecting the horses at stables I noticed several of them with little or no mane at all, as if it were just growing out anew. The tails covered with short hair the whole length; some only part way. I asked what caused it—what is the disease? The answer was, it is the Texas mange. Can it not be cured? No; it can be kept back, but not permanently cured. It begins with the warm weather and stops with the cold weather. This was all the information to be gathered. It was considered as inevitable to reappear with the first warm weather, run its course with a regularity that is most astonishing and perplexing, until the following fall. So on from year to year, coming, passing away only for a time, then blooming forth, as a spring flower, with the warm sunshine of early spring.

To me it was rather an important matter, as there were seven or eight of the troop horses affected with this pest, whatever may be its proper name. I began making inquiries in regard to it. All I could learn was, that in this section and south into Texas, horses were liable to have it. From its name it was probably imported

from Texas. In what way or by what means horses take it, I cannot give any information, nor yet in any way account for the fact that all horses are not subject to its attack. The mystery is, so far, past finding out.

When April comes in, with its fresh, warm days, the horses affected begin their yearly rubbing and scratching of the mane and tail. Some that are touched around the head and neck, use their hind feet as scratchers. In the stable they rub against anything that is convenient. On the picket line they rub the mane along the picket rope; on the lariat, they get it over the back, and work the rope along the mane, back and rump. The trick of getting the lariat over the back is soon learned, and makes a good scratcher for the parts the horse otherwise could not reach. It does not take a long time ere the horse is hairless on the tail, while the mane is rough and ragged; in some cases, there is no mane left to speak of. Some have it in a more severe form, extending along the neck and to the back. I have seen one of the troop horses, on lariat, so wild with intense itching he could not graze—rolling, scratching and biting at himself until parts along the neck, roots of the mane, spots on his back and tail, were raw from rubbing. I had the horse brought to my permanent camp, the troop being in the field, and relieved him somewhat by a strong infusion of poke root, grease, bacon rind, etc., applied hot.

The first intimation of its appearance, the horses begin scratching. Upon examination nothing can be discovered to cause the irritation: no pimples or scabs. Later on, some small round lumps, the size of a pea, appear on the neck, shoulder, and on the back—never very many at any one time. In time the itching is intense, hard ridges are formed along the neck, extending nearly its full length, perpendicular to the crest, in the direction of the roots of the hair. At this time the horse is beside himself, and he rubs and scratches the parts he can reach. A close examination shows no sores or scabs, but the hair is falling out of the tail and the mane getting shorter and shorter. This constant rubbing and scratching will break the skin in spots, yet there are no confluent sores, no pus and scabs, except that which naturally forms on an abrasion. The process goes on, until finally the tail is perfectly bare—furrowed on some horses, and on others in patches as large as the palm of the hand. In the last stages, the mane keeps company with the tail, and on some there is no mane left; the mane is roached for appearance sake. Small spots will appear on the head around the ears; and on the rump places as large as the palm of the hand, on each side, just above the tail, raw from rubbing, yet no running sore nor discharge. In cases where no local applications have been used, it has extended along the entire neck on both sides.

The horses attacked were in good condition, eating the same kind of food, receiving the same care and attention as all the other horses. There was no sudden change of diet, nothing out of the ordinary care of cavalry horses, fed on grain and hay, which might account for it, as with other skin diseases. Why under these cir-

cumstances, some have it, and others do not, and why it is not contagious, I am unable to explain, except to state it does appear, and makes a lodgment. Of two horses in the same stall, one may have it, the other one will not catch it. The same comb, brush and rubbing cloth are used on other horses, and the disease does not spread. Of the new horses that come here from St. Louis and elsewhere, all in the same condition, some take it, and others do not. This is a curious fact, and hard to explain. I was told that horses affected this way, if taken outside this locality—a change of climate, North or South—would produce a cure. This statement I can vouch for, as I have verified it.

Perplexing as it is, I have not been able to tell what it is, nor have I found any remedy that will make a permanent cure. Remedies that have been recommended a sure cure, have been tried long enough to demonstrate they could not cure. They relieved the itching for the time being, but soon failed to do any good.

I have used the following remedies, with varying success, thinking at times that I had conquered the pest; but no, the itching would return: Cuticura salve, a strong infusion of the poke root, and into this, grease, bacon rind, etc., stirred, boiled for a time, and applied when warm; the root of the Spanish bagonet, cut up and boiled in water to make a strong infusion: corrosive sublimate, sulphur and sweet oil; nitrate silver and sweet oil; kreosote and coal oil; carbolic acid and sweet oil. The parts were thoroughly washed and cleaned with castile soap and warm water, all scurf and dirt removed, and the application made with a brush or mop, thoroughly saturating the parts.

The result of my experience with these different remedies, shows that the carbolic acid and sweet oil give best results. My belief is that I made the application too strong, for after one application, the skin would puff up, and finally peel off in patches, yet leaving no sore, and the surface perfectly smooth. Using it again, I should weaken the solution, so it could be applied oftener, and the result would, in my opinion, be practically the same. The itching stops, and in a very short time the new hair commences to grow. One felt encouraged in thinking a remedy at last had been found, but in time the scratching was renewed, although not so bad. This last remedy shows the best results, may be, perhaps for the reason that the remedy was tried rather late in the season, and the disease had pretty well run its course. Another result of my observation was that the tail and spots elsewhere respond much better to the treatment followed, than the mane. That is another perplexing thing to explain. My own horse had a bare spot on the tail as large as the palm of the hand, right at the root of the tail. After one application of the acid and oil, the itching stopped, the hair grew out very quickly. This while the horse was in the field. After returning to the post, he commenced scratching again, but never so bad as to make the hair fall out, although upon examination, the hair was found broken and shortened. Looking at it from one side, it was seen that the tail was flattened, and not round and full as it should

be. The mane was rubbed, but not so hard or often, yet its appearance was still rough, ragged and scraggy.

The cold weather being with us, the itching stopped completely, the disease stopping of its own accord; showing that the cold certainly affects it. Again, I have been told that horses from Texas have had an affection, which was called the Texas itch or mange, during the winter months. This form I have never met with among cavalry horses. I have confined my remarks to horses, although mules are subject to it in that section of the country.

The cavalry officers, who were at Fort Supply, will, I believe, concur in my remarks, as their experience has been similar to mine, and possibly they could add something of interest that I may have left unsaid. If my attempt has in any way helped to bring this subject in such shape as to induce others to bring to light their views, something has been accomplished. If not, then I have had the satisfaction of easing my mind, in an effort to try to benefit the creature who should be our first thought, as it is upon him we depend for success in our branch of the service.

J. A. AUGUR,
Major Fourth Cavalry.

REPRINTS AND TRANSLATIONS.

BRITISH CAVALRY.

BY A CAVALRY OFFICER.

The recent debates in the German Parliament on the proposition of the imperial government to increase the peace effective of the army have drawn attention to the importance attached to cavalry by the chiefs of the German army. The War Minister plainly stated that the policy of his government is to maintain as many squadrons during peace in full efficiency as it can afford, and pointed out to his critics how Russia has carried out the same plan, and how formidable an army of cavalry stands ready on the eastern frontier of Prussia.

While this policy is pursued by Continental powers, exactly the opposite opinion appears to prevail in this country.

In the Colonial and petty wars which we have waged in this generation, cavalry has played an insignificant part. It has become the fashion to consider incongruous the idea of dragoon guards and hussars fighting in a jungle, and so-called mounted "infantry" has been called into existence to do the work of cavalry on these expeditions, thus excluding cavalry leaders from their share of the experience and promotion derived from them. It is certain that the persons best qualified to form an unbiased opinion on our military institutions, namely, those foreign leaders who in the ordinary course of events might be pitted against us in war, are at no pains to conceal their wonder at the inferiority into which the first horse-owning and riding nation of the world has suffered its cavalry to sink relatively to the rest of Europe.

That this opinion is generally held as to the quality as well as to the quantity of our cavalry among competent foreign critics, no one who has carried his enquiries beyond the usual platitudes of courtesy interchanged can doubt, and it is proposed very briefly to discuss some of the reasons on which this unfavorable judgment is based.

To begin with, it is incontestable that the organization of the British cavalry is bad, even very bad; and that, in spite of the fa-

cility with which it finds recruits and the large proportion of it which serves at home.

Without discussing our organization in detail, some of the points in which it fails and in which reform is most essential are easily sketched.

The squadrons receive their recruits at no stated time of year, but by ones and twos as they happen to enlist, and there is no proportion maintained between the trained and untrained men. The lately-formed reserve squadrons have not been able to serve the purpose of giving all the recruits their first training, because the number of recruits is at times so large that they have to be distributed through the other squadrons, and because the reserve squadron includes so many men who are employed otherwise than in learning to be cavalry soldiers.

No lasting improvement in our system of training can take place until squadrons are as really commanded by their nominal chief as is a battery of artillery. The number of men—regimentally employed, musicians, tradesmen, waiters, and so forth, in each regiment of three squadrons, is amply sufficient for six squadrons. No fighting unit can become efficient, however zealous and industrious its officers may be, while it is swamped with recruits and young horses all the year round.

Our men enlist for seven years, consequently no squadron should have over one-sixth of its strength untrained recruits at any time, and by a certain time of year every man in each service squadron should be a trained soldier. This, of course, can only be done by separating the Indian depots from the units at home, or at any rate by attaching these depots as separate squadrons under their own officers.

Most officers will agree that this had better be done, for under our essentially regimental plan no good can be expected from mixing men of different regiments. Our whole system hinges on the principle of keeping the corps intact and separate.*

The problem of reorganizing the British cavalry is not without its difficulties, but compared with many problems of administration it is a simple one, and should not long block the way. We are too fond of dwelling on the peculiar difficulties of our military situation, and too apt to forget how little we turn to account good material such as no other country possesses. For what nation has such raw material as Britain, either for cavalry officer or trooper; and where else is there so perfect a training ground for the inherent qualities of the leader as the hunting field in England and Ireland?

It has been roundly asserted that the training of our squadrons is devoid of interest and lacking in objective. The initiative and resourcefulness of the young officer is repressed and discouraged rather than cultivated; for years he does nothing but superintend

* This applies more strongly to the men than to the officers. The service would probably gain if a certain interchange of officers between regiments took place. Exchanges have practically ceased, and most officers spend their whole career in one regiment.

the execution of a routine, unless he is selected to be the adjutant of his regiment. There is a limit to the time, energy, and patience which can be exacted from any body of men, and that limit is more quickly reached in a voluntary service such as ours, where the officers are conscious of sacrificing their interests to the service, and the rank and file are well aware of their own value, than in the national and compulsorily recruited armies of the continent. For this reason it is most necessary in such an army as ours to be economical and reasonable in the demands on the troops, so that everything useful may be learnt, while nothing that is useless wastes their time.

In every army a higher standard of professional excellence is expected of the cavalry officer than of the leaders of the other arms. For what are the duties which fall to him? In peace to train and mould his men, and to raise them to a far higher pitch of skill and individual intelligence than is elsewhere required of the private soldier. In war the junior officers of cavalry will be constantly employed on patrol work, the correct execution of which needs a thorough knowledge of tactics and a sound comprehension of strategy, besides the individual qualities of energy, dash, and wit.

It is a commonplace, that on the successful accomplishment of the task of an officer's patrol the fate of many an army has depended. The skill requisite for such performances can only come of knowledge, and such knowledge will only be acquired by young officers if it is taught and encouraged by their seniors. Whether they possess it or not will generally depend on whether they are professionally benefited by it or not. So long as the test of a cavalry subaltern's worth consists in repeating by rote those pages of the drill book which deal with what is called "Increasing and Diminishing the Front," he will not, if he is wise, trouble his head with more profound knowledge, which, however, does not pay at inspections, where his value is assessed.

These considerations lead one to regret that our cavalry is, for the purposes of inspection and higher command, under two officers only—the inspector generals in India and at home. These officers are expected to report from personal knowledge on each officer in their command. With all the energy, zeal, and impartiality in the world they cannot do it. Twenty-four to thirty squadrons, quartered well within a general's reach, and under his constant observation, is the greatest number that one leader can really superintend.

To place one man over 160 squadrons scattered over the Indian peninsula, with five months only of the cool season to make their acquaintance, is to demand the impossible, and great harm is certain to be the result. The recent organization at home of four cavalry brigades is an admission of the fact, but the remedy is too partial. Moreover, both the brigadiers and the regiments in their command are constantly on the move.

Let us consider the purpose for which our cavalry exists, and the task it will have to perform in war. It is of a twofold nature:

Firstly, to join in punitive expeditions against the tribes on our frontiers, such as Arabs, Afridis, and Boers.

Secondly, to play a part in a European contest, either in defense of these islands, or on the offensive to assist a continental ally or coalition.

For the first of these objects, fighting in wild countries, great mobility, tactical adaptiveness, initiative among the leaders, and to descend more to detail, a thorough development of the fire power of the arm, are essential.

For the second rôle, of meeting a European foe, the same qualities are essential, with the additional necessity of being able to fight and march in masses, and to be abreast of the tactics of the first military nations of the world.

Part III of our cavalry drill book lays down the following excellent precept:

Nothing which is not simple can be successfully done in war, and accordingly, what is simple must alone be taught and practiced in peace. "No exercise should be learnt on the drill ground which is impossible of execution on the field of battle."

Nothing could be more practical, or more in the true spirit of cavalry action. Several pages of drill follow, however, which cannot be said to comply with the principle announced, and it has so happened that an altogether fictitious importance, an importance out of all proportion to any practical purpose which it serves, has been given to this part of the regulations. We refer to the ten pages devoted to what is known as "Increasing and Diminishing the Front."

The object of these instructions is to teach a cavalry force to form a column of route, and in all armies they are of the simplest nature, as befits a movement which should be so easy as to be no tax on the memory or intelligence whatever.

We have, on the contrary, still in our drill book a number of route formations extremely complicated to learn, and perplexing to remember.

What a Russian peasant recruit can be taught in a few days, thus occupies our men as many weeks; a large proportion of the short time annually at the disposal of the squadron commander is similarly expended, and, worst of all, it absorbs the attention of subalterns and N. C. O.'s, just before every inspection instead of work of a practical kind.

We have no less than three separate formations for column of route in our cavalry, each based on absolutely different and conflicting principles, where one is amply sufficient.

To come to the recruit's drill on the square. It cannot be seriously contended that the pains and time expended in teaching him the manual and sword exercises correspond in any degree to the skill he thus acquires as a fighting man.

The drill of the squadron in the field has been immensely improved and simplified in recent years, though here again we can hardly be said to be keeping pace with our Continental rivals. The most important part of the mounted soldier's training, wherein his individual intelligence and instruction makes itself most felt, is unquestionably the service of information and security.

Pages 283 to 356 of the drill book deal with the subject under the heading of "Maneuver," and in the main these regulations are good, though somewhat too anxious to provide for every contingency with detailed instructions. It is the practice of these duties which is open to criticism.

Not only is the individual instruction of the trooper neglected or confined to teaching him the drill book by rote, but the art of patrolling is almost unknown in our cavalry. *And yet patrolling is much the most important service cavalry can render to its side in war,* and it can be well done by cavalry which fights indifferently, and which is for other purposes poorly mounted. On the work of small patrols, from officers' patrols far ahead of the army to the patrols of two or three troopers which scour the by-ways and keep up communications between marching columns and insure the cooperation of combined movements of all sorts, the success of many a battle will hinge. The failure of the Saxons and Prussians to keep up communication and combination on the open fields west of St. Privat, on the 18th of August, 1870, and the consequent disaster to their arms should not be recorded for us in vain. In every Continental army patrolling is carefully taught. Cossacks, Boers, and Afghans excel at it.

The system of cavalry outposts which we practice is that known as the "cordon" system, and it is learnt with great precision. It consists of a continuous chain of lookout posts in sight of one another, and formally linked to their supports and reserves, thus covering with a fan-like formation the whole front which it is intended to watch.

Although patrolling is also recommended and even insisted upon, no great reliance is evidently placed upon its results: or why should it also be necessary as a normal formation to wear out our forces with a cordon of videttes as well?

Of course, cavalry may, under very exceptional circumstances, be compelled to furnish such a chain of outposts, but it would normally be the task of infantry, and we learn the rare exception as the ordinary process. The scheme for reconnoitering is open to the same kind of objections, and is in reality the outpost formation set in motion. We sweep the country with a net through whose meshes small fish can easily penetrate unnoticed, while the brigade or division thus formed is so effectually dispersed that a concentration to meet a cavalry attack is practically impossible.

General DE GALLIFET has well described this vain attempt to be strong everywhere as the "paralysis of true cavalry action." A force of cavalry can be easily ruined if too much be asked of it by

its own commander. The bare necessity in war is extremely exhausting to man and beast. Nothing beyond it should be attempted or practiced in peace. Initiative in the leaders, intelligent cooperation in the troopers, are vital to success, but these qualities will never be developed by unsound tactics and unreal situations.

It is most unfortunate that we cannot in England canton troops in villages. To take up such quarters after dark, to arrange for their protection, and to rapidly reassemble from them before it is light, as we should almost invariably have to do in war, requires considerable practice. With our present organization the difficulties of teaching men to patrol and reconnoiter are almost insuperable. All the winter, when such duties are taught in the Continental armies to the trained men while the recruits and young horses are receiving their early education, our squadrons are strangely weak. One squadron is "struck off duty" for equitation drill: a considerable number of men in the other squadrons are on furlough: a still larger number are with the regiment, but owing to their special duties are not available for mounted instruction in the morning: so that the squadron commander, after vain attempts to collect some portion of his command to teach them the most essential of their duties, soon accepts the inevitable and sends his men out morning after morning, riding one horse and leading two, to "watering order under the orderly officer" along the lanes, as the only method of getting his horses exercised and keeping them in health.

To launch into criticism of the stable management and horse management of our cavalry would carry the length of this paper beyond bounds. It may be noticed that our men spend more time in the stable than any other cavalry, and that there exists no systematic plan for gradually bringing the horses of a regiment up to a state of working fitness. Normally they are kept fat and sleek in light exercise: fitfully they are worked harder than usual, though never so hard as European cavalry is worked at maneuvers, consequently the number of horses in every squadron which have a "screw loose," and which could not be relied on to stand the continuous strain of active service, is too large.

It is not yet realized in England that the effective strength of a cavalry force is limited not by the men it can muster—but there are generally plenty of them—but by the number of horses it can count on to carry a trooper in marching order thirty miles a day for a week on end with short rations and scant comforts. The value of an army depends to a great extent on its offensive power, since the side which resigns itself to passive defense is always finally defeated. No army will, however, be formidable in offense if it be lacking in aggressive initiative, if it loses mobility, and has to grope in the dark for want of good cavalry and the true spirit of cavalry action.

—*Journal of the Royal United Service Institution.*

RECONNAISSANCE RIDES IN THE FRENCH ARMY.

The Minister of War has decided that in future reconnaissance rides will be executed by officers of the cavalry and picked soldiers, to accustom them to fulfill special missions which might be entrusted to them in war-time. These reconnaissances will be undertaken by regiments, and will consist in the accomplishment of a particular mission fixed by a maneuver scheme, the development of which will entail a march of from fifty to one hundred and twenty-five miles, and will take, according to distance, one or several days.

These reconnaissances will take place during the summer, and will be executed by subaltern officers once every two years. Captains and officers of superior rank will execute at least one of these reconnaissances before being noted for promotion to higher rank. A special board under the presidency of the commanding officer should, under the supervision of the general officer commanding the brigade, select a tactical scheme for each subaltern officer, determine the approximate route, fix the day on which the reconnaissance should take place, and finally judge the results obtained. A board composed of the general commanding the brigade and the commanding officer will fulfill the same functions with regard to captains and officers of superior rank.

The scheme must be given to the officer who is to execute it at the moment of his departure. He should develop it on the march, and hand it back on his return. He should attach a map to it so that the condition of the country may be better understood. A reconnaissance which is to last twenty-four hours should not be for a greater distance than seventy-five miles. For reconnaissances that must last for several days not more than fifty-five miles a day should be traversed.

Officers may ride horses, their private property or their chargers. They may be accompanied by a picked soldier. They will be allowed the greatest liberty of action to accomplish their mission, and the board, in judging the results, will take into account the rational development of the tactical scheme, the state of the horse on its return, and the time employed on the reconnaissance. The decision given by the board will be inscribed in the officer's record of service. Each year and in each regiment picked soldiers (non-commissioned officers, corporals, and soldiers) will execute individual reconnaissance marches under identical conditions. They will be given a mission similar to one they would receive in time of war, according to their rank and their intelligence. During the days occupied on the march officers will receive money in lieu of transport, the men will receive a separation allowance, and the horses will be rationed on the march.—*La France Militaire.*

MEDICINE IN THE BIT.

A Georgian has patented a driving bit which can be used to give medical treatment to the animal, the center of the bit being hollow, with screw-threaded ends, to which flexible bulbs can be attached to contain a medicament, discharging it into the horse's mouth.

FOR CLEANING HORSES, HARNESSES, ETC.

The labor of cleaning horses may be greatly reduced and simplified by sponging the animal with a solution of two tablespoonfuls of sulpho-naphthol in a pail half full of water. This will quickly remove all dirt and grease, giving the hair a glossy appearance, and leaving the skin in a healthy condition.

If, before leaving the stable, the horse is sponged over with the same strength, flies will not trouble him until after its effect is lost by long exposure to the air. To remove all grease and dirt from carriages, harnesses, chamois, rubbers, etc., a few trials will demonstrate the fact that nothing is equal to it.—*Rider and Driver.*

A DOPE FOR FLIES.

The *American Field* gives the following recipe, contributed by Colonel E. CROFTON FOX, of Grand Rapids, which is highly endorsed as a "dope" for driving away flies from horses, and for killing other vermin which annoy the hunter or soldier:

Recipe: Oil pennyroyal, oil cedar, oil peppermint, oil bergamot, and fluid extract quassia, of each one dram; gum camphor, four drams; vaseline, yellow, two ounces. Dissolve camphor in vaseline by heat; when cool, add remainder.

The editor states that he guarantees the recipe against flies and mosquitoes. The odor is most pleasant, it is never greasy, and never becomes rancid. A little rubbed on the back of a horse's ear will be a great relief to him. The "dope" should have the consistency of good jelly, and should be kept in a one or two ounce large-mouthed bottle, well corked. The editor adds that our soldiers in tropical climates might use this recipe to advantage.

PREVENTION OF BALLING IN HORSES' HOOF.

There is a well known Detroit physician who has been looking for years for some plan to prevent snow "balling" on the hoofs of horses. One day last winter he discovered what he has been looking for. For years he has tried every sort of device that he could conceive of or that had been brought to his attention by other people, but the snow was always "balling" up in the hoofs of horses just the same, much to the danger of the horse and his own discom-

stare. He was coming down Woodward Avenue, and the same old trouble was wearing on his patience. Getting out of his buggy, he went into a drug store, and asking for some drugs he wanted, incidentally remarked that he would like something, too, to prevent snow "balling" upon his horse.

"Well," said the druggist, "I should think you ought to know how to stop that." Giving the doctor two ounces of glycerine, he told him to divide it evenly on the four hoofs of his horse. The physician took the prescription and applied it as told. He drove on down town, and getting out, looked at the horse, to find that there was no snow whatever on any hoof. It seemed a complete cure. Oil and lard have often been tried, but opposed by veterinarians on the ground that they keep the moisture away from the hoof, thereby doing it injury. This fails of application to glycerine, for it will wax with water. It will not injure the hoof, and, it seems, will keep the hoof free from snow.—*The Rider and Driver.*

A DEFENSE OF MILITARISM.

Prof. GUSTAV F. JÄGER, whose name has become familiar to the civilized world by his "woolen-wear theory," recently delivered a public lecture at Stuttgart on the "Results and Benefits of Militarism." In his opinion Germany's army system, in its growing scientific development, is the principal basis of her immense economic evolution and expansion.

Through the nation's military education the health of the people has been steadily improving, thus creating a "live capital" that cannot commensurately be acquired or represented by mere accumulation of dead coin. * * * As to the sanitary effects of militarism he proves his theory by statistics drawn from the health reports of the German army. During the three years' service in the army, which is recruited from the whole of the people without distinction, the third year's soldiers presented the most favorable conditions of health and efficiency, not only in the active service, but also as forming the best physical and mental preparation for civil life, enterprise and success, a result not attainable, or at least never yet produced by any other system of education in public schools or academies of learning. A militarily trained person is endowed with a physical and mental equipment far superior to that of the "State school cripple," whose brain is battered by indigested book learning, and whose nerves are neutralized by the unhealthy atmosphere of the recitation room and the senseless system of an education which forgets the old rule that we ought to "learn for life, not for the school." In the annual maneuvers of the German reserve and national guard forces, Dr. JÄGER discovers a national health factor that no sanitary regulations, public or private, are able to produce. General military training alone supplies a nation with the necessary living capital for future growth.—*Baltimore Sun.*

FITZHUGH LEE AND BUMBLE BEE.

Lieutenant LEE had no superior in the regiment as a horseman, and he finally became the proud owner of Bumble Bee, one of the fastest and most famous horses in the regiment. Bumble Bee had cut a great figure in a number of races, campaigns and Indian fights before LEE owned him. He had won, a year or so before, a famous race, known as the "Fort Mason Derby," against Lieutenant JENIFER's well-known horse, Gray Eagle, and from that time forth became the most coveted charger in the regiment. Bumble Bee was a slashing, thoroughbred Glencoe colt, by imported Glencoe. He had great style, and, for a large horse, was a perfect working animal. Power, courage and activity were in every line of him. He was one of the fastest horses in Texas, but was wild, untamable and difficult to manage. He was great for a thousand yards dash, but beyond that distance he would throw up his tail and lose his great, slashing stride, and become unreliable and often vicious. He was also hard to start well, but when well started he was a tearer for speed. FITZ LEE loved this horse the moment he first laid eyes on him and determined to be his owner. He finally bought him from Captain NATHAN G. EVANS "SHANKS EVANS" of the regiment. When LEE had fully recovered from his arrow wound a famous race was gotten up at Camp Radzimirski between Lieutenant LEE and Lieutenant WILLIAM B. ROYALL, in which each man was to ride his own horse. LEE, of course, brought out Bumble Bee against anything in horse-flesh. Lieutenant ROYALL had a horse he had bought at Fort Smith, Ark., which, like Bumble Bee, had won every race he had been in until that time.

The race was run in the presence of the entire garrison, and stands in the traditions of the old Second Cavalry as a memorable event. Bumble Bee, as usual, was nervous and frantic at the race in prospect. His start was bad, and it seemed as if he never would catch up his famous long stride. His eyes flashed out his wicked temper, and his ugly head was held well up, relieved, however, by his beautiful, small and clean-cut ears. Lieutenant LEE rode him as he alone knew how to ride, and managed him admirably. The race was a close one, but Bumble Bee, amid great hurrahs and flag waving, scored another victory. When Lieutenant LEE was detailed afterward to duty as instructor in cavalry tactics at West Point, he sold Bumble Bee at San Antonio, and he passed into unknown hands.—*William S. Brackett, in Frank Leslie's Popular Monthly for May.*

LAMENESS IN HORSES.

Among the causes of lameness are weakly conformation of bones, muscles, etc., tissues being too frail to stand the strain; the fetlock may be too long, causing an extra strain on the tendons; the hock may be too angular, predisposing the animal to curb, or too straight up and down, predisposing to spavin; the hoof may show too high a heel, favoring contraction; or too low a heel, favoring corns.

puncture, bruises, inferior shoeing—that is, fitting a shoe while too hot; having the shoe press upon the sole instead of the walls; overtaxing muscles, tendons, and ligaments by pulling a heavy load over rough and muddy roads; constant jerking and blows from the wagon pole and harness—all these are causes of lameness.

How to discover when a horse is lame or where he is lame is not so easy a matter as some may imagine. It is best to observe the animal first standing. If the horse points persistently—that is, places the foot in front of the normal position—the lameness is very apt to be below the fetlock. If the knee is affected, it is often kept in a bent condition, while in shoulder and fetlock lameness, the toe generally rests upon the ground. After examining the horse standing, allow him to go in a slow trot to and from the observer, holding the halter strap about a foot and a half from the head. Watch carefully the animal's head and ears while he is trotting toward you. He will attempt to protect the lame leg by throwing the most of his weight on the sound one, and if the lameness is in front will nod his head when the weight is thrown upon the sound one. When the animal trots away from you, if the lameness is behind, he will attempt to protect the lame leg by throwing his weight heavier on the sound one.

Having determined which leg is lame, the next thing is to locate the seat of the lameness. If there is any doubt about whether the animal is using its legs properly, take a sound animal, and trot it up and down, and compare its actions with those of the lame one. Shoulder lameness is evident by limited action of the entire shoulder. The animal seems anxious to keep stationary, and in bringing the leg forward, does so by an outward swinging motion. The horse that is knee-lame aims to keep the knee as stiff as possible, and in moving the leg forward, bring the shoulder muscles into play. The leg is advanced in a dragging manner, the toe hardly leaving the ground, and the leg is bent as little as possible.

Fetlock lameness is manifested by a short, jerky step, the animal stepping on the toe, or often hopping on three legs. Lameness caused by sore or enlarged tendons is similar to shoulder lameness, and is best examined with the animal at rest, as then the swelling, heat or pain is generally detected along the course of these parts.

It is more difficult to diagnose foot lameness. The best thing is to pick up the foot, and tap it lightly with a hammer, and notice the finching when the sore spot is touched. If the animal is nervous, it will require great care to distinguish between the actual pain and the nervousness.

Hip lameness is known by a peculiar hopping gait. The animal, while trotting, turns the hock of the lame leg in and the stifle out.

Stifle lameness shows itself by the difficulty the animal experiences in elevating this part, and bringing it forward, which is usually done in a dragging fashion. The stifled animal either has the lame leg stretched out behind or stands firmly on the sole. In the first case, he cannot back, and in the latter, he cannot move the lame leg forward.—*London Farmer and Stockbreeder.*

BOOK NOTICES AND EXCHANGES.

TACTICAL ORGANIZATION AND USES OF MACHINE GUNS IN THE FIELD.
By John H. Parker, First Lieutenant, Thirteenth Infantry, Commander of Machine Guns in the Santiago Campaign. Author of "The Gatlings at Santiago," "Lessons of the Spanish-American War," "Notes on Our Military Organization," etc. The Hudson-Kimberly Publishing Co., Kansas City, Mo., 1899.

In this little book Lieutenant Parker sketches the past and present status of the machine gun; traces its history from the time of the imperfect mitrailleuse to the intricate Gatling, Colt and Maxim; describes the tactical and administrative organization, and the use of machine guns on the offensive and defensive; and concludes with deductions as to the probable effect of machine guns upon the tactics of the present and future.

There is no doubt that the value of machine guns has been underestimated, especially for offensive use; and perhaps the machine gun of a few years back was open to many objections which cannot be justly urged against the type of the present day. Smokeless powder, flatter trajectory, and longer range, has affected the machine gun as well as the magazine small-arm; and the machine gun of today is enabled to come into action at short, artillery range, and, if intrenched or masked, to remain practically invisible.

The author's enthusiasm in regard to the arm of which he writes, is to be commended, even if some of his deductions be faulty, and likely to provoke discussion. Lieutenant Parker writes in the same spirit with which he fought his guns at San Juan Hill; but to the conservative military student, there seems danger that this one successful experience may lead to over-confidence in the use of machine guns on the offensive. San Juan hardly seems a typical battle upon which to write a text-book. There are many of those who were present there, who now believe that had the Spanish intrenchments been placed on the military instead of the natural crest of the hill, there would have been few, if any of our soldiers, who would have reached the crest by direct attack. There are others who believe

that, however great was the personal bravery of the Gatling gun detachment upon this occasion—and certainly the guns could not have been fought more gallantly—and however pronounced was the moral effect of the drumming of the Gatlings, there was actually very few casualties among the Spanish from the machine gun fire. This is apropos of the author's statement on page 157: "Whenever the enemy finds that every man who exposes his head above the trench to fire receives a bullet in his head, it produces a panic."

It is believed that had the hill of San Juan been defended by a more enterprising foe, or had the enemy's intrenchments been placed on the military crest, the Gatling gun fire must have been silenced, simply because, from its exposed position, its gunners would have been placed *hors de combat*. Infantry, lying down, and taking advantage of every little accident of the ground, must have suffered frightfully; but members of a gun detachment, standing up, at close range, must have been annihilated.

In all of the author's other illustrations of the modern use of machine guns, besides San Juan, he draws on campaigns against irregular troops or savages, viz: The Turcomans, the American Indians, and the Dervishes of the Soudan. It is conceded that the machine gun has been eminently useful in campaigns of this character against barbarians—either fearless horsemen who fight in the open, superstitious fanatics who attack in dense masses, or savages, ignorant of the value of intrenchments. It has been in these "small wars," that England has made such good use of her machine gun organizations. But it would seem that in the offensive use of machine guns in civilized warfare, the writer allows his enthusiasm to run away with his good judgment. He even gives this very good advice: "But the commander of a machine gun company must not get the idea into his head that it is his function to whip the entire body of the enemy, alone and unaided."

It is believed, too, that in his tactical use of machine gun detachments as advance guard, acting alone, in which he advocates scattering the men well out to the front, leaving the gun in charge of the driver and first sergeant; and in the use of a machine gun detachment alone, as a support for artillery, taking the place of infantry, Lieutenant Parker has enunciated tactical uses of his arm, which would, in general, be dangerous.

While there are some few other details in Lieutenant Parker's book which may provoke controversy among military men—the firing of machine guns over the heads of advancing infantry; the organization of machine guns as a separate corps; and the plan of company organization of three officers to every thirty four men—the principal issue will be with the author's bold statements as to the use of his Gatlings on the offensive. However, the work is a valuable contribution to the military literature of the day.

C. D. R.

NOTES ON HORSEMANSHIP AND RULES FOR POLO. Prepared for the use of Cadets. By First Lieutenant R. L. Howze, Sixth Cavalry, Senior Instructor of Cavalry.

This collection of useful hints fills a long felt want at the Military Academy, where the cadet's time is too much taken up, to study one of the larger text-books on horsemanship and hippology. Polo is essentially a cavalry officer's game, and the rules—presaging the introduction of polo at West Point—will tend to create an interest in the game.

CUSTOMS OF THE SERVICE—THE ARMY, NATIONAL GUARDS AND VOLUNTEERS. Compiled from authentic sources by Colonel James W. Powell, United States Army. The Hudson-Kimberly Publishing Co., Kansas City, Mo., 1899.

That the customs of the service, like the old common law of England, have long had the force of written military law, is laid down by every text-book relating to military law. And the very fact that customs are usually unrecorded, renders their observance all the more difficult by those unfamiliar with them.

Some years ago General August V. Kautz compiled a little work with a title similar to the above, and for many years it was consulted as an authority in all doubtful cases—until, in fact, the many changes in the regulations rendered the work obsolete.

Although the present volume by Colonel Powell is rather an epitome of the army regulations than the customs of the service, he has compiled a very up-to-date work, which will be extremely useful to all who have not had the advantage of close touch with the regular service. Indeed, its pages might well be read with profit by newly graduated classes from the Military Academy; and to those preparing for examination for a commission, officers of the volunteers and National Guard, the work would seem to be especially adapted.

C. D. R.

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HEADQUARTERS, FORT R. BINS, NEB.

Troops—A, B, C and L, Fort Robinson, Neb.; G, H, I and M, Fort Meade, S. D.; K, Fort Niobrara, Neb.; E, Fort Washakie, Wyo.; D, Fort Yates, N. D.; F, Fort Keogh, Mont.

SECOND CAVALRY—COLONEL HENRY T. NILES.

Adjutant, Capt. F. W. STUBBS. Quartermaster, Capt. B. H. JENKINS.

HEADQUARTERS, INSUREDO, CUBA.

Troops—B, E, H, I, K and L, Cienfuegos, Cuba; A, C, D, F and M, Mantanzas, Cuba.

THIRD CAVALRY—COLONEL S. B. M. YOUNG, Major Gen. U. S. A.

Adjutant, Capt. H. E. BENTON. Quartermaster, Capt. J. H. WALKER.

HEADQUARTERS, FORT BURN, A. T.

Troops—C, E, F, G, I and K, Fort Burn, Ariz.; A, D, H and M, Augustana, S. D.; B and L, Fort Sheridan, Ill.

FOURTH CAVALRY—COLONEL GEORGE S. ROBERTSON.

Adjutant, Capt. J. B. EYAN. Quartermaster, Lieut. T. H. STUBBS.

HEADQUARTERS, PUEBLO, SAN FRANCISCO, CALIF.

Troops—Band, M. Lopez, San Francisco, Cal.; A, Fort Wagon Walla, Wash.; B, C, D, E, K and L, Manila, P. I.; and H, Fort Yellowstone, Wyo.; I, Base, Santa Fe, N. M.

FIFTH CAVALRY—COLONEL H. H. HARRIS, Major Gen. U. S. A.

Adjutant, Lieut. E. M. THOMAS. Quartermaster, _____

HEADQUARTERS, MARIANA, P. I.

Troops—Band and D, Mayaguez, Porto Rico; A, Camp of the 1st Regt. Cavalry, Porto Rico; E, San German, Porto Rico; G, Caguas, Porto Rico; K, Camp of the 1st Regt. Cavalry, F. Hill, and M, San Juan, Porto Rico; C, Ponce, Porto Rico.

SIXTH CAVALRY—COLONEL S. S. SHERMAN.

Adjutant, Capt. M. F. STEELE. Quartermaster, Capt. W. W. FOSTER.

HEADQUARTERS, FORT IRBY, KANSAS.

Troops—A, E, G, and H, Fort Irby, Kan.; B, C, F and K, Fort Leavenworth, Kan.; D and L, Fort Sill, Okla.; and M, Fort Reno, Okla.

SEVENTH CAVALRY—COLONEL THEODORE A. BARTON.

Adjutant, Lieut. W. A. HUBBARD. Quartermaster, Lieut. W. H. HEAR.

HEADQUARTERS, HAWAII.

Troops—A, B, C, E, H, K, L and M, Hawaii; G, I, J and N, Pinar del Rio, Cuba.

EIGHTH CAVALRY—COLONEL ADNA B. CHAPMAN.

Adjutant, _____ Quartermaster, _____

HEADQUARTERS, PUERTO PRINCEPE, CUBA.

Troops—A, B, C, and M, Puerto Principe, Cuba; D, E, F, H, K and L, Nativitas, Cuba; G and I, Las Minas, Cuba.

NINTH CAVALRY—COLONEL T. M. MCGOUGH.

Adjutant, Lieut. J. A. RYAN. Quartermaster, _____

HEADQUARTERS, FORT GRANT, ARIZ.

Troops—A, B, D and M, Fort Grant, Ariz.; C and I, Fort DuFresne, Utah; E and G, Fort Apache, Ariz.; F, K and L, Fort Huachuca, Ariz.; H, Fort Wingate, N. M.

TENTH CAVALRY—COLONEL S. M. WHITSIDE.

Adjutant, Capt. P. E. TRIPLE. Quartermaster, Capt. S. D. FREEMAN.

HEADQUARTERS, FORT SAM HOUSTON, TEXAS.

Troops—Band and A, G, H and L, Fort Sam Houston, Tex.; C, D and M, Fort Clark, Tex.; E, Fort McIntosh, Tex.; F, Camp Eagle Pass, Tex.; I, Fort Bliss, Tex.; K, Fort Brown, Tex.; B, Fort Ringgold, Tex.

CAVALRY OF THE NATIONAL GUARD.

NOTE.—The following have no mounted troops: Alaska, Arizona, Connecticut, Delaware, District of Columbia, Florida, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, North Carolina, South Dakota, West Virginia, Vermont, Wyoming.

ALABAMA.

FIRST CAVALRY SQUADRON—MAJOR JAMES T. BECK.

Adjutant, Captain A. G. Forbes. Quartermaster, Captain J. F. Burns.
HEADQUARTERS, CAMDEN.
Troop "A," Montgomery. Vacancy. Troop "B," Camden, Captain Stonewall McConico; Troop "C," Selma, Captain V. P. Atkins; Troop "D," Birmingham, Captain J. B. Morson.

ARKANSAS.

Troop "A," Panola, Major M. C. House; Troop "B," Jacksonville, Captain S. W. Murtishaw.

CALIFORNIA.

Troop "A," San Francisco, Captain Marius Burnett; Troop "B," Sacramento, Captain John Cooke; Troop "C," Salinas, Captain Michael J. Burke; Troop "D," Los Angeles, Captain Charles H. Howland.

COLORADO.

FIRST SQUADRON OF CAVALRY—MAJOR JOHN CHASE.

Adjutant and Acting Quartermaster, First Lieutenant A. H. Williams.
HEADQUARTERS, DENVER.
Troop "A," Leadville, Captain C. H. Macnutt; Troop "B," Denver, Captain Wm. G. Wheeler; Troop "C," Denver, Captain James H. Brown.

GEORGIA.

FIRST REGIMENT OF CAVALRY—COLONEL WILLIAM W. GORDON.

Adjutant, Captain Wm. G. Harrison. Quartermaster, Captain Albert S. Eichberg.
HEADQUARTERS, SAVANNAH.
FIRST SQUADRON, FIRST REGIMENT—MAJOR PETER W. MELDRIE.
HEADQUARTERS, SAVANNAH.
Troop "B," McIntosh, Captain Willard P. Waite; Troop "E," Johnston Station, Captain Joseph W. Hughes; Troop "G," Darien, Captain Benjamin T. Sinclair; Troop "I," Jesup, Captain Harry W. Whaley.

SECOND SQUADRON, FIRST REGIMENT—MAJOR JAMES J. BREWER.

HEADQUARTERS, OLIVER.
Troop "A," Savannah, Captain Belrue Gordon; Troop "C," Springfield, Captain Daniel G. Morgan; Troop "D," Sylvania, Captain Jesse T. Wade; Troop "H," Waynesboro, Captain William H. Davis.

FIRST BATTALION OF CAVALRY INDEPENDENT—MAJOR JOHN M. BARNARD.

Adjutant, First Lieutenant John D. Twigg. Quartermaster, First Lieutenant Robert Dohme.
HEADQUARTERS, LAGRANGE.
Troop "A," Augusta, Captain Albert J. Twigg; Troop "B," Atlanta, Captain J. Stapleg Dodier; Troop "C," LaGrange, Captain Thomas J. Thornton; Troop "D," Hamilton, First Lieutenant John M. Bruce.

ILLINOIS.

CAVALRY SQUADRON—MAJOR EDWARD C. YOUNG.

Adjutant, First Lieut. Alvar L. Bournizze. Quartermaster, First Lieut. Milton J. Foreman.
HEADQUARTERS, CHICAGO.
Troop "A," Chicago, Captain Paul B. Lino; Troop "B," Bloomington, Captain Will P. Butler; Troop "C," Chicago, Captain Metullus L. C. Funkhouser; Troop "D," Springfield, Captain John S. Hurt.

MASSACHUSETTS.

FIRST BATTALION OF CAVALRY—MAJOR WILLIAM A. PERRINS.

Adjutant, First Lieut. Albert E. Carr. Quartermaster, First Lieut. Walter C. Wardwell.
HEADQUARTERS, BOSTON.
Troop "A," Boston, Captain D. A. Young; Troop "D," Boston, Captain John Perrins, Jr.; Troop "F," Independent, North Chelmsford, Captain Elisha H. Shaw.

MISSISSIPPI.

FIRST SQUADRON OF CAVALRY—MAJOR J. H. COOKE.

Adjutant, First Lieutenant B. B. Hardy. Quartermaster, First Lieutenant F. A. Outlaw.
HEADQUARTERS, ARTESIA.
Troop "A," Crawford, Captain J. J. Prowell; Troop "B," Sessumville, Captain A. F. Young.

MONTANA.

Troop "A," Billings, Captain J. C. Bond; Troop "B," Bozeman, Captain J. F. Keown.

NEBRASKA.

Troop "A," Milford, Captain Jacob H. Culver.

NEW HAMPSHIRE.

Troop "A," Peterborough, Captain Charles B. Davis.

NEW JERSEY.

First Troop, Newark, Captain Frederick Freilinghuyzen; Second Troop, Red Bank, Captain John V. Allstrom.

NEW MEXICO.

FIRST BATTALION OF CAVALRY—MAJOR FRITZ MUELLER.

Adjutant, First Lieut. Sherrard Coleman. Quartermaster, First Lieut. Leon Hertzog.
HEADQUARTERS, SANTA FE.
Troop "C," Aztec, Captain Lawrence Welsh; Troop "E," Santa Fe, Captain W. E. Griffin; Troop "F," Los Lunas, Captain Maximiliano Luna.

NEW YORK.

SQUADRON "A"—MAJOR OLIVER B. BRIDGMAN.

Adjutant, First Lieut. S. Row-Bradley, Jr. Quartermaster, First Lieut. Louis V. DeLoebue.
HEADQUARTERS, NEW YORK CITY. Armory, Madison Avenue, 84th and 93rd streets.
First Troop, New York City, Captain William C. Cammann; Second Troop, New York City, Captain Howard G. Badgley; Third Troop, New York City, Captain Latham G. Reed; Troop "C," Independent, Brooklyn, Captain Bertram T. Clayton.

OHIO.

Troop "A," Cleveland, Captain Russell E. Burdick.

OREGON.

Troop "B," Gresham, Captain Charles Cleveland.

NOTE.—Another troop, to be called Troop "A," will soon be organized, and a squadron organization will be completed.

PENNSYLVANIA.

Philadelphia City Troop, Philadelphia, Captain John C. Groome; Governor's Troop, Harrisburg, Captain Frederick M. Ott; Sheridan Troop, Tyrone, Captain C. S. W. Jones.

RHODE ISLAND.

FIRST SQUADRON OF CAVALRY—MAJOR GEORGE S. TINGLEY.

Adjutant, First Lieut. Leo F. Nadere. Quartermaster, First Lieut. Lucius H. Newell.
HEADQUARTERS, PAWTUCKET.
Troop "A," Pawtucket, Captain Edward T. Jones; Troop "B," Providence, Captain Wm. A. Maynard.

SOUTH CAROLINA.

FIRST BRIGADE OF CAVALRY—BRIGADIER-GENERAL JOSEPH L. STOPPELBEIN.
Adjutant-General, Major T. G. Disher. Brigade Quartermaster, Major R. H. Sweeney.
HEADQUARTERS, SUMMERVILLE.

FIRST REGIMENT OF CAVALRY—COLONEL W. J. CAUSEY.
Adjutant, Captain A. R. Speaks. Quartermaster, Captain T. E. Ulmer.

HEADQUARTERS, HAMPTON.

Troop "A," Brunson's, Captain R. A. Brunson; Troop "B," Garnville, Captain W. M. Steinmeyer; Troop "C," Brunson's, Captain G. M. Bowers; Troop "D," Stafford's, Captain R. M. Daley; Troop "E," Stafford's, Captain K. S. Long; Troop "F," Peoples, Captain H. E. Peoples; Troop "G," Gillisonville, Captain J. E. Robinson; Troop "H," O'Katie, Captain W. N. Barnes; Troop "I," White Hall, Captain S. A. Marvin.

SECOND REGIMENT OF CAVALRY—COLONEL G. P. ALLEN.
Adjutant, Captain R. C. Roberts. Quartermaster, Captain W. A. Collett.

HEADQUARTERS, ALLENDALE.

Troop "A," Barnwell, Captain J. A. Hays; Troop "B," Dunbarton, Captain J. M. Carter; Troop "C," Allendale, Captain A. W. Owens; Troop "D," Edgefield, Captain L. R. Brunson; Troop "E," Edgefield, Captain J. R. Blocker; Troop "F," Orangeburg, Captain J. A. Riley; Troop "G," Cedar Grove, Captain R. T. Newman; Troop "H," Hamburg, Captain J. P. De-laughter.

THIRD REGIMENT OF CAVALRY—COLONEL J. R. SPARKMAN.
Adjutant, Captain H. L. Smith. Quartermaster, Captain W. C. White.

HEADQUARTERS, GEORGETOWN, W. S.

Troop "A," Bonneau's, Captain J. A. Harvey; Troop "B," St. Stephens, Captain E. T. Guerry; Troop "C," Georgetown, Captain H. T. McDonald; Troop "D," Jeddburg, Captain C. H. Wilson; Troop "E," Conway, Captain L. D. Long; Troop "F," Lake City, Captain J. J. Morris; Troop "G," Georgetown, Captain J. H. Detyens.

SECOND BATTALION OF CAVALRY—LIEUT. COLONEL D. W. BRADSHAW.
Adjutant, Unknown. Quartermaster, Unknown.

HEADQUARTERS, PANOLA.

Troop "A," Eutawville, Captain Jeff D. Wiggins; Troop "B," Panola, Captain R. C. Richardson; Troop "C," Silver, Captain J. H. Dingle; Troop "D," Holly Hill, Captain R. F. Way, Jr.

NORTH DAKOTA.

Troop "A," Dunseith, Captain George W. Tooke.

UTAH.

Troop "A," Salt Lake City, Captain Joseph E. Carne.

TENNESSEE.

Cavalry Troop, Nashville, Captain George F. Hagar.

TEXAS.

FIRST CAVALRY REGIMENT—COLONEL J. R. WATIES.
Adjutant, First Lieut. James M. Burroughs. Quartermaster, First Lieut. Frederick Rhodes.

HEADQUARTERS, HOUSTON.

Troop "A," Austin, Captain L. H. Younger; Troop "B," Houston, Captain C. Towles; Troop "E," Dallas, Captain F. V. Blythe; Troop "F," Denton, Captain E. A. Hammond; Troop "H," Gainesville, Captain H. S. Teffler.

VIRGINIA.

Troop "A," Richmond, Captain E. J. Euker; Troop "B," Surry, Captain Geo. A. Savedge.

WASHINGTON.

Troop "A," North Yakima, Captain Marshall S. Scudder; Troop "B," Tacoma, Captain Everett G. Griggs.

WISCONSIN.

Troop "A," Milwaukee, Captain William J. Grant.

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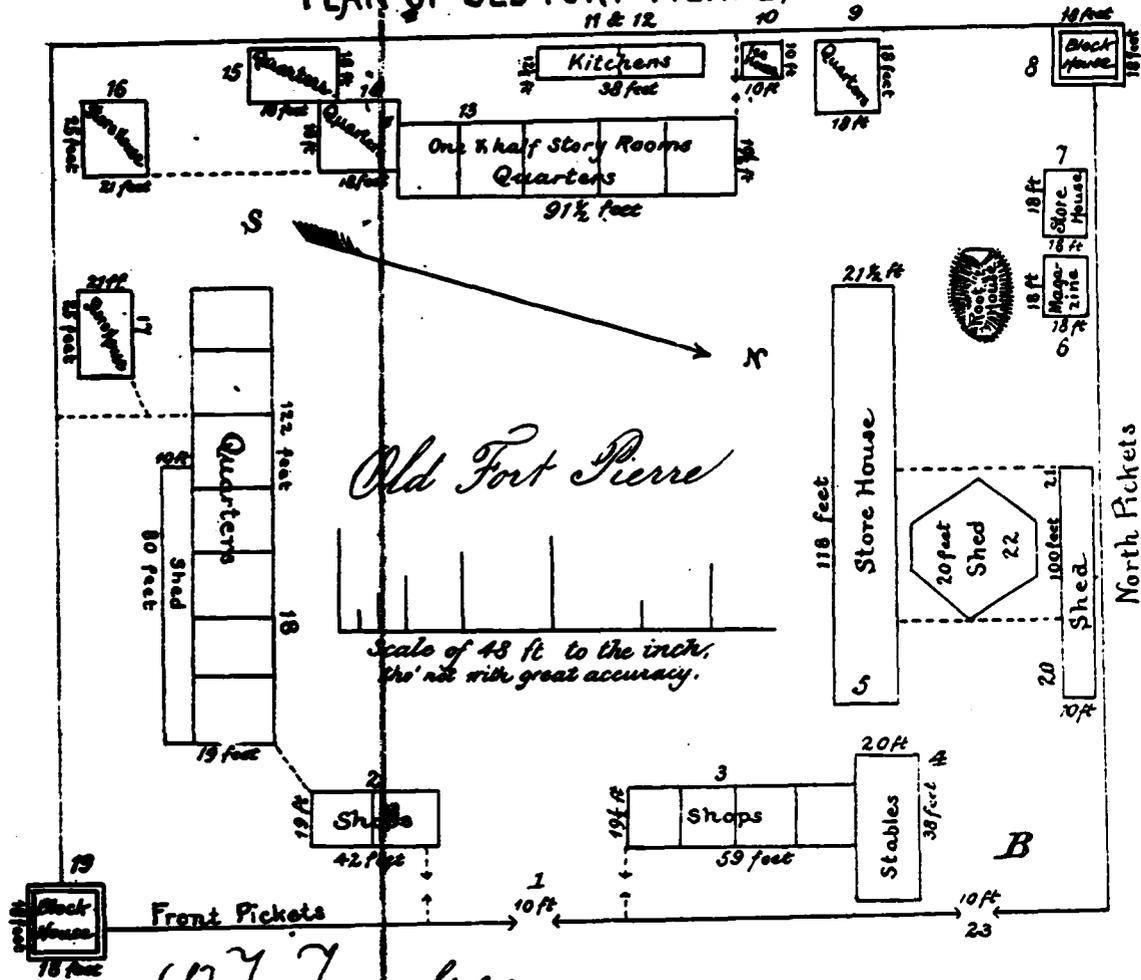
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PLAN OF OLD FORT PIERRE, 1855



Old Fort Pierre

Scale of 48 ft to the inch,
 tho' not with great accuracy.

*officer J. Y. Turnley
 Capt 4th Regt*

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FORT PIERRE AND ITS NEIGHBORS.

BY FREDERICK T. WILSON

LATE MAJOR FIRST REGIMENT, DISTRICT COLUMBIA NATIONAL GUARD

OLD FORT PIERRE, which for more than half a century was one of the most conspicuous landmarks on the upper Missouri, and whose name is perpetuated in the capital of a sovereign State, possesses more than a passing interest to the army, with whose history it is indissolubly associated. While it owed its establishment to the pursuit of the fur trade, which in the early years of the present century engrossed the attention of the idle capital of the commercial world, while affording employment for the superfluous energy of those adventurous spirits who, through all history, have followed close upon the trail of the discoverer, it came early under the eye of the army, without whose protection it could not have existed a month. It was one of a series of historical guide posts, which, dotted here and there across the Western Hemisphere, indicate the course of empire. The credulous nature of the unsuspecting native who, for a string of glittering beads, was willing to exchange a pelt or skin, an ivory tusk or a bundle of feathers worth

a thousand times their value, has furnished the incentive through which more than one continent has been opened up to civilization.

An army legend asserts that the place was founded by the illustrious PETER THE HERMIT, who miraculously survived the first Crusade, and selected this point near the *mauvais terre*, because of its unmitigated dreariness and its indescribable desolation; but as this is not well authenticated we give it for what it is worth. In the same manner we are compelled to discredit the intimation expressed in the well known sonnet that was sung about the camp-fires of the Sioux expedition of 1855:

"Oh we don't mind the marching, nor the fighting do we fear.
But we'll never forgive old HANEY for bringing us to Pierre,
They say old SHOTTO built it, but we know it is not so;
For the man who built this bloody ranche is reigning down below."

But all this is legendary, if not absurd, and we mention it merely as a part of the history that attaches to a famous locality. We shall discover facts enough before we are through.

As the first link then, in the chain of events that lead up to the door of a State capital, we find living in New Orleans about the middle of the last century, under the governorship of the Marquis de VAUDREUIL-CAVAGNAL, one, MARIE THERÈSE BOURGEOIS, born in that city in 1733, who at the age of sixteen had married one AUGUSTE RENE CHOCTEAU, also a native of New Orleans, and finding him of an uncertain temper, abusive and violent of conduct, had left him and returned to her friends, taking their only child, AUGUSTE, who had been born on the 26th of September, 1750. Upon the subsequent whereabouts or ultimate fate of M. CHOCTEAU, pere, history is silent. In providing the name for a family that was to become famous in the annals of the New World, he seems to have fulfilled his destiny. Five years later there appeared at New Orleans one PIERRE LACLEDE LIGEST (there is doubt concerning the last of these names, and as it was seldom used, the point is unimportant), a native of Bearne, not far from Pau in the Pyrennes; an attractive and energetic fellow of thirty or thereabouts, who had journeyed to the Mississippi in search of the proverbial fortune. He seems to have found it almost immediately, in the person of Mme. CHOCTEAU—still young and unencumbered save by the youth AUGUSTE, with whom he established domestic relations, and in the friendship of M. DE KERLEREC, who had succeeded to the governorship upon the promotion of the Marquis de VAUDREUIL to the Governor-Generalship of Canada, through whom he was enabled to secure a valuable contract to feed the French garrisons. In the

pursuit of this vocation he encountered one, GILBERT AUGUSTE MAXENT, another soldier of fortune, who was equally energetic and similarly ambitious, and who was also most influential at the viceregal palace. In 1763, just before LOUIS XV., in a moment of bibulous generosity had ceded the Louisiana Territory to Spain, DE KERLEREC was recalled and sent to the Bastille for safe keeping, but not before having made over to Messieurs MAXENT and LACLEDE the most valuable grant in his gift, an exclusive privilege to trade with the Indians on the upper Mississippi and its tributaries. "Thus does the fate of empire on a trifle rest."

These enterprising gentlemen seem to have lost no time in taking possession. They left New Orleans on the 3d of August, 1763, with a party of trappers, hunters and tradesmen, about thirty in number, for the purpose of locating the first of their proposed chain of trading posts, taking with them Mme. CHOCTEAU and her son AUGUSTE, together with the four children who had been the result of her second union. The party landed at Fort Chartres on the 3d of November, where they spent the winter, but early in February, 1764, young CHOCTEAU, then a robust youth of fourteen, was sent with a party of workmen to a spot on the west bank which LACLEDE had selected, to clear the ground and erect habitations. Here they were joined during the spring by another small party from New Orleans, and later by discharged soldiers and others from Fort Chartres.

As regards the naming of the new settlement there is much dispute. A favorite legend fixes the date of the completion of the village at the 25th of August, which being the fete day of SAINT LOUIS, suggested the name. It is a fact, however, that for many years, after the custom of the fatherland, the 25th day of August was observed at St. Louis as the fete day of the settlement. From this date the firm of MAXENT, LACLEDE & Co., the owners of the village and all its suburbs, as well as the sole purveyors of trade for all the country to the westward, seems to have flourished. AUGUSTE CHOCTEAU, whose business abilities developed with the trade, became the confidential clerk and agent of the Company, its chief clerk, and finally its manager; so that when in 1778 old PIERRE LACLEDE died, young CHOCTEAU was selected by the governor to administer the estate. So well did he perform this duty that Mr. MAXENT, who appears to have been at the best an inactive member of the firm, found it practicable to withdraw from the business, and AUGUSTE, associating his younger brother, JOHN PIERRE, who by this time had reached his majority, picked up the trade where LACLEDE had

dropped it, and for the succeeding quarter of a century proceeded to amass a respectable fortune.

In the meantime, VICTORIE, the eldest daughter of the CHOUTEAU-LACLEDE union, had married CHARLES GRATIOT; PALAGIE, the second, had espoused SYLVESTER LABBADIE; and MARIE LOUISE, the third, JOSEPH M. PAPIN, all gentlemen of wealth and standing, and all interested in the Indian trade. JOHN PIERRE had established intimate relations with the Osages and other tribes to the westward, and was regarded by JEFFERSON and MADISON, no less than by MERRIWETHER, LEWIS and WILLIAM CLARK, as possessing the best knowledge of the Indian character of any man living, and by each of these officials was intrusted with many confidential missions. A son of JOHN PIERRE, by name AUGUSTE PIERRE, penetrated to the headwaters of the Arkansas, and died at his trading-post in 1839; another son, FRANCIS GRATIOT, ascended the Missouri and founded Kansas City at the mouth of the Kaw. But this is to anticipate.

It was not to be expected that so promising a field should be long monopolized by a single firm. The license given LACLEDE by the French administration was never seriously recognized by the Spanish succession, though some feeble attempts were made to protect it, and when in 1800 Spain, tired of her unruly colony, returned it to the giver, the transfer was merely nominal, and the most of the inhabitants whose nationality was thus summarily tossed about, never heard of it, nor would have been at all concerned if they had. St. Louis as the head of the Indian trade soon became the rendezvous of daring spirits of all nations, who saw in the impending contest between England and France for the control of a continent a probable opportunity for the exercise of their peculiar talents. It was while the decision of this absorbing question was hovering in the balance that the sagacious mind of NAPOLEON found a happy though unexpected solution in the sale of the whole country, present and remote to the United States; and this was the signal for deeds of enterprise and daring such as were to surprise the world.

THE FUR TRADE ON THE MISSOURI.

In 1802 one, MANUEL LISA, a wealthy and enterprising Spaniard, formed at St. Louis a partnership with FRANCIS BENOIT, GREGORY SARPY and CHARLES SANGUINET, under the name of LISA, BENOIT & Co., for the purpose of operating an Indian trade along the upper Missouri in opposition to the CHOUTEAUS, but nothing seems to have come of it beyond a dispute among the partners, which the courts

were called upon to settle. In 1806, however, encouraged by the favorable reports of LEWIS and CLARKE, two army officers who had spent the winter of 1804-5 at the Mandan villages, not far from the present site of Bismarck and had penetrated to the Rocky Mountains, LISA formed another partnership with GEORGE DRUILLARD, one of LEWIS and CLARKE's men, with a capital of \$16,000, and entered upon active operations. These gentlemen ascended the Missouri during the fall of 1807 and spent the winter at the mouth of the Yellowstone and Big Horn. Their establishment, to which they gave the name of Fort Manuel, was the first in that section. LISA returned to St. Louis in 1808, and together with General WILLIAM CLARKE, the famous pioneer, and SYLVESTER LABBADIE the son-in-law of Madame CHOUTEAU, each contributing \$9,000, organized the American Fur Co. In the spring of 1809 these three gentlemen, at the head of a party of 150 men, ascended the Missouri as far as Fort Manuel, leaving a small establishment at the Arickaras village not far below the mouth of Big Knife River, which they called Fort Clarke; a second at the Mandan village, a mile or two above; and a third at the village of the Gros Ventres on the right bank. In the spring of 1810 they proceeded to the Three Forks of the Missouri, where they erected a fort and commenced trapping for beaver. They had every prospect of success until their operations were interrupted by the hostility of the Blackfeet, and after having lost some thirty of their men, became dispirited and began to separate, some returning by way of the Missouri, and others entering the employ of the Hudson Bay Co. The company languished during the second war with Great Britain, and finally expired about 1816.

About this time, GABRIEL CERRÉ and FRANCIS GRATIOT CHOUTEAU commenced to trade with the Kansas Nation, locating their house at a point very near the mouth of the Kansas (or Kaw), and BERNARD PRATTE, Jr., a grandson of Madame CHOUTEAU, and JOSEPH and ANTOINE VASQUEZ built a trading station at the Maha (or O-maha) village, somewhere about the mouth of the Platte. In 1818 the United States factory at Fire Prairie (Fort Osage) was abandoned, leaving the trade of the Osages to CHARLES LÉGUERRIER and the CHOUTEAU BROTHERS, who had contested it for twenty years. These, with the trading houses of JOHN and FRANCOIS ROBERDEAU and JOHN M. PAPIN, another son-in-law of Madame CHOUTEAU, enjoyed a monopoly of the trade of the Ottobas, the Ioways and the Missourias, while the firm of BERTHOLD & CHOUTEAU took that of the Pawnees, the O-mahas, the Piankeshaws, the Arickarees, and such of the Sioux as could be reached.

Such was the condition of the trade along the Missouri when, in 1819, nine gentlemen of St. Louis formed a partnership under the name of the Missouri Fur Co., having for its object the purchase of the interest of the company of the same name that had failed in 1816. These were MANUEL LISA, who was selected its president; THOMAS HEMPSTEAD, Jr., a brother-in-law of LISA; JOSHUA PILCHER, who afterwards became Superintendent of Indians at St. Louis; JOSEPH PERKINS, ANDREW WOODS, MOSES B. CARSON, JOHN B. ZENOIN, ANDREW DRIPPS and ROBERT JONES. During that summer PILCHER, who was well acquainted with the country, with a well appointed party, ascended the Missouri until they had outdistanced all the trading-houses on the river. Then, at what is now known as the Second Cedar Island, they built their first post, which they called Fort aux Cedars; at a point on the left bank, opposite Prospect Island, they located a second, under the name of Fort Lookout; and at about an equal distance above the Great Bend, also on the left bank, they left a third, which later became known as Fort George. At the Great Bend itself they erected a blacksmith shop for the manufacture of axes, battle axes, hatchets, knives, lances, etc., for the Indian trade, and twenty miles further along the river, at a point on the right bank, opposite the mouth of the Teton, they built a small establishment surrounded by a stockade, to which they gave the name of Fort Tecumseh. This was very near the site of the present city of Pierre, South Dakota.

The history of the following ten years, which was one of comparative quiet on the Missouri, takes us for a moment into the unexplored regions to the west and northwest. In 1809-10 JOHN JACOB ASTOR had organized his American Fur Company (the titles of these corporations become confusing) under a charter from the State of New York, with a capital of \$1,000,000—an immense sum in those days—and this parent company had begot a numerous offspring, most of them fledglings, organized, perhaps, as in these later years, rather for speculative purposes than legitimate operations. Among these were the Pacific Fur Company, created in 1810, with headquarters at the new city of Astoria, at the mouth of the Columbia; the Southwest Company, in 1811, intended to operate as far south as the Platte; the Columbia Fur Company, in 1817, to cover the territory between the Mississippi and the Yellowstone, and the two latter merging in 1826 with the North American Fur Company, which had been created in 1823. All these, it will be observed, confined their operations to the territory north of the 40th parallel. The country to the south of this line, which touched

closely upon the Spanish possessions, was practically a *terra incognita*. In 1826 JEDEDIA SMITH, WILLIAM JACKSON and MILTON SUBLETTE organized a company at St. Louis, under the name of the Rocky Mountain Fur Company, for the purpose of penetrating this southern section, and during the following four or five years explored the whole region from St. Louis to Santa Fe, and from thence to the Pacific, along the ocean to the mouth of the Columbia, and thence up the Columbia and back to the Missouri. But although this series of explorations were among the most remarkable achievements of American history, and although the company mustered at one time more than four hundred employees, and had projected enterprises that were rather gigantic than practicable, there came a time when it found itself unable to realize on its expectations, and after an existence of scarcely eight years, the Rocky Mountain Company decided to retire from business.

In the meantime the CHOUTEAUS, including the various branches of the family, had been busily accumulating fortunes. BERNARD PRATTE, who had married the daughter of SYLVESTER LABBADIE and PELAGIE CHOUTEAU, JOHN P. CABANNE, a banker of St. Louis, and BARTHOLEMEW BERTHOLD, who had married the only daughter of JOHN PIERRE, Sr., had joined with PIERRE, Jr., to form the American Fur Company of St. Louis. Then AUGUSTE and PIERRE, Sr., had retired, and been succeeded by PIERRE, Jr., much the ablest and energetic of the family, and the latter, with his partners of the American Fur Company, had, in 1834, purchased all the western interests of ASTOR, thus swallowing the progeny of its eastern patronymic, and becoming so formidable a competitor to the Hudson Bay Company as to compel it to confine its operations to British territory. So that when the stock of the Rocky Mountain Company came into the market, it was PIERRE CHOUTEAU, Jr., as the head of the CHOUTEAU syndicate, who grasped it, and by this operation succeeded in controlling nearly all the fur business of the United States east of the Rockies, as well as the trade with Santa Fe.

FORT PIERRE CHOUTEAU.

In purchasing the ASTOR interests, CHOUTEAU had secured the services of the men who had been managing those interests, and who, in many instances, had opened up and developed them. Among these was one, KENNETH MCKENZIE, a native of Scotland, who had served the Hudson's Bay Co., from which he had retired in 1820 and located himself as an independent trader on the upper Missouri.

becoming friendly with the Indians, and held by them in great respect. In 1829 he had gone with the North American Co., and when this was purchased by CHOTTEAU, he had entered the service of the latter and was put in charge of all his trade on the upper Missouri, with headquarters at Fort Tecumseh. The site of this post was not a convenient one for the Indians with whom MCKENZIE desired to trade; the river was wide at this point, and crossing difficult; for three and four days at a time the high winds, low waters and quicksands, closed all communication with the other bank. Moreover, experience had determined that the left bank of the Missouri was the preferable one for Indian trading. On this side roamed the Tetons, the Ogallalas and Arickares, much the larger and friendlier tribes, while on the north bank the Yanctons, Yanktonies and Sionnes were few in numbers, and to reach them it was necessary to go as far as the Jacques, frequently to the St. Peters. In company with WILLIAM LAIDLAW, another employee of the Chouteau Co., MCKENZIE visited the head village of the Arickares and obtained their consent to the location of a trading post on the left bank. The site selected was a level plateau some three hundred feet back from the river, about three miles from the mouth of the Wapka Shicka (variously styled the Teton, the Bad and the Little Missouri) and there in the spring of 1832, they erected a stockade 280 by 300 feet square, to which they gave the name of Fort Pierre Chouteau.

The new establishment having been completed, all portable property was removed from Fort Tecumseh and that post abandoned. The letter book, in which was recorded all the transactions of the establishment, shows the last communication from Fort Tecumseh to have been dated May 10, 1832, and signed by KENNETH MCKENZIE; the next is dated at Fort Pierre June 17, 1832, and signed by WILLIAM LAIDLAW, which is approximately the date of the opening of business at Fort Pierre.

It was about this time that the post was visited by GEORGE CATLIN, the famous Indian painter, whose portraits of the more prominent chiefs of the various tribes of North American Indians adorn the National Museum at Washington. CATLIN dates his letters from the mouth of the Teton, which point he had reached after descending the Missouri from the mouth of the Yellowstone, in company with BATISTE and BOGARD, his *compagnons du voyage*. "I am living with and enjoying the hospitality of a gentleman by the name of LAIDLAW," he writes (this is in May or June, 1832). "a Scotchman, who is attached to the American Fur Company, and who, in com-

pany with Mr. MCKENZIE (of whom I have before spoken) and LAMONT, has the whole agency of the Fur Company's transactions in the regions of the upper Missouri and the Rocky Mountains.

"This gentleman has a finely built fort here of two or three hundred feet square, enclosing eight or ten of their factories, houses and stores, in the midst of which he occupies spacious and comfortable apartments, which are well supplied with the comforts and luxuries of life, and neatly and respectably conducted by a fine-looking, modest and dignified Sioux woman, the kind and affectionate mother of his little flock of pretty and interesting children.

"This fort is undoubtedly one of the most important and productive of the American Fur Company's posts, being in the center of the great Sioux country, drawing from all quarters an immense and almost incredible number of buffalo robes, which are carried to the New York and other Eastern markets and sold at a great profit. This post is thirteen hundred miles above St. Louis, on the west bank of the Missouri, on a beautiful plain near the mouth of the Teton River, which empties into the Missouri from the west, and the fort has received the name of Fort Pierre, in compliment to Monsieur PIERRE CHOTTEAU, who is one of the partners in the Fur Company, residing in St. Louis, and to whose politeness I am indebted, as I have before mentioned, for my passage in the Company's steamer on her first voyage to the Yellowstone, and whose urbane and gentlemanly society, I have before said, I had during my passage.

"The country about this fort is almost entirely prairie, producing, along the banks of the river and streams only, slight skirtings of timber. No site could have been selected more pleasing or more advantageous than this; the fort is in the center of one of the Missouri's most beautiful plains, and hemmed in by a series of gracefully undulating, grass-covered hills on all sides, rising like a series of terraces to the summit level of the prairies, some three or four hundred feet in elevation, which then stretches off in an apparently boundless ocean of gracefully swelling waves and fields of green. On my way up the river I made a painting of this lovely spot, taken from the summit of the bluffs, a mile or two distant, (Plate 85), showing an encampment of Sioux, of six hundred tents or skin lodges, around the fort, where they had concentrated to make their spring trade, exchanging their furs and peltries for articles and luxuries of civilized manufactures."

CATLIN's view of this scene (which is No. 354 in the Catalogue, taken as he states, from the summit of a bluff a mile or more dis-

tant, necessarily reduces the establishment of Fort Pierre to a mere incident in the background of a wide landscape, the motive of which is an Indian encampment, made up of numberless parallel lines of conical tents of a dingy whiteness, in a frame-work of deep green. The Missouri, like a narrow ribbon of a faint blue tint, winds along the left mid-ground, and is lost behind the opposite bluffs. Mr. CATLIN expresses himself as under deep obligations to MCKENZIE, LAIDLAW, and to Mr. HALSEY, the chief clerk of the establishment, and records the fact that during his stay at the fort, which covered a period of several weeks, he had the pleasure of meeting Major SANFORD, the agent of the Sioux, as well as the redoubtable PIERRE CHOUTEAU himself. These gentlemen, on their way to the headwaters of the Missouri, seem to have rested a week or two at Fort Pierre, their presence creating the greatest enthusiasm and pleasure to the Indians, more than 6,000 of whom, according to Mr. CATLIN, were encamped around the fort.

A rough ground plan of the work, supplemented by the painting of Mr. CATLIN, the recollections of Captain LABARGE, still living at St. Louis (1897), who was a steamboat captain on the Missouri, in the employ of PIERRE CHOUTEAU & Co., and who journeyed to the spot in 1855 on the steamboat *St. Mary*, and on behalf of that company delivered over the fort to the United States, and an itemized schedule of the improvements as they were in 1855, enables us to substantially restore the original trading post as it appeared when completed by MCKENZIE.

The "fort," so-called, was constructed by enclosing an area of something less than two acres of ground by a picket or stockade of cottonwood logs sixteen to twenty feet in length, set upright in the earth and sufficiently deep to give them a firm hold. On the north-west and southeast corners were block-houses twenty-four feet square, two stories in height, each projecting eight feet outside the stockade, built of logs and covered by a hip roof, shingled. The stockade was entered by two gates ten feet in width and sixteen in height, opening from the east. Within this enclosure, which was 280 feet east and west by 300 feet north and south, were some twenty buildings of various description, and devoted to the various purposes of a frontier trading-post.

Entering the main gate, which stood nearly in the center of the east front, the buildings first encountered were two one-story houses seven and one-half feet in height, of hewed logs, each 60x24, and separated by a ten-foot passage way, which led into the inner enclosure. The building on the right was the carpenter's shop; that

on the left was given over to the blacksmith, the tinner and the saddler. Adjoining these were two long buildings 110x24, and facing them, a third of same dimensions, each of a single story, nine feet in height, built of logs and covered by a shingle roof. The one on the right was the trading-house, or store, where were kept the articles which were given the Indians in exchange for their furs. It was in this building that the bartering went on, and where the courtesies of the company were extended in the form of liquor and tobacco. The other two of the larger buildings were used for quarters for the employees. A building directly in the rear of the westernmost of these, which was also of logs 40x20, was devoted to the kitchens: other smaller log buildings, 24x24, were scattered about the enclosure and used mostly for storing the furs and peltries, awaiting a fitting opportunity to send them down the river to St. Louis. To the right of the blacksmith's shop were the stables; in the rear of the trading-house the saw-mill, and beyond the mill an adobe structure twenty feet square, with tin roof, which was used as a magazine. The place was intended to accommodate from fifty to one hundred men, though few occasions were likely to occur for so great a number. It is improbable that one-half that number were there at any one time for the twenty-five years following its establishment.

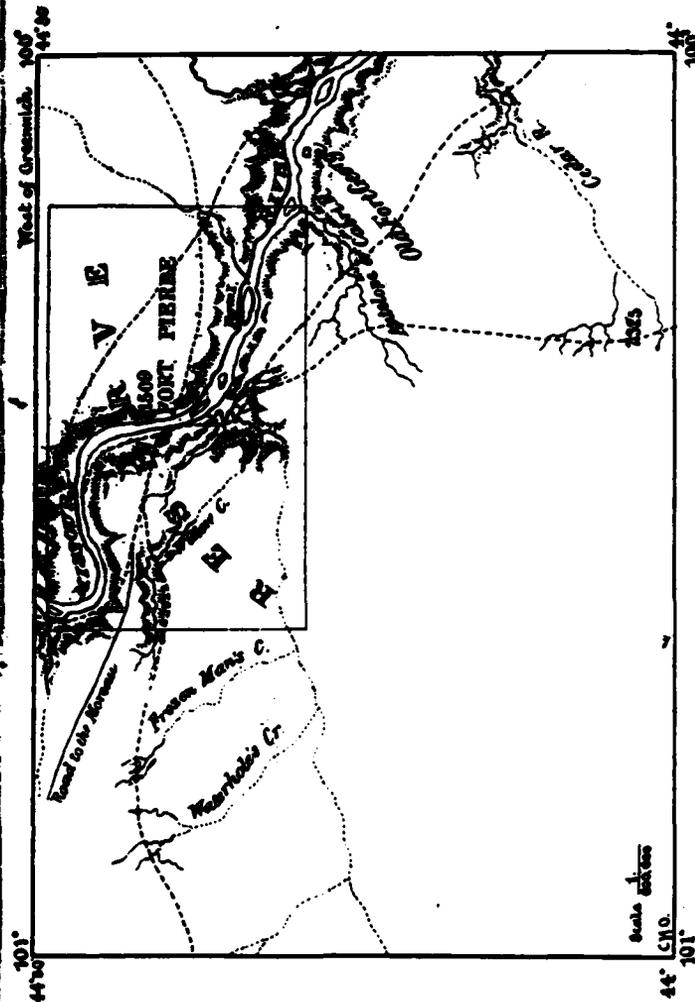
The earliest map of this section that was based upon official reconnaissances, was that of NICOLLET (1843), who visited the vicinity in 1839, and was assisted by Lieutenant J. C. FREMONT, of the Topographical Engineers. On this map the trading-post appears as Fort Pierre Chouteau. The next was made by Lieutenant (afterwards Major-General) GOUVENEUR K. WARREN, of the Topographical Engineers, who accompanied General HARNET on the Sioux expedition of 1855. This map was published in 1859. There are plenty of earlier maps, but none of much value. WARREN's map designates it as Fort Pierre, but all the earlier maps, as well as the one made by the COLTON's, of New York, for WOOLWORTH's Nebraska, in 1857, give the full name. The nature of the elision is unusual, and can be accounted for only on the score of that economy of speech that is peculiar to frontier life. Posts with such designations as Fort John Buford or Fort David A. Russell, have quickly become Fort Buford and Fort Russell, but never Fort John or Fort David. Be that as it may, Fort Pierre for the twenty-five years following its establishment, and in fact for many years afterwards, became the most important landmark in the Sioux country. There is nothing

to be said of its history during this period that may not be said of any frontier trading-post. Its existence was uneventful.

NICOLLET, in his journal, remarks that he arrived at Fort Pierre on the 12th of June, 1839, on the steambot *Antelope*, owned by the American Fur Co., of St. Louis, which, he says, had been controlled by the several firms of PRATTE, CABANE & Co., PRATTE, CHOUTEAU & Co., and PIERRE CHOUTEAU & Co., having left St. Louis on the 4th of April, so that they were sixty-nine days ascending a distance of 1,271 miles. Among his fellow-travelers were M. WILLIAM LAIDLAW, who was the first manager at Fort Pierre, and was then in charge of the company's establishment at the Yellowstone (Fort Union), and a Mr. KIPP, also an employee of the company, who was stationed at the post on the Maria (Fort Piegan), together with some sixty or seventy employees of the company—Creoles, Canadians and half-breeds, destined for the various posts of the company. At the time of NICOLLET's visit the agents of the factory at Fort Pierre were Mr. P. W. PAPIN and JACOB HALSEY, to whose zeal and interest he is much indebted for the furtherance of his work.

THE TRADING POSTS MULTIPLY.

But in the meantime Fort Pierre was being slowly surrounded, and the immense circle of which it was once the center was gradually contracting. The government, which in 1827 had located a large post at a point not far above the mouth of the Kansas under the name of Fort Leavenworth, was rapidly reconnoitering the country, and sending out expeditions in all directions north and west. In 1829 MCKENZIE had located a post at the mouth of the Yellowstone, the first on the Missouri within the limits of what is now Montana, to which he gave the name of Fort Union. In 1830, he made a treaty with the Piegans, and with their permission, in 1831 erected a post at the mouth of Maria which he called Fort Piegan. This location proved a mistake, and he built another in 1832 on the south side of the Missouri at a point called Brule Bottom, and called it Fort Brule. It was during this year that three experienced fur hunters, by name PREMAN, HARVEY and BOISE, formed a partnership for the Indian trade, and established their headquarters at the point on the left bank opposite Medicine Knoll River, where PILCHER had located a post in 1819, and which the Arickarees had robbed the following spring. They gave to their post the name of Fort George. It was a small affair; a few huts, neither stock-



FORT PIERRE.

1855.

aded nor fortified, and the entire establishment, trading post, business, principals and employees, was almost immediately absorbed by the Chouteau Co., but the name of the post has survived as a prominent landmark to the present day. Another of PILCHER's posts, Fort Lookout, about the same distance below the Big Bend as Fort George was above it, came into the possession of the CHOCTEAUS at about the same time. It was at this post that ATKINSON and O'FALLON had made a treaty with the Tetons, the Yanktons and the Yanktonais on the 22d of June, 1825.

The following year ROBERT CAMPBELL and WILLIAM SUBLETTE built another post five miles below Fort Union, under the name of Fort William, and the same year MCKENZIE erected a large post at the mouth of the Big Horn for the use of the Crows, calling it Fort Van Buren; and this proving an inconvenient point for the Indians he removed it a few miles below, but changed its name to Fort Cass. The next year (1834) the Chouteau Co. went out as far as possible on the Platte and built Fort Laramie, which in 1849 they sold to the United States, and in 1843 ALEXANDER CULBERTSON, one of CHOCTEAU's men who had been superintendent at Fort Brule, and later at Fort Laramie, was sent back to the Piegans, and built Fort Lewis, twenty-five miles above the mouth of the Maria. Three years afterwards this post was abandoned and the timbers of which it was constructed rafted down the river eight miles, where CULBERTSON founded Fort Benton in 1846. About the same time, perhaps a year earlier, the CHOCTEAUS built a post among the Gros Ventres and Mandans, thirty miles below the mouth of the Little Missouri, under the name of Fort Berthold. In 1848, GALPIN and LABARGE both employees of the Chouteau Co., set up for themselves, and built a number of posts along the Missouri and Yellowstone, among them Fort Campbell, a short distance above Fort Benton, but they soon abandoned the trade and returned to the American Fur Co. The same year LAWENDER, another rival trader, built Fort Alexander on the Yellowstone, and in 1850, CULBERTSON went as far as the mouth of the Rosebud and built Fort Sarpy. This was the last of the trading posts. The country was slowly but surely opening up to settlement, and the primitive methods, which had been ample for dealing with the unsuspecting Indian, were inadequate to meet the new conditions.

The settlements were increasing; and to protect the settlers, no less than to keep open the routes of immigration, the aid of the general government was called in, and the instrument of the government for this purpose was naturally the army. As has been mentioned, the United States had in 1827 built a large fort at Leaven-

worth, near the mouth of the Kansas, and in 1849 had purchased from the American Fur Co. its old post on the north fork of the Platte at the mouth of the Laramie. A year earlier it had located Fort Kearney at a point on the Platte midway between those two; it now (1853) built a large post which it called Fort Riley, at the junction of the Republican and Kansas, about midway between Leavenworth and Kearney; and a second on the Minnesota, under the name of Fort Ridgely. The trail between Fort Ridgely and Fort Laramie, the two posts furthest advanced, something over 650 miles in length, crossed the Missouri at Fort Pierre, which was nearly equi-distant between them. This was the situation when, in 1855, the repeated and merciless barbarities of the Sioux had reached a point where longer forbearance on the part of the government was not to be thought of.

During the years 1850 to 1854 the Sioux had committed frequent depredations upon the settlers throughout Nebraska and the Dakotas, as well as upon the emigrants passing along the route to Oregon and Utah. On the 19th of August, 1854, Lieutenant GRATTAN of the Sixth Infantry, was sent by the commanding officer at Fort Laramie with thirty men to arrest an offender. The entire detachment was massacred by the Indians with the exception of one man, who escaped severely wounded, and subsequently died. The circumstances of this affair were at first involved in much obscurity, but investigation proved that the massacre was the result of a deliberately formed plan, prompted by a knowledge of the weakness of the garrison at Fort Laramie, and by the temptation to plunder the public and private stores accumulated at and near that post. The number of the Indians engaged in this affair was between 1,500 and 2,000. For the purpose of chastising these Indians, and to protect from further Indian incursions the frontiers of Nebraska and Kansas, as well as the emigrant routes leading from the Missouri to the West, the War Department determined to enter the Sioux country in force.

The orders of the Secretary of War for this purpose are dated March 22, 1855. They designate Brevet Brigadier-General Wm. S. HARNEY as the commander of a force of about 1,000 men, to conduct the operations about to be undertaken against the Sioux, and direct him to proceed to St. Louis to complete the preparations for the expedition. The troops selected were the light battery of the Fourth Artillery then at Fort Leavenworth; four companies of the Second Dragoons at Fort Riley; two companies of the Second Infantry from Fort Riley and four from Carlisle Barracks; six companies of the Sixth Infantry from Jefferson Barracks, three from Fort Laramie

and one from Fort Kearney. In the preparation of the plan of campaign it was considered that the theatre of operations would be limited on the south by the Platte, on the northeast by the Missouri, and the northwest by the Black Hills, with an area of about 90,000 square miles; that the strength of the hostile Sioux would be about 7,000 warriors, and that a decisive engagement with the whole band was preferable to allowing them to break up into small parties. To accomplish this end, it was determined to establish three depots for the collection of troops and supplies. Fort Kearney, Fort Laramie, and a third at some point on the upper Missouri between the White Earth and Cheyenne, in the vicinity of Fort Pierre.

THE UNITED STATES BUYS FORT PIERRE.

On the following day the Quartermaster-General directed Major VINTON, the Quartermaster at St. Louis, to "obtain the most reliable information possible as to the suitability of Fort Pierre Chouteau, at the mouth of Bad River on the upper Missouri, for a depot of supplies." Major VINTON replied on the 30th, enclosing a rough plan of Fort Pierre and of the surrounding country. He reported that he had conversed with Mr. JOHN B. SARPY, the active partner at St. Louis of the firm of P. CHOUTEAU, JR. & Co., and from this conversation he gathered that Fort Pierre is unfitted for a depot of supplies for any considerable force. The fort itself is small, and is located in the *Mauvais terre*, where for hundreds of miles there is no grass that can be made into hay; no good ground for corn and fodder, and no fuel within twenty miles. Although he expresses at considerable length decidedly unfavorable opinion of Fort Pierre as a depot, he is compelled to admit that for the purposes of the contemplated operations *there is no other point on the Missouri more eligible*, and on the 9th of April he forwarded a statement from a Mr. PICOTTE, an old employee of the American Fur Co., much at variance with that of Mr. SARPY. This view of the case seems to have prevailed at the War Department, for on the 14th of April an agreement was entered into between General CHAS. GRATIOT, representing P. CHOUTEAU & Co., and Quartermaster-General JESUP, whereby the former agreed to sell to the United States, for the sum of \$45,000, "the trading establishment on the Missouri River, near the mouth of the Little Missouri River, called and known as Fort Pierre, together with all buildings within and around the pickets of said fort, and all the lumber and other materials in and around it, as well as the island in the vicinity," possession to be given on or before June 1, 1855.

GENERAL GRATIOT.

The appearance of General GRATIOT in this transaction was somewhat significant. If we are to credit the volume of parol testimony, the opinions of many prominent officers of his period, including General SCOTT, as well as of a Senate Judiciary Committee, General GRATIOT was perhaps the most—shall we say the best—abused man in the history of the army. To the dispassionate student who writes sixty years after the event, his case appears to have been one in which a most worthy and zealous officer became enveloped in the meshes of red tape and fell a victim to his own obstinacy. This is no place to argue the matter: it will suffice to narrate the cold facts.

Missouri had two appointments in the year 1804 to the Military Academy, and such was the influence and power of the commercial interests at that period, that both of these most desirable posts were captured by the house of CHOUTEAU. To AUGUSTE, the son of AUGUSTE, who was the eldest son of Madame CHOUTEAU and PIERRE LACLEDE, was given the one, and to CHARLES, a mere lad of sixteen, the son of CHARLES GRATIOT and VICTORIE, the eldest daughter, the other. Both graduated well in the class of 1806, young CHOUTEAU going to the Second Infantry, and thence to the staff of General WILKINSON, and GRATIOT taking his eighteen years of manhood to the Engineers. Promotion was rapid: he was a captain at twenty, a major at twenty-seven, a lieutenant-colonel at thirty-one, and before he was forty he was at the head of his corps, with the rank of Colonel and Chief Engineer of the armies of the United States. In the meantime he had seen hard service in the field under HARRISON in the War of 1812-15; had built and helped to build Forts Delaware and Mifflin, Forts Monroe and Calhoun, as well as the defenses of the Lakes, one of which had been named in his honor. No officer stood higher in the estimation of the army and of his countrymen: none deserved better of the republic.

Like every officer who handles public money and General GRATIOT up to 1835 had handled from ten to twenty millions; he was in interminable correspondence with the Auditor; letters of advice concerning allowances and disallowances; statements of differences, demanding explanations of this, of that, and the other. What officer of the army is there who has not been through it all? GRATIOT claimed that his accounts had not been settled for twenty years; that he never knew and was never told, whether he owed the government or the government owed him, until the 19th of July, 1835, when he was directed by the Auditor to transfer some \$35,000

from one account to another. At this time his pay had been stopped for some months in consequence of disallowances and suspensions; he had been urging, begging and pleading for a settlement; all to no effect. A happy thought strikes him: he will hold on to the small balance in his hands until the government condescends to balance his accounts; that done, both parties can start all over again. He is amazed that the brilliancy of this idea does not strike the Secretary of War with equal force. Off the contrary, the Secretary of War submits the matter to the President, who, on the 28th of November, 1838, decides that General GRATIOT is wrong in his position that an officer may retain public moneys to satisfy alleged claims against the government, and directs that he pay over at once to the treasury the sum of \$21,654. and \$10,058 more within thirty days. Alas for the perversity which usually accompanies a hard head and an obstinate will. Instead of promptly obeying this order, and fearing that to turn over this money would leave him no recourse for the future recovery of the money he believed to be due him, he filed a demurrer. To this President VAN BUREN responded on the 4th of December, by summarily dismissing him from the army. And with this, so far as the government was concerned, the incident was closed. No amount of pleading, or threatening, or litigation, or petitioning, ever accomplished the slightest change in the attitude of the War Department. No one ever believed that General GRATIOT was guilty of anything but stubbornness and obstinacy; his character, so far as we know, was never attacked. All the same, he was ruined, officially, financially, and personally.

Two years later he was given a clerkship in the General Land Office, which he held until 1855, when, his health undermined and his spirit broken by the neglect of friends and relatives, he returned to his home to die—a victim to bureaucracy? injustice? the ingratitude of republics? Who shall say? His signature to the sale of the old fort of Fort Pierre was the last he ever wrote. It was dated the 14th of April, 1855; on the 18th of May he was dead. But all unknowingly he was contributing to a tardy retribution. He was selling to the government that had driven him out of the army for a paltry eight to ten thousand dollars, a tumble-down trading post, two thousand miles from anywhere, for \$45,000, that would have been dear at that many hundreds.

The orders for the movement of these troops were issued under date of March 23d. They provided that the four companies of the Second Infantry at Carlisle, and the two from Fort Riley, should proceed up the Missouri River in boats and establish a post in the

vicinity of Fort Pierre; the remainder of the expedition to rendezvous at Kearney and Laramie; Fort Pierre to be the principal depot, where two-thirds of the supplies should be accumulated, and arrangements made for the accommodation of four companies of cavalry and six of infantry. The movement was to be commenced at once.

Owing, however, to the difficulty encountered in obtaining vessels of proper draft, and to the want of reliable information regarding the navigation of the upper Missouri, it was the first week in July before the first troops had reached Fort Pierre. The steamboat *Australia*, which had been chartered to take the Second Infantry from Fort Leavenworth, sank en route in nine feet of water, and although the troops and baggage were saved, the public stores on board were lost and had to be replaced. The government had purchased two light draft side-wheel boats especially for this expedition, the *William Baird* and *Grey Cloud*, each drawing twenty-eight inches, and capable of carrying 350 tons on four and one-half feet of water, and had chartered every available boat at St. Louis: yet owing to the low water and difficulties of navigation, every one of them had been compelled to discharge at least half their cargoes at different points. The *Baird* and *Grey Cloud*, despite their light draft, proved too large and heavy, so that the supplies shipped in early June from St. Louis did not reach Fort Pierre until the 20th of August. All this operated to delay the expedition, so that it was feared that the season would be too far advanced for active operations.

THE SIOUX EXPEDITION OF 1855.

The first boat to arrive at Fort Pierre was the *Arabia*, on the 7th of July, with headquarters and Company "G" of the Second Infantry, 109 officers and men. This was followed on the 12th by the *Grey Cloud*, with eighty-two men of Company "A," and the *Baird*, with eighty-four men of Company "I," all under the command of Captain HENRY W. WESSELLS, Second Infantry. On the 14th, Major W. R. MONTGOMERY, the regimental commander, arrived with Major GAINES, of the Pay Department, and assumed command of the post. A few days later they were joined by Captain P. T. TURNLEY, of the Quartermaster's Department, Captain M. D. L. SIMPSON, Commissary of Subsistence, Assistant-Surgeon T. C. MADISON, and Lieutenant G. K. WARREN, of the Topographical Engineers; and these officers and troops formed the first garrison of Fort Pierre. On the 2d of August Captain NATHANIEL LYON, with Company "B," Second Infantry, thirty-seven men, and Company "C," thirty-five men, arrived on the

Clara, and they were joined on the 19th by Captain WILLIAM M. GARDNER, with two officers and eighty men, by the *Genoa*.

The following is a list of the officers and troops who accompanied the Sioux expedition of 1855-56 or were with the expedition at any time:

COMMANDING.

Brevet Brigadier-General WM. S. HARNEY, Colonel Second Dragoons.

STAFF.

Brevet Major O. F. WINSHIP, Assistant Adjutant-General.
 Captain ALFRED PLEASANTON, Second Dragoons, Acting Assistant Adjutant-General.
 Captain STEWART VAN VLIET, Assistant Quartermaster.
 Captain P. T. TURNLEY, Assistant Quartermaster at Fort Pierre.
 Captain M. D. L. SIMPSON, Subsistence Department.
 Lieutenant-Colonel TIMOTHY P. ANDREWS, Pay Department.
 Major BENJ. F. HARNEY, Surgeon.
 Captain DAVID L. MAGRUDER, Assistant Surgeon.
 First Lieutenant GEO. T. BALCH, Ordnance Corps.
 Second Lieutenant G. K. WARREN, Topographical Engineers.
 Second Lieutenant MARSHALL T. POLK, Second Infantry, Aide-de-Camp.
 Second Lieutenant E. MCK. HUDSON, Fourth Artillery, Aide-de-Camp.

SECOND DRAGOONS.

Lieutenant-Colonel, PHILIP ST. GEO. COOKE
 Major, M. S. HOWE.
 Adjutant, THOMAS J. WRIGHT.
 Company "D."—Captain, LAWRENCE P. GRAHAM; First Lieutenant, SAMUEL H. STARR; Second Lieutenant, JOHN PEGRAM.
 Company "E."—First Lieutenant, WM. D. SMITH; Second Lieutenant, HENRY B. LIVINGSTON; Brevet Lieutenant, JAMES WHEELER, JR.
 Company "H."—Captain, ALFRED PLEASANTON; First Lieutenant, JOHN BUFORD (R. Q. M.); Brevet Second Lieutenant, JOHN B. VILLIPIQUE.
 Company "K."—First Lieutenant, WM. STEELE; First Lieutenant, BEVERLY H. ROBERTSON; Brevet Second Lieutenant, THOMAS HIGHT.

SECOND INFANTRY.

Colonel, FRANCIS LEE.
 Lieutenant-Colonel, JOHN J. ABERCROMBIE.
 Major, HANNIBAL DAY.
 Major, WM. R. MONTGOMERY.
 Adjutant, NATHANIEL H. McLEAN.
 R. Q. M., GEO. H. PAIGE.
 Company "A."—Captain, C. S. LOVELL; First Lieutenant, CALEB SMITH; Second Lieutenant, JOHN O. LONG.
 Company "B."—Captain, NATHANIEL LYON; First Lieutenant, JAMES CURTIS.

Company "C."—Captain, NELSON H. DAVIS; First Lieutenant, THOMAS WRIGHT; Second Lieutenant, MARSHALL T. POLK (A. D. C.).

Company "D."—Captain, WM. M. GARDNER; First Lieutenant, H. M. McLEAN (Regimental Adjutant); Second Lieutenant, JOHN D. O'CONNELL.

Company "G."—Captain, HENRY W. WESSELLS; First Lieutenant, GEORGE H. PAIGE (R. Q. M.); Second Lieutenant, ALFRED E. LATIMER.

Company "I."—Captain, DELOZIER DAVIDSON; First Lieutenant, THOS. W. SWEENEY; Second Lieutenant, HENRY A. SARGEANT.

SIXTH INFANTRY.

Major, ALBERMARLE CADY.

Company "A."—Captain, JOHN B. S. TODD; Second Lieutenant, SILAS P. HIGGINS.

Company "E."—Captain, SAMUEL WOODS; First Lieutenant, DARIUS D. CLARK; Second Lieutenant, JAMES A. SMITH.

Company "H."—Captain, THOMAS HENDRICKSON; Second Lieutenant, CHAS. G. SAWTELLE.

Company "K."—Captain, RICHARD B. GARNETT; Second Lieutenant, R. E. PATTERSON.

Company "C."—Second Lieutenant, JOHN McCLEARY.

TENTH INFANTRY.

Company "E."—Captain, HENRY HETH; First Lieutenant, NATHAN A. M. DUDLEY.

FOURTH ARTILLERY.

Light Battery "G."—Captain, ALBIN P. HOWE; First Lieutenant, RICHARD C. DRUM; First Lieutenant, EDWARD MCK. HUDSON; Second Lieutenant, JOHN MENDENHALL.

TROOPS.

Second Infantry.—Companies A, B, C, D, G and I.

Sixth Infantry.—Companies A, E, H and K.

Tenth Infantry.—Company E.

Second Dragoons.—Companies D, E, H and K.

Fourth Artillery.—Light Battery G.

The necessity of leaving small detachments in charge of the stores that had been discharged at various points along the river, protracted the conclusion of this primary movement until nearly the 1st of September. Major WESSELLS, with his company, had been sent down to old Fort George, twenty miles below the Teton, where the transports had been compelled to leave a portion of their cargoes, and another company was sent to Running Water for a like purpose. This garrison was now the furthest advanced of any that had been thrown into the Indian country. It was 1,525 miles from St. Louis by water—325 from Fort Laramie to the southwest, and

350 from Fort Ridgeley to the northeast. Its nearest postoffice was at Council City, on the Missouri, 425 miles distant, though one was established that winter at Sergeants Bluff, 100 miles nearer.

The early apprehensions concerning the unsuitableness of Fort Pierre for the purpose for which it had been selected, are now fully realized. Captain TURNLEY, the quartermaster, on his arrival, reports that the new post is a gloomy, sterile place—no grass within six miles, no wood within twelve; the huts one-story, out of repair, and not worth the expense of repairing; has seen no one authorized to turn over the premises; has no animals except those he has borrowed from the Fur Company; could take the engine out of the *Baird* and run the saw-mill, if he could get a boiler; is generally disheartened. A board of officers is next assembled to inspect the purchase. They find the whole establishment "in bad order, bad condition and bad repair;" all of the buildings in such a dilapidated condition that they will simply have to be built over again; the pickets rotted off near the ground and falling down; the saw-mill old, worn out, and of very little value. They estimate that it will cost \$22,000 to put the establishment into anything approaching the condition called for under the agreement of purchase. Then ensued a wordy dispute. Mr. GALPIN, the agent of CHOCTEAU, claimed that the company was selling a "trading-post" and not a military fort, and that for a trading-post it was all it had been represented to be; that the government has sent more than twice the amount of supplies and number of troops it had agreed to; \$3,000 would be an ample allowance for repairs. In the end, the War Department paid the full price agreed upon, in sheer disgust at the manner in which it had been duped.

But the inadequacy of the stockade was inconsequential when compared with the utter barrenness of the surrounding country. The fort was delightfully located upon a level plain about 300 feet from the river, and within was reasonably comfortable. Without, was utter desolation. For eight miles below and above the post, on the west side of the river, neither building timber, fuel nor grass could be found that was worth the hauling; on the opposite bank (to cross which was to encounter low water, quicksands and high winds, which last frequently closed navigation entirely for three days at a time) a fair supply of miserable grass could be found ten or twelve miles below, and fuel eight miles above. It would have been difficult to have made a more unfortunate selection. Fort Pierre had no doubt been wisely located in 1830, but its twenty-five years of subsequent occupation had absolutely exhausted the re-

sources of the surrounding country. The statements of Mr. SARPY, when first approached in St. Louis, as to the suitability of this place for the purposes desired, were fully borne out by the facts; the company had not misrepresented it nor concealed the truth.

HARNEY WINTERS AT FORT PIERRE.

General HARNEY, with his fighting force, arrived on the 19th of October, having marched across from Fort Laramie, skirted the headwaters of the White Earth River, through the Brule country, for one hundred miles, and along the Cheyenne for another hundred. He had found no Indians, but found signs indicating that they had gone toward the headwaters of the Little Missouri and Powder. Deeming it impracticable to penetrate that section so late in the year, he had concluded to go into winter quarters at Fort Pierre. On the 3d of September he had encountered a party of Brules near Ash Hollow, and after a sharp engagement had utterly routed them: the results were eighty-six Indians killed, five wounded, seventy women and children captured, together with all their provisions and camp equipage. Recognizing at once the impossibility of wintering his command within the fort, he took measures to otherwise dispose of them. The four companies of the Second Infantry, under Major WESSELLS, were sent to a point on the east bank about five miles above the post, to establish a winter cantonment; two other companies of the Second, with two troops of dragoons, to a point on the east bank eighteen miles above; Major CADY, with four companies of the Sixth Infantry, to a point on the west bank ten miles above, to which he gave the name of Camp Bacon; and Major HOWE, with a troop of dragoons and fifty men from the Second Infantry, to a point between the mouth of the White and L'eau-qui-court, to which he gave the name of Cantonment Canfield. Captain GARDNER, with the three companies of the Second, who had located on the east bank seven and one-half miles above Fort Pierre, also went into winter cantonment (which he called Cantonment Miller, as did the company at Farm Island. The aggregate of this force was 897 officers and men.

General HARNEY's report of the situation in December, 1855, is clothed in strong language. He thinks the first arrivals should have lost no time in rendering their position comfortable for the winter; that their disadvantageous position, the dilapidated state of the fort, should have determined them to move on, either up or down the

river, to some spot where wood and grass could have been found; that five miles further on, on the east bank, he would have found a position adapted to all his wants. "In conclusion," he remarks, "it was unfortunate that the steamers purchased to transport the troops here were entirely too large for the purpose; it is unfortunate that my orders were disobeyed in that purchase; it is unfortunate the troops did not arrive in this country earlier; it is unfortunate they were stopped here; and most unfortunate of all was the absence of a commander of energy, experience and industry."

On the 25th of April General HARNEY had been directed to cause a military reservation to be laid off about Fort Pierre of such extent as might be required for public purposes, and this duty was performed by Lieutenant G. K. WARREN, of the Topographical Engineers. On account of the limited resources of the surrounding country, he found it necessary to include all the territory between the Antelope and the Chautier. It extended by the river sixteen miles above the post to twelve miles below: its length east and west was twenty-two and one-half miles, and its breadth north and south twelve and one-half. This gave an area of about 270 square miles, or nearly 175,000 acres, only about 10,000 of which were of any value. He made a very careful survey of the country, and was disposed to believe that the year was an unusual one, and that longer experience may show it to better advantage. At the site of the fort he found the grass to have been killed by the Indian lodges, and all the cottonwood destroyed in giving the bark to their horses in the winter. The landing was a changing one, as high water frequently put a sand bar in front of the fort a half mile wide; the boats were obliged to discharge a mile below the fort. He found GALPIN and his party, who had vacated Fort Pierre on the arrival of the troops, camped about four miles above the Chautier, and DUPUIS, with the party from Fort George, on the north side of the mouth of the Cheyenne. He concludes that whatever "may be the comparative defects in the site of Fort Pierre for a military post, it is evident that it is the only one in this part of the country that could be occupied this year as a depot, and the labor that will have been expended before another season comes around, may render the removal of the post an affair of doubtful expediency."

SEARCHING FOR A SITE.

General HARNEY, however, was unwilling to expend any money upon the site of Fort Pierre, and much of the winter of 1855-6 was devoted to a careful reconnaissance of the surrounding country, with a view to discovering a better one. Several times he thinks he has found it. Under date of January 20, 1856, writing from Ponca Island, in the Missouri, he thinks that a post on the west side of the Big Sioux is indispensable, and that with a second at a suitable point on the Missouri, there will be no longer necessity for keeping up Forts Riley and Leavenworth. But returning to Fort Pierre on the 22d of February, he has become fully satisfied that after all Fort Pierre is the best position on the river for a depot: that a large force should be established at some point between Fort Clark and the mouth of the Yellowstone, and another at the headwaters of the Little Missouri, and desires that supplies be forwarded to those points at once. But some two weeks later (March 9th) his mind has undergone a change. He has learned of an insuperable objection to Fort Pierre as a military position, and that is, that freight cannot be landed within five miles above or three miles below. So he has concluded to remove from Fort Pierre to the site of old Fort Lookout, about twelve miles below the Big Bend: is already engaged in taking down the cottages and will move as soon as he can get a steamboat. He has also decided to establish his second position at a point opposite the mouth of Apple Creek, three miles below Heart River and sixty below Fort Clark, and will send a force to that place as soon as the steamers arrive. His next letters are dated June 30th, and advise the Department that he has now no intention of occupying the site near Old Fort Lookout, but has fixed upon a point on the west side of the Missouri, thirty miles above the mouth of the L'eau-qui-court, has caused his stores to be landed there, and will send all the troops from Fort Pierre, except two companies, as soon as possible. He suggests for this post the name of Fort Randall, as a token of respect to the memory of DANIEL RANDALL, late colonel and deputy paymaster-general of the army.

It is difficult to reconcile the official reports of General HARNEY's intentions with his actual performances. It is possible that he was influenced by conditions which it was impossible for him to anticipate or for us to understand at the distance of nearly half a century, for after advising the department of his abandonment of the plan to establish a post at the site of old Fort Lookout, he seems to have lost no time in sending a garrison there. Companies "D" and "H"

of the Second Dragoons arrived at that point on the 3d of June, 1856, under the command of Captain LAWRENCE P. GRAHAM, and remained until the 3d of August, when they were relieved by Companies "C" and "I" of the Second Infantry from Fort Pierre, and "B" and "D" from Cantonment Miller, with a total strength of 278 officers and men, all under the command of Captain NATHANIEL LYON of the Second Infantry. Captain LYON's order assuming the command of the post directs that "the name of the station be continued—in the absence of orders to the contrary—as Fort Lookout, by which it will hereafter be known." In a letter dated Fort Lookout, Nebraska Territory, September 1, 1856, Captain LYON remarks that he is located on an elevation gently sloping toward the river, which runs at a good speed, and affords good landing at the point where the river steamer *Goddin* lands her freight and is well adapted for building without any artificial grading; that timber, fuel and grass are tolerably convenient, and that his nearest post-office is at Sioux City, Iowa, 200 miles to the south.

Companies "C" and "I" left for Fort Randall during the month of August, but "E," "G," "H" and "K," with Lieutenant-Colonel ABERCROMBIE, arrived on the 2d of October; the two first named continuing their march to Fort Randall, leaving the Lieutenant-Colonel with Companies "B," "D," "H" and "K," five officers and 245 men, to constitute the garrison during the winter of 1856-7. Colonel ABERCROMBIE reports his march from Fort Pierre to have covered 310 miles, and as having been accomplished in twenty-five days; that he found the country traversed to be the worst possible, there being scarcely a stick of wood or a water hole from the James to the Missouri. He has no disposition to question the motives of those who sent him to this barren point, but trusts he may not be required to remain there longer than may be necessary to carry out the purposes of the War Department.

In the meantime the small garrison at Fort Pierre were patiently awaiting the outcome of the explorations which General HARNEY had set on foot. It was August before his dispatches had reached Washington, and by this time a new treaty had been made with the Sioux, by which they promised better behavior in future, and the Sioux expedition had been accordingly recalled. General HARNEY had been told that the Department agreed with him that the vicinity of the L'eau-qui-court is a proper site for a military post, but that it would not be advisable to attempt to establish a post in advance of Fort Pierre. In the meantime Colonel FRANCIS LEE, of the Second Infantry, had arrived and assumed command of the post, which on

the 31st of May numbered nineteen officers and 447 men. But on receipt of these instructions about July 28th, headquarters and Companies "B" and "D" left for Fort Lookout, and "C" and "I" for the new Fort Randall, leaving "A" and "G," six officers and 169 men, under the command of Captain C. S. LOVELL, Second Infantry, who had arrived during the disbandment of the expedition. Company "F" of the Second Infantry with Captain ALFRED SULLY and Second Lieutenant R. F. HUNTER with thirty-nine men, joined on the 26th of September, when Company "G" left for Fort Randall, leaving Captain LOVELL with Companies "A" and "F," six officers and 110 men, to form the garrison during the winter of 1856-7 which was to be the last occupation of the old trading post.

FORT PIERRE ABANDONED.

As soon as navigation opened in the spring of 1857, the steamer *D. H. Morton* was sent up the river from St. Louis, and on the 16th of May Captain LOVELL and his men embarked for Fort Randall, taking with them all movable stores and property, and Fort Pierre was as a military post finally abandoned.

And this was about the last of it as a visible entity. Messrs. D, M. FROST & Co., who had been trading at this and other frontier posts, were appointed custodians of the United States property at Pierre and Lookout, from which latter posts the troops had departed for Fort Randall on the 17th of June, and those people seem to have delayed the exercise of their trust until there was little left to guard.

FROST, who by the way, is still living near St. Louis, a New Yorker of good family who had graduated in 1844 and won his brevet at Cerro Gordo, and had resigned from the Mounted Rifles in 1853 to enter upon a mercantile career, was well known to most officers of the ante bellum period. After leaving the army he entered politics, became a legislator and senator of Missouri, colonel and general of militia; a visitor to West Point, a writer of some distinction, and a farmer of repute beyond his own horizon. He was among the first to join fortunes with the Confederacy, in whose service he rose to the rank of a brigadier-general, and to whose ill fated cause he contributed the most of his means. His reminiscences of the old army, as General SHERIDAN used to say, would make "some mighty interesting reading."

Mr. GALPIN, of the American Fur Co., had contracted to take down and transport to Fort Randall all the cottages and other movable property, but in doing so he seems to have converted about

one-half of it to his own purposes, for which irregularity the government retained something more than one-half the contract money. After GALPIN had gone, the Indians came in and took what he had left, smashed in the doors, broke the windows, and plugged up the fire-places; the elements completed the work. When Captain PAIGE, of the Quartermaster's Department, visited the place in November, he found little more than a shell, but this he repaired as best he could. "It has become necessary," he reports, "to reduce the form of the fort, cutting off one corner of the rectangular form of it, and leaving out the southeastern blockhouse. I have directed FROST & Co. to repair the picketing so as to include the blockhouse, and for that purpose have directed them to use all logs and lumber found in the vicinity of the fort. * * * On visiting Fort Lookout," he adds, "I found that there was not a single article of any description left there that could be used." But by this time the War Department was so thoroughly dissatisfied with its bargain that it was disinclined to have anything more to do with it. "The public should not be subjected to the expense of repairing the buildings or making improvements at Fort Pierre," writes the Quartermaster-General to Captain PAIGE, "and no expenditure of its means for this purpose will be allowed."

Then ensued some wordy correspondence; the custodians claiming that the American Fur Co. was endeavoring to regain the property, and the latter asserting with equal vehemence that while it was true that the government was being plundered, it was not being done by the American Fur Co., but by others whom it were unnecessary to name; and in the midst of the controversy the winds and rains were rapidly removing the bone of contention.

Captain W. F. RAYNOLDS, of the Engineers, who made an exploration of the Missouri and Yellowstone in 1859, held a talk with the Dakota Indians at Fort Pierre on the 15th of June of that year, and on the return from his journey, notes in his diary under date of September 10, 1859: "As we passed old Fort Pierre, I noticed that but little was left of the structure: the remains, consisting of the shell of one row of houses, and the demolition of this was in progress, the material being used in the new fort" - Randall.

FORT RANDALL.

Fort Randall, thirty miles above the mouth of the Leau-qui-court, or Niobrara, had now become the successor of all the lesser posts on the upper Missouri, as well as the legatee of the Sioux expedi-

tion. It was expected to hold the Sioux tribes to their treaty promises; to keep open the highway between Ridgely and Laramie, and to act as a base of supplies for operations along the upper Missouri. It had been selected by General HARNEY after a careful reconnaissance of the surrounding country, and on the 26th of June, 1856, a party of eighty-four recruits of the Second Infantry, under the regimental quartermaster, Lieutenant GEO. H. PAIGE and First Lieutenant D. S. STANLEY, of the First Regiment of Cavalry, had landed at the point, laid out the post, and set up the first cottages. In August, Companies "C" and "I" of the Second Infantry, and "D," "E," "H" and "K" of the Second Dragoons arrived, under the command of Colonel FRANCIS LEE, and these troops constituted the first garrison. It was located on the second terrace above the river, having at the rear a range of hills perhaps one hundred and fifty feet in height, which at a level a little below their summit, spreads out into a third terrace in the nature of a rolling prairie. The post was laid out at a situation nearly half a mile from the river, which at this point is nearly 1,000 yards wide, and navigable for light draft steamboats. Two years later, by the treaty of April 19, 1858, with the Yanktonias, four hundred thousand acres of land to the east and northeast was set apart as an Indian reservation for the Yankton tribes, and later a similar tract to the south about half as large was reserved for the Poncas. Between these two bands of Sioux, Fort Randall stood as a sentinel for nearly half a century.

Colonel LEE and the Second Infantry - from 250 to 300 officers and men - formed the garrison from the date of establishment until the summer of 1859, and during this time the career of Fort Randall was uneventful. On the 5th of that month, headquarters and Companies "E," "L" and "M," of the Fourth Artillery, under the command of Lieutenant-Colonel JOHN MONROE, followed a few days later by "H" and "I," arrived, and went into camp just below the fort, and on the 16th the companies of the Second Infantry marched out and those of the artillery took their places. Then followed another two years of quiet. The Indians were peaceable, devoted to the chase and such agricultural pursuits as the country permitted, and rapidly accommodated themselves to reservation life. They disposed of their furs and hides to the traders much as formerly, though the approach of the settler was gradually driving the buffalo and smaller game to the great forests of the Northwest. As has been stated, the American Fur Co., after disposing of the establishment at Fort Pierre to the United States, had moved further up the river and located trading-houses at the mouths of the Chautier and

Cheyenne, at both of which points there were Indian villages. About the same time another party, under Jo. LAFRAMBOISE, a *bois brule*, who had served a long apprenticeship to the Company along the headwaters of the Mississippi, and had been present in Washington at the signing of the famous treaty with the Sioux on the 29th of September, 1837, which had made possible the creation of Minnesota Territory, had landed on the left bank about four miles above Fort Pierre, opposite Lost Island, where there was a small village of Oahes, and put up a trading-house, which soon became known as Fort Laframboise. But on the whole, the fur trade east of the Rockies was nearing its end. The government had extended its paternal hand over the redman; the Indian Bureau was sending him calicoes and blankets, groceries and trinkets: was driving to him beef cattle by the thousands, and even supplying him with fire arms, with which he afterwards fought the government, and with fire-water, which furnished him the courage and incentive to raid the settlements. But all this was in the future: for the present there was nothing but peace and tranquility from the Big Sioux to the Yellowstone.

All the same the world was moving. Fort Pierre and its entourage, which at first was a part of the great Northwest Territory, had changed their allegiance from Louisiana to Missouri: from Missouri to Nebraska, and from Nebraska to Dakota. An act of Congress of May 31, 1854, had authorized the erection in mid-continent of two huge Territories, and permitted their inhabitants to decide for themselves whether slavery should or should not exist within their limits. This apparently harmless legislation had formed the occasion for one of the greatest political struggles the world has ever seen. While the upper Missouri was enjoying a monotonous peace, its lower banks were noisy with the strife of an irrepressible conflict. The peaceful days that had marked the existence of the garrisons at Pierre and Ridgeley and Randall had ended: the controversy that began at Lecompton and Lawrence was to end only at Appomattox.

The breaking out of the War of the Rebellion found these five companies of the Fourth Artillery still at Fort Randall, and it was quite a little advanced before it was found convenient to relieve all of them. In May, Companies "E," "I" and "L" had been sent to the East to be mounted as light batteries, leaving "H" and "M" under the command of Captain JOHN A. BROWN, a native of Maryland, and counted to be loyal to the Union. About all the other officers had either been ordered East, or on various pretexts had

managed to get there. It is said that Captain BROWN was induced by his wife—an estimable lady of Southern birth—against his own inclinations, to cast his fortunes with the Confederacy: the facts are, that he left his post without permission and was not heard from for several months, or until his resignation reached the War Department from a Southern city some time in July, 1861. This left the command of the post to the only commissioned officer who remained, Second Lieutenant T. R. TANSATT, and for the following six months this officer and his brave little garrison of something less than one hundred men, remained alone and apparently forgotten at this outpost of civilization, surrounded by Indians, whose friendship at all times doubtful, was made more so by the importunities of Confederate agents, and exposed to dangers far greater than their comrades in the field. It was not until the middle of December, when three companies of the Fourteenth Iowa Volunteers, under the command of Captain BRADLEY MAHANA, from Iowa City and its neighborhood, came up the river from Sioux City, and made camp on the river bottom, that relief came. These two artillery companies were then sent to Louisville, Ky., where they were united to form a light battery, and as such performed most valiant and distinguished service in the Army of the Cumberland during the greater part of the war.

ANOTHER FORT PIERRE.

The demolition of old Fort Pierre while it removed a prominent landmark, had little or no effect upon the perpetuation of the name as a point of rendezvous. Men journeying from opposite ends of the continent still appointed Fort Pierre as a place of meeting; trappers, traders, emigrants, red men and white men of every degree, continued to talk and write and sing of it as though it were still the busy scene on which GEORGE CATLIN had looked down on that May morning of 1832, when six thousand friendly Sioux were welcoming old PIERRE CHOUTEAU at the landing place; even the government which had itself issued the mandate that had leveled the walls of the old fort, and transported its materials to build Fort Randall one hundred miles away, continued to regard it as an absolute and undisturbed substantiality, making it the scene of present and prospective conferences and rendezvous and meetings, and always and everywhere disregarding its non-existence. All this to the confusion of the present historian, no less than to those who have preceded him. But the truth is, that in the parlance of the prairies the words

"Fort Pierre" were in themselves a phrase. They included anything and everything from the Great Bend to the Cheyenne, and between the Jim River and the Black Hills. A recognition of this fact will explain many otherwise contradictory passages in the history of the plains. "I left St. Louis on the 10th of May, 1862," reports Mr. LATTA, the agent for the upper Missouri tribes "in charge of the annuity goods on board the steamer *Spread Eagle*. We arrived at Fort Pierre on the 27th, where I found from two to three thousand Indians, portions of the several bands of Sioux, awaiting my arrival. In the morning their goods were placed on the shore in seven parcels, conforming as nearly as possible to the population of each; the Brules, Blackfeet, Sans-Arc, Minnicongies, Unc-pa-pas, Two Kettles and Yanktonais, all being Dakota Sioux." Then ensued a consultation, which because of the event that followed is now historical.

"They stated that they regretted to see me without a military force to protect them from that portion of their several bands who were hostile to the government, and that they were friends to the white men, and desired to live on friendly relations with the government and fulfill their treaty obligations. That General HARNEY, at Pierre, in 1856, had promised them aid: that they were greatly in the minority; that that portion of their people opposed to the government were more hostile than ever before: that they had, year after year, been promised the fulfillment of this pledge, but since none had come, they must now break off their friendly relations with the government and rejoin their respective bands, as they could hold out no longer; that their lives and property were threatened in case they accepted any more goods from the government: that the small amount of annuities given them did not give satisfaction: it created discord rather than harmony, nor would it justify them to come in so far to receive them: that they had been friends to the government and all white men: had lived up to their pledges made at Laramie in 1857, as far as it was possible under the circumstances, and still wished to do so, but must henceforth be excused unless their Great Father would aid them.

"They requested me to bring no more goods under the Laramie treaty, nor would they receive those present. The same views were expressed by all the speakers, but after a long parley BEAR'S RIB, a chief of the Sioux nation appointed by General HARNEY, a brave and good man, rose and said in the most touching manner, that for eleven years he had been the friend of the white man and the government; that for years he had relied upon promises made by

General HARNEY and former agents to send him assistance, yet none had come; that if he received those presents sent his people by his Great Father, he not only endangered his own life but the lives of all present; yet he loved his Great Father and would this once more receive for his people the goods present, but closed by requesting me to bring no more unless they could have assistance. A few days after this delivery, and after I had left, that portion of the Sans-Arc band opposed to any intercourse with the government came in from the prairies, assaulted and killed, within the gates of Fort Pierre, this true man, the best friend the white man had in the Sioux nation. Several others were killed in the affray. BEAR'S RIB was chief of the Unc-pa-pas, and that portion of his band friendly to the government who were present, numbering some 250, are now wandering outcasts in the country."

The scene of this murder, which Mr. LATTA locates at Fort Pierre, was actually at the trading post on the left bank, about three miles above the site of old Fort Pierre, which had been established by Jo LAFRAMBOISE in 1857 or 1858, and had been known for a time as Fort Laframboise. It was built on the bluff on the edge of the river, with neither timber nor grass within a mile, and had been selected merely on account of there being a good landing place at that point. It included a store, store-keeper's dwelling, a barrack for the employees, and two smaller houses, all of logs, and the whole surrounded by a stockade of cottonwood pickets, fifteen feet in height with bastions at diagonal corners. This small establishment soon became known as Fort Pierre, though it was a most unworthy and insignificant successor to the original: many of the first settlers in that section never knew any other. To confuse the situation, the island in the river opposite old Fort Pierre is known to this day as Laframboise Island, while the island opposite the new fort, on which Jo LAFRAMBOISE used to pasture his chickens, is known as Lost Island. But this is of course merely *en passant*.

THE SIOUX MASSACRES IN MINNESOTA.

The growing discontent among the Sioux, growing out of the neglect of the government to fulfill the promises made by General HARNEY at Fort Pierre in 1856, which were expressed to Agent LATTA on the 28th of May, 1862, and more forcibly demonstrated by the murder of BEAR'S RIB, was rapidly extending, though it was difficult to make any one believe it. Repeated warnings of friendly

Indians were laughed at; the whispered reports of trappers and woodmen who were quietly stealing back into civilization, that something serious was on foot, were regarded as the vapid wanderings of a timid fraternity. An outbreak at the Sisseton Agency was only prevented by the timely arrival of the troops from Fort Ridgely: the Indians balked in their purpose, scattered about the country. On the 17th of August, five persons were murdered at Acton in Meeker County, Minnesota, and this was followed by a series of cruel and barbarous deeds characterized by every savage atrocity and barbarity known to Indian ingenuity. Neither age, sex, nor condition was spared. Within a week from 800 to 1,000 quiet, inoffensive and unarmed settlers fell victims to savage fury. The town of New Ulm, on the Minnesota River, containing from 1,500 to 2,000 inhabitants, was almost entirely destroyed. Fort Ridgely was attacked, closely besieged, and was only saved by the heroic and unfaltering bravery of its small band of less than fifty defenders. Meantime the utmost consternation and alarm prevailed throughout the entire community. Thousands of homes were abandoned: every avenue leading to the more densely populated sections was crowded with homeless and distracted fugitives. As rapidly as possible armed men were hurried to the scene from St. Paul and vicinity, but it was some days before any considerable force could be dispatched against the Indians, and in the meanwhile they were escaping to the hills, killing, burning and devastating as they went.

The news of the uprising in Minnesota, as usual in such cases, was the signal for an ominous restlessness on the part of even the most peaceable tribesmen within five hundred miles. On the 25th of September the Governor of Iowa telegraphed the Secretary of War that the Yanktons, on his western borders, had joined the hostiles: that the settlers were fleeing by thousands; that danger was imminent, and prompt action alone could save a terrible massacre. Similar telegrams came in from the Governors of Nebraska and Dakota. There was a regiment under organization at Des Moines, and these men were hurried to Sioux City: the militia of Nebraska and Dakota were called into the field; settlers were fleeing in every direction: every road was lined with terror-stricken families, fleeing from a danger that to the most of them was wholly nebulous. On the 12th the panic had reached Kansas. The Governor summoned every able-bodied citizen to organize for home defense, and called upon the War Department for five thousand stand of arms. By the 15th of September a large majority of the settlers of eastern and southern Dakota, as well as northwest Iowa, had congregated at Sioux City.

All had left in great haste, leaving their stock uncared for, their crops unharvested, in short, had abandoned all their earthly possessions. Bon Homme, Vermillion, and in fact every town and settlement in Dakota was deserted, so that every white man left in the Territory was at Fort Randall or at the Yankton Agency, which was being hurriedly fortified. Lieutenant-Colonel NUTT, a very bright and observing aide of Governor KIRKWOOD, who had been sent to the scene of disturbance, writes from Sioux City on the 15th of September that he has every reason to believe that a general Indian war is imminent. He adds: "I saw, while at Sioux City, Captain LT BARJE, who had just returned with his boat from the upper Missouri. Captain LT BARJE has been in the American Fur Company's employment for twenty five years, and says that never before this trip have the Indians been unusually hostile. He says the whole Sioux Nation is bound for a war of extermination against the frontier, but says they will not come to Sioux City, but go down by Forts Laramie and Kearney and beyond. Captain LT BARJE says that the British government, through the Hudson Bay Company, are, in his opinion, instigating all these Indians to attack the whites. He says British rum, from Red River, comes over onto the Missouri River, and British traders are among them continually. I have great confidence in his judgment and opinion. He says there are at present no Indians within three hundred miles of Sioux City, on the Missouri River, but that government must send a force and punish these Minnesota Indians, or the whole western frontier, from St. Paul to New Mexico, will be attacked: but if those are punished, he thinks the rest will be all good Indians, and no danger." In the meantime, all southeastern Minnesota was aroused, and the hastily summoned troops under SIBLEY were on the trail of the fugitives, who were making rapidly for the Dakota frontier.

SIBLEY PURSUES THEM.

Colonel H. H. SIBLEY, to whom had been intrusted the pursuit and punishment of LITTLE CROW and his diabolical band, was perhaps the best known, and certainly the most popular, man in the Northwest for more than the decade preceding the Civil War. He had been a woodsman, trapper, a hunter of big game, an attache and then a partner of the American Fur Company, by means of which he had acquired a handsome competency. Then he had gone into politics as a diversion; spent a term in Congress as a representative

from Wisconsin and two more from Minnesota; the latter so satisfactorily, that he was transferred to the gubernatorial chair at St. Paul. After two terms he declined a reelection, refused, as well, to don the senatorial toga, and tired of worldly honors, built him a magnificent establishment at Mendota, the first stone house in Minnesota, and retired to live out his days as a country gentleman. This was where the news of the infamous deeds of the Dakota Sioux found him, about 4 o'clock on the afternoon of the 21st of August. Springing into the saddle, he rode into St. Paul, where he met Governor RAMSAY, who gave him the necessary authority to pursue the murderers; gathered a party of twenty-five horsemen—all he could find who were prepared to start at a moment's notice—and before daylight of the 22d was on the road to Ridgely. Within less than five weeks he had organized a force of 1,500 men, marched 250 miles, corralled the Indians near the Yellow Medicine, where he attacked and soundly whipped them on the 23d of September, leaving the most active of the warriors dead on the field. Two days later he rounded up the balance and captured something over 2,000, with all their property, the most of which had been stolen from the settlers. LITTLE CROW managed to escape with about 300 of his followers, but was ultimately chased into the Black Hills and killed without much mercy. In course of time the ringleaders were tried by military commission, found guilty and sentenced to hang, but through the sympathy of the President all but about forty of them managed to escape a penalty so thoroughly deserved.

PORT THOMPSON.

If we have wandered for a moment from the immediate vicinity of Fort Pierre, it is that we may the more readily return to it. The old scene is about to take on a renewed life; to awaken once more at the shrill notes of the reveille, and start into action at the sound of "boots and saddles." The uprising in Minnesota had created a new ground of hatred of the red man, and a determination to give him no quarter in the future. The effect of their outrages was naturally to incense the white people of Minnesota against, not only the individual perpetrators and their tribes, but against all Indians within their borders. This sentiment found expression in the act of Congress of February 21, 1863, whereby the President was authorized to remove the Winnebagoes from Minnesota to unoccupied lands beyond the limits of any State. In the carrying out of this

law it was determined to locate them, together with the Mississippi Sioux, on the Missouri River at some point within one hundred miles of Fort Randall, where they might be secure from any danger or intrusion from the whites. Mr. CLARK W. THOMPSON, the very efficient Superintendent of Indian Affairs for what was called the Northern Superintendency, who had been sent forward to select the location, assisted by agent BURLEIGH and some officers from Fort Randall, examined the surrounding country and finally fixed upon the mouth of Crow Creek, about midway between Fort Randall and Fort Pierre, and there, on the 30th of May, 1863, they landed the Indians, 3,250 in number, and their belongings, and laid off their reservation. Assisted by a detail of sixty soldiers from Fort Randall, they erected all necessary agency buildings within a square of about 400 by 300 feet, which they surrounded by a stockade of cottonwood logs. A company of Volunteers from the Sixth Iowa Cavalry was left as a guard, which was joined later by a second company, and these, with the ordinary white employees and camp followers, made up a community that formed one of the largest in the Territory. Although officially known at Washington as the Winnebago or the Crow Creek Agency, the stockaded character of the establishment, assisted perhaps by the disposition of all frontier people to identify points of rendezvous by the name of fort, soon caused it to become locally known as Fort Thompson, no doubt in compliment to its energetic founder, and as "old Fort Thompson" it still appears on the maps.

Thirty years after, in a pamphlet of local circulation which I have happened upon by chance, an old Iowa cavalryman, who marched with SULLY in 1863, is thus minded to recall his visit to the Winnebago settlement in 1864. It is the only photograph we shall ever have of old Fort Thompson:

"It is laid out in a square some three hundred feet each way. Around the whole square was dug a ditch some three feet deep, and the same width. In this are set cedar pickets fifteen feet long, which leave them twelve feet above ground. On the west side are two stores and one warehouse, just coming out flush with the pickets. On the north side is the Winnebago school house, the interpreter's quarters, the agent's quarters, and the doctor's quarters. On the corner were barracks for soldiers. On the east side are the boarding house, blacksmith, wagonmaker's and carpenter shops. On the south side are the Sioux buildings, one doctor's quarters, two agents' quarters, the three interpreters' quarters, and four school houses, and on the corner, barracks for soldiers. On the northwest and

southeast corners are bastions outside of the pickets. The pickets are sawed on three sides, the outsides being left rough. Holes for guns were made some eight feet from the ground and about twelve feet apart. On the north and south sides are each a gate, made of the same kind of material as the pickets. The saw-mill is on the west side of the fort and about fifteen rods from it in the edge of the timber. Still further on in the timber are the Indian wigwams. The river is about half a mile from the fort and pretty heavy timber. It is situated on a beautiful plain, and in a fine place for defense. Such is Crow Creek as I saw it."*

THE SIOUX CAMPAIGN OF 1863.

We left **LITTLE CROW** fleeing from the battlefield of Wood Lake, where **SIBLEY** had administered such a drubbing as was to free Minnesota for all the future from all dread of the redman. This was about the 25th of September. With about three hundred warriors he followed up the Minnesota as far as the Lac qui-parle, where he struck for the Dakota line, which he crossed at about the location of the present town of Elkton, in Brookings County, where the Burlington & Cedar Rapids Railway crosses the Chicago & Northwestern; thence following nearly due west along what was known forty years ago as the Medary Trail, and avoiding the settlements, he crossed the James at about the present site of Huron, in Beadle County, and made camp not far from the headwaters of Crow Creek. From this point he sent a messenger to the Yanktons, many of whom had left their reservation near Fort Randall, and to the tribes on the upper Missouri. On the 24th of December Governor **JAYNE**, of Dakota, telegraphed the President that "**LITTLE CROW**, **WHITE LODGE**, **SLEEPY EYES**, **PAWN** and **BIGHEAD**, with from 500 to 1,000 Santee and Yankton warriors, are on the Missouri above Fort Pierre preparing for an early spring campaign against the whites; that they are burning, robbing, murdering, and driving out every person in that region, and that the whole Territory is in a condition of terror." This was the first intimation that **LITTLE CROW** had succeeded in gaining accessions to his murderous company. On the 27th of December, thirty-eight of those captured at Wood Lake were hung at **Mankato**, and the news, which was carried with the speed of the wind to **LITTLE CROW**, simply infuriated him. From this moment he vowed an unrelenting war against the race, and before spring

*From "Three Years Among the Indians in Dakota," by J. H. **DRIPS**, sergeant Company "L" Sixth Iowa Cavalry. (Kimball, S. D., 1904.)

had opened he had killed or driven every white person from the Territory.

In the early stages of the Indian uprising General **JOHN POPE**, who had been more or less of a failure at the head of the Army of Virginia, had been sent to the scene of the disturbances, and given the new Department of the Northwest, a command more in harmony with his undoubted military and executive ability. **POPE** lost much time in setting his Dakota campaign in motion: perhaps no more than was necessary, as the troops and wagon trains were slow in getting to him and the winter was an uncommonly severe one. His plan was for **SIBLEY** to move in two columns, each of 2,500 men, and six pieces of artillery, the one from the mouth of Yellow Medicine along a line due west, the second along the Big Sioux west by south: both to push forward cautiously and scour the valley of the James. It was believed that **LITTLE CROW** was in the vicinity of Devil's Lake, but would be moving south as soon as the grass was high enough to feed his animals. **SIBLEY** was to engage him, if possible, if not, to drive him toward the Missouri. At the same time a third column, under **JOHN COOK**, an Illinois colonel, who had just been made a brigadier-general, and sent to bring order out of the chaos at Sioux City, was to move up the Missouri from Fort Randall, so as to intercept the Indian retreat. It is possible that these plans, if carried out, would have speedily ended the campaign. Why they were not, it is difficult to say. To the ordinary observer of to-day, who has merely the official documents to guide him, the whole campaign looks very much like a blunder. It may have been a stroke of genius. It depends, no doubt, upon the point of view. After much backing and filling, angry correspondence, and petulant, if not querulous faultfinding, **SIBLEY** got away from Fort Ridgely on the 23d of June, 1863, with 2,000 infantry, 500 cavalry, and some mountain howitzers, and marched direct for Devil's Lake, where **LITTLE CROW** had been some months earlier, but where he had not been for some time.

COOK, after leading his column as far as Randall, had been superseded by **ALFRED SULLY**, a regular officer of excellent repute, who had been made a colonel of Minnesota infantry, and promoted to a brigade in September, 1862, and **SULLY**, with 2,000 cavalry and 325 infantry, left Randall about the same time for Fort Pierre, which he had fixed upon as the site for a depot of supplies. **SULLY**'s troops were made up from the Forty-first Iowa Infantry (mounted), the Sixth Iowa Cavalry and one company of the Seventh, the Second Nebraska Cavalry, two companies of Dakota cavalry and a detach-

ment of the Thirtieth Wisconsin; SIBLEY had the Sixth, Seventh, Eighth, Ninth and Tenth Minnesota Infantry, the First Minnesota Mounted Rangers and the Third Minnesota Battery, 2,800 all told, most of them raw levies, indifferently equipped and hastily organized. SIBLEY had begged for a stronger force and more cavalry, insisting that the Indians outnumbered him, were well mounted, and a formidable foe at all times; were doubly so under the present conditions. POPE was surprised at this timidity; he had never known so large a body of troops having been assembled for Indian operations; in fact, it was as large as one-half the old army before the war. So far from having too little force he thought SIBLEY had more troops than he needed; he outnumbered the Indians many times. SULLY's slow movements and deliberation were equally amazing to POPE. He is surprised and disappointed at his delay, and sees no excuse for it. It is painful for him to find fault, but he is driven to it. The spring has opened and passed; summer is well advanced; June and July have gone, and August nearly so, before anything has been done toward crushing the insignificant force under LITTLE CROW.

The truth was, the task that had been assigned to SIBLEY and SULLY was no uncommon one. No such concentration of force had ever been made by the savages of North America, as that which confronted us on the plains of Dakota in the summer of 1863. The remnant of the bands who escaped with LITTLE CROW, themselves the most daring and merciless of their tribes, had successively visited the Sissetons, the Cut-heads, the Yanktons, and finally the Chank-ton-ais, the most powerful band of the Dakotas, and together with nearly every young warrior of all these tribes had formed a camp of nearly, if not quite, 10,000 fighting men and 15,000 to 20,000 horses. These savage warriors of the plains had in the great majority never been met in battle by American soldiers. A few of the old men could remember HARNEY and Ash Hollow, but their tales were not believed. They had boasted that no hostile army, however numerous, would dare set foot upon the soil of Dakota, of which they claimed to be the undisputed masters. General POPE had been badly informed. Had SIBLEY moved when he had expected him to do so he would have undoubtedly been annihilated. Had SULLY cut away from his wagons early in July, as POPE had directed, he would never have needed them again. As it was, nothing more strategic than a combination of fortuitous circumstances, saved both columns from crushing defeat.

SIBLEY CROSSES DAKOTA.

SIBLEY found, as he had expected, that there were no Indians at Devil's Lake. With 1,400 infantry and 500 cavalry, he left Camp Atkinson on the 21st of July and moved west-southwest to the James, crossed the Grand Coteau and made for the Missouri. A line drawn west by south from the present town of Minnewaukon in Benson County, to Bismarck, will closely follow the route of SIBLEY's column in 1863. On the 24th he ran into a party of some 1,000 to 1,500 Indians on the prairie near a salt lake where he was about to make camp, and without giving him time to prepare they were upon him. His guns were loaded with spherical case and shrapnel and poured into the yelling column of painted demons, and a gallant charge won him the battle of Big Mound. Two days later he repeated the tactics of Dead Buffalo Lake, and on the 28th fought the battle of Stony Lake, which won him his brevet, and drove the enemy across the Missouri in the direction of the Black Hills. SIBLEY went into camp on Apple Creek at a point about three miles below the present site of Bismarck, still known as Burnt Boat Island, and there waited ten days for SULLY. He had made a march of more than 600 miles, in a season of fierce heat and unprecedented drought, routed the enemy in three engagements and driven him across the Missouri. Although SIBLEY's description of his route would no doubt be interesting reading for the good people who have since found delightful homes in that very section, a paragraph must suffice.

"The region traversed by my column between the first crossing of Cheyenne River and the Coteau of the Missouri, is for the most part uninhabitable. If the devil were permitted to select a residence upon the earth, he would probably choose this particular district for an abode, with the redskins' murdering and plundering bands as his ready ministers, to verify by their ruthless deeds his diabolical hate to all who belong to a Christian race. Through this vast desert, lakes fair to the eye abound, but generally their waters are strongly alkaline or intensely bitter and brackish. The valleys between them frequently reek with sulphurous and other disagreeable vapors. The heat was so intolerable that the earth was like a heated furnace, and the breezes that swept along its surface were as scorching and suffocating as the famed Sirocco. Yet, through all these difficulties, men and animals toiled on until the objects of the expedition were accomplished."

Failing to learn anything of SULLY's whereabouts, and deeming it inadvisable to follow the Indians into the Black Hills, which, from

all accounts, were something infinitely worse than the country he had just traversed, he lost no time in returning to Minnesota, leaving the unfinished task to SULLY, who, he had no doubt, was near at hand with fresh and well-mounted troops. SIBLEY had accomplished all that was possible for him, and more than POPE had any right to expect. His men were all Minnesota farmers, willing to defend their own State, but under no obligations to spend the fall chasing Indians across the continent, while their own crops were waiting to be harvested. SIBLEY professed to believe that by his three insignificant victories he had broken the back of the insurrection. As a matter of fact, he had merely scratched its epidermis; for as soon as his back was turned toward home, the Indians recrossed the Missouri, and in a week were back on their old hunting grounds, having met and massacred a party of twenty-four men and women on their way.

SULLY AT FORT PIERRE.

SULLY had not been able to get away from Sioux City as soon as expected. The Sixth Iowa Cavalry had left on the 15th of May and established the depot at Fort Pierre as early as the 4th of June, but it was sixty days later before the entire expedition had assembled. General SULLY, in person, had left Sioux City on the 18th of June, and Fort Randall on the 10th of July, with a column of about 1,200 cavalry, 325 infantry and 120 wagons. His orders were to follow up the Missouri to the point nearest to Devil's Lake, where the Indians were supposed to be concentrated, and then to cross the country to cut off the retreat of the Indians, who by that time it was expected SIBLEY would be driving toward the Missouri. At the same time, in order to quiet the apprehensions of the people of Nebraska, a portion of his column was to move up the south side of the Missouri, joining the main body at the point of departure. SULLY was rationed for four months, his rations being carried on steamboats, which accompanied him up the river. Having reached the point of departure, he was to load his rations on his wagons, cut loose from his base, and move toward Devil's Lake with the utmost celerity. To POPE, at Milwaukee, these plans appeared so simple and feasible, that in his letters to General HALLECK he already felicitated himself on their happy accomplishment, and inquired what he should do with the Indians after he had corralled them.

From Randall to the mouth of the Little Cheyenne, which SULLY

had fixed upon as the point where he would leave the river, is a trifle under three hundred miles by water, and from fifty to sixty more by land. With his troops on both sides of the river, and impeded by heavy roads, with mud to the hubs of his teams, his progress was naturally restricted to the pace of his infantry, so that it was the 25th of July before he reached Fort Pierre, where his advance had been waiting since the 4th of June.

The point at which SULLY established his depot was on the left bank opposite Lost Island, at the old trading post that had been built by LAFRAMBOISE in 1857. The "fort" stood on the bluff, several hundred feet from the underbrush which lined the course of the river, in the midst of a plain that was absolutely barren of vegetation, even of the short grass that covers everything elsewhere in that section. The establishment comprised a store and storekeeper's house and a long building about 50x20, then occupied by one company of the Forty-first Iowa Infantry, the whole surrounded by cottonwood pickets standing about twelve feet out of ground and sunk to a depth of three or four, the usual bastion in the form of block-houses at diagonal corners. SULLY used the enclosure to store some of his supplies; there was very little room for them there, and he decided to leave the bulk of them on board the boats. The Sixth Iowa Cavalry made their camp on the river bottom under the bluff below the fort, and the Second Nebraska above it. He also left a company of the Seventh Iowa at the site of old Fort Pierre, three miles below.

The expedition moved out of the camp at Fort Pierre on the 14th of August, with a troop of cavalry in the advance, followed by the General and his staff and escort which at this time was "I." of the Seventh Iowa Cavalry, a battery of five mountain howitzers, his wagon train, flanked by the Second Nebraska on the left and the Sixth Iowa on the right, the ambulances and rear guard. Two days later he reached the mouth of the Little Cheyenne, when he was compelled to wait for his rations, which had started on the *Belle Peoria* on the 12th, but had been delayed on account of low water. The steamboat arrived on the 19th, but a severe hail storm on the 20th stampeded his animals and destroyed all the rations that had been loaded into the wagons, besides soaking the roads and rendering travel almost impossible. He managed to get away on the afternoon of the 21st and followed up the Little Cheyenne as far as Bois Cache. Here he left the river and crossed the prairie to the foot of Long Lake, where he first heard that SIBLEY had finished his campaign and returned to Minnesota. This was anything but encour-

aging, but there was nothing to do but push ahead. On the 3d of September his scouts reported an Indian encampment a few miles in advance of the column, which turned out to be a portion of the party that had been chased across the Missouri by SIBLEY and had returned along his trail and located themselves in fancied security in the ravines around Long Lake. SULLY reports that the party numbered not less than 1,500, including Santees, Cut-heads, Yanktonais, Blackfeet and Uncapapas. He had ten miles to go to reach them, and although the distance was covered at a gallop, and his troops engaged at a dozen points, the enemy had plenty of time to scatter, and night coming on, he was compelled to abandon the pursuit. This, SULLY calls the battle of White Stone Hill, and it happened in sight of a hill on the open prairie near the headwaters of Elm Creek and about fifteen miles west of the James River. He lost one officer and seventeen men killed, one officer and thirty-four men wounded, and thinks he must have killed fully one hundred of the Indians; his prisoners included thirty-two men and one hundred and twenty-four women.

THE CAMPAIGN ENDED.

Ascertaining from his scouts that the enemy had vanished, and finding that his rations were barely sufficient to enable him by rapid marches to reach Fort Pierre, he took up his return march on the 6th of September, and finding his boats waiting at the mouth of the Little Cheyenne, he loaded his wagons and wounded and returned along the river road to Fort Pierre, where he arrived on the 14th, and went into winter camp. And this ended the Sioux campaign of 1863.

POPE had written SULLY most impatiently on the 25th of August: "It is painful for me to find fault," he writes, "nor do I desire to say what is unpleasant, but I feel bound to tell you frankly that your movements have greatly disappointed me, and I can find no satisfactory explanation of them. As soon as you receive this letter you will please cross to the south side of the Missouri, and having loaded your wagons with provisions and ammunition and such medical supplies as are absolutely needed, you will make a thorough campaign in Nebraska, proceeding as far to the west and northwest as possible before the winter overtakes you. It is desirable that some cavalry force be stationed this winter at Fort Pierre, or in that neighborhood, and provision should be made accordingly. You will please send the necessary orders to the proper officer of your district

for this purpose. Your command will occupy Fort Pierre or the neighborhood, Fort Randall and Sioux City for the winter, as also such points to the east of Sioux City as will effectually secure the settlements in Dakota and the border settlements of Iowa."

And again, on the 31st of that month, he writes that he had intended to say "Dakota" in his letter of the 25th instead of Nebraska. "It is my purpose," he adds, "that you move from Fort Pierre to the Black Hills, and thence north and northwest as far as practicable before the cold weather begins. These movements, as far as their direction is concerned, will depend, of course, upon the locality of the hostile Indians, but it is your special mission to deal finally, if possible, with the hostile Sioux driven across the Missouri River by General SIBLEY, and to prevent in all events their return to the borders of Minnesota in any large force. If you follow them and press them closely they will, no doubt, in their present destitute condition, seek to make terms with you."

He cannot leave the subject, however, without again expressing his opinion of SULLY's procrastination: "Your presence on the upper Missouri in time to have cooperated with General SIBLEY would probably have ended Indian troubles, by destroying or capturing the whole body of Indians which fought General SIBLEY, but your failure to be in proper position at the proper time, however unavoidable, renders it necessary that you should prosecute with all vigor and dispatch the campaign I have marked out for you."

FORT SULLY BUILT.

By the time SULLY received these dispatches he had finished his campaign and was settling his command for the winter. Whatever he may have thought of POPE's opinions and rebukes he neglected to put on record. Those who recall the choice vocabulary of expletives which General SULLY always carried about with him, will have no difficulty in supplying the link that must be forever missing to this narrative. In looking about for the best point to establish his post he fixed upon Farm Island, about midway between old Fort Pierre and old Fort George; in fine, at the very point where General HARNEY had posted SULLY himself when a captain of the Second Infantry in 1857, and to whom, no doubt, it recalled agreeable memories. There is not much to be said for it from an architectural point of view. It was built of logs, as indeed was everything else of the nature of shelter in that section: a few buildings to store the

equipment and rations and cover the heads of four companies; a stockade of cottonwood logs; a block-house, with port holes for the howitzers. On the 13th day of October it was pronounced ready for a company, and its garrison marched in: headquarters and three companies of the Thirtieth Wisconsin; three companies of the Sixth and three of the Seventh Iowa Cavalry, all under the command of Lieutenant-Colonel E. M. BARTLETT, of the Thirtieth Wisconsin, who, in his order assuming the command, announces that the post is to be known as Fort Sully, "in compliment to our brave commander, Brigadier-General ALFRED SULLY, U. S. Volunteers, now commanding the District of Iowa and Dakota." Again are we indebted to Sergeant DRIPPS for a glimpse of the first Fort Sully, and this is how it looked to him in November, 1863:

"In conclusion, I will just add a word of description in regard to Fort Sully and the winter quarters of our regiment, and close. Sully is situated on a plain or bottom of the Missouri River, on the east side, about eighty rods from the river. It is opposite or a little below Farm Island. It is built on two sides, east and west, with barracks; on the north and south with pickets. The buildings are of cottonwood logs, unhewn, and are about seven or eight feet high, covered over with logs and brush and then earth thrown over them. The pickets are the same material, set into the ground about three feet, standing out some twelve feet above ground. The fort is 270 feet square, and there are bastions on the southeast and northwest corners, in which are placed the cannon for the defense of the fort. This is pretty well fixed for defense, and cannot be taken very easily by the Indians, and is a good place for defense. Such is the fort that we helped build last summer, taking a great deal of time and labor, and which was by some set down as sheer folly. But be that as it may, it will be a memorial of the labors of the Indian expedition under General SULLY."

It remains to dispose of the balance of SULLY's troops for the winter of 1863-4, a winter that has gone into meteorological history as one of the severest that ever visited Dakota. The Second Nebraska Cavalry, being nine months' men, had reached the end of their enlistment by the time of the return of the expedition, and had been sent home to be mustered out; Company "K," of the Sixth Iowa Cavalry, was stationed at Fort Thompson, at Crow Creek; Companies "A," "D," "G" and "L," at Fort Randall; Company "M," at Vermillion; Company "I," at Spirit Lake; Company "F," at Tackets; while Companies "C," "B," "E" and "H," with "J," of the Seventh, accompanied General SULLY to Sioux City. TRIPP's

troop of Dakota cavalry went into camp opposite Fort Randall, and MINER's troop watched the reserve at Yankton.

As for old Fort Pierre, it had again lapsed into the mere trading-post for which it had been erected. All the military supplies that had been stored at that point had been removed to Fort Sully, and this latter post now became the base of future military operations in that section. And here we leave Fort Pierre, not because its story has been exhausted, but rather that the latter chapters of its history belong to the civil development of the Territory. We are not presuming to write the history of Dakota, though the abundance of material is such as to tempt the historian, nor of the campaigns by which the Sioux were finally convinced of the utter futility of resistance, and thrashed into submission. It would be interesting to watch the disappearance of the old trading-house; the coming of the surveyor; the land agent; the tax collector; the town meeting, and all the various processes of evolution through which a thousand frontier posts have been transformed into the towns and cities that dot the plains of America from ocean to ocean. But as KIPLING would say—that is another story.

A NEW TEST FOR GLANDERS.*

BY CAPTAIN FREDERICK S. FOLTZ, SECOND CAVALRY.

I HAVE twice been in a quandary about cases which had every appearance of glanders, as far as any one not an expert could determine from books, and I would have given a great deal could I have then obtained in a few days a test by which I could have determined that the discharge that was worrying us so much was not laden with germs deadly to ourselves as well as to our mounts.

In one case at Fort Colville my troop lost fourteen horses from what the veterinary sent to investigate pronounced to be a form of glanders (such as is reported in India) where the effect of altitude modifies the virulence of the disease.

MALLEINE.

A New Means of Identifying Glanders.— (Gathered from the French of the *Journal Militaire*.) In this official journal there is published the "Instructions and regulations on the use of malleine and the measure to be taken in the care of glanders," and these instructions are followed by a history of the experiments which led to the promulgation of the regulations.

Malleine is an extract obtained by cultivation, sterilization and concentration from the bacillus of glanders. It can be bought of the Pasteur Institute in Paris, in the form of a fluid, which will preserve its value for several months (the instructions say for a year, if kept corked and protected from light and heat. The manner of

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its preparation is said to be such as to exclude all possibility of inoculating with glanders by its use. It is administered by hypodermic injection of diluted extract into the subcutaneous tissues of the neck midway between the windpipe and the jugular vein.

Experiments in Russia, in 1891, showed that malleine injected as above would enable certain cases of glanders, which otherwise could not be defined, to be definitely diagnosed.

Glanders appearing in 1892 at the remount depot of Montoire, all the horses at the depot were tested by the use of malleine by a specially appointed commission. The conclusions of this commission were somewhat confused, due to the fact that horses established as sound by the test were found, on being killed for examination, to have glanderosus tubercles in their lungs. Two members of the commission advanced the theory that these animals had passed the malleine test without showing the reaction betraying glanders, because they had recovered from the glanderosus lesions and that the tubercles found no longer contained living bacilli of glanders. This daring hypothesis was subsequently verified. These eleven animals, having been taken by chance from among one hundred and twenty-five animals that had showed no reaction under malleine, it may be assumed that the remaining ninety-four must have been similarly infected, and that at some time the whole herd was glanderosus. That the whole herd of two hundred and thirty-three animals did not show glanderosus reaction, is due to the fact that for several weeks prior to the experiment, these horses among whom glanders had existed unsuspected for five months, had been picketed outside. The youth of the animals, the abandonment of infected places, rigorous individual isolation, suppression of all new contamination, stabling in the open air, and good food, had already allowed some of the animals to recover from the few tubercles they had in their lungs.

In further proof of this, the number of animals upon which the malleine reacted, continued to decrease until finally, after five or six months of picketing, seventy-eight horses which the first malleine test had proved infected were sent to regiments, and not one of them has since shown any alarming symptom.

Similar facts were observed in Russia in 1892: out of six hundred and fifty-eight horses, the test showed only two hundred and ninety sound, but after several months of surveillance a few only were killed, and the remainder returning to service showed thereafter no symptom of glanders. Heretofore it has been held that glanders was incurable; horses of a glandered herd that were finally returned to duty, were held never to have been infected. This was

a perfect dogma, which but two members of the Montoire Commission had the courage to attack. Their position has been fully sustained by subsequent experiment.

Glanders can be communicated in many ways. The glanderous discharge may be deposited upon a sore or scratch; it may result from the rubbing of an infected sponge upon a mucous membrane, even though this membrane be not broken: from the surgical use of an instrument soiled with pus, etc., etc., but it is especially through the digestive organs that glanders is propagated. It is sufficient if we give a sound horse a small quantity of virus, culture, discharge or pus with his food or drink; he will be glanderous in a few days. The malleine, which had no effect in health, will now give reaction, and tubercles will be found in the lungs. If the quantity of virus given was very small, the animal, with care, will throw it off and recover.

These experiments show the danger of stables when horses from everywhere succeed each other in the stalls where carelessly kept racks and mangers and common watering troughs favor the spread of infection.

Action of Malleine on Glanderous Animals.—In glanderous horses, the sub-cutaneous injection of one-quarter cubic centimeter of concentrated malleine (or two and one-half cubic centimeters of the diluted preparation) produces a hot, painful lump at the point of injection. This lump forms in a few hours, and varies from the size of the hand to that of a small loaf; from this lump sinuous extensions lead to the neighboring glands. When the injection is made aseptically, there is no suppuration; the tumor grows for twenty-four hours or so, and after two or three days slowly decreases, to disappear after six days.

The appearance of this tumor is accompanied in variable degree by dejection, muscular trembling, the face is drawn, the coat staring, appetite gone; if taken out, the animal shows great prostration, stupor; the most difficult horse is absolutely tractable. Usually, the movement of the leg nearest to the tumor is difficult and painful.

The above phenomena constitute the organic reaction which is never entirely absent. On the other hand the thermal reaction is never absent, the temperature of the animal rises from 1.5 centigrade to 2.5 centigrade, reaching its maximum about the eleventh hour after injection.

It is important to note that these conditions in glanderous horses persist a long time; there remains after twenty-four, thirty-six, or

forty-eight hours even, swelling, prostration and a notable elevation of temperature.

When a horse under the influence of malleine has shown both the organic and thermal reaction, it can be affirmed that he is affected with glanderous lesions.

In healthy animals, malleine produces no reaction, the temperature remains normal, a small tumor appears, but vanishes in twenty-four to thirty hours; appetite and spirits are unaffected.

When, therefore, the action of malleine provokes no reaction either organic or thermal, we can affirm that the horse is not glandered, in spite of any symptoms to the contrary.

Ulcers, enlarged glands, pits in the nasal cavities, foul discharges, can thus be rapidly and certainly distinguished from similar affections due to glanders.

The Ministry of War has consequently laid down the following rules:

REGULATIONS.

A. *General Principles.*

ARTICLE 1. The most complete liberty of initiative is left to the commanding officers of troops and stations, assisted by their boards of survey, to take the measures that are urgent and necessary in case of glanders.

ARTICLE 2. Every animal clinically glandered is immediately destroyed.

As soon as a case of glanders is proven, all animals that have been in the same stable are immediately submitted to malleine. His two stall neighbors are isolated as suspects, but no other change will be made in the stabling. All mingling of the horses of platoons or batteries or in the order of horses in teams, whether in daily exercises, or for maneuvers, is forbidden.

ARTICLE 3. After the test the animals are divided into three groups: *a*: Those who have suffered no reaction, organic or thermal, sound animals; *b*: Those whose temperature has risen more than one degree, but with little or no organic reaction; *c*: Those whose temperature has risen one and a half degrees or more, and have shown organic reaction.

ARTICLE 4. These three groups are rigorously isolated from each other, with special attendants, and special equipments, halters, brushes, pails, etc., set apart for their use.

The animals of the first group will preserve their places in the stable and take part in the service of their troop or battery. They undergo a second test a month after the first, so as to be certain that they had no germ of glanders at the time of the first test.

The animals of groups *c* and *b* are suspects: in different degrees they undergo further tests. Those of group *c* will be destroyed

only upon a second positive indication under the influence of malleine, being meanwhile individually isolated.

The animals of groups *b* and *c* will not be allowed in any stall but their own, nor will they drink at common watering places. At each monthly test, those of group *b*, which show complete reactions will pass to group *c*. Those who at two successive monthly tests show no reaction, thermic or organic, are declared sound and returned to ranks.

The animals of group *c*, who at two successive tests, a month apart, continue to show a complete reaction, without sensible improvement, must be destroyed even in the absence of any clinical indication of glanders.

Those who show besides the thermic and organic reaction any one of the clinical signs of glanders or farcy, will be destroyed without delay.

* * * * *

ARTICLE 7. It is formally forbidden to submit a glandered animal or one suspected of glanders to any kind of medical treatment. In case of suspicion only, you are authorized to take steps destined to disclose the existence of glanders.

* * * * *

Here follows in the order, a minute explanation of the technical work of inoculation with malleine.

* * * * *

DISINFECTION.

1st. Partial or local disinfection, as where there is an isolated case, will include the places occupied by the glandered animal and his two neighbors, and will extend to the places of isolation of the suspects.

It will extend to all articles which are used about the animals or may come in contact with their mouths.

The use of a harsh brush is very essential to good disinfection, and it will be remembered that the glander microbe is one of the most delicate in existence (60° centigrade will destroy it), nor can it resist free dry air, which destroys its protecting covering of mucous.

STABLES.

The places to be disinfected will be brushed clean of dust and litter, which will be burnt; then washed freely with cold water, then with hot water containing disinfectant, scrubbing carefully all greasy or dirty surfaces, scraping freely when necessary. Two days later, gave a thorough coat of thick whitewash prepared just before using from quick lime. Coal tar will not be used on account of its sticky nature.

These places are to remain unoccupied for three days, or as long as possible. Watering troughs that may have been contaminated

are emptied, covered over, and are not used during the continuation of the disease. They will be cleaned carefully and washed with a five per cent. solution of commercial sulphuric acid, after which they will be again washed with water. All buckets, etc., will be similarly treated.

EQUIPMENTS, ETC.

With the exception of sponges used on contaminated horses, none of the grooming implements will be destroyed. These, together with the nose bag, will be immersed fifteen minutes in water, at 60° centigrade, containing five per cent. of cresyl or lysol, and then thoroughly dried in the open air.

In each stable will be one or several buckets of this cresyl solution three per cent., renewed daily, in which the trooper will wash his hands and sponge after grooming one horse and before passing to another.

Bridles, etc., are disinfected in the three per cent. solution. Saddles and other articles of equipment will not be disinfected unless cutaneous manifestations of glanders should appear.

GENERAL DISINFECTION.

When the epidemic is grave, several cases appearing at different points in a command, the disinfection may extend to all the stables of a troop or battery or regiment, or to all the stables of a station.

All horses will be put at the picket-line, standing there in exactly the order they occupied in stables.

The stables will be disinfected throughout, inside and out, excepting the roofing. The paving need not be removed, nor the walls scraped. Woodwork, if good, need not be destroyed.

For three days or more the stables will be left wide open before reoccupying.

All regulations in conflict with the above are abrogated.

By order of the Minister of War:

(Signed) ZURLINDEN.

Paris, September 20, 1895.

No useful result could be obtained by experimenting on healthy animals, as we should need the contrast between the effect produced upon them and that upon the infected animal, in order to verify the conclusions of the French investigators.

The bottle of malleine which I have had sent me contains one hundred doses, freshly prepared, from our military attaché, Major KELLOGG, at the Pasteur Institute, Paris. He forwarded it on January 22, 1896, and according to the circular accompanying it, will retain its qualities for several months.

THE CAVALRY HORSE.

BY MAJOR WILLIAM A. THOMPSON, U. S. ARMY.

AFTER many years' service in the cavalry on our frontiers, from Texas, New Mexico and Arizona to our extreme northwestern border, I will give my experience with the various breeds of horses we have used, and state which class I have found to be the most reliable and durable under all circumstances. I will also give my opinion as to how they should be purchased, how treated after purchase, and how distributed.

In Texas, from 1865 to 1875, we used what might be called a mongrel, with the exception of a few well bred horses that had evidently originally come from Tennessee or Kentucky, received from a volunteer cavalry regiment that had been dismounted and mustered out of the service at San Antonio. After a few long and hard Indian scouts, these well bred horses were the only ones remaining of the original mount. We tried the Texas cow pony, but one scout rendered them unfit for service. The average weight of a cavalryman, fully armed and equipped for field service, is 225 pounds: as the cow pony weighs only 700 to 850 pounds, the proportion of dead weight to carry is too much for the frame. It should be four to one, *e. g.*, the horse should weigh four times more than the weight he carries. From 1875 to 1888 we were furnished horses purchased principally from the Kansas City and St. Louis markets. Those from the former were fairly good: those from the latter, a little better. We usually received these horses in lots of fifteen or twenty. In each of these lots we would probably find two or three desirable horses; the others should never have been bought for the cavalry service, as they all had Clydesdale blood, which stock is only fit for work horses. While in Arizona, an attempt was made to supply the deficiencies in our cavalry regiments there with California and Nevada ranch-bred horses. It was a complete failure, for the reason

that horses of this class have very little of the right kind of spirit and stamina to begin with, and by the time they are broken, that little is gone. And, in addition, as a class they are very vicious. The cavalry in the Department of Arizona was mounted upon Oregon horses, bred out of native mares by ordinary stallions of the work-horse build. These mares all had cayuse blood, and of all the dung-hill blood I ever came in contact with, they were the worst—no stamina and no intelligence.

There is no section of our country that can compare with southern New Mexico and Arizona, including the northern states of Mexico, for testing the staying qualities of both man and beast. During all of our many Indian scouts there it was the exception for a well bred horse to fail us. Some of our marches in that country were of the most trying kind, extraordinarily so: forty or fifty miles a day, under a hot broiling sun, through clouds of alkali dust, and no water frequently from the time of breaking camp until way into the night. And this not for one day only, but often repeated two or three days at a time, and sometimes longer. Aside from a business point of view, in buying for cavalry purposes this cold-blooded breed of horses there is a cruelty attached to it that is really pathetic, for the reason that on hard marches they are unable to keep up with the better bred horses, and become food for coyotes. I have followed up the trail of a cavalry command, and passed these poor creatures lying by the road with just strength enough to nicker as they heard the approach of a horse, and make a struggle to get up and follow: others dragging themselves along the trail, vainly trying to keep up with the command. As an illustration of how much greater power of endurance well bred horses have than the cold blooded, soon after the war General STANLEY turned over to his old troop, "H." Fourth Cavalry, that troop being his when he was a line officer, two thoroughbred horses, one to be ridden by the first sergeant and the other by the first duty sergeant of that troop. These two horses fared just the same in every respect as the other horses of the troop, which were common bred, and to my knowledge were in fine order for any service after the troop had been twice newly mounted.

The government would derive many advantages if it purchased only well bred horses for the cavalry: (1) it would be a great and true economy: (2) it would cause both officers and men to have a greater pride in their branch of the service: (3) it would cultivate an affection between that noble animal and his rider that would be mutual. It seems hard that our cavalry should be so poorly mounted.

when it is well known our country produces such fine blooded horses that European governments send their agents here to buy horses for their cavalry. I was able a few years ago while in England to visit Aldershot. I interested myself in the cavalry. I found there at that time the Fourteenth Hussars, and my recollection is, they had just returned from the Egyptian campaign. They were mounted upon beautiful horses, a beau ideal cavalry horse, not less than seven-eighths to thoroughbred, a delight both to look at and to ride. The contrast between them and our own cavalry horses baffles description. I had just left a troop of our horses in New Mexico. Mr. ARCHIBALD FORBES paid us a visit in New Mexico, and we turned out a squadron of our cavalry equipped for field service; he was very favorably impressed with the rapidity with which the command was made ready. Sometime after, he wrote an article giving his impressions and experiences in that country, in which he mentioned that incident. He spoke of us as appearing *tout ensemble*, like a command of Bashi Bazouks. I have no doubt we did, but mount even a Bashi Bazouk on a thoroughbred horse, and he will pass muster in any cavalry.

Most men can appreciate the good qualities of a horse they are obliged to ride, and it is a well known fact among cavalymen that when a man is mounted upon a well bred, intelligent horse, he will give it more care and attention than if he were mounted upon a mongrel. During the GERONIMO campaign my troop had made a long march, over fifty miles; we went into camp about 8 p. m., being very dark; we had been in the saddle since daylight. Not wishing to expose our position to the Indians, they being in the foothills of the mountains and we being in the valley, I ordered that no fires should be started. Some time after the camp had settled down for the night I saw flashes of light around me.— Upon investigation I found several of my very good cavalymen crawling around on their hands and knees, striking matches to find the best grass, as good grazing was very scarce in that vicinity. It is unnecessary for me to remark that these men had fine, well bred horses. I may also add that the hard-gaited, cold-blooded horses were picketed by their riders without regard to the quality or quantity of grass within their reach.

There is no doubt but that the cavalry arm has lost many a man who would have been a credit to the army, and remained, had he not been mounted upon one of those hard-gaited, stupid, stumbling, dunghill horses. On the average Indian scout we have all had discomfort enough, without having it added to by being tortured daily

riding such a brute, and in addition the constant dread that the horse will give out entirely, which is a very common occurrence. In the blooded and well bred horse we have an animal of great courage, great endurance, and superior intelligence. In the mongrel, or cold-blooded horse, we find traits just the opposite. In a crisis it is quite as important to have intelligent horses as intelligent men. The opinion has been advanced by a few cavalry officers that the mongrel is good enough for our cavalry service. I have so often seen it demonstrated to the contrary, I am convinced they are in error. I cannot imagine why such a theory should be advanced, unless they are laboring under the impression that the well bred and thoroughbred can not rough it like common ranch-bred horse. Such a theory, however, can not be founded upon facts as a whole. The blooded animals can subsist upon the same food and rough it as well as the common bred horses, and, owing to their superior courage and intelligence, last much longer.

As the War Department under our present regime is making so many improvements in our army, it would seem but fair that the horse should come in for his share of attention. The first step towards accomplishing the object in view, is to abolish the practice of buying cavalry horses under contract. It is well known under that system now in vogue the government pays just about one-third more for each horse than they could be bought for if purchased in open market. As an example, I have had horses that cost the government \$135.00 that could have been bought easily for \$90.00, or \$50.00, or less even, in open market. In making the appropriation of money for the purchase of cavalry horses, could not Congress be prevailed upon to have the bill read, "in open market?" There have been thousands of dollars absolutely wasted, and are still being so, buying horses under the contract system.

My opinion is that it would be well to have a board detailed by the War Department, known as the "Army Horse Board," to consist of one or two cavalry officers, an officer of the Quartermaster's Department as disbursing officer, and a veterinary surgeon. This board should, under instructions and orders from the War Department through the Quartermaster-General of the army, expend all the money appropriated each year by Congress for the purchase of cavalry horses, taking either Louisville or Lexington, Kentucky, as a center, and using as a field the country within a radius of 500 miles, so as to take in Tennessee, Kentucky, southwestern Ohio, southern Indiana, southern Illinois and portions of Missouri. It is well known that in the section of country mentioned, it is and

has been the custom to breed saddle horses for years, and the board will find more well bred horses there suitable for cavalry purposes than can be found in any other section of our country, except certain portions of New York State. Before the board entered upon its duties, arrangements could be made to receive and care for the horses purchased. I would suggest Fort Riley, Kansas, for it is a large cavalry post, a nucleus for a cavalry school of instruction. The horses can be fed there very cheaply, and they would be properly cared for. The board could travel over the section of country mentioned, visit the different breeding farms, buy a good horse wherever they could find one, and when they had secured a carload or more, ship them there.

Great care should be exercised to commence with in handling and training these horses. Upon arrival, they should be treated as recruits, most carefully broken and trained at all gaits, accustomed to the trumpet calls, never instructed except by the trumpet calls, most thoroughly and carefully trained so they will be steady and easily handled under fire, charging and mêlée firing as well as volley, in fact be drilled in all the requirements a cavalry horse should be to be effective, so that when they are received in their regiments they will be ready for duty. The training of these horses should be in charge of officers and men of the cavalry arm who have a taste and talent for such work, and who will make it a specialty. A uniform system of training and drilling these horses could be devised by a board. As soon as a number, say 500 or less to commence with, have been drilled, let them be shipped to fill requisitions in the different cavalry regiments under a system that will mount a troop at a time in each regiment. In this way, in a few years our entire cavalry force would be well and uniformly mounted. If we can reduce the whole matter to a system, it would in time prove a great economy, and we would have our army supplied with cavalry officers, as well as non-commissioned officers and privates, who in time of war, could and would be of incalculable value in organizing volunteer cavalry. Of all branches of our army, the cavalry officer should be the most thoroughly competent and proficient in his profession. This is so very important from the fact that our national state troops are composed almost exclusively of infantry and artillery.

The Germans, realizing the great value of effective cavalry, have a perfect system of training their cavalry horses. Their principal school is at Hanover. At this school each regiment of cavalry is represented by one commissioned officer and three non-commissioned officers. This detail is changed yearly. In this way these officers

and non-commissioned officers are most thoroughly instructed in the principles of riding and training horses for the cavalry. They are sent back to their regiments, where they act as instructors at troop and squadron riding schools. They commence training their horses at the age of three years: they are trained and drilled for two years, and the horses that have not shown themselves to be well drilled, *i. e.*, are not steady under fire, restless in rank, etc., are continued at the school another year: if still a failure, they are sold. Each troop receives twelve or thirteen of these three-year-old horses. These horses are not allowed to be used at troop or squadron drill until after they have had two years training. This system of training their horses is uniform throughout the cavalry branch. To insure a perfect cohesion at all fast gaits, all men and horses are classified, first, second and third. The first sergeants of each troop, before the commencement of the yearly grand maneuvers, assign the men of their troops to ride horses according to their skill, *e. g.*, a first class man to a third class horse, a third class man to a first class horse, etc. The vast importance of this cohesion is fully realized by all German cavalry officers, and it is brought to such a state of perfection by their uniform system, and by a long and patient course of instruction. The secret of their success is this: they commence with horses in their colthood.

As Congress appropriates yearly about \$125,000 for the purchase of cavalry horses, the horse board could keep within that limit. After all of our cavalry regiments had once been mounted upon these superior horses, one half of the sum at present appropriated yearly would be ample to supply any deficiency, as the lasting qualities of the well bred horses are so much greater than the cold-blooded. There would be no more need of transporting horses by rail when cavalry regiments exchanged from one department to another. The horses would thus remain and become acclimated to the different sections of our country. This would prove to be very beneficial, not only in an economic point of view, but for the horse, as horses are often seriously affected by a change of climate and food. It would give such great satisfaction to all cavalymen in our army to feel and know that an exchange from one department to another meant only to secure a mount equally as good as those they had left. After all our cavalry regiments had been mounted upon horses of this character, I venture the assertion that it will be the exception for a troop commander to ask for a remount short of twelve or fifteen years.

In buying cavalry horses the standard should never be, so far as

blood is concerned, less than half-blooded; age, two or three years. In my opinion a two-year-old is not too young to commence with, knowing the care they would receive. It is a well known fact among horsemen, that the first impressions and schooling a horse receives are the lasting ones. Under our present system of buying cavalry horses, from five to nine years old, we secure horses whose first schooling has been either the street car, wagon, plow, carriage, dray, and a few, very few saddle gaited, and seven-eighths of the work-horse build, and with a very few exceptions, all dunghill, or cold-blooded stock. The result is, we receive them in the troop direct from the market, and work faithfully to accomplish something that can not be done with horses of such an age and of so many builds and breeds, *i. e.*, secure a troop of horses that will have that cohesion necessary at first gaits, and be steady under fire. We can not eradicate or drill out of them their first impressions. If we start in with two or three-year-old horses well bred, their first impressions will be the last ones; they will be what is so much desired — cavalry horses. A battle might be lost by attempting to charge with these cold-blooded five- or nine-year-olds, that lack courage and other requisites noted, when it might have been won had the horses been what cavalry horses should be.

Color should not be regarded so much as a mere matter of fancy as the general impression seems to be. I have had all colors in my different mounts, and I grade them for durability, amiability, and as to intelligence that can be found only in well bred horses, as follow: First class, greys, bays and roans. Bays: (1) dark bay with black points, (2) light bay. Second class, sorrels: (1) light, (2) chestnut. Third class, blacks. Blacks are the weakest of all colors. In hot climates, a black horse will change in color to a dirt brown, which must be a relief to the horse, for the absorption of heat is lessened. The percentage of blindness among black horses is remarkable. I had a platoon of blacks in my troop while serving in the Indian Territory, and my recollection is that in eighteen months I had eight condemned for blindness. The same thing was a frequent occurrence among my blacks while in Arizona. In studying over this matter, trying to find some reason for it, I have never been able to find a satisfactory one. As we fed nothing but corn in the Indian Territory, I thought it might be that kind of food that caused it, but as the same thing happened in Arizona where we fed only barley, it cannot be the feed. So it must be on account of the color. I do not want it understood that I consider a black horse unfit for cavalry service; I simply think it is the weakest of all colors.

Weight not less than 900 nor over 1,100 pounds. The requirements as specified by the Quartermaster-General's office, with a few exceptions, as to the general build of a horse to be bought for the cavalry, will always be found in the thoroughbred or well bred horse, seldom in any other.

I have in this article, rather imperfectly outlined a system for buying horses for our cavalry, how they should be treated and trained, etc., not going into details, for a board of officers could formulate and perfect them. My observation and experience in our cavalry have prompted the suggestions made. My efforts have been to assist in elevating our cavalry to a standard of perfection that would be in keeping with the advancement that military science is making in our own country and in Europe.

FEEDING.*

BY M. J. TREACY, VETERINARIAN EIGHTH CAVALRY.

THE principles which guide us in the feeding of animals are determined by the anatomical arrangement of their digestive apparatus, and the occupations they follow. Looking at this matter from a practical standpoint, a horse may be considered as a machine, out of which it is desired to obtain the greatest amount of work, at the smallest expense and the least risk.

The food given must meet the following requirements: It must be wholesome, abundant, sweet and clean, free from dust and adulterations, from fermentation and its results, from which arise toxins, moulds, and fungi of various kinds. Dusty grain or hay are not only injurious from these sources, but they are extremely indigestible, and act mechanically by inhalation, thus inducing heaves, coughs, and other respiratory troubles.

The hours of feeding must be regular, and the mode of preparation found by practical experience to be the best, adhered to, cleanliness in preparation, and administration, must be observed. I venture here to suggest that grain should be sieved, or carried in a sieve from the grain cart to the feed boxes, and well shaken "en route," or that the bottoms of the feed boxes be perforated, to allow the passage of dust through them.

Diseases arising from dietetic errors constitute the most important part of the practice of the veterinarian.

The feeding of the horses is determined by the nature of their work. The velocity with which this is performed must regulate the bulk of the food they receive. It is evident that severe work cannot be performed on a full stomach; this we know from our personal experience, for the pressure exerted on the respiratory organs and

the interference with the digestive functions, will occasion disease, colics, fermentation of food and its consequent gaseous generation, rupture of the stomach, and death.

It is certain that the food required by working horses should be compressed into a comparatively small nutritious bulk, otherwise too much time would be lost in abstracting from it the necessary nutriment. Give, therefore, food of a concentrated kind two hours before work, and withhold bulky food, as hay, until this is performed. The limited stomach of the horse suggests small and frequent meals.

Our horses in winter when there is no grazing suffer from cold, and over ten hours' fast, from morning till evening feed: two pounds of hay per horse, scattered in the corral about midday, would be much appreciated by them, and to use the horseman's phrase, "keep the cold out of their stomach."

The great capacity for water and the small stomach, explain the golden rule of watering before feed only, as it passes through the stomach and small intestines immediately to the "cæcum," or water-bowel, a *cul de sac* in man, familiarly known as the "vermiform appendix," but in the horse have a capacity of about twenty-five gallons. This bowel is about thirty feet posterior to the stomach: the water in passing carries with it the contents of the stomach and bowels previously eaten, and where they should have remained undisturbed for a few hours, and in addition, diluting the gastric and intestinal digestive juices.

The fermentable nature of the food points to the necessity for proper mastication and salivation. The inability to vomit warns us against large meals at all times, but more particularly when tired, cold, exhausted or sweating.

Many diseases of opposite character are the result of poor dietetic management. Heaves, coughs, and respiratory troubles from musty or dusty hay: founder or laminitis, from feeding too much grain in an exhausted state; and diabetes, from mouldy grain or weavily bran.

Horses performing slow labor are necessarily dieted differently from those doing fast work. Let it be of a laborious nature, however, be it in the hunting field or between the cart shafts, it cannot be performed comfortably on a full stomach.

During fast work the stomach must be practically empty. Horses should be fed two hours before they are required, and the food under those conditions be of concentrated nature, as oats.

After prolonged work or abstinence, or when exhausted, tired or sweaty, horses should be allowed to eat hay two hours, then watered

*A lecture delivered before the Fort Meade Lyceum.

and fed grain in limited quantities. Under all conditions of fatigue let them eat hay. A tired or hot horse will greedily swallow several gallons of water, if permitted to do so, whilst the saliva secreted and swallowed, by eating a few pounds of hay would quench his thirst to such a degree that he will not drink as many quarts. Just put yourself in his place, and imagine the result of suddenly distending your stomach with food or cold water when tired and exhausted.

Regularity in feeding is the best preventative of intestinal diseases.

Horses doing fast work, as in the saddle or harness, should be given their bulky food after, and not before their work is done.

Bulk is essential to digestion; it is impossible to retain condition on concentrated food alone. The intestinal walls must be slightly distended to favor digestion and assimilation. Without this bulk, horses become tucked up and hollow in their flanks, and soon resort to those stable vices, "wind-sucking and cribbiting," etc. Sudden change of diet, from old to new grain or oats, or from one to the other must be avoided, as they are frequent sources of death. Young horses cannot be too carefully or gradually brought up to a full grain ration. The necessity of increasing or decreasing the grain ration to correspond with the amount of work performed, and the size of the horse is considered by all good horsemen imperative.

European cavalry ration their horses according to size, weight and work, but no horse doing ordinary work as ours, should receive less than our present ration.

Exhaustive experiments have shown that a horse of average size, and resting in his stable requires for his internal machinery alone nine pounds of oats and twelve pounds of hay, and this of good quality.

Bran once or twice a week is a valuable addition to the ration, and should be fed dry, and with grain in the ratio of one to eight or ten.

Horses should be confined to one article of diet no more than man.

A horse will live thirty or forty days without food, if sufficient water be supplied, but will survive only about ten days in the absence of the latter.

During the Franco-Prussian War, and the later English campaigns, horse biscuits, or cakes of concentrated food pressed into exceedingly small bulk, were successfully used, the bulky food being found en route if possible. These cakes were used by the soldiers

when other food was scarce, in fact this was reported as one of their drawbacks.

The horse has forty teeth, viz: twelve incisors, four canines and twenty-four molars with the frequent addition of two premolars, known familiarly as wolf-teeth. The presence of these two latter is said to be conducive of eye diseases. The incisors are twelve in number—six above and six below, and are used in cutting food. The use of the canine teeth, two above and two below, is said to be that of offense and defense; they are large in the stallion, and absent in the mare. The molars are twelve in each jaw, six on either side: they are grinding teeth. The horse carries his food into his mouth by means of his lips, cuts it with his incisors: it is passed to his molars by his tongue. The upper jaw is much wider than the lower one, and the teeth larger: owing to this fact, the teeth tables present an oblique and chisel-shaped arrangement, the upper ones become sharp on the outside, the lower ones on the inside, wounding the cheeks and tongue respectively.

This is an important clinical fact, sharp teeth giving rise to much suffering and trouble unless periodically remedied.

The horse's mouth presents an important study to the cavalryman, it being the means by which he is restrained by the application of the bit. Here is a bit formed of two side-pieces called the cheek-pieces, upper and lower: and a cross-piece, the biting, or mouth-piece, in the center of which is a bridge called the port or tongue freedom. The straight portions of the mouth-piece on each side of the port is called the bar-pieces or the bars.

Here is a horse's head and mouth. Here are the bars on which the bar-piece should partially or wholly rest, depending on their sharpness or sensitiveness. These bars occupy the interval between the molar and incisor teeth, called the interdental space. The space between the bars is known as the tongue channel, which is crossed by the port or tongue freedom of the bit.

The bars and tongue support the mouth-piece, the "port" and bars of which rest on the tongue and bars of the mouth more or less, according to the temperament of the horse, the bar pressure and "high port" in the lymphatic horse because his bars are broad and more or less insensitive. This bar pressure must be modified by tongue pressure and low port in the well-bred horse, for his bars are sharp and sensitive, suggesting a high port in the former and a low one in the latter animal. The port must be narrower than the tongue channel. It is impossible to apply our present bit without injury to the horse's mouth and lips, for its side or cheek pieces are

digest it. It is digested at the rate of ten pounds per hour. Different foods taken into the stomach together never mix, but arrange them in layers, in the order they arrive. Oats and corn should not be fed at one time, as the more indigestible food passes out too soon. Corn is not digested in the stomach, it being a starchy food: Oats is digested there, being a nitrogenous regimen.

Change a stable of poorly managed horses to common sense arrangements, and in a short time how different an appearance they show. Don't stick to a custom for no better reason than that "our great-grandfathers did it"—this is a progressive age.

To recapitulate: Water before feeding only, not for three hours after. Hay, two hours at least before grain, the latter scattered in wide, large feed-boxes, high up. When exhausted, tired or sweating, or under any such circumstances, let the horse eat hay for an hour or two before watering or feeding.

Feed small quantities of grain if exhausted or sick.

Salt always in reach; some horses want more salt than others—let them please themselves. Our horse's salt ration is not sufficient. The soldier, an omnivorous animal, gets a far greater salt ration than his horse, a herbivorous one. Carnivoræ won't eat salt, it is poison to them. Herbivoræ want it as a vital necessity.

Feeding wet bran in Dakota in winter, is feeding solid blocks of ice. Mixing it with water in a leaky cart or box, is allowing its nutritious parts to fall to the ground.

MILITARY NOTES. 1876.

BY CAPTAIN DANIEL C. PEARSON, SECOND CAVALRY.

THE field of encounter—the arena, lay midway on east and west line between the Mississippi River and the shores of the Pacific, and embraced the following territory. The central northern part of Wyoming, the southeastern quarter of Montana, and the middle western and southwestern portions of the Dakotas. At the time in question, no railroad passed through this territory. Here, whatever was useful in forest, stream and mountain, or upon the prairie, was monopolized by the Indians. Here, that continued recession from the advancing, irresistible wave of a stronger race, which began in America four hundred years ago, had stranded a big bunch of nature's copper-colored children, who, instead of banding all together for mutual safety, were broken into hostile elements amongst themselves.

Strange perversity in human affairs: crowded to the wall by the whites, the long inherited hatred amongst these red men had sprinkled battlefields thickly over the territory hereinbefore described. In the westerly portion, were the Crows. To the east, the Sioux, Cheyennes, the Crees and Rees. Sioux affiliated with Cheyennes: Crows, Rees and Crees were friends. When events had ripened, under Providence, for the governing race to strike the weaker one more heavy blow, when the restrictions upon the autonomy of the latter had reached a point no longer to be endured, and when, in his own peculiar methods with respect to white settlers along the Pacific Railroad, to his south, and with respect to farmers and miners in the Black Hills, to his east, he made his protests plain not for the first time to the world—then it was that the two great neighboring military departments of the government, the Dakota and the Platte, took the field against the unfortunate Indians.

round instead of flat like its model, the German cavalry bit, thus allowing the lips to bulge over its sides and becoming pinched between these and the curb-strap. To remedy this serious defect, bits wider than the mouth transversely are resorted to, and as a result the port or tongue freedom is forced over one bar, irritating the horse and dragging the curb sideways, pinching the skin under it and wounding the bars.

A cavalry bit should have flat cheek-pieces at least half an inch in width, and then it would be found that $4\frac{1}{2}$ or $4\frac{3}{4}$ -inch bits would fit the mouth where we now use $5\frac{1}{4}$ and $5\frac{1}{2}$ -inch bits. The side pieces of the German cavalry bit, of which ours is a poor imitation or so-called improvement, are about three-quarters of an inch wide. The "S" shape of the lower cheek-pieces are not large enough to fulfill their object to prevent the horse from grasping them with his teeth.

The first essential in good biting is a close, comfortable, transverse fit. Without this there cannot be good results, and it is impossible to accomplish this with our last issue. There was no trouble of this kind with its predecessors, for the simple reason that they had flat sides, which kept the horse's lips in their proper place.

I now draw your attention to the chin or curb-groove. It is round and smooth, and will stand pressure fairly well immediately above it. However, the bones diverge and become sharp, more so in well bred horses. How many of our horses are bitted so that the curb-strap will remain in the curb-groove? Not many. Why? Because the bit instead of being at least half an inch from the angle sides of the lips, is forced up against them. Consequently the mouth-piece is not as it should be, opposite the curb-groove. With a snaffle and curb bit worn together, all these drawbacks cease.

The average soldier seems to have a weakness for saddling on the shoulder blades and buckling the bit as high as possible in the horse's mouth—two serious drawbacks to good saddling and biting.

Mastication is lateral and confined to one side until the salivary glands on that side cease to secrete, when the operation is transferred to the other side.

It takes a horse ten minutes to eat one pound of grain, and twenty minutes for one pound of hay. Feed boxes should be at least eighteen inches square, and I am inclined to think nearly as high as the horse's withers. I have stopped several horses from bolting or gorging their food by adopting high feed boxes. The food spread in a thin layer prevents a horse from gorging. Our present feed

boxes teach them to gormandise because it is heaped up into a small space.

The food of herbivore is inclosed in hard wood called cellulose. If this is not broken in mastication, it is swallowed whole, and acts as an irritant in its passage through the intestinal tract. The molar teeth wear away more rapidly than the incisors: if the latter did not grow downward and forward as the age advances the molars would fail to meet.

The horse's teeth continue to grow during life, consequently if a tooth fall out, the opposite one will continue to grow indefinitely, requiring periodical surgical interference.

Swallowing is not a mere gravitation of food or water down the gullet, but a complicated muscular act. Jugglers sometimes astonish their audience by drinking whilst standing on their heads. Grazing horses perform this feat naturally. A horse cannot breathe through his mouth; if his nostrils are stopped, he will suffocate.

Horses accustomed to being watered at a trough, drink slowly, painfully, and with much difficulty from shallow streams, and many refuse to slake their thirst under those conditions. The watering of any organization in the field should be a slow, systematic process, and regulated by the slowest drinking unit therein.

The stomach is rarely empty. Hay is not digested in this organ, but passes on to the bowels, being starchy food. Oats being a nitrogenous regimen, is digested in the stomach. It is in keeping with economy, common sense and physiology, to water, hay and grain horses in the order named. If grain is first fed, then hay; the latter by its bulk pushes the former out of the stomach before it is digested. It is evident to anyone that the small stomach cannot hold much hay.

Water after or during feeding washes the grain back thirty feet, to the cœcum or appendix. When a horse is first fed hay, for two hours it takes the keen edge off his appetite; he then eats his grain leisurely, masticating and salivating it thoroughly.

Any of you can see our horses led to the stable each evening, ravenous from ten hours' fast, and cold, gorge themselves by gulping down large mouthfuls of grain. Eating hay for two hours at least before grain, and large high feed-boxes, are effectual preventatives of this wasteful habit, in addition to being fed a few pounds of hay at midday in the corral.

The capacity of the stomach is about eight quarts; only one-half of this space is digestive, the other half being merely a dilation of the gullet. Hay requires four times its bulk of saliva to

digest it. It is digested at the rate of ten pounds per hour. Different foods taken into the stomach together never mix, but arrange them in layers, in the order they arrive. Oats and corn should not be fed at one time, as the more indigestible food passes out too soon. Corn is not digested in the stomach, it being a starchy food: Oats is digested there, being a nitrogenous regimen.

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The Indians in arms were the Sioux and Cheyennes, the former in the larger numbers; the latter not excelled for bravery by any race of men, which accords with the fact that more Cheyennes met death on the field of battle than did Indians with whom they were allied. The number of Indians arrayed against the troops cannot be stated, and it is doubtful if the Indians themselves knew their own number. That they largely exceeded the troops, not counting squaws and children, was an undoubted fact. Those of us who had the fortune to see one of their old camping grounds, and likewise the trail of their combined numbers, must remember the barren, trodden earth, stripped of all vestige of vegetation, than which nothing could be more expressive of desolation, or more significant of the almost unprecedented multitudes of men, women, children and ponies who had preceded us in the occupancy of those places. Of course it will be understood that no trails of this description blazed the way for us generally throughout the campaign in question. Only when it suited their convenience, or when abundantly able to encounter the troops, or when comparatively near their point of concentration on the Little Horn, did the hostiles offer such signs of themselves.

That portion of the United States forces destined to come up with the concentrated Indian camp, and which had opportunity to know the most about the size, composition and numbers, paid dearly for that knowledge. I refer to the more than decimated Seventh Cavalry, and to those fatal days, the 25th and 26th of June. In the month of March preceding, the Department of the Platte sent forth ten troops of cavalry and two companies of infantry, with wagon train and pack mules. Debouching to the north from Fort Fetterman, Wyoming, this command for one week, during which it was favored with the brightest possible skies for the time of year, marched intact. Then the wagons and infantry were left in camp. The cavalry and packs were pushed out at the beginning of the second week, with rations and forage and blankets cut down to the lowest notch, leaving camp after dark one night. That night was the longest, without exception, that I ever passed. The most intense desire for sleep asserted itself, chiefly, no doubt, because sleep was among the impossibilities, and altogether out of the question. An officer comrade, to whom a night march was not so much of a novelty, remarked interrogatively to me, and as I thought with an unnecessary reach to his voice, that that was probably my first night march. At this date I do not mind admitting that it was. In that night one of the sudden changes of weather occurred for which Montana

is noted. A blizzard struck us, locked the streams up solid, and lay a carpet of snow. What success in escaping the observation of Indians had attended our night march, was threatened to be of no avail by our conspicuous trail in the snow. Our belief at the time, corroborated by subsequent events, was that the Indians just then were comfortably quartered in their tepees.

At daylight, whose coming that cloudy and snowy morning was greatly belated, we dropped down into a camp of ice and snow, with the thermometer twenty degrees below zero. This temperature held, night and day, for the following two weeks, at the close of which period we were back with our wagons. I will state that the ten troops of cavalry were commanded by a brigadier-general, with a colonel second in command. After the first week away from the wagons had passed, during which no signs of Indians appeared, two were one day suddenly observed riding rapidly away from us. A halt was immediately ordered. The brigadier-general sent forward at nightfall the colonel and six troops to take up the trail, remaining himself with the other four troops. It being my fortune also to remain with the latter, I know only from hearsay concerning the fate of the six troops that night, the next day, and the night following. An Indian village on the Powder River, commonly described as CRAZY HORSE'S village, was attacked and destroyed by the six troops on the 7th of March. A large herd of ponies was captured, but fell again into the hands of the Indians. The cold, the reduced rations and bedding and forage, broken sleep, and the unaccustomed exposure, had seriously crippled both men and horses for active, vigorous work. But a severe blow had been inflicted upon the Indians. The return march to the wagons, and thence to Fort Fetterman, rounded out a month's absence from that post, and finished an expedition in which no one claimed or received much credit, although there was quite as much ground for the claim, undoubtedly, as has often sufficed to render men illustrious in Indian warfare.

The rank and file had borne well all the hardships of the expedition, but received scant credit. The subjugation of the northern hostiles had not been accomplished. A larger contract had been undertaken than had apparently been anticipated. Summer was coming, when the Indians were regarded as less vulnerable. The attack on Powder River had not sent them into the agencies, suing for peace. The prospect of a speedy and rich harvest of renown was far from encouraging. As if to make some amends, the colonel was court-martialed for destroying dried meats and robes in the Indian village, which "might have" otherwise been used by the

troops in further prosecution of the campaign; also for failing to hold on to the Indian ponies, which "might have" been substituted for exhausted cavalry horses; also for generally failing to secure all the fruits of victory.

This winter expedition from the Department of the Platte was followed in early summer by a second, from the same department, at which time, also, an expedition set out in the Department of Dakota. The total in the field, from first to last that summer, from the first named department was thirty-five companies of cavalry and infantry, with an aggregate of 1,512 officers and men. The total from the Department of Dakota was forty-one companies, with an aggregate of 1,853 officers and men. Crow, Ree and Cree Indians were allied with the Dakota column; Crows and Shoshones with the Platte column. These two columns were commanded in the field by their respective Department Commanders. The two expeditions set out from widely separated points, and with a very vague knowledge of each other's whereabouts, until in midsummer a most appalling disaster overtook the Seventh Regiment of Cavalry in the Dakota column. The disaster, commonly known as the "CUSTER MASSACRE," was but the outcome of a brave and successful effort of the Indians to save themselves, their families and all they owned in this world from death and destruction. There they had congregated in self-defense; and there they did thoroughly the duty which devolves upon all men, when all they hold dear is threatened with destruction. Some concert of action then suggested itself, the first essay in this direction coming from the column which had experienced this crushing blow from the common enemy.

Let us go back from this particular date, June 25th and 26th, to the latter part of May, and again to Fort Fetterman, where the Platte column was outfitting. Below, and near at hand to the fort, swiftly ran the North Platte River, bank-full at that time of the year. The command was, with the exception of horses that could be made to swim, taken over on a ferry boat, which was propelled to and fro by presenting sides, alternately, obliquely to the current, with the help of ropes, blocks and pulleys operating upon a cable that was stretched from bank to bank. The process of swimming the horses was interesting, more particularly when it came to those of one troop which positively refused to take the water. With that mount, as was the case with all, the men of the troop formed a semi-circle about the horses, the ends of the circle resting at the water's edge, to force the horses into the river. The particular mount referred to were young and new to the service. They broke through

the line of men; they turned tail to the river: they sailed past the fort like the wind, and then they disappeared in the mountains southward, the most of them never to be recovered.

This column, having collected on the north bank of the river, was then inspected. As a result of this inspection, a car-load of the personal effects of officers and men had to be sent back to the fort, to be left in the quartermaster's storehouse. In fact, many of those effects were yet on the river bank as the column pulled out to the north. Every pound that could be dispensed with was left behind. Currycombs and brushes were not allowed to the cavalry. Clothing, blankets, and equipage were closely scanned, and reduced by an inflexible rule in the case of every individual. Herein the infantry suffered most. Many nights were spent by them hovering over camp-fires, while the cavalryman was sleeping well under the additional cover afforded by saddle blanket and another extra blanket, which was carried beneath the saddle in the daytime with no detriment to the horse.

With considerable dispatch, the first of our long series of marches began. The rule adopted was for the infantry to start ahead each morning at about 4 o'clock. The cavalry, their horses having grazed since daylight, between two and three hours later, by which arrangement, the infantry averaging two and a half miles an hour, got into camp with least fatigue, and the entire command arriving practically at the same time. Before the expedition came to an end the following October, the infantry had acquired splendid marching capacity, while the cavalry, cheated of its forage, was at a disadvantage by comparison.

The formation of camps habitually approximated to a circle. High points in the vicinity were occupied as lookouts. The main circle at night had an outer circle of bunches of men within earshot of one another, one man in each bunch constantly awake by turn, and all lying close to the ground with arms at hand. More than once during those months, was the wisdom of this method of guarding the command demonstrated. The theory was, that when one or more of our wily foes should reconnoiter us at night, not only should we have our cordon of sleepless men on the watch, but, this fact discovering itself to the unequalled eye and ear of the savage, the latter after noiseless contact at one point and another, and worst of all, finding himself between the two circles, would return to his starting point with all speed, lucky to escape a bullet.

It is said that we never know what a day may bring forth. Never was there a keener realization of the saying, than through-

out the period, from May to October, of which I write. Each night, as one's head lay down, sound and whole, on saddle if a cavalryman, or upon whatever pillow could be improvised if an infantryman, there was no certainty that that head would be sound and whole the next night; death, or starvation, or sickness, was almost constantly forced upon the contemplation. Perhaps the most trying factor was the very general state of uncertainty. In camp, the 8th of June, toward evening, the enemy without notice gave us a few volleys from an overlooking eminence. Two troops of cavalry charged up the declivity and drove them away. Some holes here and there in our canvas were all that was left to tell of the encounter. A circumstance in this camp is recalled which impressed upon all the necessity of careful handling of firearms. One of our men, upon taking off the belt to which his pistol was attached, tossed it upon the ground, fetching the pistol sharply on to a rock, discharging a cartridge into his body, and receiving his death wound. A very impressive burial service was had, and the grave was secured from savage disinterment by collecting above it, with teams of mules, immensely heavy rock.

Eight days later, the 16th of June, our command, stripped of tentage and other impedimenta, accompanied by Crows and Shoshones with four days' rations, our infantry mounted on our wagon mules, set out. On the morning of the second day, the 17th of June, our *antennae*, the Indian scouts, saw buffalo running, evidently pursued by somebody outside of our command. They also came upon hurriedly abandoned breakfasts of buffalo meat. And shortly they actually laid eyes upon their red brothers with whom they and we were at war. They lost no time in conveying the news to us. The news was electrifying in the extreme. When I say "electrifying," I use the most literally opposite word. The whole atmosphere—the air we breathed—became charged with intensest excitement. The scouts stripped. They frescoed their bodies. They vaulted onto their ponies. With rifle in one hand and coiled end of lariat in the other, they steered their ponies at a mad gallop, now in straight lines, now in circles, all the time uttering deafening, fiendish, confusing cries until, like a flash, off they go by ones and twos to square up old feuds. No one should pretend to be able to tell all that occurred that day on the upper Rosebud.

It subsequently transpired that upon that identical day the Dakota column was scouting within easy reaching distance of the Platte column upon this same Rosebud Creek. About this same date, also, it became known to the Dakota column almost exactly where the

hostiles had concentrated upon the Little Big Horn. Concert of action between the two columns at this time must certainly have produced more creditable results for the troops. In our 17th of June affair on the upper Rosebud, our Indian allies, of whom the Crows were in their own familiar country, proved of great assistance. The evidences we had of their wonderful eyesight were constantly with us. The Second Cavalry squadron was first in contact with the Indians. I recall the strange and unaccustomed sensation of that target practice in which the bullets whizzed thick and close to my firing point instead of safely away at the three, five and six hundred yard target butts near garrison. I recall, too, the fact that at one time more than my share of bullets, apparently, struck the ground near by, and that I afterward discovered that the motion of my horse had inverted my open cartridge box and pitched a large percentage of my cartridges upon the ground. Does it not rank high among comical events of this world to think of a soldier creating a battlefield all by himself, and being dismayed by the sound of his own bullets as he unconsciously fires them at the ground? I am not proud of the occurrence, and hasten attention to the fact that, yielding to contact with the Second Cavalry, seeking our left flank and rear, the enemy found themselves confronted with the rifles of the infantry. They then tried flanking the infantry, but found more cavalry coming up on the infantry left. Here the hottest part of the engagement took place. Here ten of our men were killed and twenty wounded. Here, on one part of the skirmish line, were recruits doing their first service. Here the enemy charged boldly into close quarters. One of the recruits handed an Indian his carbine in token of surrender. The Indian, acting with dispatch in such close proximity to our line, grasped the carbine, smashed the soldier's face with the stock, and then dashed away. For one on the ground, it was impossible to tell of the duration of that fight. Thoroughly convinced that our foes were in multitudes, although for the most part concealed from our sight—momentarily assured by Crow or Shoshone, who, with penetrating eye and gesticulating hand, indicated the hostiles, that never in the world were quite so many Indians assembled before—no conclusion was so apparent as our defeat.

Finally, orders came to move down the Rosebud to the supposed Indian village. Nine troops of cavalry were disengaged from the fight and started in that direction. Not to leave the dead of those troops behind, they were swung across saddles for their last ride, head down on one side and feet depending from the other, blouse

and trousers strained to parting above pommel and cante; with rollicking comrade—not so rollicking at heart—leading the dead trooper's horse among the rear twos. That was no time for moralizing or for tender sensibilities. The nine troops had rapidly passed some seven miles into the cañon, whither our Indian allies refused to go. At this point, an aide overtook us with an order to retire from the cañon by the quickest route. The reason stated by the commanding general in his report for countermanding the order for us to go down the cañon, was that he desired to use us elsewhere. The very evident fact to us was that we certainly would never have been of use elsewhere, except for that countermanding order. If of any immediate subsequent use on that day it was not apparent. Turning short to the left hand in the cañon, our path was up a steep, thickly wooded declivity. My part at that time was to be messenger to communicate directions to succeeding troops; to overtake the head of the column, and to be bearer of messages to the rear again until, breathless and leg-weary, as the ascent was too steep for riding, I was the last to clamber out of that cañon, fully persuaded that the whole Sioux nation was at my heels. Upon reaching the high and level ground there were the balance of the command and the wounded. In aiding the wounded much skill was manifested by our Indians. The first thing that struck me was the sight of our wounded prone upon the ground, in the hot summer sun, without protection. At the same time, there were the wounded of our friendly Indians with hastily constructed tripod and shelter over them. In all their treatment of the wounded, they displayed a certain skill that was born of familiarity with life and death contests.

And so here we were with two of our four days' rations gone, with which we had left our wagons. Two days' march from our wagon base of supplies, with just sufficient rations to return. We had not then learned the practical operation of going a week or more, with no rations at all. On the 19th day of June, however, we were back with our wagons, and made good connection that time, so far as rations were concerned. The remainder of June, the whole of July, and a few days in August were passed in inactivity, mostly, in camps skirting the northern base of the Big Horn Mountains. The wagons, with infantry escort, were sent to Fort Fetterman, then two hundred miles to our south, for more rations and for more troops. Meantime, camp was changed at intervals, from one point to another, from mountain stream to mountain stream, there being a succession of such at from about five to eight miles apart, all cool

and crystal, emerging from cañons opening northward from the Big Horn range.

About the 10th of July, the first news of the CUSTER fight, by way of Fort Fetterman, came to us by courier, three weeks after the event. The effect upon the command may be imagined. It dawned upon us that CUSTER and his men had met the fate in store for us had we followed up the gentlemen with whom we had the argument of bullets a week in advance of the CUSTER fight. The impression made upon our Commanding General, who had not been suspected of overrating the northern hostiles, was such that he immediately sent couriers back for more reinforcements, beyond those already ordered, before making another advance.

About this time, also, the memorable expedition was made, in which one of our regimental officers did distinguished and gallant service. The general belief prevailed that CUSTER's destroyers had moved up the Little Horn River, to a point west of us, and also near the Big Horn Mountains. To get information of them, the Commanding General desired his leading scouts to explore in that direction, but the scouts demurred to go alone. Accordingly Lieutenant SIBLEY and twenty-five picked men and horses were ordered to accompany the scouts. It is my opinion, with all deference to that of Captain SIBLEY, who certainly had the best opportunity for judging, that for purposes of observation the usual method in the Indian country of sending but one or two, or at the most three individuals, would have been better tactics. The circumstance which enabled Captain SIBLEY's party ever to return to us—not forgetting the courageous action and excellent judgment displayed—was their finding their way, after enforced abandonment of their horses, into the heavily wooded mountains, where the plains Indians with whom we were at war were loath to go. So far as the opposition to be expected from the enemy was concerned, they were in such warlike mood and equipment, as to render a detachment of twenty-five men a mere flea-bite for them. So I say that the rule of minimum vulnerability with maximum excellence of powers of observation should not have been departed from. I fail to find in published official records any allusion to this hazardous service of Lieutenant SIBLEY's detachment. It certainly deserved conspicuous and honorable mention, which it received, I am glad to say, in all other quarters. I congratulate the Captain that the Indian scalping knife, which he and his detachment so narrowly escaped, had nothing to do with the scanty field of operations for the tonsorial artist which the top of his head now presents;

That was a most interesting day in camp when, toward evening, two infantrymen arrived with dispatches from the Dakota column, our first definite information of the whereabouts of that column, and also of the full details of the CRSTER fight. The Dakota was senior to the Platte commander. In these dispatches he waived his rank and offered to cooperate with the latter in any plan of operations he might have. About this time, also, orders were received from the Division Commander that the Platte column should join the other. A regiment of cavalry coming to our reinforcement early in August, a start was made to join the Dakota column. Abandoning the wagons which we were not to see again for two months, and stripped once more of everything that could be left behind, we emerged again to the north. In a few days, after crossing trails which denoted that our Indian foes had gone eastward in the direction of their agencies in a broken and scattered condition, the two columns came together, each at first mistaking the other for the enemy, and making dispositions accordingly. Junction was made on the historic Rosebud. There was tardy wisdom in uniting the two columns. The Dakota troops had abundant supplies, which had been facilitated by the navigation of the Yellowstone and Missouri Rivers. The Platte troops had been insufficiently and poorly supplied throughout.

If this difference between the two bodies of troops should be attributed to the difference in the means of transportation, the inquiry is suggested, Why should the Platte column have deliberately turned its back, as it did early in September, upon twenty days' forage and rations which the Dakota commander had conveniently placed for it? And in consequence of which action on the part of the Platte commander, the latter's men were almost starved to death; horses had to be abandoned by the hundreds, while other scores of horses, emaciated as they were, were made to simulate beef cattle for issue by the Subsistence Department. In fact, dry and tasteless horse meat straight, for days constituted the sole rations for the Platte column.

And so it was that the Dakota column was not permitted to continue its hospitable and generous provision for us which it showered upon us so long as we remained together. The joint command marched eastwardly, crossed Tongue and thence to Powder River where the latter empties into the Yellowstone. Our stay at the latter place was for about a week, during which time we were frequently drenched by night rains. Much skill was acquired in the selection and preparation of the spot of ground upon which we indi-

vidually slept, to avoid in particular the formation of rivers and pools of water during the night. In the absence of tents, and as late summer was blending with early autumn, the nights grew cold, and the rainy season was on. It would surprise the uninitiated to know what comfortable nightly shelter was had. Camping places at that time usually abounded in trees and bushes, from which small withes and saplings could be had for the framework. Six or eight withes, each sharpened at the heavier end and forced into the ground in two parallel rows at say two and a half feet asunder, the tapering ends brought together and interlaced, formed a support about three feet in height for a blanket, whose sides came to the ground and were fastened down with wooden pegs. A blanket so placed with reference to a man asleep on the ground at night was more efficacious, as a second blanket to the one which came next to the body, than if the man slept with both blankets next him, especially if it rained or snowed. One end of the semi-cylindrical tepee so constructed was closed by an overcoat, or a saddle blanket, or piece of shelter tent. Into the other open end you entered, head first, in a prone position, and gradually squirmed into your bed for the night—headquarters always in the saddle. It was while so reposing one night, that there came thunder, lightning, rain, hail, wind, in terrible violence, sounds and shapes—a wretched, unhappy, tormenting night. Lying flat on my back, with hands grasping and holding down the sides of my blanket roof with each access of violence to the storm, I was ashamed to have passed the night so comparatively comfortable when I learned of the general experience. The great majority were drowned out, and had absolutely no resource but to stand or sit in the water and mud till morning. All attempts to light pipes or firewood were out of the question. The expletives, the lamentations, the objurgations, the deep resentments and remonstrances against the fate of that night, have seldom been paralleled.

When the time arrived at which it had been foreordained that the two columns should separate, the commander of the Dakota column, who, being senior to the other brigadier supposed he had something to say on the subject, upon rising one morning was informed, to his amazement, that the Platte column had decamped—a most astonishing proceeding it has ever seemed. Without any pretense of courteous leave-taking, our Platte commander skipped out with his 1,500 men, one fine morning in the mud. The senior brigadier, who had been treated in this way, ordered up his horse, and with an escort of twenty-five men overtook the junior com-

mander at his first camp out from the Yellowstone, in order to have a mutual understanding as to the future movements of their respective commands. The Dakota column was to move east on the north bank of the Yellowstone; the Platte to the east, but along a line some distance to the south of the Yellowstone. At the mouth of Glendive Creek, on the Yellowstone, it was arranged to leave the twenty days' supplies, before referred to, for the Platte troops. In due time the latter reached their nearest points to these supplies. A march of forty miles would have reached them, and there were two days' rations on hand which would nicely have sufficed for the necessary two days' march, and little or no grain for the animals. A field officer interceded with the general commanding, that we should go for our supplies. The general commanding demurred, on the ground of uncertainty of there being any supplies, in spite of the promise of the Dakota commander. As a concession to the situation, our commander sent scouts to see if there were any supplies. The scouts returned and reported no supplies, notwithstanding that there were supplies at the appointed place, and as there was abundant subsequent testimony.

The march determined upon, as an alternative, with but two days' rations, led us further east and then south to the Black Hills, in Dakota, over a stretch of 200 miles. As we journeyed onward, I must not omit to mention the growing corn on a portion of our trail where the Seventh Cavalry had passed in early summer and dropped the seed corn from their wagons—a suggestive reminder of the changing fortune of the soldier's life. Early summer had been bright and bonny for them. Autumn now had come, and horses and riders had heard their last bugle call, had made their last march, and had paid the debt of nature far from home and friends.

But let us push on and see what was in store for us before the business of that season was over. There we were, with hard tack and bacon fast disappearing. Maps were constantly in requisition, to inform ourselves where we were, and where we were going. The maps gave most meagre information, barring distances, which were discouragingly plain and accurate in their formidable aggregation. Our march became an exploration under difficulties. Infantry began to receive reinforcements from the dismounted cavalry. The horses of the latter were shot at first, but later were simply abandoned along the trail to their fate. Excellent grazing abounded, but it being necessary to get to food for the men, delay for the recuperation of horses was not permissible. The superiority of grass-fed Indian ponies for rough and long-continued service has

often been mooted. Demonstration to the contrary was afforded us. Our Indians had two ponies apiece, some of them more. Each Indian had at least one led pony for riding, for a change. It became finally a pitiful spectacle to see those unshod, footsore, emaciated little beasts marching, day by day and side by side, with our cavalry horses, toward the latter part of the time the Indians remained with us, and at a period much in advance of the exhaustion of our horses.

One long stretch of our journey in those starvation days was over a treeless country with no fuel for warmth or cooking. Wild onions and cactus fruit were sparsely scattered here and there, and ministered triflingly to the pangs of hunger. The need at this time may be truly described as awful. In one place the trail had to be corduroyed with boxes of ammunition, there being absolutely nothing else at hand, and the threatened starvation of the command made the ammunition, which was unrecovered, an inconsiderable loss that was not taken into account. Saddles from abandoned horses accumulated beyond the capacity of the pack train, and so finally were burned in one big bonfire. The texture and odor of horse meat had become so familiar as the bill of fare for our two daily meals, as to generally alter the sensation customary in using them as saddle animals, besides suggesting an injustice in making them do double duty as food and transportation. It is a satisfaction for me to know that the chestnut sorrel I rode in those days, is to-day enjoying life in the blue-grass region of Kentucky.

Although the demands made upon that animal in those days of which I have been writing, in our own and in other cavalry regiments, were so excessive, it must be remembered that our men were subjected to corresponding hardships. I recall very vividly the lines in the horses' flanks, which sank deeper and deeper in as the period of trial was more and more drawn out. One troop in our whole twenty-five troops of cavalry had the credit and the distinction of not losing a single horse on that trip. In my possession is a letter from the captain of that troop, now a major upon the retired list. It is as follows:

—THE ARMY AND NAVY CLUB.

—WASHINGTON, November 11, 1895.

—MY DEAR CAPTAIN:—It affords me pleasure to notice receipt of your esteemed favor of the 25th ult. I find it difficult to tell you how Troop "B," Fifth Cavalry, at the ending of the campaign of 1876 had not lost a single horse, when hundreds were left upon the trail by other commands. I have only this to say: My troop was in fine shape to enter the field when called to Dakota. I had few

recruits. Most of my men were in second and third enlistment, and we had passed through a long and arduous campaign in Arizona. My non-commissioned officers were capable and fit for higher positions. The men were never allowed to leave the ranks when marching, without the knowledge and consent of the troop commander, and then only on the most urgent circumstances. I made every trooper feel an ownership in his horse that was assigned to him. No other person could use the animal without his consent. In this way, I found my men often cutting grass with a pocket or other knife, in places where his horse could not get at, when grazing at the length of the lariat, to supplement his feed and perhaps give him a tidbit. I wish you were here, that we might go over the field again. I often meet men in the Club that were with us. Yours truly,

MONTGOMERY."

The exhaustion of our command proceeded from bad to worse. Having reached the North Fork of the Grand River, Dakota, 150 men, mounted on the strongest horses, were sent forward, with orders to proceed as rapidly as possible to Deadwood for rations, starting at 7 o'clock on the evening of September 7th. Having gone eighteen miles, the detachment camped until morning, and then again took up the march, and in the afternoon of that day unexpectedly came upon an Indian village of thirty lodges. This village was destroyed and all it contained, excepting about five tons of dried meat, which eked out our rations of horse. Owing to the peculiar and not very choice way the Indians have in curing game, it is not, of course, a popular article of commerce. The main command arrived upon the scene before the destruction of the village was completed, and later, upon the day of arriving, was deployed in an immense skirmish line, making a circle about three or four miles in diameter, to meet the attack of the Indians, who had returned with reinforcements, and with the expectation of having only to contend with our first attacking body. The size of our firing line and its heavy fire was greatly more than a match for our foes, who permitted us to retire from the historic ground of Slim Buttes without serious damage to either party.

But few marches more sufficed to bring us to the point where we were met by rations and grain. Enterprising citizens also came up with wagon loads of breadstuffs, the average profits of which were not bad. It is true that starving men besieged the wagons, and caused a miraculous disappearance of loaves and cakes, the responsibility for which no man could find out. But then there were loaves upon loaves that brought a dollar each.

About this time a contractor's beef herd came in sight, and in a

surprisingly short time was killed, cooked and eaten. Five hearty meals a day was the rule for a long time. I am sure that gustatorial delights at DELMONICO'S never equaled ours. It was not until the inner man was somewhat rehabilitated that the outer man received attention. Ragged, patched and worn-out coats, shirts and trousers bad for a long time, without change, been the covering for the bent-over, hollow-cheeked, sunken-eyed men.

At the close of the last day's march of twenty-seven miles, in rain and mud, before getting rations, the number of stragglers who had not been physically able to keep up was 125. It became my duty to go back the following morning over the trail and pick up those men. One after another came along, with too evident signs of exhaustion and emaciation. To those who were on the point of utter exhaustion, I caused men of my detachment, one by one, to give up their horses. Some declared it was useless to go farther. I gave them the good news that they would find rations in camp. Then they had courage to go on, struggling still in the mud, bare-footed, with boots slung over their shoulders. By some merciful Providence, hostile Indians had not hovered upon our trail at that time. The slaughter of our weak and starving men would have been small glory to our arms.

Finding ourselves soon after this in Deadwood and Custer City, we had the pleasure of seeing our wagons once more, which had been sent to us by a detour. Tents seemed like palaces then. Camp bed and bedding, positive bliss. Ordinary necessities of life, real luxuries. The newspapers of Deadwood and Custer City spoke a hospitable welcome to us. It was a matter of regret, however, that from some source they had procured such unreliable information of our comrades of the Dakota column. Comparisons were made which were very erroneously intended for our gratification. The Dakota column was denominated the "rocking chair brigade." Contact with the Dakota column had been such a "serious hindrance" to the Platte commander. Had the Platte commander been left to himself, the Indians would all have been "wiped out;" and more such deplorably false and partisan reports were brought to the newspapers.

I regret that I am not equipped with the facts that would enable me to do a measure of justice to the medical department of our column. The services they rendered to the wounded, the sick and the exhausted would make a most instructive and interesting chapter. While the outdoor life tended, in the main, to the preservation of health, or at least counteracted largely the effects of poor

diet and of other untoward hygienic environment, there were cases of severe sickness, notably that of HUNTINGTON of our regiment, who was prostrated with fever, and was transported for days upon a travois constructed by men of his troop. Most skillful surgery was done in the case of another officer at Slim Buttes, whose right leg was amputated above the knee, in consequence of a shattering of the joint by a ball.

Prompt, faithful, skillful attendance was prominently characteristic of our medical officers, in keeping with the habitual efficiency of their department. Even to the unprofessional mind, their ingenious improvisation of substitutes for appliances necessarily absent in the field was interesting. Ready resource was in daily evidence. Copper cartridge shells, relieved of their deadly contents, their open ends stopped with wooden plugs, were transformed into very timely and useful receptacles for remedies constantly needed on the march. The infantry column has reason to remember the good doctor who lightened the day's burden often for many of its weak and famished men, by carrying as many rifles as could be fastened to either side of the pommel and cantle of his saddle; or, relinquishing his horse to some sick man, plodded on foot, although in the same worn and weak condition himself as was the majority of the command.

Of the ten officers of the Second Cavalry who were with the Platte column in the summer of 1876, three—NOYES, PEARSON and SIBLEY—are still with the regiment; six—DEWEES, WELLS, O'BRIEN, RAWOLLE, HUNTINGTON and KINGSBURY—sleep in the silent bivouac of the dead; one—SWIGERT—has been promoted out of the regiment.

I have two thoughts born of the experience of 1876. First, as to clothing: It should be warm without unduly cumbering the body. Rapid motions and good circulation of the blood are often seriously impeded by too great a load of clothing. Fur garments are indispensable. Second, as to food: Feed full rations to men and full forage to horses and mules. Condemn all unnecessary reduction and diminution in this regard as mal-administration in its worst form. The physical endurance, the good heart, and the nerve and muscle of the components of an army form its indispensable working capital, and should be prized somewhat as the miser does his treasure. It is a lamentable thing when a want of foresight, a jealous disposition, misguided judgment or selfish ambition sit at the helm. If for adequate object, and with good results, men are put to the test of their supreme abilities, they may be expected

to make light of hardship and privation. It is then that proud and heroic conduct may be confidently looked for. The bearing of these observations was made plain by the morale of the Platte column, the last days preceding the relief which came to us in the Black Hills. Discipline had become strained. A condition akin to mutiny was smouldering. Fortunately relief came to hand when it did!

Pack mules are a good means of transportation for small commands only, ill adapted for bulky loads, and too disproportionately expensive for loads that are solid and compact.

The best possible care of horses after taking the field, not to mention their neglect, will not atone for poor condition at starting. Good condition at starting, in spite of considerable neglect on the road, will enable horses to endure a wonderful amount of privation and hard work. Whatever benefits come from good grooming and systematic exercise, too much importance can hardly be attached to that good feeding which adds every pound possible of avoirdupois to the horse. The trip in question afforded apt and multiplied evidences of this, in the case of numerous horses observed by myself, in which the results of previous generous nutrition lasted to the close of the season. Shoe your horses. The proposition that horses need to be shod did not require demonstration. There has been much academic contention to the contrary, which I pronounce fanciful and useless. The necessity for horse-shoeing corresponds very well with its universality.

The soldier should remember that besides taking into account the chances of death or wounds from the enemy, which may or may not come, his capacity to endure cold, heat, hunger, loss of sleep, untimely and intimate exposure to rain, snow and mud; his ability to patiently await the developments of weeks and months of well or ill managed warfare; his faculty for rustling for himself and getting along with such aids as nature, and not the hand of man, will supply; and, finally, making it a rule, *to despair at nothing*—these are basic principles of his profession.

Field service is most excellent alternation with service in garrison. Each has a value peculiar to itself, and quite distinct from the other. It would not be easy to say in what proportions they should be mingled. The opinion is ventured, however, that if for the time the soldier serves, in particular now that his enlistment is for but three years, were to be given up to but one of these kinds of service, the best interest of the individual, and of the government, would be secured by exclusive field service. In this latter service,

there is an almost infinity of experience. Take any veteran, and how apt he will be to tell you, touching his latest trip in the field, that some new problem, or some old problem in some new shape, had offered itself for solution. To aid in the realization of the truth of my proposition, let some of the factors of field service be enumerated—factor presenting such inter-relation that a change in one, kaleidoscopically changes the whole: The orders from a distance, under which a command is to operate; the methods of the man who happens to command; the personal equations of staff and other officers; the nature of the country in general; the nature of the country, as it varies from season to season; the condition of roads and trails which a twelve month is sufficient often to essentially alter; the kind of transportation, and its condition; the kind of camping places, and their condition; the different degrees of accessibility of supplies; the kind, the quantity and the frequency of water; the duration of daily marches, as affected by heat and cold and dust and mud. The liability, of accidents to transportation, occurring at times when means of repair are near at hand, and at times when means of repairing are fifty or a hundred miles away; camping in bivouac, or camping in regular form, with all the appointments in the way of tentage and laid-out streets; acquainting one's self with men and localities; cultivating and strengthening the powers of the eye, the ear, and of the physique generally; cultivating the judgment; acquiring alertness with the particular avoidance of that inertia which is not the exclusive property of stationary bodies in the inanimate world; and when I add the complications ensuing from contact or the want of it, between commands having the same objective, as was the case in 1876, and when also we view the effects of contact with an enemy, the field of imagination can be very exhaustively occupied were we to specify actual and probable experiences. If any profession be accorded first place for aptly illustrating the proverb that experience is the best teacher—shall it not be our own?

A FRENCH VIEW OF THE AMERICAN CAVALRY IN THE
WAR OF SECESSION, 1861-1865.

TRANSLATED FROM THE "REVUE DE CAVALERIE."
BY CAPTAIN W. W. FORSYTH, SIXTH CAVALRY.

IF THERE is a war where the cavalry has been employed on a scale unusual in Europe and with a method quite new, it is certainly the War of Secession, which has not, perhaps, been studied with the care which it deserves, and which deserves to be the subject of serious reflection. At the time of declaration of war, the Americans had a small army, and the officers, who were graduates of the Military Academy at West Point, belonged, for the most part, to the South, with which they sided. On account of the small number of officers and the powerful armies which had to be created, it was necessary on both sides to form cadres that were new throughout.

These young armies operated rather according to the inspiration and character of their chiefs than in accordance with a general method. From the cavalry point of view, the Southern men were much more accustomed to horses than those of the North, and their country furnished better animals. In the Southern army, a large part of the cavalry was attached to the infantry, with a reserve of two brigades. At the beginning this cavalry, which maneuvered badly, had frequent reverses, but later when reorganized, it reached 2,000 to 10,000 horse, assembled in independent divisions, and at the end of the war it had reached 35,000 men. In the South the cavalry was not more skillful in maneuvering, but it showed itself at the beginning bolder and more enterprising. Of the American generals, some were graduates of the Military Academy and commanded regular cavalry; others, bold, adventurous, enterprising men, had attained by their personal merit to the command of large troops of partisans.

Before studying some of the operations of the American cavalry it may be well to examine its composition, physiognomy, and its manner of fighting. We shall, therefore, examine how cavalry corps on each side were composed and say a word about their principal generals.

In the Southern cavalry, MORGAN's corps was composed entirely of volunteers; it comprised ten regiments, each regiment having ten companies of fifty men. When MORGAN wished to prepare for a raid, he sent into the country that he wanted to raid disguised men called scouts, who informed him about everything that would be important to know of the enemy and of the country, in which they usually remained until the arrival of their chief. All the American generals, however, employed this mode of information before undertaking their expeditions. This was very easy when the scouts were sent into a country favorable to those who sent them, but less easy in the contrary case, although there was then no great difficulty, as each country always contained partisans of both sides, and as all spoke the same language and were of the same nation. The clothing was very simple; no uniform or almost none, and as MORGAN operated especially in rich localities, supplies could be found in abundance. The horses carried only the saddle and saddle blanket and no baggage nor provisions. The arms were a carbine with a bayonet and one or two revolvers: two companies only in each regiment had the saber. They lived on the country. The usual gait was the walk; they did not make more than five or six kilometers per hour, but they often marched twenty or twenty-one hours out of the twenty-four, and it did happen that the men could be allowed only three hours' sleep out of forty-eight. MORGAN's longest march was one hundred and forty-five kilometers in thirty-five hours. While on a march, they took supplies from the neighboring farmers along the road. If horses became unserviceable they took others from the farmers, leaving them the broken-down animals. There was in America an enormous consumption of horses during this war, and no country exists in Europe which could have supported the like. As the saddle horse abounds everywhere, these exchanges were possible, but often they took horses of an inferior race and left blooded horses, as were those of Kentucky in which MORGAN had recruited his command. They camped where they happened to be on the highway, the bridle on the arm, men and horses eating what they had found. MORGAN always observed the greatest precautions, the main body being held well in hand and marching on a single road. As fighting tactics, he

laid it down as a principle that one must do the contrary of what the enemy must believe as reasonable. He attacked with extreme energy at the beginning of a raid in order to produce moral effect, and when his object was attained he avoided fighting as much as possible. Although his men, for the most part, were excellent horsemen, they rarely fought, except on foot, the nature of the terrain often preventing marches or charges across fields. One or two companies only remained mounted as a reserve and for mounted action. MORGAN usually amused his adversary in front in order to fall on his flank or rear, making sometimes a detour of eight or twelve kilometers. He had very little artillery at first—two mountain pieces drawn by two horses: later four 12-pounder shell guns and two Parrotts were added.

Another partisan chief of the Southern army was FORREST. He was admirably endowed by nature, but lacked all military education; he possessed extraordinary bravery and dash: his corps of partisans comprised three divisions of three brigades of two regiments, and amounted to about six thousand men. In the main, his men were armed with the saber attached to the saddle, with carbine and revolver. FORREST's troopers were soon convinced of the inefficiency of their sabers, and replaced them with one or two extra revolvers. When FORREST wished to execute a raid or a far-reaching stroke, he made careful preparations. Like MORGAN, he sent scouts a considerable time in advance into the midst of the country where he intended to operate. When he wished to deliver a quick stroke, he took 400 or 500 of the most energetic troopers, to whom he gave the best horses. They carried on them only their weapons and their clothing, and two or three rations of cooked meat and bread. They marched sometimes twenty-four hours almost without stopping, breaking down their horses if necessary, because they were certain to find others in the country overrun. In more important expeditions FORREST was followed by light wagons carrying supplies and tools. The gait of the march was the walk and trot. They ate and rested a little about noon, then marched until evening, bivouacked, and set out again the next morning. The main body usually made from forty to forty-five miles a day. The troopers exchanged their horses for those of the country whenever they wished. FORREST's tactics consisted in seeking to take the enemy in flank or in reverse. He often opened the attack with a regiment mounted, which made a show of withdrawing, and drew the adversary under the point-blank fire of a second regiment which had dismounted and concealed itself on both sides

of the road. The artillery, which followed everywhere, consisted of two light pieces for each brigade. When the action began they put them in battery and opened fire wherever they happened to be. They had no anxiety about compromising the guns; if they were taken, they would be taken back.

While the corps of FORREST and MORGAN were partisans, STUART's formed a regular cavalry which was organized like European cavalry, and which was dependent upon the armies, and did not make expeditions as long and as prolonged as those of the two first. STUART's men had for weapons the saber and revolver; they did not receive the carbine until later; they slept under tents, were well supplied, and followed by wagons.

The Federal cavalry at the beginning was inferior to that of the South. It was not long in profiting by the example of its adversaries, and its generals likewise made bold expeditions. There were GRIERSON, who, in 1863, marched with 2,000 troopers 900 kilometers in sixteen days; STONEMAN, who made a long expedition, which we shall analyze later, with 10,000 men; and WILSON, who had under his orders 35,000 cavalymen, which really formed an army. On his raid in Alabama he was crowned with success. WILSON led 12,000 troopers, some artillery, and 1,500 dismounted men. Each carried five days' rations, twenty-four pounds of grain, one hundred cartridges, and two extra horseshoes: mules carried additional five days' rations of biscuit, and ten of sugar, salt and coffee. A train of 250 wagons completed this equipment. As did all the American generals, WILSON obtained information by means of scouts, who worked two or three days' march in advance. The gait was the walk (the trot being taken only under exceptional circumstances), the march from thirty-two to forty-eight kilometers a day. WILSON's corps was a kind of mounted infantry.

Finally, there remains SHERIDAN, one of the principal generals of the Northern army. His corps of cavalry was composed of 10,000 men armed with the saber, revolver and the seven-shooter Spencer carbine. They fought mounted only against cavalry; they had, however, on account of this, to suffer from the fire of the Southern cavalry who did not await the shock, and who drew these troopers under the fire of dismounted men as we have seen it done by FORREST. Against infantry, or when SHERIDAN wished to fight on the defensive, they fought dismounted, one man holding from seven to eight horses. The gait was usually the walk. The train carried only ammunition. Each man had on his horse four days' rations and two of grain—no extra articles. A large force of artillery was

at first attached to this corps, but it was reduced later, as in WILSON's corps, because it diminished the mobility of the column.

SHERIDAN thought that with modern weapons cavalry could no longer act mounted against infantry, and he permitted its use mounted against cavalry only when there was not time to dismount: nor did he believe in the saber, but was convinced that in the charge as in the *mêlée*, the revolver alone is efficacious. He employed his cavalry as mounted infantry, having the facility of delivering itself rapidly on a given point. He claimed that with 10,000 troopers he could prevent the concentration of 100,000 men by first destroying its cavalry by his fire, if the latter made war in the European style, and then making a dash on the communications and rear of the hostile army, attacking all his isolated detachments while he himself was free to accept or refuse battle by the mobility of his 10,000 men.

After this sketch of the organization of the American cavalry in the South and in the North, let us examine some of the operations of the generals whom we have named, in order to comprehend the results that the Americans derive from their cavalry.

In 1862 the two American armies were struggling on the banks of the Potomac. McCLELLAN occupied the banks of the river with the Northern army, the bulk of his army on the north side and his advance posts on the south side of that river. General LEE, commanding the Southern army, was established on the Rappahannock. General STUART resolved to make a dash on the rear of the hostile army with the object of destroying the railways, capturing his wagon trains, etc. The 10th of October he reached the Potomac with 2,000 troopers and a battery of artillery, crossed that river, turning the extreme right of General McCLELLAN, stampeded some advance posts of the enemy, pushed north as far as Chambersburg in Pennsylvania, destroying magazines and railroads; then feeling sure that McCLELLAN would intercept his return if he came back by the same road, he changed direction to the east and then to the south, scattering terror everywhere and destroying everything that could be useful to the Federals. He recrossed the Potomac at Whit's Ford on the left flank of the Federals, after having made a complete circuit of the hostile army.

This march had lasted only three days when STUART's cavalry had traversed 250 kilometers. Later, the Confederate army having been thrown back on Richmond, and that of the Federals occupying the line of Chickabominy with its line of supply on the Pamunkey, STUART, at LEE's order, with 1,200 men pushes northward, turns

the Federal army by its right and reaches the Pamunkey, burning and destroying everything on his passage, and routing the Federal cavalry that seek to stop him. He afterwards burns a railway bridge, thus interrupting the most important line of communication of the Federal army with the Pamunkey, and on the morning of the 14th, he reaches the Chickahominy, which he crossed on a bridge which he had repaired after having made the circuit of the Federal army. He brought back most precise information about the hostile army, after having destroyed several millions of dollars' worth of supplies. The men had not left their saddles from Thursday morning to Saturday evening, not stopping to rest or eat.

General MORGAN undertook his first raid with 900 men; it lasted twenty-four days, during which he made about a thousand kilometers. The raid took place in the States of Tennessee, Ohio, and Kentucky. He took seventeen cities and destroyed more than \$8,000,000 worth of material, magazines and railroads.

April 27th, General STONEMAN with three divisions of cavalry, forming an effective of 10,000 horse, passed the Potomac, and while one division watched the railroad to Washington, he moved south with the two others and established himself at Thompson's Cross Roads, a short distance from the James River. From there he sent columns in all directions pillaging the towns, destroying canals, railroads and magazines. One of these columns even reached the suburbs of Richmond. Finally, STONEMAN, threatened by superior forces, recrossed the Rappahannock, after having maintained himself in the enemy's country eleven days without material loss. One of his brigades had been cut off, but it succeeded in rejoining the Federal army, which was threatening Richmond on the south.

In the period of modern wars, a period which to us begins with the increase of range and rapidity of fire of firearms, the War of Secession holds a place of first importance because of its duration. The more a war is prolonged, the more are soldiers and tactics improved. Prolonged experience teaches what should be done or what should not be done, and it is for this reason that we earnestly insist on the study of the American cavalry, tried and proven with five years of a war in which all the resources of modern invention were employed. This cavalry was commanded by professional generals like STUART and by improvised generals like MORGAN and FORREST. All adopted the same or nearly the same manner of operating; it was, therefore, a sufficient test. The cavalry corps varied from 2,000 to 15,000 men; men were armed with the saber, revolver and carbine. Much use was made of dismounted action.

and certain bodies of cavalry were even considered as mounted infantry. The tactics was to seek to take the enemy in flank or in reverse, or draw him under the fire of dismounted men in ambush. There was little artillery, and it was very light. When they could not subsist on the country they carried rations and ammunition either on the horses or in wagons; never any reserve baggage.

Thus organized, these cavalry corps moved with remarkable independence. It was not for two or three days only that they remained isolated and distant from all support, but for entire months; they rendered immense services each for its own side, and SHERIDAN put an end to the war by cutting the communications of LEE and compelling him to lay down his arms. Could expeditions similar to those made by the American cavalry be executed in Europe? We have contented ourselves with saying that raids are impossible on our continent, considering the numbers of modern armies, the density of the population, etc., but as a matter of fact the question has never been examined seriously. It is in consequence of its organization that the American cavalry could make those long incursions, and we think that any cavalry organized like it could make distant raids and render the same services.

What, then, are the causes which render this cavalry so mobile? Its armament, its manner of packing and carrying needful supplies, the absence of impedimenta: for if it was sometimes followed by wagon trains, it was only for expeditions made with large numbers and of long duration. The artillery was light enough to follow everywhere and at all gaits, and most frequently was few in number.

Its armament: The principal weapon in the American cavalry was the carbine; afterwards the use of the revolver was recommended, and finally the saber. The cavalry was regarded as a mounted infantry, which does not, however, prevent it from charging, revolver or saber in hand, when the opportunity is presented. There is something distasteful to us about this name, "mounted infantry," and it is feared in Europe that by giving too much importance to the use of the carbine that the horse may be neglected. These fears and this distaste are childish: we should know how to look things in the face and to take advantage of all our means. The excellent magazine carbine that we possess must have its influence on the tactics of the future, because it gives us much greater strength in attack and defense, and we must know how to make use of it. NAPOLEON I. ever insisted on the necessity of firearms for the cavalry, and even desired that the latter should, in an emergency, dismount and take the place of infantry. He even wishes that all

cavalry designated for detached service be provided with firearms, in order to be able to contend, if necessary, against infantry that it may find in front of it." By its range and rapidity of fire, how much more important is our carbine than the weapons of former times? Its power is more than quadruple that of the musket of the Empire, and its great precision and range permit its use in many cases where it could not before be utilized.

If, as is to be desired, the carbine was given to all troopers and non-commissioned officers, a regiment of cavalry could at least hold its own against two companies of infantry. Nor is it to be doubted that a troop of cavalry, profiting by the ground, could rapidly and suddenly establish itself on a crest, within range of the infantry, who will suddenly receive some volleys from a direction whence they thought they had nothing to fear. Instantly perplexity and hesitation ensue, and the first alarm having passed, it will be necessary to halt and reply to this attack. The advance of this infantry cannot be resumed until it has fathomed the importance of the attack, hence delay results. This body will not be able to contribute to the common effort and will be diverted for a time from giving the assistance and support which was expected from it at a given point, and when it shall have decided to oppose a serious counter attack, the cavalry will quickly remount before suffering too much from fire, and move to another point to carry out, if possible, a similar maneuver. If the fire of the cavalry falls on a line already engaged in front and takes it in flank and in reverse, it will very likely suffice to shatter it completely. The range of small arms permits the utilization of cavalry in this manner because it can always open fire at a sufficient distance to have the time and ability to withdraw when it begins to suffer too much from that of the enemy (or when the latter becomes too threatening), which it could not formerly do when the range of firearms was only 100 or 200 meters. Notwithstanding the superiority of infantry rifle fire, is it admissible that a brigade of cavalry shall be stopped at a bridge or a village by a section or even a company of infantry if the latter has no artillery? What! 400 or 500 men may be held in check by from 150 to 200? No; without having the pretension of struggling against infantry, we must not believe ourselves obliged to retreat before a few footmen if we want to have the mobility which is necessary to us, and if we wish to be useful and make those fruitful expeditions of which the American cavalry has given us the model.

On the 6th of August, at Forbach, two squadrons of dragoons dismounted, stopped the heads of column of General STEINMETZ in

order to give the troops occupying Forbach time to withdraw. It is not, however, to be said that the importance of the horse will be lessened; quite the contrary. If, in utilizing the carbine, we open for ourselves greater space, if we can circulate more easily, more boldly, the horse will be more than ever the instrument of our success. It is it that will permit us to reach quickly the place where we are least expected, to destroy the railroads and supplies of the enemy, and spread fear and perplexity in his armies; and the stronger we shall feel ourselves to overcome the obstacles that may be placed to intercept our return, the farther may our expeditions be carried. It is the horse that will permit us to approach the enemy's lines and reach his flanks, and the better our men and horses are the more we may attempt.

Besides the carbine, the American cavalry was armed with the saber and revolver; a marked preference was shown for the latter. A part only of MORGAN'S troopers were armed with the saber; FORBES'S partisans got rid of it, replacing it with one or more revolvers. It is generally believed in America that the revolver is more deadly than the saber. We read in the *Foreign Military Review* that the official medical statistics of the German Empire fixes the German killed and wounded during the War of 1870 at 65,160; out of this number only 212 were wounded and six killed by the saber. Now, in November, 1864, in a single action between a squadron of Federal regulars and a squadron of Confederate partisans, the latter, using only their revolvers, killed of the enemy in a mêlée of a few minutes twenty-four and wounded twelve. *The Review* does not state how many men were struck with the saber in this engagement, so we cannot make the comparison. Opinion, however, is not unanimous among the American generals: some prefer the saber to the revolver and believe that the former is superior in the charge. What is good in America would not, perhaps, be recommended in Europe. The revolver has long had a place in the manners and customs beyond the Atlantic, and to such a point that one cannot well fancy an American without one or two revolvers. The Americans have, therefore, more than we, the habit of this weapon, and know better how to make use of it. The question of the superiority of one over the other is difficult to answer, and we lack experience in Europe. It is certain that the firearm has a greater moral effect than the naked blade.

During the cavalry engagement which took place the 16th of August, 1870, northwest of Mars la Tour, a captain of Chasseurs d'Afrique had his horse killed in the mêlée. One of his men gave

him his mount and returned on foot. The return distance for this man was long, and he was surrounded by German troopers. I asked him how he managed to get back safe and sound; he replied that he carried his gun in both hands in the position of a hunter, with cartridges in the hollow of his hand in order to be able to reload quickly, and that whenever a trooper made a show of approaching him he raised his gun to his cheek, and the trooper made off in another direction. The man who is armed only with a saber in front of one who threatens him with a firearm has a sensation that he will, perhaps, receive a projectile that he cannot parry, and that whilst his adversary is not within reach of the point of his saber he himself is absolutely defenseless. In France they disdain a revolver; they even believe that in the *mêlée* this weapon may do more harm to friends than to enemies.

For our part, we do not believe that the revolver is superior to the saber in the charge when two troopers of the same class encounter each other. It would seem, however, that light cavalry would meet lancers and cuirassiers with more confidence, notwithstanding the superiority of their armament, if it were armed with the revolver, which would permit it to reach its adversary before the shock, for the latter have, by their armament, such an unquestionable advantage that the encounter front to front of the light cavalry with them appears to us very difficult, valor being equal. We do not wish to commit ourselves on a question so important, and will therefore leave it to discussion. Nor did General DE BRACK think that light cavalry could oppose heavy cavalry in front. When the charge was inevitable, his idea was to form in close column and to overwhelm one point of the hostile line with this mass of troopers, then quickly to make a half wheel and take the enemy in reverse. Or else he quickly uncovered the front by platoon movements to the right and left, and his force separated into two fractions, maneuvered by platoons to the left and right in order to fall on the hostile wings. This movement appears to us very delicate. General DE BRACK believed that cuirassiers could not easily change front. I believe that he should not trust to that, and that one might be easily surprised in exposing his flank to the charge. We have said that one of the causes of mobility of the American cavalry, was its baggage packing. Baggage was diminished to the utmost extent, and the horses carried no extras; none of those brushes that encumber us, and only ammunition and rations when they could not do otherwise.

In Europe the population is so dense, the towns and villages so close together that it is useless to encumber ourselves with a quantity of impedimenta, which serves only to load and wound a horse. Also, why should we have regiments followed by baggage wagons, which will be, when war begins, consolidated into trains and will never be seen again, and which can serve only to weigh down the columns, which may well be compared to a man wishing to run and dragging a cannon ball at his foot.

The officer must carry on his saddle indispensable articles, and on his extra horse useful things, and become accustomed to doing without his hampers, which he will not see again before the end of the war—if he ever sees them again. Diminishing the pack must lighten the saddle, which does not need such bulky holsters, and is constructed in too massive a manner. As to the artillery, we have remarked that the American cavalry was usually accompanied by very little, that it did not depend very much upon it, and knew very well how to do without it. Everything was rightly sacrificed to mobility. Cavalry, in its service of exploration and reconnaissance, should be followed by a few light and mobile pieces only.

Mountain guns, drawn by two horses, able to go everywhere and follow at the same gait as the cavalry, would be quite sufficient. What then is the role of artillery attached to the cavalry in advance of an army? It is to aid the latter in forcing a passage or else to serve it as a support on retreat; to compel the evacuation of a village held by a few hostile detachments; to destroy the approaches of a bridge to check the pursuit of the enemy when the cavalry in retreat has to pass a defile; finally, in a cavalry combat, to pour in its shrapnel on the enemy. In all these cases its action will be only momentary and it will never have, in any case, to struggle against hostile artillery or to prepare the attack of a position. In a cavalry action the lightness and mobility of the artillery, the smallness of space that it will take up, will permit it at the outset to engage more rapidly and at shorter range. It has been a question of providing cavalry divisions with Gatling guns: the latter could indeed render great service, but they could not completely take the place of cannon, which have more power against obstacles, can more easily batter down a gate, a barrier, or destroy a wall.

In connection with the foregoing, it may be objected that the cavalry united with the artillery will have an important role to fulfill on the battlefield, by quickly occupying positions before the infantry has deployed, as did the First Brigade of Cavalry of the German Guard, which made thirty-five kilometers at the rapid gaits

in order to bring a battery from Carignan on the field of battle, or else of throwing itself on the flanks of the enemy during an engagement, as did a battery of the Rhinebaden Division the 16th of August, and that the materiel, as we would desire it, would be insufficient for this purpose. We do not ask that the horse batteries be suppressed, only that they should make a part of the artillery reserve of the army or of the army corps: and when necessary to send them forward rapidly, they could be escorted by the cavalry more or less strong in order to have them aid in the general plan: but it is not necessary on this account that they should be permanently attached to the cavalry. Army corps and divisions, as they are organized in times of peace, will certainly not always be maintained of the same composition on the battlefield, considering the great development of armies. It cannot be admitted that a division, which shall find in front of it a covered terrain in which it can utilize only a part of its artillery, should leave inactive pieces which would be very useful elsewhere. The skill of the general will consist especially in a judicious utilization of his forces, so that no effort may be lost, and that each may give the maximum of its powers in order to attain the desired result, and the cavalry will often have to escort artillery thrown rapidly on a distant point.

Are raids possible in Europe? In the true American sense they would be more difficult. In the New World they were facilitated by the character of the war itself. The people spoke the same language, and in each country both sides found allies, and the dispersion of the states which had pronounced for the one cause or the other, multiplied and isolated the theaters of operation: in short, it was the configuration of the country. That narrow passage called the Valley of the Shenandoah, which permitted communication for the Confederates to the north and for the Federals to the south of the enemy without having anything to fear on the flanks, protected as they were by the Blue Ridge Mountains, was, from the nature of things, the theater of numerous expeditions of this kind. Another cause which will prevent these long expeditions from being made without a full knowledge of attendant conditions, and for an object of sufficient importance and ease of accomplishment, is the enormous consumption of horses which they will necessitate. The raids of partisans, like those of MORGAN and FORREST, lasted many days; those of the regular cavalry, like those of STUART, were executed in three or four days. It is these last which we believe might be usefully practiced in Europe.

The cavalry in advance of armies has two essential objects: the first, to seek to gain information about what the enemy is doing; the second, to prevent him from knowing what our armies are doing. Another one, which is a corollary of these two, is to embarrass the enemy in his designs. During the period of mobilization of the armies, which will last at least five or six days, the cavalry in large masses will be sent to the frontier at the very beginning. Will not its duty be to make expeditions, in order to seek to embarrass the concentration of the adversary? Destruction of railways will be of capital importance at a time when everything on both sides has been calculated in order that the armies may be concentrated in a minimum of time. Will the covering troops, placed in advance to cover the concentration, be sufficiently dense to prevent a body of cavalry from passing in the night through the meshes of their net, and, making a quick dash for the railways, have time to destroy them sufficiently to cause serious trouble, not only in the passage of the trains of that line, but also of connecting lines?

In 1870, conditions were not the same on both sides, and the mobilization of the French army was so much behind that of the Germans that there was no need of the latter to embarrass it, but they could have done so by throwing their numerous cavalry beyond the Sarre. Later on, they might also have caused great annoyance in the concentration of the army in the camp at Chalons because the German cavalry was available the 19th of August, and it was not until the 25th that the army began its movement. It would have taken only three days for the cavalry to gain contact, and there were six days before it. Later still, when the numerous German armies were operating at the north, south, and around Paris, if France had not had its cavalry after Sedan almost completely ruined, bodies of cavalry thrown to the northeast between Orleans and Langres would have certainly been able to operate against the long lines of operation and concentration of the enemy, which, considering the importance of the communications for such numerous armies, would have compelled them to detach, in order to guard them, a much more considerable body of troops, without counting the annoyance which those expeditions would have caused on account of the destruction of supplies of all kinds or of delay in their delivery.

We have observed that these raids were carefully prepared in advance, and that the generals, before undertaking them, sent ahead numerous scouts who gave them detailed information. It would be desirable that this mode of information should not be neglected.

In virtue of that eternal maxim of war that "the one who knows what the other is doing will beat him," it is evident that if the commander of an expedition of this kind knows exactly the places of assembly of the enemy's troops, how and at what places may be found the fractions which form the curtain of protection for the concentration, he can easily decide what he might be able to do and arrive at a successful result in the execution of his plans. It is therefore necessary that the chiefs of cavalry, from the beginning of operations, be kept well supplied with all the information that can be obtained about the enemy from whatever source it may come, and that they have a well organized secret service.

PROFESSIONAL NOTES.

EDITOR'S NOTE.

To the Members U. S. Cavalry Association.

GENTLEMEN:—The time has come when the Association must decide for itself whether publication of the JOURNAL shall continue, or be suspended indefinitely. Our cavalry regiments are now so scattered, and the officers so occupied with the multifarious duties attending the new condition of things, that the editor well understands the difficulty of furnishing matter for the JOURNAL, proceeding, not from a lack of interest entirely, but from a lack of time and opportunity.

The matter rests with the Association. If enough literary matter reaches the editor by December 1st, to justify publication, the December number of the JOURNAL will be issued, otherwise its publication must of necessity be suspended.

Your editor is himself editing the JOURNAL in the midst of duties which are very exacting. But he will cheerfully continue to give up a large share of his spare time to the JOURNAL, if the members of the Association will contribute their much needed assistance. There is so much at present of interest to the cavalry, both in Cuba and the Philippines, that surely the one-time excuse of "lack of material," cannot now hold good.

Owing to the fact that the War Department no longer publishes the addresses of officers in connection with the monthly list, the

Secretary of the Association has been unable to ascertain the correct mailing addresses of a number of members of the Association. In case you have not received your JOURNAL regularly, please mail your correct address, and future changes of address, to the Secretary of the Association. Very respectfully,

CHARLES D. RHODES,
First Lieutenant Sixth Cavalry,
Editor.

FORT LOGAN, COLORADO.

[For the U. S. CAVALRY JOURNAL.]

SHORT NOTES ON SOME PRE-HISTORIC EUROPEAN CAMPS.

THE CAMP OF BULSTRODE, IN BULSTRODE-PARK, BUCKINGHAMSHIRE.

In Buckinghamshire, on the main London and Oxford road, twenty miles distant from Hyde Park corner, and eight miles north of Windsor and the Thames, is an intrenched hill-top, a level plain of twenty acres extent, surrounded by earthworks, single, double, and triple, with moated hollows between, varying from one to eight feet in depth, now clad with verdure and flowers.

The Camp is on a spur of high land with a valley about half a mile wide on the southwest, which rises almost on a level with the Camp on the north; where, on the *vallum* are faint traces of flint walls, parted about ten feet, as if of a gateway entrance to the Camp. Two hill-spurs on the west and south, are about the same level as the Camp within the intrenchments. On the south, a narrow gorge separates the Camp from the adjacent hill. To the east, the ground-level is the same height as the Camp, forming the Gerrard's-cross, village, plain, common, and enclosures, outside Bulstrode-Park wall.

An unfailling water supply by ponds of small size, is just outside the intrenchments on the north and south sides. The Camp is situated near the Bull-Lodge gate of the Park, on the Oxford road, about three hundred yards distant. Formerly, the Oxford road was within the Park bounds, until diverted to its present course. An extensive outwork cut the Oxford road at some former time; it is a gap about ten feet deep, now leveled up where the road crosses it. This is four hundred yards northwest of the camp.

On the south, and about a quarter of a mile from the Camp, are many pits, and remains of intrenchments. The Camp is about eighty feet above the adjacent western valley. On the opposite hill, half a mile away, is Bulstrode Mansion.

The Camp, within the intrenchments, is twenty acres level ground. Around the mounds and moat are trees, seemingly as old as the period of the Conquest. Some of the later growth are to be

found, with a profusion of young trees—elm, alder, wild-cherry, and a profusion of shrubs as wild raspberry, sloe, furzo, broom, fern, and heather, in luxuriant, mingled growths.

The name of Bulstrode Camp is almost all that is known of it—besides the tradition that the name was derived from the fact of the farmers under the leadership of the English yeoman, SHOBBINGTON, defeating some Norman troops there, and of riding them down on their oxen. The legendary tag-on to the tradition, is that WILLIAM, when he heard of the defeat of some of his troops, sent for SHOBBINGTON, who, accompanied by his sons, rode up to London bestriding their victorious oxen: and, in answer to the Conqueror's question, "How he dared to oppose the Norman?" replied: "To defend his home and lands, and that he would dare do it again if assailed;" and that the Conqueror was pleased by the blunt reply, and that he confirmed SHOBBINGTON in his possessions. This seems more like a Norman than an English aspect of a doubtful incident, following a defeat which the boastful Norman scribes never chronicled. That such a defeat was probable may be assumed, as it will be remembered, after the battle of Hastings WILLIAM went direct to Oxford and crossed the Thames there with his army: but instead of striking directly east for London along the direct road, he went across heath, bog, and woodland, northeast to Berkhamstead, doubtless to meet contingent additions of priest-soldiers. He had secured the south side of the Thames, and seemed now effecting the same on the north side of the river to London. Possibly the right wing of his army was sent by the main Oxford road to London—perhaps under DE BOURG—to harass the inhabitants along the left bank of the Thames, and was worsted at the Camp by the English yeomen there.

No exploration of the Camp has ever been attempted, though paleolithic tools, horseshoes, and many bones have been found.

L. LODIAN,
Civil Engineer, Paris.

FIVE-YEAR ENLISTMENTS FOR THE CAVALRY.

A few years ago enlistments for all arms of the service were for a period of five years. Circumstances were such that it was thought expedient to change to three-year enlistments. What were these circumstances, and are present conditions the same or widely different?

The principal reason for the change, as I remember it, was the alarming and ever increasing number of desertions, especially in the West. The old post-trader system was in force, or, at least, its evil influence was still felt. Pay days were often bi-monthly and were marked by orgies which the strictest discipline and severest punishment seemed unable to check. Amusements at far western posts, with the exception of occasional hunting trips, were confined almost entirely to those which demoralized the men. The years dragged along, and men welcomed most gladly any relief from the monotony

of garrison life, which kept them in the fold. And desertions, as a matter of course, became so common, that at reveille after pay day, it was not uncommon to find a score of men missing from the garrison.

Then came the change. The reward for deserters apprehended was considerably increased. The regulation in regard to 11 P. M. inspection of quarters was introduced. The summary court began to take jurisdiction of minor offenses. Athletics, up to that period somewhat dormant, were encouraged; and kindred amusements took the place of monte and faro. And, too, the post exchange system decreased drunkenness, decreased violations of discipline of all kinds, improved the ration, provided the money for the encouragement of innocent amusements, and gave to the soldier, in a sense, a social club.

From the time when three-year enlistments were introduced, the whole tone and morale of the army began to rise, not from the change in the term of enlistment altogether, but from the various causes enumerated above. Where it had heretofore been difficult to obtain recruits for the cavalry except from the ranks of the unemployed and worthless, native-born Americans, rosy-cheeked farmer boys and intelligent mechanics from the cities, applied for admission to the honorable profession of a soldier. And due to the increased interest in enlisting, the government was able to raise the standard of recruiting, mentally, morally and physically, to such a height, that the recruit for the regular army of to-day stands without a peer in the entire world.

Thus I have briefly sketched the changed conditions of affairs from the time when five-year enlistments were considered demoralizing to discipline, to the present day. Now let us look at the manner in which the cavalry arm is affected by the three-year law. No doubt, when the three-year enlistment law was enacted, the authorities realized to some extent, as the cavalry officer of to-day realizes to the fullest extent, that three years was a very limited period in which to mould an efficient cavalry soldier. But at that time it was simply the choice of the lesser of two evils—poorer cavalry soldiers professionally, but better soldiers, perhaps, morally.

To-day, every cavalry officer of any experience knows that it takes at least two years to make a fair cavalry soldier. And how many really "good" cavalry soldiers does the average troop contain? Certainly very few indeed. The many loop-holes offered good soldiers to quit the service, through purchase, through favor as veterans and through political influence, sidetrack many a promising soldier whose loss is severely felt by the troop, and who, in very many cases, goes out without mature deliberation and without bettering his condition in life.

Taking an average troop of cavalry at present, it is safe to say that one-third of the troop goes out in a year, and two-thirds by the end of the second year. In a five-year enlistment, when well started, these figures would be one-fifth the first year and two-fifths

by the end of the second year. From the end of the second year of a soldier's enlistment onward, the probabilities of his discharge decrease. The consequence will be that the number of expert cavalry soldiers in the troop at the end of the second year will be much greater in the five-year than in the three-year enlistment. Moreover, in the former case the expert cavalrymen will remain in three years longer instead of one year. The effect of a large number of old soldiers in the troop, provided, of course, the troop commander keeps the "old soldier element" up to a high standard of discipline, will react most beneficially on the recruits who join, and their first impressions will be permanent and lasting.

As a matter of economy to the government, the saving on the clothing allowance alone will be considerable. The difference between the allowance for a three-year enlistment, plus two years of a reenlistment, as compared with a straight five-year enlistment will amount in five years to a saving of \$33.76 for each soldier—supposing the clothing allowance in the fourth and fifth years of a five-year enlistment to remain the same as that of the third year. This will amount in the cavalry alone to a saving of \$405,000 in the five years, or \$81,000 a year—quite a snug sum when frequent complaints are made of the expense of maintaining cavalry.

A new factor too—foreign service—has appeared, which will in time require the employment of comparatively more cavalry than of any other arm. The continual loss of men by discharge will be augmented by losses from sickness and disability; so that with five-year enlistments the benefit of having experienced and acclimatized soldiers in the Colonies will be very marked, even if we do not reckon the saving to the government of transporting discharged soldiers thousands of miles to their places of enlistment, and of replacing them with recruits.

We may thus summarize the disadvantages of five-year enlistments, as follows: (1) Discontent and restlessness, resulting in impaired discipline and increased desertions; (2) Difficulty of obtaining desirable recruits.

The first disadvantage will not be as marked as some might fear. Natural soldiers, who would make soldiering their profession, would as readily enlist for five as for three years. And discontent might be minimized by granting a four or six months' turlough—four months, if taken at the middle of the five-year enlistment; six months, if taken at the end of the enlistment. Difficulty in obtaining desirable recruits will not be extraordinary, if we may judge from the ease with which the U. S. volunteer regiments have been recruited up to their authorized strength. Love of adventure, in-born in the American youth, will make enlistments for foreign service far more eagerly sought after than were ever those for monotonous frontier duty. If thought desirable, the "war pay" now existing might well be continued for five-year enlistments for foreign service.

The advantages of the longer period of enlistment for the cav-

alry may be summarized: (1) Greater efficiency for the cavalry, professionally, both in individuals and organizations; (2) More soldiers who will adopt soldiering as a profession; (3) Decreased sickness in the Colonies, due to a greater number of acclimatized soldiers; (4) Economy to the government in clothing and transportation.

C. D. RHODES,
First Lieutenant, Sixth Cavalry,
Editor.

I advocated the three-year enlistment prior to its adoption and have found that it works well. The five years look interminable to the new man, while the shorter term of three years enables the government to fill up the ranks more easily than under the old system. It is found that, as a general rule, many reenlist, thus practically making a longer term enlistment. It takes, in my opinion, two years, including two target seasons, to make a good all-around cavalry soldier. As I have intimated, the general rule is, that the short term easily taken engenders the taste, and other organizations, if not the old, get the benefit of the training on reenlistment. I have watched closely for years, and the opinion is not hastily formed. Very respectfully,

GEO. H. SANDS,
Captain Sixth Cavalry.

The greatest disadvantage of the three-year enlistment system is, that about that length of time is needed to make a proficient soldier. This is especially true of the mounted service, for as soon as a soldier becomes proficient his term expires, and, in the majority of cases, does not reenlist, and the cost of his education for a soldier is lost to the government. As the future service of a larger part of our army will be in our distant island possessions, the short term of three years will be noticeably felt in the rapid changing of enlisted men, and filling their places with new recruits; and in the greater expense to the United States for less efficient soldiers; on account of the increased clothing allowance for the first year's service, and the greater cost of transportation home for the discharged men; on account of more frequent discharges. To the men who adopt the military profession as an occupation for life, it is immaterial whether they enlist for a term of five years or a shorter period.

F. WEST,
Captain Sixth Cavalry.

In reply to your note of July 31st. I fully agree with you that three years is too short a time to make a cavalryman. But considering the nomadic habits of Americans, and especially of Americans of the age we want, I fear that we could not resist the pressure they would make for discharge whenever the whim seized them. The discharge of men by political favor is a great evil to be avoided. I see no reason why at this time, when we are undoubtedly to be

compelled to take a leaf here and there from the experience of other nations, we should not adopt their plan of giving higher pay to the cavalry than to the infantry. Requiring some knowledge of horses and riding, and selecting recruits carefully, we could soon build up a *corps d'elite* whose men would do as much in three years as the men we are getting now would do in five. Why should there be any demur at paying the trooper more than the footman when he is required to know everything that the footman knows, and his horse work besides? Then again, his daily labor is twice that of the infantry when we consider the care of horses and extra work on horse equipments and weapons. It seems to me that much might be done in the way of improving the condition of the trooper, without waiting for legislation, if the War Department so desired: the cavalry could be treated as the light batteries always have been treated in our service, as special troops whose whole effort was to be concentrated on their special duties: their clothing could be cut to fit and to adapt it to mounted use—a thing that has never been done in our service; and in many ways the cavalryman could be compensated for the greater efforts, greater abilities and greater knowledge and training required of him. Sincerely yours,

FREDERICK S. FOLTZ,
Captain Second Cavalry.

I heartily favor a return to five-year enlistments in the cavalry, for there are nowadays so many avenues of escape from service that but a small proportion of those who enlist for three years serve the full term. Of the last one hundred men discharged from my troop less than one-third have left by reason of expiration of term of enlistment. To secure the men, however, this change should be coupled with an increase of about \$2.00 per month upon original enlistment, while pay for continuous service in the cavalry should be doubled to compensate for the longer term and harder work in the mounted service. We doubtless secure in the cavalry a more restless class of men than enter the other arms of service, and it is true economy to offer some inducement to men, whose training has been so expensive, to remain in the service.

W. C. BROWN,
Captain First Cavalry.

I am certainly in favor of all enlistments after the first being five years; but as to the first enlistment I am somewhat in doubt as to whether, on the whole, the three-year or the five-year enlistment is the better. You cannot make a very good cavalry soldier in three years, but on the other hand perhaps it is wise to give those not especially suited for cavalry a chance to go out at the end of three years. Very truly yours,

H. H. SARGENT,
Lieutenant-Colonel 25th U. S. V. I.

Officers are urged to express their opinions, for and against this important matter of enlistments.

THE EDITOR.

REPRINTS AND TRANSLATIONS.

HORSE AND MAN AS A FIGHTING UNIT.

BY LEVIN CARNAC.

The making of a horse-soldier differs from the training of a foot-soldier chiefly in this: in the first instance you have, to state the matter in its lowest terms, to take your raw material, pass it through the mill of discipline and turn it out as a finished article. In other words, you have to take your man off the street and change him from a more or less aimless and purposeless individual into an intelligent and, to a great extent, self-directing unit of a vast organization, which itself must live and move and have its being as an enormously multiplied individual, acting under the influence of a brain and nerve centers represented by what may be conveniently described as the General Staff. Your man has then become a foot-soldier.

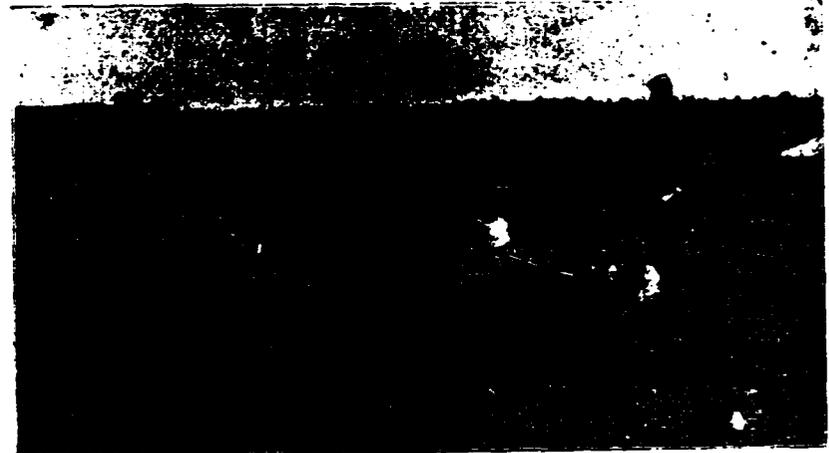
But the cavalryman must be this and a good deal more also. He must not only be responsible for his own movements, but for those of another sentient being, endowed like himself with intelligence and volition, and, moreover, he must make it act in perfect accord with himself as a unit in a much larger organization.

Naturally this object must be approached by two different converging paths. You must train your man and you must train your horse—first separately, and then together.

During the earlier stages, the training of the horse-soldier differs in no essential particulars from that of the foot soldier. As for the horse, the cavalryman's other self, half or wholly broken, usually the former, he comes to the depot, thence to be drafted, according to his size, color and weight-carrying capacity, into the various regiments, in the riding schools of which he will make the acquaintance of his other self, and where they twain shall for all military purposes become one—on drill and parade, in peace and in war, in victory and defeat. As they live together so may they die together, and hence it is as well that they should understand each other as perfectly as possible.

To begin with the man. The first thing that has to be done is

to develop his muscles and bring them into as nearly perfect accord with his nerves as may be managed. The muscles are to the man as the man is to the regiment, and the regiment is to the army. In the French cavalry instructions you will find frequently repeated, especially in the earlier parts, a very significant word: *Assouplissement*. This word is the key to the training of the horse-soldier. It means not only suppleness but adaptability. During the French course of training, which may be taken as a general model for all European armies, thirty separate lessons are devoted to this alone. These constitute the first period of training, which begins after the recruit has passed through the ordinary course of gymnastics and has been taught to swim.



TRAINING HORSES TO LIE STEADY UNDER FIRE.

It may also be here mentioned that he has further learned to box both with his hands and his feet. The exhibition of "La Savate" is merely a development of the French military training, both for horse and foot-soldiers. At close quarters, the scientific kick, unfair and all as it seems to our notions, is, nevertheless, a very useful thing. I have been told by German officers that many a stalwart Prussian and Bavarian went down in *mêlées* before a Frenchman half his size, not through stroke of sword or bayonet, but just with a kick, after which the bayonet came into use.

In the training of a horse-soldier kicking would not seem to be of much use, although I have heard that a smart French cavalryman can, even on horseback, disable an adversary with a kick. But naturally an opportunity of doing this would very seldom occur. Still, it can easily be understood that training of this sort tends very directly to the general end of all military training—the instant

response of the trained muscles to the trained will. It is worth noticing that this hand and foot drill is called in the French regulations "La Boxe," and in all European armies "Trot" is rendered, according to the particular vernacular, as a version of the French term: "Le trot Anglais." Further, the order to trot given by a French cavalry officer is just "Trot."

The thirty lessons of the first period in the French army are followed by twenty-five more of "drill with arms," beginning with the rifle and ending with the elementary management of the saber. Then come thirty-five more of combined carbine and saber drill, and after that the recruit enters upon the third period, during which he drills with others in squadron. Altogether, the French cavalry recruit goes through 112 separate lessons and revisions



ITALIAN CAVALRYMEN JUMPING.

before he is considered fit to get upon his horse. And this may be taken as a fair sample of the preparatory training of the European cavalryman.

This completed, he is introduced to his other self, and learns to ride, or to become the governing portion of the organism which we call a cavalryman. The French instructions divide this part of the training into five parts: To sit his horse; to guide it; to act with it as an independent unit; to use his arms on horseback; and, finally, to maneuver as one of a troop.

The first stage takes twenty lessons, the second thirty-seven, the third five, the fourth twenty, and the fifth thirty.

At the end of this course a man is supposed to be entirely at home on his horse, and with it to do everything that is humanly and equinely possible. He must ride it without saddle, then with saddle and without stirrups. He must learn to guide it with his knees as well as with the reins. He must swim it through rivers and he must take it into the water and swim beside it. He must

teach it to climb hill-sides like a monkey and slide down them like a cat. And, lastly, he must be able to do everything in the saddle that he could do out of it, except, of course, walk on his feet.

It is worth noting here that the European horse-soldier is first taught to swim on dry land—that is to say, he has to practice all the movements of swimming and floating in various postures in the gymnasium. In the next stage he is taken to the bath, or river, and practices these movements in



the water, supported by a cord fastened to his belt. But when he has learned to swim there is another stage for him to go through. He has to jump into the water fully uni-



GERMAN UHLANS TEACHING THEIR HORSES TO CROSS A RIVER.

formed, just as he would be in the field, and swim and float supporting the whole weight of his equipment. That, at any rate is the theory as laid down in the official instructions, and granted that it is actually carried out, as it usually is, it must be admitted that, by the time his various instructors have done with him, the recruit has been turned into a very efficient man in all physical senses.

When his course of equitation is finished, the horse-soldier, as such, is completed. But he is continually exercised in all sorts of feats of horsemanship that may be useful to him, and, moreover, he and his horse have still to be taught to keep as cool and self-controlled on the battlefield as they would be on parade.

For instance, it would never do for a cavalry horse to be what sportsmen call "gun-shy." He must be able to stand all sorts of reports, from the crack of a revolver to the roar of a battery of artillery, without finching, and so he is taken carefully through all the stages, the great object being to convince him that the noise does not mean any danger to him.



AN ITALIAN HORSE-SOLDIER COMING DOWN A PRECIPICE.

In the British army the four-legged recruits are drawn up in a ring round an instructor, who fires a pistol. Some take the flash and report very quietly, and these are soon passed on to severer trials, while the others have lesson after lesson until they are quite convinced that there is no danger to them: and, before long, you might fire a seven-pounder within a yard of them and they would hardly look round.

After this, they are taught to face fire—that is to say, to gallop fearlessly up to a line or square of infantry, blazing away with their rifles, and to charge batteries of quick-firing guns. Of course, only blank cartridge is used, and so, to a trained horse going into battle for the first time, there is no difference between the harmless thunder of the maneuvers and the death-dealing storm which sweeps over a

battlefield. The poor brute only learns what the difference really is by bitter experience.

When smokeless powder came into general use, it was found that in many cases, horses which would face the smoke of guns, using black powder without finching, finched and shied at the flash and roar unaccompanied by smoke.

European opinion is somewhat divided as to the moral effect of smokeless powder on men and horses, but the general conclusion seems to be, that in daylight it is not more terrifying than black powder, although some hold that to see men and



MORE MARVELOUS FEATS BY
ITALIAN CAVALRYMEN.

horses struck down by an invisible agency must necessarily be so. But it is generally agreed that the use of smokeless powder at night has a much more disturbing effect

than that of the old powder, because the flashes of the guns, unobscured by smoke, are a great deal more vivid.

The fear thus inspired can, however, be overcome by training; but there is another fear which must, in the nature of the case, be felt for the first time on the battlefield, and that is the often uncontrollable terror produced both in men and horses by the whistling of bullets and the screaming and banging of shells. Some authorities have, indeed, said that since the introduction of smokeless powder and the great increase in the range and accuracy of weapons, it

would be impossible to keep cavalry in hand under the fire of modern artillery, but this is probably an exaggeration.

As regards time of training, it, of course, varies very much in the case of both men and horses. Some men are born horsemen, others can be made, and others again can never become good horse-soldiers. And so, too, with the horses. Some take to their drill as if they knew exactly what it was all for, and seem to be actually possessed of military ambition. In every cavalry regiment there are scores of horses which have just as much *esprit de corps* as the men themselves. Others can do their work but they have to be made to do it, while others are found quite unfit for



A GERMAN HUSSAR JUMPING.

their high calling, and have to be "dismissed the service" with ignominy.

With regard to variation of system, there is not very much to be found in the official regulations. They are all very formal and very precise. Every step of the training is set out minutely in a separate paragraph. Every movement and combination of movements is described in detail, and even the time is specified which has to be devoted to each of them. Of course, in certain armies more stress is laid upon those parts of the training which fit horse and man to overcome special difficulties offered by their own country.

Thus, for instance, the Italian cavalry, which in the event



A GERMAN HUSSAR DESCENDING A HILL.

of war would have to work in the Alpine regions of the north, is specially trained, not only in hill-climbing, but, what is equally important and a great deal more difficult, hill-descending. Some of the photographs here produced seem almost open to the charge of being "faked," and yet they are all taken from life and on the spot.

This form of rough-riding has also recently come very much into vogue in Germany and France, but the Italians were the first to make a definite military study of it. In the British army it is not so. It is true there are a class of instructors in the British cavalry officially styled "rough-riders," but there is no rough-riding as distinguished from any other sort.

This fact, however, should really be read the other way about. I mentioned the Italian exercises to a cavalry instructor at Knightsbridge, and asked him if this sort of rough-riding was practiced in the British army. In reply he just laughed and said: "No, we don't practice it specially. You see, rough riding is only a sort of



BRITISH CAVALRYMEN LEARNING TO MOUNT.

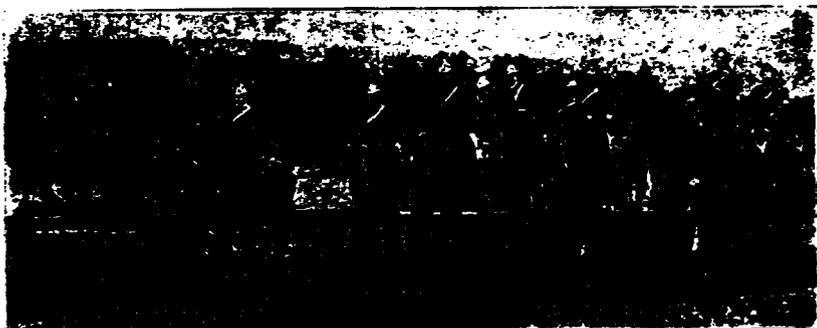
term. We teach a man to ride, and we teach his horse to carry him, and the man who can ride and has that sort of horse under him can go anywhere. Our fellows wouldn't think anything of that sort of thing. Wherever a horse and a man can go together, they'll go."

From this it will be seen that, although the training in the British army is not governed by such rigidly precise instructions as those which we find in the Continental regulations, it is really quite as thorough. The fact that the British horse-soldier does as a matter of course what the German, the Frenchman, and the Italian has to be specially trained to do, is a very significant one.

One reason for this superiority, doubtless, is that the British soldier is in one sense a volunteer, while the Continental man is not. Granted health and stature, the man who enlists in the British army chooses his regiment, and can become a light or a heavy cavalryman, an infantryman, or a "gunner." But the Continental conscript has not this choice. He must serve his time, and he must be what the authorities make him, although, of course, if a man is found

obviously unfit to be a horse-soldier they make a foot-soldier of him. Hence, as a rule, the British recruit who offers himself to the recruiting sergeant of a cavalry regiment makes all the better horse-soldier because he wants to be one.

The same thing is practically true of the American horse-soldier, only perhaps a little more so because, especially "out West," the American almost lives on horseback, and of course he has the old Anglo-Saxon affection for horseflesh in his blood. Then, too, some of the most graceful horsemen in the world are to be found in the Southern States, and everyone knows to what a pitch of perfection horse-breeding and training has been brought in the East.



THE CARABINIERS JUMPING REMOUNTS.

Nevertheless, the training of the horse-soldier in the United States regular army is just as careful and thorough as it is in any other army. The great training schools, however, of these cavalrymen have been found in the Indian wars. Their work there was rough-riding in the very truest sense of the word, and nowhere perhaps, even on the plains of Arabia themselves, could man and horse be found more perfectly joined as a fighting unit than on those wild battle-grounds on which the white and red man fought their last fights for the lordship of that magnificent territory which was once the red man's happy hunting ground.

At the same time, it must be remembered that, though the British system of training is not so mathematically exact as the Continental system, it loses nothing of its thoroughness through being a little free and easy. Everything that the Continental horse-soldier can do the British cavalryman can do, except perhaps box with his feet. Man for man, and horse for horse, the unit of the British cavalry regiment is better than the unit of the Continental regiment. And it is quite safe to conclude that the British horse-soldier has not in any way deteriorated since the day when the great NAPOLEON said that, with ten regiments of him, he would ride through all the armies of Europe.—*Pearson's Magazine*. April, 1890.

BOOK NOTICES AND EXCHANGES.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION. March, April, May, June.

JOURNAL OF THE UNITED STATES ARTILLERY. March, April, May, June, July.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA. February, March.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION. May, June, July.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE. March.

REVUE DU CERCLE MILITAIRE. June, July, August.

UNITED SERVICE MAGAZINE. June, July, August.

MILITAR WOCHENBLATT. June, July, August.

REVUE DE CAVALERIE. June, July, August.

THE PENNSYLVANIA MAGAZINE. May, June.

RIDER AND DRIVER. June, July, August.

MEDICAL RECORD. June, July, August.

MARINE REVIEW. June, July, August.

OUR DUMB ANIMALS. June, July.

MAITLAND DAILY MERCURY.

THE UNITED STATES CAVALRY.

FIRST CAVALRY—COLONEL ABRAHAM K. ARNOLD, Brig. Gen. U. S. V.
Adjutant, Lieut. G. T. LANGHORNE. Quartermaster, Lieut. W. C. RIVERS.
HEADQUARTERS, FORT ROBINSON, NEB.

Troops—A, B, C and L, Fort Robinson, Neb.; G, H, I and M, Fort Meade, S. D.; K, Fort Niobrara, Neb.; E, Fort Washakie, Wyo.; D, Fort Yates, N. D.; F, Fort Keogh, Mont.

SECOND CAVALRY—COLONEL HENRY T. NOYES.
Adjutant, Capt. F. W. SIRLEY. Quartermaster, Capt. C. B. HOPPIN.
HEADQUARTERS, CIENFUEGOS, CUBA.

Troops—B, E, H, I, K and L, Cienfuegos, Cuba; A, C, D, F, G and M, Mantanzas, Cuba.

THIRD CAVALRY—COLONEL S. B. M. YOUNG, Major-Gen. U. S. V.
Adjutant, Capt. H. L. RIPLEY. Quartermaster, Capt. JOHN W. HEARD.
HEADQUARTERS, FORT ETHAN ALLEN, VT.

Troops—C, E, F, G, I and K, Fort Ethan Allen, Vt.; A, D, H and M, Augusta, Ga.; Band L, Fort Sheridan, Ill.

FOURTH CAVALRY—COLONEL CHARLES E. COMPTON.
Adjutant, Capt. J. B. ERWIN. Quartermaster, Lieut. T. H. SLAVENS.
HEADQUARTERS, PRESIDIO, SAN FRANCISCO, CAL.

Troops—B and M, Presidio, San Francisco, Cal.; A, Fort Walla Walla, Wash.; C, E, G, I, K and L, Manila; D and H, Fort Yellowstone, Wyo.; F, Boise Barracks, Idaho.

FIFTH CAVALRY—COLONEL L. H. CARPENTER, Brig-Gen. U. S. V.
Adjutant, Lieut. J. M. JENKINS. Quartermaster, _____
HEADQUARTERS, MAYAGUEZ, PORTO RICO.

Troops—Band and D, Mayaguez, Porto Rico; A, Camuy, Porto Rico; B, Utuado, Porto Rico; E, San German, Porto Rico; G, Caguas, Porto Rico; K, Ciales, Porto Rico; C, F, H, L and M, San Juan, Porto Rico; I, Ponce, Porto Rico.

SIXTH CAVALRY—COLONEL S. S. SUMNER.
Adjutant, Capt. M. F. STEELE. Quartermaster, Capt. W. W. FORSYTH.
HEADQUARTERS, FORT RILEY, KANSAS.

Troops—A, E, G and H, Fort Riley, Kan.; B, C, F and K, Fort Leavenworth, Kan.; I and L, Fort Sill, O. T.; D and M, Fort Reno, O. T.

SEVENTH CAVALRY—COLONEL THEODORE A. BALDWIN.
Adjutant, Lieut. W. A. HOLBROOK. Quartermaster, Lieut. W. H. HART.
HEADQUARTERS, HAVANA.

Troops—A, B, D, F, H, K, L and M, Havana; C, E, G and I, Pinar del Rio, Cuba.

EIGHTH CAVALRY—COLONEL ADNA R. CHAFFEE.
Adjutant, _____ Quartermaster, _____
HEADQUARTERS, PUERTO PRINCIPE, CUBA.

Troops—A, B, G, and M, Puerto Principe, Cuba; D, E, F, H, K and L, Nuevitas, Cuba; C and I, Las Minas, Cuba.

NINTH CAVALRY—COLONEL T. MCGREGOR.
Adjutant, Lieut. J. A. RYAN. Quartermaster, _____
HEADQUARTERS, FORT GRANT, ARIZONA.

Troops—A, B, D and M, Fort Grant, Ariz.; C and I, Fort DuChesne, Utah; E and G, Fort Apache, Ariz.; F, K and L, Fort Huachuca, Ariz.; H, Fort Wingate, N. M.

TENTH CAVALRY—COLONEL S. M. WHITSIDE.
Adjutant, Capt. P. E. TRIPPE. Quartermaster, Capt. S. D. FREEMAN.
HEADQUARTERS, FORT SAM HOUSTON, TEXAS.

Troops—Band and A, G, H and L, Fort Sam Houston, Tex.; C, D and M, Fort Clark, Tex.; E, Fort McIntosh, Tex.; F, Camp Eagle Pass, Tex.; I, Fort Bliss, Tex.; K, Fort Brown, Tex.; B, Fort Ringgold, Tex.

CAVALRY OF THE NATIONAL GUARD.

NOTE.—The following have no mounted troops: Alaska, Arizona, Connecticut, Delaware, District of Columbia, Florida, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, North Carolina, South Dakota, West Virginia, Vermont, Wyoming.

ALABAMA.

FIRST CAVALRY SQUADRON—MAJOR JAMES T. BECK.

Adjutant, Captain A. G. Forbes. Quartermaster, Captain J. F. Burns.

HEADQUARTERS, CAMDEN.

Troop "A," Montgomery. Vacancy; Troop "B," Camden, Captain Stonewall McConico; Troop "C," Selma, Captain V. P. Atkins; Troop "D," Birmingham, Captain J. B. Morson.

ARKANSAS.

Troop "A," Panola, Major M. C. House; Troop "B," Jacksonville, Captain S. W. Murtishaw.

CALIFORNIA.

Troop "A," San Francisco, Captain Marius Burnett; Troop "B," Sacramento, Captain John Cooke; Troop "C," Salinas, Captain Michael J. Burke; Troop "D," Los Angeles, Captain Charles H. Howland.

COLORADO.

FIRST SQUADRON OF CAVALRY—MAJOR JOHN CHASE.

Adjutant and Acting Quartermaster, First Lieutenant A. H. Williams.

HEADQUARTERS, DENVER.

Troop "A," Leadville, Captain C. H. Macnutt; Troop "B," Denver, Captain Wm. G. Wheeler; Troop "C," Denver, Captain James H. Brown.

GEORGIA.

FIRST REGIMENT OF CAVALRY—COLONEL WILLIAM W. GORDON.

Adjutant, Captain Wm. G. Harrison. Quartermaster, Captain Albert S. Eichberg.

HEADQUARTERS, SAVANNAH.

FIRST SQUADRON, FIRST REGIMENT—MAJOR PETER W. MELDRIM.

HEADQUARTERS, SAVANNAH.

Troop "B," McIntosh, Captain Willard P. Waite; Troop "E," Johnston Station, Captain Joseph W. Hughes; Troop "G," Darien, Captain Benjamin T. Sinclair; Troop "I," Jesup, Captain Harry W. Whaley.

SECOND SQUADRON, FIRST REGIMENT—MAJOR JAMES J. BREWER.

HEADQUARTERS, OLIVER.

Troop "A," Savannah, Captain Belrue Gordon; Troop "C," Springfield, Captain Daniel G. Morgan; Troop "D," Sylvania, Captain Jesse T. Wade; Troop "H," Waynesboro, Captain William H. Davis.

FIRST BATTALION OF CAVALRY INDEPENDENT—MAJOR JOHN M. BARNARD.

Adjutant, First Lieutenant John D. Twigg. Quartermaster, First Lieutenant Robert Dohme.

HEADQUARTERS, LAGRANGE.

Troop "A," Augusta, Captain Albert J. Twiggs; Troop "B," Atlanta, Captain J. Stapler Dozier; Troop "C," LaGrange, Captain Thomas J. Thornton; Troop "D," Hamilton, First Lieutenant John M. Bruce.

ILLINOIS.

CAVALRY SQUADRON—MAJOR EDWARD C. YOUNG.

Adjutant, First Lieut. Alvar L. Bourne. Quartermaster, First Lieut. Milton J. Foreman.
HEADQUARTERS, CHICAGO.

Troop "A," Chicago, Captain Paul B. Lino; Troop "B," Bloomington, Captain Will P. Butler; Troop "C," Chicago, Captain Metullus L. C. Funkhouser; Troop "D," Springfield, Captain John S. Hurt.

MASSACHUSETTS.

FIRST BATTALION OF CAVALRY—MAJOR WILLIAM A. PERRINS.

Adjutant, First Lieut. Albert E. Carr. Quartermaster, First Lieut. Walter C. Wardwell.
HEADQUARTERS, BOSTON.

Troop "A," Boston, Captain D. A. Young; Troop "D," Boston, Captain John Perrins, Jr.; Troop "F," (Independent), North Chelmsford, Captain Elisha H. Shaw.

MISSISSIPPI.

FIRST SQUADRON OF CAVALRY—MAJOR J. H. COOKE.

Adjutant, First Lieutenant B. B. Hardy. Quartermaster, First Lieutenant D. A. Outlaw.
HEADQUARTERS, ARTESIA.

Troop "A," Crawford, Captain J. J. Prowall; Troop "B," Seemsville, Captain A. F. Young.

MONTANA.

Troop "A," Billings, Captain J. C. Bond; Troop "B," Bozeman, Captain J. F. Keown.

NEBRASKA.

Troop "A," Milford, Captain Jacob H. Culver.

NEW HAMPSHIRE.

Troop "A," Peterborough, Captain Charles B. Davis.

NEW JERSEY.

First Troop, Newark, Captain Frederick Frelinghuysen; Second Troop, Red Bank, Captain John V. Allstrom.

NEW MEXICO.

FIRST BATTALION OF CAVALRY—MAJOR FRITZ MULLER.

Adjutant, First Lieut. Sherrard Coleman. Quartermaster, First Lieut. Leon Hertzog.
HEADQUARTERS, SANTA FE.

Troop "C," Aztec, Captain Lawrence Welsh; Troop "E," Santa Fe, Captain W. E. Griffin; Troop "F," Los Lunas, Captain Maximiliano Luna.

NEW YORK.

SQUADRON "A"—MAJOR OLIVER B. BRIDGMAN.

Adjutant, First Lieut. S. Rowe Bradley, Jr. Quartermaster, First Lieut. Louis V. O'Donohue.
HEADQUARTERS, NEW YORK CITY. (Armory, Madison Avenue, 94th and 96th Streets.)

First Troop, New York City, Captain William C. Cammann; Second Troop, New York City, Captain Howard G. Badgley; Third Troop, New York City, Captain Latham G. Reed; Troop "C," (Independent), Brooklyn, Captain Bertram T. Clayton.

OHIO.

Troop "A," Cleveland, Captain Russell E. Burdick.

OREGON.

Troop "B," Gresham, Captain Charles Cleveland.

Note.—Another troop, to be called Troop "A," will soon be organized, and a squadron organization will be completed.

PENNSYLVANIA.

Philadelphia City Troop, Philadelphia, Captain John C. Groome; Governor's Troop, Harrisburg, Captain Frederick M. Ott; Sheridan Troop, Tyrone, Captain C. S. W. Jones.

RHODE ISLAND.

FIRST SQUADRON OF CAVALRY—MAJOR GEORGE S. TINGLEY.

Adjutant, First Lieut. Leo F. Nadeau. Quartermaster, First Lieut. Lucius H. Newell.
HEADQUARTERS, PAWTUCKET.

Troop "A," Pawtucket, Captain Edward T. Jones; Troop "B," Providence, Captain Wm. A. Maynard.

SOUTH CAROLINA.

FIRST BRIGADE OF CAVALRY—BRIGADIER-GENERAL JOSEPH L. STOPPELBEIN.

Adjutant-General, Major T. G. Diaber. Brigade Quartermaster, Major E. H. Sweeney.
HEADQUARTERS, SUMMERVILLE.

FIRST REGIMENT OF CAVALRY—COLONEL W. J. CAUSEY.

Adjutant, Captain A. R. Speaks. Quartermaster, Captain T. E. Ulmer.
HEADQUARTERS, HAMPTON.

Troop "A," Brunson's, Captain R. A. Brunson; Troop "B," Varnville, Captain W. M. Steinmeyer; Troop "C," Brunson's, Captain G. M. Bowers; Troop "D," Stafford's, Captain R. M. Daley; Troop "E," Stafford's, Captain K. S. Long; Troop "F," Peebles, Captain H. E. Peebles; Troop "G," Gillisonville, Captain J. E. Robinson; Troop "H," O'Katie, Captain W. N. Barnes; Troop "I," White Hall, Captain S. A. Marvin.

SECOND REGIMENT OF CAVALRY—COLONEL G. P. ALLEN.

Adjutant, Captain R. C. Roberts. Quartermaster, Captain W. A. Collett.
HEADQUARTERS, ALLENDALE.

Troop "A," Barnwell, Captain J. A. Hays; Troop "B," Dunbarton, Captain P. M. Carter; Troop "C," Allendale, Captain A. W. Owens; Troop "D," Edgefield, Captain L. R. Brunson; Troop "E," Edgefield, Captain J. R. Blocker; Troop "F," Orangeburg, Captain J. A. Riley; Troop "G," Cedar Grove, Captain R. T. Newman; Troop "H," Hamburg, Captain J. P. De-laughter.

THIRD REGIMENT OF CAVALRY—COLONEL J. R. SPAREMAN.

Adjutant, Captain H. L. Smith. Quartermaster, Captain W. C. White.
HEADQUARTERS, GEORGETOWN.

Troop "A," Bonneau's, Captain J. A. Harvey; Troop "B," St. Stephens, Captain E. T. Guerry; Troop "C," Georgetown, Captain H. T. McDonald; Troop "D," Jedburg, Captain C. H. Wilson; Troop "E," Conway, Captain L. D. Long; Troop "F," Lake City, Captain J. J. Morris; Troop "G," Georgetown, Captain J. H. Detyens.

SECOND BATTALION OF CAVALRY—LIEUT.-COLONEL D. W. BRANSFORD.

Adjutant, Unknown. Quartermaster, Unknown.
HEADQUARTERS, PANOLA.

Troop "A," Eutawville, Captain Jeff D. Wiggins; Troop "B," Panola, Captain R. C. Richardson; Troop "C," Silver, Captain J. H. Dinsle; Troop "D," Holly Hill, Captain R. F. Way, Jr.

NORTH DAKOTA.

Troop "A," Dunseith, Captain George W. Tooke.

UTAH.

Troop "A," Salt Lake City, Captain Joseph E. Caine

TENNESSEE.

Cavalry Troop, Nashville, Captain George F. Hagar.

TEXAS.

FIRST CAVALRY REGIMENT—COLONEL J. R. WATIES.

Adjutant, First Lieut. James M. Burroughs. Quartermaster, First Lieut. Frederick Rhodes.
HEADQUARTERS, HOUSTON.

Troop "A," Austin, Captain L. R. Younger; Troop "B," Houston, Captain C. Towles; Troop "E," Dallas, Captain F. V. Blythe; Troop "F," Denison, Captain E. A. Hammond; Troop "H," Gainesville, Captain H. S. Teffler.

VIRGINIA.

Troop "A," Richmond, Captain E. J. Euker; Troop "B," Surry, Captain Geo. A. Savedge.

WASHINGTON.

Troop "A," North Yakima, Captain Marshall S. Scudder; Troop "B," Tacoma, Captain Everett G. Griggs.

WISCONSIN.

Troop "A," Milwaukee, Captain William J. Grant.

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LAS GUASIMAS.

BY LIEUTENANT-COLONEL F. T. NORVELL, U. S. ARMY.

THE following account of the battle of Las Guasimas was originally intended as a memorandum for the benefit of the writer, and not for publication, the idea being to have a record of the part taken by the regular cavalry. Upon consideration, the author deemed it best to offer it to the CAVALRY JOURNAL, as the record would be permanent.

The following is a list of officers and organizations of the regular army engaged in the battle of Las Guasimas, Cuba, June 24, 1898:

Major-General JOSEPH WHEELER, formerly Second Lieutenant Mounted Rifles.

Major W. D. BEACH, U. S. V. Engineer Officer, Captain Third U. S. Cavalry.

Brigadier-General S. B. M. YOUNG, Colonel Third U. S. Cavalry.

Captain A. L. MILLS, A. A. G., U. S. V., First Lieutenant First U. S. Cavalry.

First Lieutenant T. R. RIVERS, Third U. S. Cavalry, A. D. C.

Second Lieutenant W. R. SMEDBURG, Fourth U. S. Cavalry, A. D. C.

FIRST U. S. CAVALRY.

First Squadron, Major JAMES M. BELL, commanding. Troops A, B, G and K.

Captains.—ROBERT P. P. WAINWRIGHT, T. T. KNOX, JACOB G. GALBRAITH.

First Lieutenants.—GEORGE L. BYRAM, EDMUND S. WRIGHT.

Second Lieutenants.—WALTER M. WHITMAN, CHARLES MCK. SALTZMAN and HENRY C. SMITHER.

TENTH U. S. CAVALRY.

First Squadron, Major STEVENS T. NORVELL, commanding. Troops A, B, E and I.

Captains.—WILLIAM H. BECK, CHARLES G. AYRES, JAMES W. WATSON.

First Lieutenants.—RICHARD L. LIVERMORE, ROBERT J. FLEMING.

Second Lieutenants.—GEORGE VIDMER, ALEXANDER M. MILLER, HARRY O. WILLIARD and FRANK R. MCCOY.

MEDICAL DEPARTMENT.

First Lieutenant LEIGH A. FULLER, and Acting Assistant Surgeon DELGARDO.

WITH FIRST U. S. VOLUNTEER CAVALRY.

Colonel LEONARD WOOD, Captain and Assistant Surgeon U. S. Army.

Captain LLOYD S. MCCORMICK, Seventh U. S. Cavalry.

Second Lieutenant ALLYN K. CAPRON, Seventh U. S. Cavalry. Captain U. S. Volunteer Cavalry.

Many acts of heroism were exhibited, but, except in a few instances, they are not mentioned, for the reason that where all did so well, the list would embrace everyone who took part in the battle. Every officer present, except Generals WHEELER and YOUNG, was recommended for a brevet, and that speaks for itself.

After an all night rain, at 4 o'clock A. M., on the 24th day of June, 1898, a force of cavalry consisting of four troops of the First, four troops of the Tenth, and eight troops of the First U. S. Volunteer Cavalry, was on the march to the front, on the road leading to Santiago. Each of the squadrons of the regular cavalry was under the command of a major—BELL and NORVELL, respectively; the First U. S. Volunteer Cavalry was under the command of its colonel—WOOD. These troops formed part of the Second Brigade of the Cavalry Division of the Fifth Army Corps, and were under the command of Brigadier-General S. B. M. YOUNG, whose rank was that of colonel of the Third U. S. Cavalry in the regular army, he being one of the volunteer general officers of the army of invasion.

These troops had landed from the transports on the afternoon of June 22d, and after proceeding about two or three miles inland, had bivouacked for the night. The next day, June 23d, under orders from General YOUNG, they moved forward to Siboney, some of the

troops not arriving until 10 o'clock at night, and by that time the rain was pouring down. Each trooper had with him just what he could carry in a blanket-roll; and was supposed to have in his haversack three days' rations. The fact was, many of them had not one day's rations; they simply would not carry them, and trusted to luck for something to eat in the future.

As the troops started on the march on the morning of the 24th, they were a sorry looking body of men: wet to the skin, with the water dripping off their clothing, hungry, and worn out for lack of sleep. Nevertheless, their spirits were irrepressible, as they chaffed one another on the subject of bringing up their horses, which were back in Tampa, and seeing that the animals were properly groomed and fed!

After marching about two miles, passing around LAWTON'S division of infantry, fording a stream, and crossing a railroad track, the cavalry had the advance. Here, Generals WHEELER and YOUNG appeared, the latter assuming command, and directing the movements of the brigade. The First U. S. Volunteer Cavalry now left the column, taking a trail to the left, which ran parallel to and about eight hundred yards distant from the main road to Santiago, the First and Tenth U. S. Cavalry continuing on this latter road. The combined command numbered less than one thousand men, and the First and Tenth U. S. Cavalry, about four hundred and sixty. Attached to the Tenth were two Hotchkiss guns, manned by men of that regiment, and commanded by Captain JAMES W. WATSON.

After marching about two miles farther, the squadron of the First U. S. Cavalry having the advance, General YOUNG rode along the column to the front, remarking to the major of the Tenth as he passed: "Well, if the Spaniards don't run, we shall have some fun in a few minutes!" And this was the first intimation that the troops received that an immediate fight was contemplated. In fact, it was thought that General WHEELER only desired to get in the advance, so as not to be left out in case a battle took place. The Tenth Cavalry was now directed to halt for ten minutes, while the First went on. Soon the troops descended into a ravine, crossing a small stream at the bottom, then up a rise for about seventy-five yards, clearing the thick woods in the ravine. The First Cavalry, forming front into line, was deployed to the right and left of the road. This movement had not been completed, when the enemy, occupying a high ridge to the left and front, about eight hundred yards off, opened a heavy musketry fire. Knowing the country well, the Spaniards had the range accurately; but, fortunately, like all firing

down from a height, the balls at first passed over the heads of the United States troops. Taking advantage of this, the Hotchkiss guns were placed in position, and opened fire at once, shooting over the heads of the First Cavalry, the latter moving slowly but steadily forward, somewhat sheltered by the thick underbrush that covered the country. In the meantime, the firing of the enemy was becoming more and more accurate; men were falling, among them Captain KNOX and Lieutenant BYRAM, both of the same troop, and the only officers with it. The Tenth Cavalry, which had come up, was held in reserve for a few moments. Soon one troop (BECK'S) was sent to support the left of the First Cavalry, and immediately afterwards two (WATSON'S and WOODWARD'S, commanded by Second Lieutenant WILLIARD and First Lieutenant FLEMING respectively) were moved forward to support the right. This left one troop of the Tenth in reserve, and to support the battery. Till the end of the fight, this formation remained the same. About this time, Major BELL was wounded; disabled men were coming back, giving exaggerated reports of the number killed; and, to add to the anxiety, nothing could be heard of the First U. S. Volunteer Cavalry, which should have arrived near enough to attack at the time the fight began. It was feared that the regiment had got off the right trail. The fire of the enemy became more intense; the Hotchkiss guns had to be run back for the protection of the men. For a few minutes, affairs looked anxious, and General YOUNG looked anxious. Suddenly a faint cheer was heard from the front and left. General YOUNG cried out to General WHEELER: "We've got 'em!" and then, "Bring up those Hotchkiss guns!" The guns, being put into position, again opened fire; the line of the First and Tenth Cavalry continued to advance. In two or three minutes more, the Spaniards were seen to run to the rear. Suddenly the firing ceased; the ground vacated by the Spaniards was occupied by troops of the First and Tenth Cavalry and First U. S. Volunteer Cavalry, and the battle was over.

The writer refrains from entering into the details of the operations of the First U. S. Volunteer Cavalry; he has confined himself to what he actually witnessed. It is sufficient to say that the regiment referred to was a little late in coming up, having a greater distance to march. It came upon the Spaniards suddenly, and this gave rise to reports that it had been "ambushed." This was untrue. Colonel WOOD knew the plan of the battle and what was in front of him, and when he came upon the enemy, he was prepared. He fought for some time before his right formed connection with the left of General YOUNG'S line. If anyone was surprised, it was the

Spaniards, and they soon concluded that they were outflanked, and were being surrounded, and this caused them to "stampede."

At the very beginning of the fight, word was sent back to LAWTON'S division to hurry up and come forward, as the size of the force encountered was not known for certain—the whole of the Spanish army might be present. As it turned out the enemy numbered about two thousand. By 9 o'clock A. M. the action was over. Afterwards, LAWTON'S division began to arrive on the scene, headed by CHAFFEE'S brigade, that officer leading. The whole of the Fifth Corps had been anxious to be present at the spilling of the first blood, so that those who were not engaged were very much disgusted, and evidently thought the fight was premature and unnecessary. Even the commanding general telegraphed the War Department at Washington that the fight at Las Guasimas was an "incident." Be that as it may, the "incident" had a marked effect upon future operations, and made the result at San Juan Hill possible. If the Spanish army ever had an idea of assuming the offensive, it was given up. To be sure, on the night of July 2d it made a demonstration upon our lines entrenched on San Juan Hill; it was a weak effort, and, subsequently, many thought it was only done to cover CERVERA'S operations the next morning, which ended in the destruction of the Spanish fleet. But that, as KIPLING would say, "is another story."

It is a fact that the fight at Las Guasimas was regularly planned by Generals WHEELER and YOUNG on the night of June 23d. With one single exception it was carried out as planned. It was promised by General CASTILLO that a force of 300 Cubans would take the advance in the morning and develop the position of the enemy. When the time arrived, the Cuban troops failed to materialize. This was the only failure in the plan, and, likely, it was just as well they took no part in the action.

The cavalry engaged deserve great credit for their conduct; but three line officers in the command had ever before been in a battle, and it is safe to say that not an enlisted man had ever been in one, though some of them had been in Indian skirmishes. The majority of the regular officers were young men, who had scarcely ever heard a shot fired except in target practice. They led their men like veterans. Where all did so well, it is hardly proper to mention individual cases of bravery, but the writer cannot refrain from mentioning Captain KNOX and First Lieutenant BYRAM of the First U. S. Cavalry. The first remained some little time with his troop after receiving what was thought to be a mortal wound. Lieutenant BYRAM was shot in the head, and, after having his wound dressed,

went back to his troop; again he had to go to the rear to have his wound attended to, and again he returned to the front, where he fell in a faint.

Of the regular regiments represented, the First U. S. Cavalry met with the greatest loss, having had seven men killed and eight wounded. The Tenth lost one killed and ten wounded. The First U. S. Volunteer Cavalry had eight men killed and thirty-four wounded.

Of the Medical Department, First Lieutenant LEIGH A. FULLER, U. S. Army, was on duty with the Tenth Cavalry, and Acting Assistant Surgeon DELGADO was on duty with the First. Both of these officers were under fire constantly during the fight, caring for the wounded, and, but for their attention, some would have died from the effects of their wounds.

Colonel ROOSEVELT has written a graphic description, published in the March number of *Scribner's Magazine* for 1899, of the part taken in the battle of Las Guasimas by the First U. S. Volunteer Cavalry; those interested would do well to read it.

It was the opinion of the writer at the time—June 24th—(and he was confirmed in that opinion subsequently) that had the Fifth Army Corps been prepared, it could have taken Santiago on the day of Las Guasimas by immediately following up that victory. The Spaniards, who were completely demoralized, expected the American army to do so, and if it had, the city would have been surrendered, and many lives saved. Unfortunately, not all of the Fifth Army Corps had been landed by the 24th of June. Between that day and July 1st the Spaniards had time to cool off, and go to digging and placing barbed wire for defense.

Brigadier-General YOUNG was made a Major-General of Volunteers for Las Guasimas, and deserved it, for not a man in the command was more gallant, or was more exposed to the fire of the enemy. That he was not killed was no fault of his; his "guardian angel" must have been present.

General WHEELER was constantly under fire, but refrained from interfering with General YOUNG. His only reward was that he added to a reputation already established.

MOUNTED CAVALRY IN THE SANTIAGO CAMPAIGN.

BY MAJOR HENRY T. ALLEN, U. S. VOLUNTEERS,
CAPTAIN SIXTH U. S. CAVALRY.

WHEN an army unaccustomed to mobilizing a greater force than a brigade, and this but seldom and under most favorable conditions of stored supplies and regulation camps, finds itself under way for foreign service, then nearly insuperable difficulties of various kinds present themselves. The transportation of foot troops alone from our most convenient southerly port to any point on the Cuban coast was a problem of no small order. The idea of shipping the available cavalry regiments as a mounted force was therefore given up in the proposed problem involved in the order to the Fifth Corps commander: "Go with your force to capture garrison at Santiago, and assist in capturing harbor and fleet." It does seem a little incongruous to speak of mounted troops in connection with the capture of a fleet.

Corps order, dated Tampa, Fla., May 31, 1898, comprised besides the infantry of the Fifth Corps in its normal status, the battalion of engineers, the detachment of the signal corps, twenty troops of cavalry, four batteries (sixteen guns) of light artillery, and two batteries of heavy artillery consisting of eight five-inch siege guns and eight field mortars.

This order contemplated the use of the cavalry as a mounted force, but it was subsequently modified so as to include forty-eight troops, all dismounted. As is well known, only two battalions (eight troops) of each regiment were taken, and the following regiments were represented: First, Third, Sixth, Ninth, Tenth, and First Volunteer Cavalry. The increase of dismounted cavalry caused the regular brigade of the corps commanded by Brigadier-General SNYDER to be left behind. Brigadier-General JOHN C. BATES had just arrived by sea from Mobile, Ala., with the Third and Twentieth Infantry regiments and one mounted squadron of

the Second Cavalry commanded by Lieutenant-Colonel WILLIAM A. RAFFERTY. The latter constituted the *entire mounted cavalry* of the Cuban expedition. For the benefit of the foreign readers of the JOURNAL, I would mention here that the American troop is the European squadron, and the American squadron is four troops.

General BATES's command was at once incorporated in the expeditionary force which was eventually fixed, and which amounted to 815 officers and 16,072 enlisted men. Of this force in round numbers of 16,000 men, somewhat less than 300 were mounted cavalry. The ration strength of the four troops did not average more than seventy men each. They were "A," "C," "D" and "F," commanded respectively by Captain THOMAS J. LEWIS, First Lieutenant WILLIAM F. CLARK, First Lieutenant HENRY T. ALLEN (Major A. A. G. U. S. V.) and Captain LLOYD M. BRETT. The names of the other officers of the troops will be seen throughout the report.

The loss of the horses to the cavalry division was a great blow, and one that required considerable effort to bring about resignation to such an unusual step. There can be no question now, and there were those who realized it at the time, that this measure was a great compliment to the mounted branch, which in a brilliant and effective way throughout the campaign, showed that it was worthy of it. From the results shown by the dismounted cavalry in Cuba, the government can well rest contented to expend considerable money upon a branch which shows its fitness to take the field in either capacity, mounted or on foot.*

If the Fifth Corps had taken a normal allowance of mounted cavalry, there would have been about four troops for each division, and at least twelve troops as corps cavalry. Our traditions and experiences from a war (1861-5) rich in military training and especially fruitful in cavalry results, would have dictated even more.

Besides limited transport facilities there was an equally good reason for radically reducing the mounted quota of the force, and that was the dearth of roads in general and of passable roads in particular. Dismounted troops experienced the greatest difficulty in moving away from them owing to the nearly impenetrable undergrowth. Cavalry found both undergrowth and overgrowth to entangle its movements. Near the town of Santiago there was some clearing and cultivation, but in the region north and west of Daiquiri and Siboney the comparatively few years of enforced non-

*Captain WATSON, Tenth Cavalry, commanded temporarily a battery of four Hotchkiss guns. Lieutenant HUGHES, same regiment, commanded Hotchkiss guns and a machine gun.

cultivation had, thanks to the tropical climate, produced a veritable jungle, where cavalry could not operate without cutting its way.

There is a third potent reason why a normal allowance of mounted cavalry should not have been taken, and that is, the campaign was, or should have been preëminently an artillery one. The enemy was in a strong position, doubly entrenched, and all military practice and precedence demanded that the offensive be strong in artillery. Had there been even a normal allowance of artillery the number of guns would have been not less than seventy-two, instead of sixteen. The campaign, by its very nature, cried out for artillery strength of unusual proportions, and doubtless were it to be repeated more field artillery would have been taken and some or all of the heavy pieces would have been brought up in spite of the roads.

I do not wish to say that a large force of mounted cavalry could not have been of great service during certain stages of the campaign, such for example, as in securing the right flank of our army against the Holquin and Caney troops, had Caney not been attacked, in preventing General ESCARIO's arrival by operating around the northern end of the bay, or in following up the retreat from Caney: I merely mean to say that under the circumstances of the campaign, the mounted force was justly very small.

In his account of the Guasimas engagement, General S. B. M. YOUNG reports: "Had I had at hand at the time of the assault a force of mounted cavalry, the fruits of our victory would have been more apparent." In my opinion, cavalry could have followed up the retreat from Guasimas, owing to the jungle nature of the country, with the greatest difficulty and only with the greatest precautions against ambush. A few men concealed in the brush along any of those so-called roads would have had immunity from mounted troops, and could have plucked off troopers nearly as fast as they could appear.

The small squadron of the Second Cavalry was therefore required to do duty in connection with the First Infantry Division (three brigades, nine regiments), commanded by Major-General J. F. KENT, the Second Infantry Division (same size), Major-General HENRY W. LAWTON, the Cavalry Division, two brigades (six regiments, twelve squadrons),* commanded by Major-General JOSEPH H. WHEELER, and the independent brigade of two regiments, commanded by Brigadier-General JOHN C. BATES. In this relation, I must express surprise at the conservative demands made by the several division

*Squadrons—battalions.

and brigade headquarters on this small cavalry force for orderly and other detached duty. All seemed to realize the paucity of the mounted men, and showed such a correspondingly just consideration of the necessities of the case, that for the most part the four troops had but few men detailed away longer than a day at a time from their commands. In a word, the history of our civil war had caused us to look upon the prospects with gloomy forebodings, which happily were not realized.

What, then, was the role of this small mounted force of four units, of which Lieutenant-Colonel RAFFERTY, in his report dated Santiago, July 31, 1898, says: "My squadron of Second Cavalry was placed under the immediate and direct orders of the commanding general of the Fifth Corps, this army * * *. Being the only mounted cavalry of the army, the foregoing duties were assigned it by the general."

This question is best answered by the official reports of the corps commander and the reports of the commanders of the respective troops, which in a large measure acted independently of the squadron organization.

Major-General WILLIAM R. SHAFER reports: "I also desire to mention the squadron of the Second United States Cavalry, under Lieutenant-Colonel WILLIAM A. RAFFERTY, of that regiment. These four troops, under command of Captains BRETT and LEWIS, and Lieutenants ALLEN and CLARK, constituted the only mounted force of my command, and performed the most arduous and valuable services in escorting wagon and pack trains along dangerous sections of the road, and in furnishing escorts for light batteries in battle, and orderlies for my own and division headquarters. While the dense undergrowth which covered most of the country, prevented this squadron from performing some of the duties usually assigned to a mounted command, yet it performed an immense amount of labor, which was accomplished to my entire satisfaction. As separate organizations, these troops were present on various parts of the battlefields of July 1st, 2d and 3d, and conducted themselves most creditably, as did the troopers individually when carrying despatches under fire. I commend the squadron to the favorable consideration of my superiors."

With the exception of making a charge and of actually firing cannon I know of no military duties that this squadron did not at some stage of the campaign effectively undertake.

Before narrating the details of the duties that fell to the respective troops, it may be of interest to speak of the transportation of

the horses and the landing at Daiquiri.* The transports carrying animals were not only jammed with horses and mules, but the ventilation was inadequate. The heat and odors proceeding from their bodies were intense, and certain horses and mules were in a constant sweat night and day. This condition of affairs was cruelty to animals in a high degree, and necessitated frequent changes to bring the weaker ones to the hatchways and the better ventilated places. This with the stable cleaning gave the men occupation. Regular grooming was, on account of the crowded condition of the ship, entirely out of the question. When it is remembered that under these circumstances the horses had been shipped from Mobile to Tampa, at which place they were put in corral two days, and were then thirteen days on ship before the disembarkation at Daiquiri, June 24th, it is astonishing that only about two per cent. died. The absence of any landing facilities whatever for horses at the latter place is too well known. The system necessitated by the circumstances, of literally pitching the horses head first into the water a full half a mile from the shore, was also cruel in the extreme. A few of the weakest horses succumbed almost immediately upon striking the water; a few dropped upon reaching the shore. With what facilities the ships offered we constructed stage platforms and suspended one end from the side hatches, while the other end rested on the water. The horses were then brought to the hatches and by hand forced onto the stage, which, sinking, caused the animals to plunge head foremost into the water. Upon coming to the surface they were utterly dazed and without halter lines, held by men in row boats, they would just as frequently try to come back to the ship or go out to sea as to try for the land. The most tractable horses would not follow a leader. Even when led as close to the rocky, surging shore as safety for the row boats permitted, and were released, they would at times become frightened at the surf and head straight out to sea. Some of the row boats given our men were so heavy that untrained oarsmen could not overtake the frightened animals. Under these circumstances it is also surprising that only four to five per cent. were lost. In looking back at this experience, it is impossible to comprehend why suitable platforms or small scows were not made part of the materiale of each transport.

Had there been proper control exercised over the captains of the transports—specially true of the *Matteawan*—the unloading would have been effected a day earlier, and at a shorter distance from the

*Troops "D" and "F" were on the *Matteawan*, Troop "A" on the *Stillwater*, and Troop "C" on the *Morgan*.

shore. This would have avoided the necessity of putting the disembarked saddle kits of one troop (June 23d) on the horses of another whose saddles were still on board. It is not agreeable to speak of such matters, except in thinking that the truth may aid in future similar cases. The squadron was for the most part disembarked by the afternoon of the 24th, but with nothing more than field kits, and bivouacked on or near the shore. The same night it received instructions to draw three days' rations and fifty pounds of oats per horse, and proceed by troop as soon as ready the following morning. Troop "F" was to escort BEST's battery at the earliest possible moment that the latter could be ready. Troop "C" had marched on foot the 23d to Siboney, and back the 24th; Troop "A" did the same thing, partly mounted and partly dismounted.

The advance of the squadrop on the 25th with fifty pounds of grain on each saddle meant leading the horses. The scene of the Guasimas engagement was passed, and camp made near headquarters of the dismounted cavalry. The following day the cavalry division and the mounted cavalry proceeded towards Santiago, and went into camp on a small tributary of the San Juan River, about five-and-a-half miles from the city, where the advance was delayed until June 30th. In the meantime no specific duties were allotted the squadron, though some of its officers were continually making reconnaissances towards Caney and towards Santiago in the direction of El Pozo.

The squadron had received instructions that it would be directly under the corps commander, and as the latter had not yet reached the front, no definite instructions were given it. In my opinion, the squadrop (not through fault of its own) did not do its full duty during this halt, otherwise such a statement as the following could never have been officially made: "A few hundred yards before reaching the San Juan, the road forks, a fact that was discovered by Lieutenant-Colonel DEBBY, of my staff, who had approached well to the front in a balloon." Could it be possible that the commander of the Cavalry Division and of the First Infantry Division had not, of their own initiative, ascertained that fact before their advance? It might be well to add here that, in the history of military balloons, the above mentioned incident is the first of its kind. Never before in war or maneuver has a balloon been put up in the firing lines of an attacking army within easy range of an enemy's guns.

Beginning with July 1st, and ending with the capitulation and concomitant events, the troops were oftentimes acting independently, and it is therefore necessary to write of each one separately. The

headquarters of the squadron moved to corps headquarters July 1st, where it continued to the end. The corps commander personally gave orders regarding the details of couriers, messengers, etc., sent from the squadron. In some cases when the communication to be delivered was written, he handed it in person to the courier rather than give it to the natural intermediary present, the courier's or detachment's commander.

TROOP "A."

Captain LEWIS: Second Lieutenant FRANCIS J. POPE: sixty-eight enlisted men: sixty-five horses.

July 1st.—Lieutenant POPE at 10 A. M. delivered a wagon load of artillery ammunition to GRIME's battery at El Pozo. About noon the troop was ordered to provost duty between corps headquarters and El Pozo. At 3 P. M. it escorted PARKHURST's battery to the front, and reported it to the commander of the cavalry division. In accomplishing this, it came specially within the zone of the falling Spanish bullets beyond the San Juan ford. General SUMNER, commanding the division at the time, ordered the battery into position to the left of BEST's battery, and the troop to dismount and act in conjunction with Troop "C" as support to the two batteries throughout the rest of the day. Both troops were subjected to small-arm fire directed against the batteries. It returned to El Pozo about 9 P. M., and at once started to the front again with GRIMES's battery, which it conducted to the artillery position. The return to corps headquarters was after midnight. The strain had been severe, but the men bore up well.

July 2d.—The troop was engaged from 3 A. M. until midnight in conveying wounded from the field hospital, about one mile south of Caney, to the division hospital at corps headquarters. About 4 P. M. a train of twenty wagons loaded with wounded was fired upon while being conveyed.

July 3d.—The troop proceeded to Siboney to escort Rear Admiral SAMPSON, but the latter, owing to the sortie of the Spanish fleet, was compelled to return, and the troop's mission was in vain. A detail from the troop was engaged all day in escorting wounded to Siboney.

July 4th.—Was occupied in searching the battlefield for dead and wounded, and in orderly service.

July 5th to 8th.—The duties were chiefly confined to reconnoitering parties and orderly service.

July 9th and 10th.—In charge at Caney, maintaining order and distributing rations to the refugees assembled there. The troop

escorted General MILES during his stay in Cuba, participated in the formal surrender of Santiago, hoisted the flag on Morro Castle (Lieutenant POPE, Sergeant WELSH,) and together with "C" Troop (both commanded by Captain LEWIS) formed an escort for the commissioners designated by Generals SHAFER and TORAL to receive the surrender of about 2,000 Spanish troops at the garrisons, El Cristo, Moron, Dos Caminos, San Luis and Palma Soriano. The troop proceeded on the 23d to Palma, where it remained until July 31st for the purpose of maintaining order.

TROOP "C."

First Lieutenant, WM. F. CLARK; Second Lieutenant, JOHN B. CHRISTIAN; seventy-one men; sixty-six horses.

July 1st.—The troop reported to the corps adjutant-general at El Pozo at 8 A. M., and was ordered to take station at the crossing about 250 yards to the right of GRIMES's battery. It was employed in doing courier service, escorting ammunition trains (Lieutenant CHRISTIAN) to firing lines, and gathering up stragglers. About 2 P. M. the troop commander was directed to escort BEST's battery toward San Juan, where it was dismounted as a support while the battery was in action. The Spanish small-arms fire having become too strong, the battery was withdrawn to Kettle Hill, where the escort remained all night on outpost duty. The rest of the troop excepting a few orderlies reached camp after dark, and after having assisted in constructing shelter for the wounded, was compelled to leave for Siboney as escort to a train of wounded. The work was principally between El Pozo and the front, namely, near San Juan ford and hill, where there was a continuous rain of bullets. In spite of this fact Lieutenant CLARK reports that whenever a courier was selected the others seemed to be disappointed that they were not chosen. Casualties during the day: one horse killed and one wounded. It was such work as this that brought forth the remark: "At all hours I met with fatigued troopers urging on their wearied horses in seeking the objects of their errands in almost inconceivable places, owing to the unknown condition of the country."

July 2d.—The outpost was withdrawn at daybreak, and at 7 A. M. accompanied the battery back to El Pozo; thence to camp to secure food and rest for both men and horses. In the afternoon 154 prisoners were conducted to Siboney and turned over to General DUFFIELD.

July 3d.—The troop was engaged in hunting sharpshooters and in courier service.

July 4th.—The troop made a very difficult journey, scouting through the jungle from the main road to Siboney and the coast. The day was very hot, and the growth in places so thick that the trail had to be literally cut through. As a result of this trip the sick list was enormously increased: by July 6th it was fifty per cent. of the total strength.

From the 4th to the 13th the troop was kept at headquarters doing courier service. On the 14th it made a reconnaissance towards Cabanas to determine whether supplies could be brought up from that side. It participated in the formal surrender and flag raising, and assisted in disarming the Spanish troops at San Luis, where it remained until August 5th. The work of the troop at this place was important and delicate. The commandant of the garrison refused to surrender it on a written order from General TORAL, delivered by one of his staff officers, until he had sent a commission to Santiago to verify the order. The delivery of the 600 stand of arms by the Spanish soldiers was rendered difficult by the presence of several bands of armed Cubans, about one hundred in all. In the task of maintaining order, guarding property, settling disputes, checking arms and equipments, much responsible work fell also to the enlisted men, who acquitted themselves with much credit.

When the troop left Cuba, August 22d, First Sergeant BLAKE was the only man who had not been on the sick-report with fever.

TROOP "D."

First Lieutenant, H. T. ALLEN; Second Lieutenant, E. M. LEARY; Second Lieutenant, M. E. HANNA; sixty-nine men; sixty-seven horses.

Lieutenant HANNA was detailed squadron adjutant, commissary and quartermaster, and was not, therefore, directly connected with the troop, but the squadron commander has commended him in most favorable terms.

Troop "D" left camp on the afternoon of June 30th with orders to report to General LAWTON, and was by him assigned, with two battalions of the First Infantry, to escort CAPRON's battery to its position, about twenty-four hundred yards from the Stone Fort at Caney. It bivouacked that night to the south of the battery, and was ready for orders the following morning long before the battles of San Juan and Caney were opened by the first shot from this position, fired under the supervision of the division commander at 6:30 A. M. General LAWTON remained near the battery until 10

A. M., sending frequent detachments from the troop to carry messages between him and the brigade commanders. Some of these detachments were accompanied by Lieutenant LEARY, others by staff officers (WEBB, CARBAUGH, and others). This often brought them under the fire of the enemy, but every detachment sent out executed its task successfully and punctually. About 10 A. M. the division commander proceeded to the Ducoureau House, and thence towards the firing lines to the south and east of Caney. He was accompanied by the troop, and this was the first time that it as a whole had been under fire. For a moment the ordeal was crucial; but the first sensations quickly disappeared. The fire was, however, so hot that while waiting the troop was dismounted to fight on foot. The sound of the Mausers was very deceptive, for the trenches were farther away than first supposed, and the undergrowth so thick that the enemy could not be seen; the troop was therefore mounted, and proceeded along the road with General LAWTON towards LEDLOW's brigade, now the central one of the division. Again it was under fire, and was directed by the division commander to halt, while he continued towards the northeast. Upon his return, the troop joined him and returned to the battery.

About 3 P. M. the troop again escorted General LAWTON to the firing lines, where it remained until the final assault upon El Caney, at 4:30 P. M. At this hour it advanced to the Stone Fort, and in conjunction with Captain R. K. EVANS's company of the Twelfth Infantry, CHAFFEE's brigade, set about collecting the prisoners from the town, and burying the Spanish dead in their own trenches. The block houses still contained a few Spanish soldiers, and desultory shots continued to be fired. There was much difficulty in persuading them to come out of their places of concealment, and that their lives would be spared. First Sergeant BHEGNATO, with about fifteen men, went through the town, and after examining the houses in detail, reported 225 to 235 wounded soldiers, and others retreating along the northern road to Santiago. In the meantime we had buried nearly thirty Spanish soldiers in the trenches. Therefore of the 600 defenders of Caney, about forty-five per cent. had been wounded and killed, including General VARA DEL REY.

During the fight about half the non-combatant population (250) fled to the mountains near by; the other half remained in the village. Of the latter, only one person was killed—a woman, who lying on the floor of her house, was shot through the abdomen. In view of the fact that four brigades had been firing at and towards the town a good part of the day, this is quite remarkable.

As soon as this work was finished—about 7 P. M.—the troop started for the artillery position to bivouac, but on the way was called back by General LAWTON, who was in the act of assembling his division in order to make contact with General WHEELER's right.

Numerous small detachments were sent here and there carrying orders to effect the above. Upon arrival near the Ducoureau House, where the Santiago-Caney highway is joined by the road leading to the artillery position, it was learned that the head of the leading brigade was fired upon by the Spaniards. The entire column was halted, and went into bivouac. Various messenger detachments were sent out from the troop to corps headquarters. BATES's brigade, and elsewhere.

July 2d.—At 2:30 A. M. the entire division was ordered to join the other two by a retrograde detour via corps headquarters and Pozo. It fell to Troop "D" to head this march. By 6 A. M. we were at Pozo, where the terrible losses at San Juan were first learned. Between these last named places but one line of communication was used, and this, as previously stated, through a decidedly hot zone of Spanish bullets. Along this road two troop horses were wounded while detachments were hunting Spanish sharpshooters remaining within our lines. One of the detachments (DEBTSERE) reported success in shooting one man out of a tree. About 9:30 A. M. the troop began to conduct a Cuban regiment up to the firing lines between General WHEELER's right and LAWTON's left. Owing to the peculiar condition of mind of this regiment, the task was not an easy or quick one. Upon completion of this, the troop joined General LAWTON, who had selected for his headquarters a position in rear of his center on the San Juan River. It bivouacked in the only near available place, over which the bullets whistled the rest of the afternoon. The orderly of the troop commander was slightly wounded in the head by one of these missiles. Fifteen men volunteered to go into the trenches on the hill above, with First Sergeant BHEGNATO in charge.

During the counter attack of the Spanish at 10 P. M., Lieutenant LEARY, sent to the trenches to ascertain the morale of our troops, reported them eager to have the enemy advance. This was as it should have been, in spite of the tension of the preceding forty-eight hours. How could it be possible for a defensive foe continually retreating to force the lines of an aggressive offensive enemy that had succeeded in intrenching itself? In view of the discussion that has taken place concerning the night of July 2d, I make special mention of the above.

On the morning of July 3d, the troop commander with a small detachment accompanied Generals LAWTON and CASTILLO towards General GARCIA's headquarters, above the northern end of the bay. From a high point we saw Admiral CERVERA's fleet in the harbor at 9:15 A. M. Within thirty minutes of this time, while still with General GARCIA, Cuban messengers announced that the fleet had gone out and that the great naval battle was on. Under instructions from General LAWTON, I proceeded directly to report this circumstance to General SHAFER, who, like many others, was much astonished at the news. While at corps headquarters I received orders to conduct CAPRON's battery to the right flank. The troop repaired the road for the battery and assisted it later in digging gun pits. Both went into bivouac in the meadow in front of Santa Cruz. In the afternoon, the troop commander endeavored to show the chief of artillery position for his batteries.

July 4th.—Detachments were sent on various duties in many directions; with a small one I made a reconnaissance of the position of guns and trenches on the north and east of Santiago; Lieutenant LEARY with a larger one reported to General LAWTON.

July 5th and 6th.—The duties of the troop had become very general; it was becoming permanently identified with the right flank; it helped CAPRON's battery in various ways: it maintained communication between division and corps headquarters, and between the former and the other brigade headquarters; it exercised a mild supervision over the refugees who passed its bivouac the 5th; was ordered to report upon the situation at Caney; and made frequent reconnaissances, which were duly reported.

July 7th.—Ordered to corps headquarters.

July 8th.—Ordered to relieve Captain FINLEY at Caney.

July 9th.—Relieved by Troop "A." Conducted eleven wagons of provisions to Caney from corps headquarters same night, and upon returning received the following order:

HEADQUARTERS FIFTH ARMY CORPS.
CAMP NEAR SANTIAGO, CUBA, July 10, 1898.

Captain H. T. Allen, Second U. S. Cavalry:

SIR:—The commanding general directs that you proceed with your troop to El Caney, relieving Captain LEWIS, and take full charge of the town for the purpose of distributing food and policing the place. Very respectfully,

[Signed.]

E. J. McCLERNAND,
Assistant Adjutant General.

The troop commander recommended in vain the sending of a battalion of infantry. In an hour troop headquarters started for Caney, where they remained until the surrender and return of the refugees. Within the confines of a compact little village of a normal population of 500, were 20,000 people depending upon supplies furnished by the government and the Red Cross Society. The distressing situation has been frequently and graphically described, yet it is doubtful whether all these pictures give a true idea of the suffering, and whether the difficulty of the task falling to Troop "D" is fully understood. The assistance rendered by foreign consuls, who constituted an advisory council, was of the utmost importance. Each of these was surrounded by a relatively large following of his compatriots, the French consul having the largest number, about 650. The advisory council selected an executive committee of five influential Santiaguans, who had plenty of good will, but who were literally overpowered by the enormity of the situation. This committee selected the police force, which was given over to Lieutenant LEARY, while Dr. MENOCAL was entrusted with matters of a purely sanitary nature, and with the medical service. There was so much to be done, that these officers, as well as the hospital stewards, and every member of the troop who was able to stand up, worked almost incessantly.

July 11th.—A shell from the Spanish guns exploded within a hundred yards of the church, the administration headquarters. The quantity of food issued daily was about 4,000 to 5,000 rations that had to be distributed to 20,000 people, many of whom were daily growing weaker. By July 12th, ten members of the troop were on their backs with the "acclimatizing fever," while many others were very weak. With the limited number available for service and the many duties devolving upon it, the troop was entirely unequal to the task of preventing bathing and washing clothes in the tributaries of the San Juan on either side of the town.

The following note from the corps commissary gives an idea of the difficulty in complying with the requests for more rations:

"I send you, by General SHAFER's order, thirty sacks flour, eight sacks beans, two sacks coffee, and ten sides bacon. It is all I can rake up, and this is sent at the expense of the Cuban army. General SHAFER thinking the people at Caney need it most."

The long delay in bringing the surrender to a conclusion was very trying to the refugees, whose limited reserve supplies were gone and whose strength was fast failing. The situation had become

desperate in the extreme, and many of the best people, in their starving condition, were ready to risk anything.

The following communication was received with as much relief by the troop as by the refugees:

July 16, 1898. 7:30 A. M.

Major Allen:

The enemy has just surrendered. We are sending you a good quantity of rations—more than at any previous time. Those refugees who do not care to wait for them, can return at once to Santiago, although the General thinks it would be better for them to wait until afternoon. Use your judgment.

Very respectfully.

[Signed]

E. J. McCLERNAND,
Assistant Adjutant General.

The return began in the afternoon of the 16th, and was practically ended on the following morning, early. The number of cases of fever in the troop was increasing, although some had apparently recovered. I was taken sick in the afternoon of the 16th. Lieutenant LEARY the 17th, and Dr. MENOCOL (a Cuban supposed to be an *immune*) on the 18th.

July 24th.—The troop was turned over to Lieutenant LEARY, who has officially reported its operations during the campaign. In a communication of the corps commander relating to the situation at Caney, the following occurs:

"It was impossible for us to issue sufficient rations to satisfy their hunger, although enough was supplied to sustain life. The suffering was intense, and the clamor of the people for food and their struggles to possess it as it arrived from day to day, was something difficult to describe. In all this trying work, Lieutenant ALLEN and the men under him did excellent service, not only in controlling these people and distributing food to them, but in insisting upon and carrying out the necessary police regulations. I especially commend them for their work."

TROOP "F."

Captain, L. M. BRETT; Second Lieutenant, S. M. KOCHERSPERGER. Men and horses in about the same numbers as the other troops.

This troop, like "A" and "C," broke camp at 3 A. M. July 1st, and marched to corps headquarters. In the early period of the firing on Caney, Captain BRETT with a detachment was ordered to make his way to General LAWTON, and deliver a message involving the participation of the independent brigade. Upon his return to corps

headquarters he was immediately ordered with his detachment to escort to General LAWTON's division a supply of artillery and infantry ammunition, after which he remained with the said general until the fall of Caney. The rest of the troop (under Lieutenant KOCHERSPERGER) had been doing courier service on different parts of the field, and escorting ammunition wagons to the front. The troop was occupied the entire night in carrying wounded, providing shelter, cooking and distributing food, and in various ways aiding the surgeons in their overpowering tasks.

On July 2d, the troop was saddled at 4:30 A. M., and escorted corps headquarters to El Pozo, whence it sent out couriers in all directions: it performed provost duty on the line of communication until about 10 P. M., when it returned to camp. From this time on until it left Cuba, it continued to render various and important duties, among which was arduous courier service and provost duty at corps headquarters. Owing to the severe sickness of the squadron commander, Captain BRETT temporarily succeeded him, and was later officially designated as Provost Marshal. Troop "F" took a prominent part in the formalities connected with the surrender and the flag raising. When it arrived at Montauk Point, there were not more than five men fit for duty. The horses too showed the severe strains connected with the excessive escort, courier and provost services during the campaign.

Lieutenant-Colonel RAFFERTY commended the work of the squadron surgeon, Acting Assistant Surgeon ARTHUR JORDAN, in high terms. The latter volunteered his services for the large hospital at corps headquarters during the pressing period of surgical work.

From the foregoing, it is seen that the administrative work done by the squadron during the critical time of the campaign, as well as after the cessation of hostilities, was fully as important as the purely military duties. Certain officers and men have received by name special commendations, but I feel persuaded that every officer, and practically every man, was from the beginning intent upon doing his full duty, resolved to take every risk possible, and secure for the little mounted command as much glory as possible. It has, however, always been a source of regret to all of us that we could not have had the experience and sensation of a charge against anything. That comparatively few men and horses were wounded is the result of good luck rather than want of exposure to hostile bullets.

A VOLUNTEER CAVALRY REGIMENT.

BY FIRST LIEUTENANT JAMES G. HARBORD, TENTH CAVALRY.

THREE cavalry regiments were organized for the war with Spain, under a provision of Congress authorizing the Secretary of War under the direction of the President to raise regiments from the nation at large, of certain men of special qualifications as scouts, shots and horsemen. The three gentlemen who became colonels respectively, of the First, Second and Third U. S. Volunteer Cavalry, were LEONARD WOOD, JAY L. TORREY and M. C. GRIGGSBY. But one of these regiments, the First, ever reached the war. But both the others were ready to go; and of the process of getting the Second ready I write.

The field of recruitment assigned to Colonel TORREY was Idaho, Utah, Nevada, Colorado and Wyoming—the very hub of the cattle and horse handling district of the Rocky Mountain region. Colonel TORREY himself was a lawyer by profession, a successful one, but also owner of the Em-bar Cattle Company, the biggest stock ranch in the Big Horn Basin or in all Wyoming. He had a wide reputation as a liberal employer to his cow-men, was a skillful politician and a gentleman of oratorical ability and persuasive magnetism. At a time when all States but one were clamoring for a chance to send more volunteers than the quota allowed by the proclamation, the extra regiment to this thinly settled Western region was a matter of eager interest to its members of Congress. It was apportioned one troop each to Idaho, Utah, Nevada, two to Colorado and seven to Wyoming. This gave it the backing of ten Senators and six Representatives ready from its birth to its muster out to help it all they could. Mr. TORREY's first act when designated to raise the Second Regiment was to go to the War Department and borrow the services of several young men to help him list the supplies he wanted; to arrange for the filling of his requisitions: to get his horse board de-

tailed and in motion; to work the wires and set things up for the future regiment. He had already decided in his own mind that the basis of the raising of the troops in his own State of Wyoming would be on the vote by precincts at the Presidential election of 1896. A man in each locality was designated by him to take the enrollment, with a limit assigned him as to numbers, for from first to last men had to be turned away instead of sought, for recruits. In the other States the apportionment was arranged to the satisfaction of the backers. The troops from Colorado were mustered in direct from the National Guard of that State before they joined the remainder of the regiment.

Colonel TORREY arrived at Cheyenne May 9th. That week was spent in revising requisitions by telegraph; hurrying cars of supplies along by judicious use of "pull." The typewriter, the stenographer, and the official telegraph book had always a prominent place in the life of the Second Regiment. Tabulated statements showing embarking points for the various detachments, railroads on which they would travel, hours of departure of trains, changes of cars to make, and hour and date of arrival in Cheyenne were made and mailed to each man named to enroll a detachment. Each interested railroad was furnished a copy, and the general passenger agents wired to furnish tickets required by each detachment sending the items to the quartermaster for the mustering officer to be afterward covered by the issue of transportation requests. Special trains were to be made up where the size of the party justified it, and the whole schedule was timed so that the men arrived no faster than they could be handled. Each man in charge of a detachment had been sent a circular letter with clear instructions as to purchase of meals or lodgings en route, method of giving receipts, taking duplicate bills, etc. And it worked well. Permission was secured from the War Department to use the post of Fort D. A. Russell, then garrisoned by only a detachment of the Eighth Infantry. The switching facilities of the Cheyenne & Northern Railroad from Cheyenne to Fort Russell were secured, and all recruits arriving in Cheyenne were promptly switched out under the direction of some one appointed to meet them. Mr. TORREY and his clerks, the quartermaster to the mustering officer, and the examining surgeon were ready to do business at Fort Russell on the morning of the 17th of May. So, too, was the only officer to whom an appointment in the regiment had been promised, Dr. MORTIMER JESKUN, of Douglass, Wyoming, destined for major and surgeon. The afternoon of the 18th troops arrived from Nevada and Utah, each eighty-four strong,

three officers and eighty-one men being the maximum allowed to a troop of the regiment.

So far the regiment had an existence only in the well organized mind of Mr. TORREY, and in the fact that he had been designated to raise the regiment. But such is the power of a requisition backed by a squad of senators, that when the first troops came in on May 18th, two car loads of quartermaster supplies, comprising complete clothing equipment for a thousand men, cooking utensils, letter books, stationery, horseshoes, etc., including standards and guidons for this theoretical regiment, were standing on the side track at Fort Russell, consigned to the "Quartermaster Second U. S. Volunteer Cavalry," who was still punching cattle on the plains, without dreaming that he was to be quartermaster. Regular officers may well admire a system which presents to them a hedge of difficulties in equipping men even in time of peace, and yet will consign thousands of dollars of fine equipment to a far Western station to an officer not yet in service, in response to a requisition signed by a civilian, but backed by ten Senators who "fell in" long before the regiment ever did. And the ordnance, complete from magazine patterns to spur straps was already on its way and arrived within the week. Nor was the Adjutant General's office behind, for each troop as it was mustered in was issued all the necessary books, descriptive, sick, morning report, company council and otherwise. Nor were the cook-books of the Subsistence Department wanting for issue. Between May 18th and May 30th all the troops were mustered in. The civilian who had worked the wires for this lightning organization was wearing the eagles of a colonel, with a whole regiment behind him in twelve days from the time he drove into the post. Troops had come hundreds of miles, had been examined, the rejected ones eliminated, officers elected and sworn in, uniformed, equipped, submitting the usual reports and ready for the "usual monthly muster for pay" on May 30th. Troops were occupying the barracks and utilizing the mees furniture left behind by the Eighth Infantry. The post commissary was issuing rations regularly to them. They were drilling seven and eight hours a day. The method of choosing officers had been by election for the troop and part of the field officers. But it was a controlled election, where fermentation for days had evolved a unanimity of sentiment among each eighty-one men as to whom they wanted for officers. After the manner of the wild West, numbers had produced organization. No election was ever held in the regiment that was not finally a unanimous one. Through the lifetime of the regiment all great questions of its

policy were backed by a vote and a united sentiment—a bad system, but handled by a politician who knew his business. I believe no regiment ever enrolled a better personnel. The bad man of the woolly West had no place in it. To make a reputation for its section was a part of the purpose of its organization. There was no man in it who had not at some time ridden a range: none who were not more or less familiar with firearms; not one who, when given a blanket and a vacant space on the floor, failed to know the expected combination. It was a thousand fine physiques. A thousand plainmen with the breadth of chest and the heart action that comes from life in high altitudes. No man over forty-five rode with the regiment, and no man who was not a Western man by birth or adoption.

The arms of the regiment were the Krag-Jorgenson carbine and the Colt's forty-five, short model. Colonel TORREY did not believe in the saber, and his views prevailed at Washington. The plan for instruction which prevailed till the regiment was ordered South, involved work as follows: From 7:30 to 8:30 A. M., drill for the officers in a place unobserved by the men: from 8:30 to 9:30, drill for the men in the things had by the officers in the previous hour: 9:30 to 10:30, more drill for officers, and from 10:30 to 11:30, another drill for the troops. In the afternoon four more hours were spent in the same way. But in spite of this rather severe program the enthusiasm was so great that much volunteer drilling was done out of hours.

Before any troops arrived to be sworn in, the Horse Board had the mount for the regiment arriving, consigned to the quartermaster for the mustering officer, and when the regiment was mustered in, over half the horses were on the picket line at Fort Russell. Acting under a special authority which enabled them to vary slightly from the regulation standard for size, the Board bought many horses from enlisted men of the regiment, thus giving them mounts for which they already felt affection, and leaving a "bounty" in the homes from which the volunteers came. Stable duty began at once, likewise herding and herd guard and night guard on the picket lines. The veterinarian had arrived from the East, and when the horses suffered the usual complaints for new horses, the farriers had a prompt instructor. Regular police and fatigue details were run in the post.

One vacant set of quarters was utilized as an officers' mess, and the whole commissioned strength met for meals together. It was a pleasure in the first days of the regiment to see the lines

lengthen at the table from day to day as new men were commissioned. There were lines of square chins, of eyes that looked straight into yours, of good strong noses. Local interest in the regiment was intense. Almost every man in public life in the great Rocky Mountain region was represented in it. Governors of States were interested, telegraphing, visiting. A Senator of Wyoming was on the ground ready to burn the wires to Washington in its behalf. Senators of Colorado, Idaho and Utah were handling the Washington end of the line. Very little that the colonel asked in those days was refused.

June 22d the regiment started for Jacksonville, Florida, to report to General Lee. Hopes ran high; men and officers were alike enthusiastic, and considering its short life, the regiment was well instructed. On the way South, the schools for officers and non-commissioned officers continued while on train. The trip was well arranged. The horses were unloaded four times, and thoroughly groomed, and rested each time. A bad wreck occurred at Tupelo, Mississippi, six men being killed, and forty or fifty wounded. Perhaps nothing illustrates the variety of talent in the organization than the competency of locomotive engineers among them to examine the wrecked engines after the accident, to determine blame, and of a board of lawyers, who compiled and presented the claims of every man who felt a pain or lost a cent that night. Over the stories of that wreck one might laugh one moment, and cry the next. A trooper, in a forage car, made report: "The first shock," he said, "I hit the end of the car with my face. The second shock the end of the car went out." The uninjured were quick to the rescue. One ran and looked under an upset car. A uniform was in sight, but motionless and out of reach. The men dug a trench, and reached him, dragging him out, supposing him dead. He opened his eyes, got on his feet, felt himself over for troubles, shook himself, and remarked: "H—! Never touched me!" Another was brought out with arms and legs crushed. Nothing could be done. Men of the troop stood, and looked silently down. The trooper opened his eyes and looked up at them. "Here, one of you fellows roll me a cigarette," he said. It was rolled, and placed between his teeth, and lighted. When it went out, the soldier's life had gone too.

At Jacksonville the regiment constituted the only cavalry of the Seventh Army Corps while there. "They also serve who only stand and wait." And there the regiment stood and waited for the rest of its life. It won many high eulogies from officers who know what cavalry should be, and what volunteers are. Three or four hours

of hard mounted drill daily made it accurate in evolution, military in appearance, brought the flopping arms of the cow-man to his side and taught them to value a McClellan saddle. The drill grounds were two and three miles from the camp, at Panama Park, and advance and rear guard drills were constant on the way in and out. The drills were entirely under the squadron commanders, each major dividing the time between squad, troop and squadron drill as his judgment dictated. The entire regiment had target practice, pistol and carbine. Stable duty was conscientiously performed. Guard duty was well done with mounted guard mounting. A regimental canteen, which had the custom of several other regiments whose colonels were troubled with scruples against canteens, cleared \$1,300 the first month of its existence.

But the Second Volunteer Cavalry had come from the Northwest, where the air was bracing and cool, to fight. They enlisted to go to war, and the months of weary waiting in a Florida forest brought sickness. Fevers decimated the ranks till troops had scarcely ten per cent. for duty. Men and officers lost heart in waiting. On October 24th the regiment was mustered out. Its life was so uneventful as hardly to justify a mention, except as it shows the quickness with which a regiment can reach a certain state of preparedness, and illustrates the good and evil that come from "pull." Its perfect equipment, the facility with which it obtained its wants were the result of politics well applied. All that was faulty and bad, inequalities of promotion that made junior lieutenants and sergeants jump their seniors, perhaps even the quick mustering out of the regiment, were the result of politics that looked forward to the future of the regiment, not as soldiers, but as citizens. The striking and picturesque were never lacking in the regiment. Each individual was a strong, self-reliant unit. The cavalry idea was strongly developed. The regiment had a chance to go to the Orient dismounted, but declined, hoping for Cuba or Porto Rico with the horses, one officer remarking, "I'm a pretty good man on a horse, but I'm sure harmless afoot."

The regiment saw no Spaniards. The war ended too soon for that. It scattered to a thousand homes in the Rocky Mountains. Some have found commissions in the later volunteers for the Philippines—some have enlisted. But all, as far as in them lay, justified their organization and worthily represented the best type of the strength and manhood that has won the West for the world.

THE ARTILLERY OF 1861 AND 1899.*

BY LIEUTENANT-COLONEL EDWARD F. BROWN, LATE OF FIRST REGIMENT, U. S. COLORED
HEAVY ARTILLERY.

DURING the War of 1861 to 1865 I chanced to follow or lead batteries that handled about every kind of field or siege artillery used in the Western armies at that time. In fact, in the spring of 1866, I was practically responsible for artillery by the acre, and was in command of several different forts that carried an assortment of artillery seldom now found together.

I find that in my old quarterly ordnance reports in 1865 and 1866, that there were seven different kinds of bronze smooth-bore field guns, three different kinds of iron rifled field pieces, three kinds of steel rifled field pieces, and five kinds of rifled bronze field pieces, and the Whitworth guns in addition. In siege artillery we had seventeen different patterns of cast iron smooth-bore guns, ranging from the little 12-pounder to the enormous 20-inch Rodman. We had eleven different kinds of siege or seacoast defense mortars. Before the close of the war we had fourteen different kinds of rifled siege artillery, ranging from 12-pounders on up to the 12-inch Rodman in one class; and from 20-pounders on up to 300-pounders in PARROTT'S patent.

You can therefore readily see that a description of these various kinds of guns would be monotonous.

If such a description would be dreary, I find that it would take a book instead of a reasonably lengthy paper to give details regarding our present siege and coast defense artillery, although I must say that our field artillery equipment of to-day could be described in a very short paper. I will not attempt details, but I will call

*Read before the Colorado Commandery of the Loyal Legion, Denver, Colorado. Although dealing exclusively with artillery, the subject is one of such general interest, especially to officers who served in the Santiago campaign, that it has gladly been given a place in the JOURNAL.—[EDITOR.]

attention to some matters that must have impressed themselves on every old artilleryman present.

Let us remember that in 1861 all of our artillery were muzzle-loaders, and a great majority of the guns were smooth-bores, and at that time they were constructed of bronze or cast iron. During that war was the first introduction of steel in the manufacture of artillery, and before 1865 we had a great many 3-inch steel regulation guns, and more 6-pounder and 12-pounder "Waird" guns in the field artillery. These were the only steel guns that got into service prior to 1865.

To my mind the most effective field gun during the War of 1861 to 1865, was the 12-pounder Napoleon, a smooth-bore, made of brass. While its extreme range was but 1,680 yards, it was a most terribly effective weapon with spherical case at a distance of 1,000 yards or under, and an absolute destroyer of men with cannister at under 400 yards.

In my haddling of the rifled pieces that were furnished, I thought that the three-inch steel and the "Waird" guns were excellent for solid shot or shell, but I never was satisfied with their execution with shrapnel. The Parrott guns (an iron gun) that used only Parrott's projectile never impressed me favorably, from the fact that I was convinced that the projectile was not well balanced. At long ranges, when the angle of flight turned downward, about one shell in three or five would commence to turn somersaults. This naturally only made it a chance if the percussion mechanism would work, and at times it would give the projectile such an erratic flight as to surprise the gunner; while at the same time its passage through the air would make such a peculiar and appalling noise that it would have scared an ordinary Chinese army into fits. However in that war we could not scare the enemy by peculiar noises, and I never fancied the Parrot gun.

In the forts at Knoxville and Chattanooga, in addition to field guns, we had some 20 and 30-pounder Parrots, some 32-pounder Rodmans, and I thought we had some 64-pounder Rodmans (but I guess they were classed as 4½-inch Rodmans, as I can find no record of that sized gun on my reports); and the most pretentious pieces we had at those places were two 100-pounder Parrotts, mounted on Cameron Hill.

The navy and seacoast defense had at the close of the war a good many of the 8, 10 and 12-inch rifled Rodmans, and more of the 8, 10 and 15-inch smooth-bores, cast iron, and a few 20-inch of this latter make. They were all clumsy muzzle-loaders, and in action

each officer and man had a certain dread on account of the knowledge that these guns could stand the firing strain but a limited number of times.

The improvements in the siege and coast defense artillery of to-day over that of 1861-65 are so vast and sweeping that it can only be described as a revolution in the artillery service.

When an old artilleryman sees the arrangements at Sandy Hook, with air-compressors, disappearing carriages, and figuring distances by triangulation, and the beautiful and expensive breech-mechanism, it impresses him with the fact that it is necessary to employ civil engineers and machinists at that work, instead of soldiers. In comparing the artillery of 1861-65 with that of 1899, it is well to consider the uses of artillery. In the improvements that have been made, it appears to me that the whole effort has been to increase initial velocities, and make projectiles capable of penetrating ships' sides, and that they have overlooked that other and most important function of artillery, "the killing of men." I will pass the whole siege and coast defense question, by saying that I have not much confidence in the execution or effectiveness of the gun over six inches caliber, sighted and ranged by the schoolboy figuring of angles and elevations.

Don't try to shoot further than you can see, and about the quickest way to determine elevation, windage, drift, etc., is to make a test shot. I do not think much of the effectiveness of any artillery fire when the piece has to be elevated over fifteen degrees to reach the necessary object. In the engagement off Santiago that sank the Spanish fleet, none of the 13-inch projectiles hit and but two of the 10-inch. With a piece elevated over fifteen degrees the projectile passes through an entirely different stratum of air, in which the wind could be blowing in an unknown direction.

It is awe-inspiring to a man who has never stood behind the guns, to talk of shooting eight or nine miles with a 1100-pound projectile, but I think the boys that shot over the bluffs at Santiago did well to get six of their shell to hit the city. There are conditions that would oblige them to stand an ordinary city upon edge, or possibly group several cities together, to enable any effective work at a range that would require a thirty to thirty-five degrees elevation of the piece. This effort to make a shell with penetrative power and great velocity has made it comparatively safe for soldiers in breastworks or forts to withstand their attacks. Our fleet at Santiago, frequently bombarded the forts at the entrance to that

harbor and expended \$1,500,000 worth of ammunition, and I cannot find that they killed thirty men in all their bombardments.

The shell of to-day is a percussion affair. It is going 2,000 to 3,000 feet a second. If it hits in front of a fort or breastwork, the men naturally are protected; while if it hits inside of the fort or in the rear of a line of breastworks, all of the pieces go on, and only becomes a danger to the cooks, stragglers and hospitals usually found in the rear.

It appears to me that our officers, with their natural inventive genius would have, ere this, found some explosive to be placed in shells that would explode with such force as to scatter the pieces back and around the point of explosion.* It was this idea that caused me to offer the government a battery of Sims-Dudley dynamite guns at the opening of the Spanish War. I don't understand yet why it was not accepted, as I offered to not only furnish the men and guns but one year's ammunition for the pieces. Possibly because the ordnance office would be bothered by a new line drawn on ordnance reports, or possibly my old companion, General CORBIN, was afraid I would get hurt.

In regard to the execution of our artillery in 1899, we can say that we knocked everything silly that was afloat and could be sunk, but that the use of artillery in our battles as against men was ridiculous.

In 1861-65 artillery was used as an effective weapon in every battle. In my over two years' service with a light battery, we were attached to a brigade or division of infantry, and no matter how bad the roads or if there were no roads at all, we were with our brigade in every engagement. It was hard and trying work at times, but it was always done. Once or twice we had trouble getting our pieces out of action from the loss of horses, but we always were ready to begin.

During that war it was considered folly to charge breastworks or fortifications without first sweeping them with artillery fire, and this use of artillery was considered so necessary that the ordinary allowance would be a six-gun battery to 3,000 effective men. General SHERMAN, with all the difficulties to contend with between Chattanooga and Atlanta in the way of bad roads, had 230 guns with 98,000 effective men; and so on through nearly all of our armies.

In those days it was always considered as part of the general plan of action that artillery should sweep the ground before charges

*Note the effective use of Lyddite by the British artillery in South Africa.—EDRDS.

were made; pound down defenses in case entrenched or fortified resistance was offered; and even in lines of battle, by active massing of artillery on vulnerable points, create such consternation among the enemy, that infantry or cavalry could follow with a decisive stroke.

You can imagine my surprise when I saw that but *two* light batteries were placed on the firing line at Santiago, with nearly twenty thousand troops engaged; and that surprise continues when I find that with an establishment of 100,000 men in our army to-day, but fourteen light batteries are provided. Our army in Luzon only has five light batteries, although it is intended that 60,000 men should operate in that department.

Is it possible that the Ordnance Department has allowed the small-arms equipment to outclass our field artillery. In 1861-65 even the 12-pounder smooth-bore Napoleon had double the range of infantry small arms, and it always had been the plan of artillery experts to keep about that advantage. We all remember that the mountain howitzers toward the close of the war had to be left off any firing line, after rifles came in general use, and we can now see that the Napoleon guns would be but death traps to the men serving them.

So to-day our field service practically comprises the 3.2-inch field gun, the Hotchkiss rapid fire, and the machine guns of GATLING's and GARDNER's makes. In the machine guns mentioned it looks to me as though the officer that changed the caliber of the Gatling and Gardner guns to that of the small-arms, was not an artillery officer. He must have known that the rapid fire would reduce the range of that kind of gun in a short time so that opposing infantry could drive the men away from the piece or kill them off. Dr. GATLING's idea was to have a one-pound projectile, and in conversations I have had with BILL GARDNER, the patentee of the Gardner gun, and an old school-mate of mine, (the first repeating rifle he ever saw was my Martini-Henry rifle) it was plainly his idea to originate a gun that would throw balls twice the distance of the infantry rifle, and in a practical stream.

The improvement (?) of these machine guns may be a saving of labor to the clerks in the Ordnance Department, but it is hard on the men that serve the guns in battle, and it puts the machine gun equipment entirely on the defensive. They are good for street service, or for fort or breastwork defense, or for the same purposes that canister used to be used in resisting a charge; but with no

advantage in range over the infantry arm, they are of no practical use in offensive operations.

In the present field and rapid-fire field artillery I see that, while their range for shell and solid shot is possibly 5,000 yards, that the shrapnel is only fused for 2,000 yards.

As I have explained that artillery has been so improved that shell fire is practically harmless except to penetrate and destroy inanimate objects, this shortness of shrapnel range places the field and rapid-fire artillerymen at a disadvantage, in comparison with those of 1861. The present small-arms equipment of all civilized armies has about this range. The gun used by the Boer sharpshooters (the Haenel) has double that range, and you will notice that at Modder River they practically annihilated the English artillery.

To place the field artillery of to-day in line with the effectiveness of artillery of 1865, they must increase the shrapnel range to at least 1,000 yards more than the range of the infantry small arms, and they must increase the machine gun range in the same proportion. If artillerymen are to stand and serve guns within direct range of a small-arms firing line when we take the initiative in battle, each man should make his will before going to the front.

In 1861 this increased range enabled the artillery to be used as a saving and protection to the infantry, and was considered just as essential as the infantry itself. I know that at San Juan and El Caney, if thirty guns had been placed in position, and had been served effectively, the blockhouses would have been destroyed, and the Spanish infantry demoralized to such an extent that our losses there would not have been one-half what they were. In the island of Luzon, when all that was needed to drive the Filipinos to cover was to fire a few shots, had artillery been used before their breastworks were stormed, there would have been no storming to do.

It may be daring and brave for infantry to charge breastworks and blockhouses and forts without the assistance of artillery, but it is not *war*. In case we would attempt it against American or German or Russian soldiers, a battle, such as was fought at Santiago, would have been the death of half of the attacking force.

It is not well for Americans to overlook their field artillery; it is, and always will be a necessity for successful military operations. While our navy has plenty of 1-pound and 6-pound rapid-fire pieces, I see that it is left out of the field equipment of the army. While I freely acknowledge the superiority of the naval and siege equipment, I frankly say that our field artillery is not up to date.

The shrapnel range should be increased as I have suggested.

There should be shells as well as shrapnel controlled by time fuse. The shells should be charged with something stronger than powder. There should be two different charges of powder furnished field guns: one for extreme range, and the other to land shells at an enemy within say 3,000 yards, not going at a speed necessary to carry them 5,000 yards. The recoil should be taken up automatically, as is done with German and French field pieces.

The artillery should at all times have had a representative on the staff, so as to give recommendations in the construction of artillery. Let the men who handle the guns have something to say about the kind of guns they want. It looks to me as though the Ordnance Department is responsible for the present condition of our field artillery.

It is the duty of each member of the Loyal Legion to impress upon his Representatives in Congress the fact that the light artillery equipment in our military establishment is too small. Impress it upon them that half of our losses in killed and wounded in the last war was caused by a lack of field artillery.

I feel that one reason has been the lack of many appropriations, and the stingy ideas regarding army support that many Congressmen and Senators take an apparent pride in being a party to. I know it is expensive to keep in service light artillery, but to a people having the wealth and power of the United States, it would have been better to have expended \$250,000, if by that expenditure twenty-five good American soldiers' lives could have been saved.

While a soldier's life in times of war seems cheap, I for one do not believe in losing one American patriot, if by the expenditure of money in reasonable amount, that patriot's life could be saved to his country.

PROFESSIONAL NOTES.

CAVALRY IN SOUTH AFRICA.

The one point which has impressed itself upon all military men during the past month, in studying the conduct of the war in South Africa, has been the utter failure of the British generals to properly provide for the service of security and information.

In the first place, in accordance with a theory which, strange to say, still prevails in many quarters, that the field of usefulness of cavalry has become so restricted that it is not very useful anywhere, and is especially useless in a rough or wooded country, not half enough cavalry was sent to South Africa. The same deluded idea prevailed thirty years ago, when the veteran General Scott, then our commander-in-chief, gave it as his opinion that owing to the broken and wooded character of the field of operations of the Northern and Southern armies, the rôle of the cavalry would be secondary and unimportant. How absurd this now seems, when we think of the deeds of SHERIDAN, FORREST, WILSON, WHEELER, CUSTER, STUART, MERRITT, and many others. The same idea has prevailed as to the usefulness of our cavalry in Cuba and the Philippines, and yet in the end that arm seems to have been the main reliance in the hour of need. Looking at events through several thousand miles of space, it would seem to us that had a fresh cavalry regiment been held in reserve at Manila, at the time AGUIBALDO began his late northern stampede, the Filipino leader might even now be on his way to Alcatraz.

A British officer — not a cavalryman — who was recently in Kansas City, purchasing draught animals for his army, is quoted by the press as saying: "But the greatest mistake of all was not sending the cavalry ahead. Had three brigades of cavalry been set down the very first thing in Cape Colony, they would have had maps of the country, correct information of the strength and distribution of the Boers, and many other needed facts, ready for the main body when it arrived. That should have been the very first consideration. Now the troops are fighting in the dark, all because of the notion that South Africa was no place for cavalry."

From all that can be learned, the British War Office judged that a single cavalry division of 5,500 men would be the proportionate amount of that arm for an army of 100,000 men.*

Poor little force! It seems to have been swallowed up in the vortex of infantry and artillery. Scouting, patrolling, and reconnaissance (with the exception of reconnaissance in force) may have been undertaken, but certainly there seem to have been no tangible results. The succession of ambushes and surprises into which the British army have been entrapped, is, to say the least, very startling.

Glencoe, October 20th.—General SYMONS lost 91 killed, 173 wounded, and a squadron of the Eighteenth Hussars captured; General SYMONS killed.

Elandlaagte, October 21st.—General WHITE lost 42 killed and 205 wounded.

Ladysmith, October 30th.—General WHITE lost between 2,000 and 3,000 captured, including a battalion of the Royal Irish Fusiliers, of the Gloucestershire Regiment, and the Tenth Mountain Battery.

Gras Pan, November 26th.—General METHUEN lost 198 killed and wounded.

Modder River, November 28th.—General METHUEN lost 438 killed and wounded.

Storinberg, December 10th.—General GATACRE lost more than 100 killed and wounded, and about 800 captured.

Magersfontein, December 11th.—General METHUEN lost 800 killed and wounded.

Tugela River, December 15th.—General BULLER'S "serious reverse;" eleven guns captured.

One wonders if the results might not have been different, had these generals had each an adequate cavalry force to keep touch with the enterprising mounted scouts of the Boers.

In our own rough frontier service—a service not unlike that to which the Boers have been accustomed, the value of cavalry has been proven again and again—not alone on the level plains and rolling prairies, but in the most inaccessible mountain regions. And the irregular cavalry of the Boers, more properly a mounted infantry, have been so effective against the British, that if recent

*Cavalry Division, 5,500 men, 12 guns; three infantry divisions, 30,000, 54 guns; corps troops, 5,000, 28 guns; troops on lines of communication, 10,000; depots, 4,000; Natal field force, 14,000, 42 guns; not brigaded, 4,000, 18 guns. Adding 20,000 to 25,000 for Cape mounted rifles, Natal police, local troops, naval brigade and contingents from loyal colonies, gives a grand total of 98,500 to 103,500.

Cavalry Division, Colonel J. D. P. FRENCH; First Brigade, Colonel J. M. BABINGTON; Sixth Dragoon Guards, Lieutenant-Colonel FORSTER, Y. C.; Tenth (Prince of Wales's Own) Hussars, Lieutenant-Colonel FISHER; Twelfth (Prince of Wales's Royal) Lancers, Lieutenant-Colonel EARL OF AIBLIE; Royal Horse Artillery, "R" Battery, Major BURTON. Mounted Infantry, four companies, under Lieutenant-Colonel ALDENSON; Second Cavalry Brigade, Colonel J. P. BRABAZON; First (Royal) Dragoons, Lieutenant-Colonel BURN-MURDOCK, J. Y.; Second Dragoons (Royal Scots Greys), Lieutenant-Colonel HON. W. P. ALEXANDER, HON. W. P.; Sixth (Inniskilling) Dragoons, Lieutenant-Colonel THOMPSON, A. G.; Royal Horse Artillery, "O" Battery, Major JERRIS-WHITE-JERRIS, Sir J. H.; Mounted Infantry, four companies, under Lieutenant-Colonel BUDWAY.

despatches are to be believed, England will adopt Boer tactics, and organize irregular cavalry from among the English yeomanry.

Cavalry may be an expensive arm to organize, equip and subsidize, but if it comes down to a matter of dollars and cents, the security of the British army in the recent reverses would have been worth a million times what an effective cavalry screen might have cost. From the moral effect of the recent defeats, the war in South Africa is expected to cost the British government between \$100,000,000 and \$300,000,000.

In connection with the subject of the effectiveness of cavalry, comes an interesting cablegram from Paris, which says:

"According to private letters which have been received in England from the Transvaal, it seems that the Mauser bullets are unsuccessful in checking the attacks of cavalry, and that many horses shot through the lungs and even through the heart, were able to gallop 400 yards or so before they fell. Many riders were carried up to the enemy's position before their horses, though shot, fell under them. I understand that this news has interested the German Emperor, and may possibly lead to a radical change in the armament of the German infantry, for it must be remembered that the Germans are armed with the same kind of modified Mauser rifles as the Boers, and that if the fire of these rifles is unable to check the attack of the cavalry before it reaches the lines of the infantry, the latter can only be regarded as deprived of the greater portion of their efficiency."

Let not our legislators forget, in the coming reorganization of our army, the importance—not only the *economy* in money and in lives, which cannot be measured by money, of maintaining an adequate force of cavalry. Cavalry cannot be made in a month from militia. The transformation process is slow. Given brave and fearless men, well-bred horses, expert marksmen, improved arms and equipment, it is not necessarily cavalry. Training is necessary, and training takes time. But when war begins, time is the one element which is most in demand.

Prince HOHENLOHE, the distinguished German officer, whose service in the line has always been identified with the artillery arm of the service, but who, nevertheless, writes so intelligently of all arms, says: "There has been much writing and fighting over the question as to what proportion the number of cavalry should bear to that of infantry. This proportion has varied in all epochs and in all armies. I consider that to lay down a hard and fast line for this proportion would be the act of a theoretical pedant. Under the law of universal service, which makes the necessity of rightly employing the whole strength of the nation in the hour of danger the only correct principle for the organization of an army, this proportion depends upon the condition of the Fatherland. The duties of the cavalry are so comprehensive and so important, especially at the first moment of a war, that we cannot have too many cavalry ready for service."

THE EDITOR.

EMBARKATION AND DISEMBARKATION OF HORSES AT SEA.

This paper refers to the embarkation and disembarkation alone of horses, and not to their transportation. As to the latter operation, the question will usually be settled to a great extent beforehand by the Quartermaster's Department, whose business it is to provide, prepare and fit up the transports for the conveyance of men and animals, while the maneuver of embarkation and disembarkation will be left almost entirely to the device and ingenuity of the officer to whose charge this matter is committed. This is so of necessity, because of the divers conditions under which a landing may be effected, and the consequent impracticability of anticipating fully the circumstances of any particular operation of this nature.

I shall not attempt to describe any methods other than those which are laid down in the manuals, with which you are all familiar, but shall endeavor to point out the respects in which certain of these methods are to be preferred over others, if the choice should lie open between them all.

To enumerate the methods most commonly referred to, there are:

1st. By means of a gang-plank leading up from the wharf to the gunwale.

2d. By means of a sling and lifting tackle.

3d. By means of a hoisting-box and lifting tackle.

These may be modified to such an extent by the conditions under which the embarkation takes place, as to constitute entirely new methods; but as a rule they may all be referred to some one of these three classes.

The operation of disembarkation in any particular case is, generally speaking, the reverse of the embarkation; and would usually prove the more difficult in military operations of invasion, owing to obvious reasons of time-pressure and an excessive demand on the means available.

Some of the circumstances which affect the method of disembarkation adopted are these: Whether it is necessary to swim the horses ashore, leaving them to pilot themselves landward; whether under the same necessity, it were practicable to assemble a sufficient number of small boats to tow the horses ashore; whether large scows or lighters were available; whether a pontoon bridge were assigned for the purpose; or a wharf already at hand.

The first general method mentioned above, viz: by the assistance of a gang-plank from the wharf to the gunwale, presupposes ideal conditions. The vessel must not be too high, nor too far away, so that the incline would be either too steep, or would require a system of under-bracing.

These difficulties could be easily overcome, however, if the element of time does not enter the problem, and the water is of sufficient depth to permit the vessel to come alongside the wharf, in

which case this method seems to be the best and easiest in the long run, even if it be necessary to prepare quite an elaborate framing for approach to the ship.

Such was the method resorted to at Tampa on July 1, 1898, for loading light artillery horses on board the *Specialist* and *Unionist*. The incline was well braced, was provided with guard-rails along the sides and cleats along the flooring, and made one or two turns before coming up to the level of the deck, each turn assisted by a landing. The only obvious objection to this is that it is fitted to a deck, or cargo-port of one height above the wharf only. The gang-planks described in the texts are twenty feet long by ten feet wide, allowing the plank to be used in loading gun carriages. It is provided with ropes at the corners, side-rails, or boards; and a similar gang-plank from the gunwale to the deck. These planks should be transported with the horses.

The second method—by means of a sling and lifting tackle—seems to recommend itself as the best under the usual conditions, and even under the worst conditions.

The third differs from the foregoing in the fact that the horse-box is used instead of a sling.

Comparing the merits of the sling and the horse-box, for the former it may be said that they are light, cheap, easy to make, easily repaired; and if the horse is to swim ashore, is easily thrown off after he reaches the water. The disadvantages of the sling are that it permits the horse to plunge and kick as he ascends, in fact it excites him to do so, running the risk of breaking a leg or injuring his head; with a refractory horse, it is difficult to apply; and it is questionable whether it does the horse any harm to be suspended in such a manner, for even a few minutes, during his frantic efforts to free himself. As for the box, it is easier to get the horse inside of it, incurs no risk of injury from plunging and kicking, and does not suspend the horse in an unnatural position. On the other hand, it must be strongly and carefully put together, involving time and expense; cannot be thrown around from place to place as needed; is not easily replaced or repaired if seriously damaged while in use; and if the horse is to swim ashore it is awkward and dangerous to dump the horse from it into the sea. All things considered, the sling is therefore better; and my experience with its use, after the trial of several other methods, confirms this opinion.

The sling described in *TIDBALL'S Manual* is made of stout web (or double-canvas), five feet long by two feet wide, secured at each end by a stout stick, two inches in diameter; the sides bound with doubled strips of canvas, making an edge four inches thick. Loops of four-inch rope are attached to each stick, one nine inches long (measured vertically from the center of the stick), and the other, thirty-five inches long, with an iron eye or thimble, fixed in the end of the loop. Breast and breech ropes, nine feet long, are fixed to each side, and are tied together when the sling has been put under the horse. The box is not mentioned in this manual, but may be

described as a small portable stall, with a gate in rear, and means of attaching the lifting tackle.

It is always more desirable, whatever the cost in time and patience, to pilot a swimming horse ashore, than to leave him to his own devices. I think that this was demonstrated in the landing at Guanica, Porto Rico, where several horses, left to themselves after reaching the water, went out to sea, and were temporarily lost. By chance they were afterwards found at the entrance of the harbor, where they had managed to scramble on a small shelf of rock.

Two horses, at most, can be conveniently towed ashore from one small boat; a greater number requiring the first horse to remain too long in the water before the last one is lowered.

If scows or steam-lighters are available, the problem is made quite an easy one. At Guanica there were two scows picked up, calked and bailed out, and put to the service of landing horses, each one carrying about twenty-five head. They were either towed ashore by the naval tenders, or poled in by natives. Before they were available, however, many horses were swum ashore, two to a boat; the boats used were the ships' boats belonging to the transports.

The sling described above was used almost wholly, although boxes had been made at Tampa and carried along. I saw a box tried and it worked quite satisfactorily for a short while; it was not long, however, before its weak points began to show themselves. In one instance the horse backed against the gate so far as to upset the equilibrium of the system, and the horse had a narrow escape from falling out backwards into a scow loaded with other horses and attendants.

The following method of using the sling was resorted to after a process of evolution through less favorable ones: The hook on the block of the tackle was run through the eye of the sling; the loop of the other end was passed through this eye and secured by running an iron pin through it; attached to an eye in the end of this pin was a line which was controlled by a man on deck; when the horse rested in the water, this pin was jerked out and the horse was free.

Still another method of disembarking is mentioned, though it is manifestly the least desirable and not to be resorted to when it can be avoided. When the deck is low, say not over ten feet, and there is a gangway, the horses may be backed off into the water without slinging—an operation which is liable to strain and injure the animal and render him timid about taking the water when crossing streams. It might be added as an additional circumstance in favor of the sling that those used in the shipping of horses above referred to, were made on board the transports (after we had set sail from Tampa) from the ship's material and by the crew.

The foregoing remarks are to be accepted as suggestions only, the outcome of a short experience, in which expedition was paramount; if they have any value they derive it from the possibility

that they may abbreviate the succession of mistakes through which it is always necessary to pass in order to arrive at good results.

BROOKE PAYNE.

First Lieutenant, Fifth Artillery.

FAIR LEATHER EQUIPMENTS.

Cavalry officers who have used the fair leather equipments issued to troops last summer, have found them quite serviceable and satisfactory, much more so than the black leather equipments. Subjected to tests in all climates and in all kinds of weather, to stains of dust, mud, sweat and rain, they have maintained a handsome appearance by simply being washed with harness soap or common castile soap.

Continued service seems to improve the appearance of the leather, the color of which changes from a light yellow to a rich brown. No dressing is necessary to keep the leather in condition; and hence there is an absence of stained clothing, caused by the dressing rubbing off on the trooper's trousers.

Two defects, not inherent in the color of the leather, were noted: The curb straps, possibly from the process of tanning, broke repeatedly, with hard-mouthed horses. A brass curb-chain is suggested, as not only being more ornamental, but less liable to rub off the skin in and about the chain-groove.

With the experimental saddles too, the quarter-straps were found about one inch longer than heretofore, necessitating the use of very short cinches, and bringing the cinch-ring too low on the horse.

C. D. R.

REPRINTS AND TRANSLATIONS.

THE HORSE RAISING INDUSTRY IN HUNGARY.

BY G. FRIDRIK AND H. DÖHRMANN.

[Extract from the Annual Report of the Royal Hungarian Minister of Agriculture for 1896. Translated from the German by First Lieutenant L. C. SCHREIER, Fourth U. S. Cavalry.]

The Avars, the Huns, and the Magyars, like the Cumanians and Petschenegers who arrived after them, came into the country bringing with them their oriental horses. That they retained these breeds, we conclude from their mode of life, and from the agricultural, climatic and soil conditions; and furthermore it is attested by the fact that their almost continuous warlike expeditions obliged them to keep such a tough breed of horses.

It is hardly to be assumed that, at this time, the occidental breeds had any real influence on these horses. It was somewhat later that our constant guests, the Turks, with their horses which were descended from a related and probably even purer breed, exercised an influence tending to change and probably to improve the type of the Hungarian horse.

The Hungarians always loved their horses, and certainly spent much care in the rearing and keeping. We have, however, no other indications as to the results accomplished by them in horse raising than the successes gained in the warlike expeditions which they undertook during the first century after their immigration, which successes point decidedly to their possession of superior horses. In such localities where the breed of horses, especially that in possession of the people, has been free from foreign crossing, we actually find subsequently as well as at the present time a horse that even in its generate condition bears evidence of attributes that point to the superior excellence of the original breed.

It should be mentioned, however, that in the western parts of the country, inhabited by foreign peoples, the occidental breed of horses was probably indigenous, and, judging from the traces still remaining at the present time, that all the people coming from the west from time to time, brought with them a horse of occidental

breed that was heavier, and at the same time, less active than the Hungarian type.

The Hungarian kings of foreign extraction, no doubt, brought in their trains foreign types of horses into the country, which left behind barely any traces, since they did not find here the natural conditions necessary for their existence, and the variable drift of style and fashion was also probably a cause of importation.

The Neapolitan Spanish horse that came into fashion during the eighteenth century exercised a permanent influence, especially in the large studs of the nobility. But with the exception of a few less important localities, the national breed remained free from this influence also.

While this last tendency made the Neapolitan-Spanish horse at home in the larger studs, the horse in possession of the people, although it maintained the original type, was deteriorating in strength and size through the hardships of the campaigns and the lack of care, and to such an extent that as early as the time of MARIA THERESA, the demand for army horses had to be supplied from abroad, a proceeding which was connected with considerable material and other disadvantages.

These conditions induced the government, Emperor JOSEPH II., to take comprehensive measures in the interest of the horse-raising industry, which, up to this time, had been entirely neglected.

The reforms extended, in the first instance, to the establishment of stud-horse stations in the counties of Pest, Békés, Bihar, and Szatmár, as well as in Siebenbürgen, stallions being imported for the purpose from Turkey and Bukowina. Not only did these studs serve the mares of the farmers gratis, but the government paid the farmer one florin for each mare so served, and relieved him from the duty of furnishing relays. Everyone who had his mare served by a government stallion for four successive years received a mare with colt as present. Mares discarded by the army were turned over to farmers, who were required to furnish remounts in return.

Orders were issued containing instructions for a rational breeding; each county had to furnish an inspector of horse raising, who superintended the farmer breeders. A veterinary school was established at Pest, and professional text books were issued. In various parts of the country prizes for horse breeding were introduced.

To give an idea of the extent of the reforms introduced by Emperor JOSEPH II., it may be mentioned that a single expedition sent out for the purpose of importing breeding horses, brought 500 stallions from the eastern countries. Since, however, such large importations could not come up to the standard of quality which would assure a thorough and permanent improvement in the breed, the establishment of a government stud, on the government domain at Mezőhegyes, was determined on, and put in operation on the 1st of May, 1785. Of the stallions bred here, a part were to be employed in the breeding of horses at large, and the other part were to

be retained at the stations for renewal of the stock of the stud, and serve some 3,000 good private mares each year.

The results of these measures were at first hardly apparent in the private studs, but the more so in national horse breeding, where every place of importance soon owned its own stud, which often assumed immense proportions; thus, for example, that of the town of Hódmező Vásárhely with a string of 3,000 horses, and that of Szentcs, which was given thirty government stallions for the improvement of its horses. With the increase in quantity came also an improvement in quality. The localities in the vicinity of the stud stations were soon in position to supply part of the army demand for horses. The requirements as to height were as follows: for the horses of the hussars, fourteen and three-quarter hands; for those of the chevauers legers and dragoons, fifteen hands, and for those of the cuirassiers, fifteen and one-half hands.

The stud of Mezöhegyes was started with 553 brood mares, which were in part taken from Hungary, Germany, Moldavia and Circassia, and for the most part came from the army. Among the stallions there were at first to be found the most various races and breeds, as Holsteiner, Holstein, English, Berber, Siebenbürgen, Polish, Lippizan, Mecklenburg, Neapolitan and Spanish. The heavier classes were for breeding horses for the cuirassiers, the lighter ones those for the light cavalry. The brood mares were arranged according to color into seven studs, in which the blacks and sorrels were each represented by two studs, and the other colors each by one stud.

Besides these studs, the immense pastures maintained annually some four to five thousand remounts. These, collected from various countries, introduced many horse diseases, such as glanders, farcy and mange, which at that time could hardly be exterminated, and from which even the breeding horses could not be kept entirely free.

The fact that Mezöhegyes also served as a depot of beef cattle for the army and maintained some nine to ten thousand head of cattle, besides the horses, induced the government in 1789 to purchase the domain of Bábolna from Count JOSEPH SZAPARY for 450,000 florins and establish there on May 4, 1790, a branch of the Mezöhegyes stud, consisting principally of Hungarian, Siebenbürgian and Bess-Arabian mares. But here also herds of cattle were maintained. The real commencement of breeding in Bábolna was in 1806, since before this time the stock of mares was continually undergoing changes, and the twenty-one Spanish stallions kept there were used principally for serving the mares that were annually brought from Mezöhegyes for this purpose.

During the following years of war the two stud farms suffered considerably. Bábolna was set on fire by the French in 1807, while through the immense number of remounts coming in (12,000 to 15,000) Mezöhegyes was several times subjected to epidemics, which could only be exterminated by sacrificing a large portion of the stock on hand. With the conclusion of peace earnest and systematic

work was again taken up in both establishments. The stud inspector at Vienna ordered that only stallions of oriental breed were to be used at Bábolna. In Mezöhegyes the stock was divided as follows:

1. Turkish stud,) For breeding saddle horses.
2. I. Spanish stud,)
3. II. Spanish stud,) For breeding draft horses.
4. Neapolitan stud,)
- 5-6. Unimproved stud, for various purposes.

In spite of these measures breeding did not show any material progress. The heterogeneity of the stock did not admit of any conformity in breeding, nor did it lead to any uniform results. And as, contrary to the plain and unmistakable terms of the agreements made, only about one-tenth of the stallions raised remained in Hungary, while the remainder were sent to the other part of the monarchy, the improvement in the breed of horses at large, so noticeable immediately after the establishment of the stud farms, met a serious setback in the unfavorable conditions due to the war.

On the other hand private interests now became active. STEPHEN SZÉCHENYI and NIKOLAUS WESSELÉNYI were the pioneers in this enterprise. SZÉCHENYI commenced by introducing horse racing, the first races taking place at Pressbourg in 1826, and the second at Pest in 1827. He organized the association for horse racing, and then the association of horse breeders, brought into fashion horse-back hunting, and worked ardently to introduce the English breed of horses into the country. Isolated importations of English horses had taken place at the end of the preceding century. Thus among other instances the Kópcsényer court stud, founded in the County of Neutra at the beginning of this century, imported a string of one stallion and fourteen mares from England in 1814. Still it was due to the unceasing energy of the two first mentioned persons that English horses were imported and bred in the country in such numbers, that about 1830 there was hardly a private stud that did not contain at least one English stallion.

It should also be mentioned that besides the progress made in the breeding of English horses, Baron FECHTIG imported Arabian breeders of excellent stock, which aided considerably in improving the national stock. Commencing in 1811, FECHTIG at various times imported large numbers of pure Arabians, especially stallions, which found their way into the principal private studs, as for instance, those of FÉSTETICH at Keszthely, the stud of Prince ESTERHÁZY in Ozora, the HUNYADY stud at Úrmény, and among others, also into the stud at Bábolna. As FECHTIG afterwards made his home in Lengyeltóti, and there established a stud farm, the salutary influences of these importations were mostly felt in the district on the further bank of the Danube.

Besides the incidents mentioned, it is to be noted that at this time several counties began keeping stallions for general breeding

purposes. In some localities these stallions were for a long time the only means for improving the national (breeding) stock.

In the meantime the government studs were also making rapid progress. Especially in the breeding at Mezöhegyes there are many important incidents to record; for at this time there were acquired the young stallions which later became the original sires of the breeds of Mezöhegyes and Fogaras.

In 1816 a *Maestoso* stallion was brought from Lipizza, which became the original sire of the *Maestoso* breed. In 1817 Mezöhegyes received the stallion *Nonius*, which our soldiers captured in 1815 from the French government stud at La Rosière. (The sire of *Nonius* was the English half-blood stallion *Orion*, and the dam was a Norman mare.) In 1817 the full-blood Arabian stallion *Gidran* (imported by *Фичрия*) was brought from Bábolna to Mezöhegyes, and from this stallion and a *Köpcsényer* dam came the original sire of the present *Gidran* breed. In 1841 the full-blood stallion *Furioso*, bought by Count *Georg Károlyi* in England, was added to the stud of Mezöhegyes. These additions were of great importance, not only to the government stud, but also to national horse breeding.

At this time the product of the Mezöhegyes stud was employed in such a manner that the young stallions that were not needed to replenish the stock of the stud, were turned over to the stallion depots, while the other young stallions, suitable for breeding purposes, together with the supernumerary young mares, were sold at public auction.

During the years 1816 to 1848 there were six different importations, aggregating in all thirty-seven primitive Arabian draft horses. It is surprising, however, that contrary to the established principle, three full-blood English stallions were also added to the stud, whereas from 1822 to 1832 the only stallions used were those of Spanish origin from the *Köpcsényer* court stud. From this crossing there resulted a horse of larger size, but this increase in size was at the expense of the type.

The incidents of the year 1848 occurred while the government stud farms were in this state of development, and they got their share of the general confusion. The Bábolna stud was hurriedly removed to Gödöllő, and from there to Graz, in which move the entire stock made the trip from Bábolna to Graz in eleven days.

The Mezöhegyes stud did not have to be removed for safety, but as nearly the entire personnel left, the epidemics, which had never been entirely exterminated, raged with great fury on account of the lack of superintendence and care.

The struggle for liberty was not without its influence on the industry of horse raising. It manifested itself principally in the great decrease in the supply of horses, and in the stagnation in national horse breeding throughout the country, with the exception of the district beyond the Danube. This blow struck with greatest severity the important *Siebenbürger* stud, which was indeed completely broken up.

This unfortunate condition induced the government to institute far-reaching measures in the interests of horse breeding, and indirectly in the interest of the military establishment of the country. They consisted in the establishment of a third stud depot at Kisbér and the establishment of state stallion stations.

Government stallion stations had, of course, already existed since the preceding century, but they did not answer the original purpose, as the number of stallions was too small and there was not sufficient uniformity of superintendence and direction. The stallion depot established in 1807 in Deés with sixty stallions, formed the nucleus of these institutions in *Siebenbürgen*, which, after the addition of the stallion station in Retteg in 1835, numbered 154 stallions in 1854, which were distributed in sixty-two stations. Already, in 1856, we find in *Siebenbürgen* regular stallion posts at *Sepsi-Szent-György*, *Homoród*, *Retteg* and *Deés*, with 160 stallions.

The first stallion posts established in Hungary were those of *Stuhlweissenburg* and *Kisbér*, with seventy-four stallions, distributed in twenty-two stations. In 1855 the post of *Kisbér* was transferred to *Moor* and a new post with sixty stallions was established at *Nyitra-Bajna*.

In 1859 the stallion depot at *Nagy-Körös* was established, with posts at *Nagy-Körös*, *Versetz*, *Eperjes*, *Baja*, *Kis-Szent-Miklós* and *Almosd*. The government stud at *Kisbér* was established by imperial decree on the domain formerly belonging to Count *Kasimir Batthyány*. It commenced operations on the 1st of October, 1853, with six stallions and fifty-two mares, which stock was soon increased to 120 head by the addition of mares from *Bábolna*, *Piber*, *Kladrub*, *Mezöhegyes* and *Lipizza*, as well as by purchase from the *Csapody* stud at *Berki*, which was broken up. The very mixed stock of mares contained English, Arabian, Norfolk, *Mecklenburg*, Irish and also *Percheron* breeds. At first English full-blood stallions were used, but also occasionally *Lipizzanians*, *Arabs* and *Norfolks*. For the service of the *Percheron* mares only stallions of the same breed were used. Commencing in 1855 private mares were also admitted to the service.

The original object of keeping this stud was the raising of well-bred half-blood horses, and in conformity with this object the English full-bloods were well represented.

When, in 1860, a racing stable was established in *Kisbér*, the stud contained twelve full-blood stallions and thirty-three full-blood mares. But the mediocre results achieved on the race track led to the breaking up of this government racing stable in 1867.

At this time there were repeated importations of English breeding stock for the stud, thus among others *Bucaneer* and *Ostreger* in 1865.

In the meantime a rational plan of breeding was also adopted in the other two government studs. At *Mezöhegyes* the division according to race was undertaken. The division was into a draft, two

Arabian and two English, a large and a small Nonius, and the Gidran and Maestoso studs.

In 1852, three English full-blood stallions were imported, among them North Star, one of the original sires of the present half blood (Furioso-North Star) breed.

Bábolna in the meantime had received two fresh importations of primitive Arabian breeds of twenty stallions and thirty-six mares.

The above mentioned measures were of far-reaching influence on national horse breeding, which really owes its foundation and subsequent development to the government influence that made itself felt at this time.

The number of stallions which in 1858 aggregated 689, distributed in 200 stations, was doubled by 1868, at which time 1331 stallions in 392 stations were provided for the service of 49,509 mares of the country.

The development of the national industry at this time was due principally to government aid. This is attested by the fact that the localities where government stallions had been provided for a long time, are to-day in possession of a remarkably better breed of horses. Still even during this period, private enterprise was also active in the improvement of the breed of horses at large, attempts being constantly made to supply the still existing insufficiency in the number of government stallions by private ones. Individual communities began to keep their own stallions, and the best private stud farms placed their stallions at the disposal of the small breeders in their vicinity.

The military administration of the breeding establishments had, however, the disadvantage, that it lacked that contact with the people which would bring the interests of breeders in full touch with the governmental influence.

The older large private studs, which were based on oriental and Spanish breeds, but which occasionally employed English breeds, also showed material progress. But their activity depended mainly on personal inclination, so that the results of this branch of the industry did not play an important part commercially. Horse owners still had to get their fancy horses, and the army a large part of its remounts, by importation from abroad. It should be admitted, however, that the export of horses which in previous years had been insignificant, rose in 1869 to the respectable figure of 5,744 horses, valued at 437,949 florins.

It may here also be stated that the first horse census in Hungary was undertaken in 1857 by the Imperial Royal Statistical Office at Vienna. The total number of horses in the countries of the Hungarian crown was 2,095,949, while that in Hungary proper was 1,569,823.

As a result of the adjustment of 1867, by imperial decree of His Majesty the Emperor and King, dated November 2, 1868, the

administration of the government breeding establishments was provisionally transferred from the Ministry of War to the Hungarian Ministry of Agriculture. This transfer was at first only temporary, but was made permanent by a decree dated July 29, 1869.

At this time the government stud at Mezöhegyes contained nineteen Pepinier stallions and 497 brood mares, which were divided into the following ten classes: (a) The draft stud; (b) the heavy; (c) the light English half-blood stud; (d) the Gidran stud; (e) the Schagya stud; (f) the large, and (g) the small Nonius stud; (h) the Maestoso stud; (i) the small Lipizzani (Conversano) stud, and (k) the mixed stud. The total aggregated 2,240 horses. Immediately after the transfer was effected, the Hungarian government assembled a commission, composed of horse breeders, of members of the Hungarian Jockey Club and of the National Hungarian Agricultural Society, and of an official of the Department of Agriculture, who were to inspect the entire stock of the three government studs, and to determine a set of regulations which were to govern breeding in the future.

At this time the state of the agricultural conditions in general demanded several innovations in animal industry. Sheep raising, formerly carried on on such an extensive scale, was becoming less and less remunerative.

The extensive pursuit of wheat and rape seed raising absorbed a large part of the meadow lands and pastures, and wrought more and more injury. Even the results of cattle raising no longer came up to expectations. Farming, therefore, had to give its greatest attention to an industry—that of horse raising—which promised most from the existing conditions.

This was demanded by the natural conditions which are especially favorable for the success of the horse raising industry in the country, and also by the foreign competition which, despite our progress in national horse breeding, was still noticeable by the extensive importations of horses.

Even the army, our best customer, was still forced to obtain a large part of its horses from beyond the boundaries of the country.

This condition of affairs led to the attempt to undertake horse raising on a more extensive scale, and it was at the same time the prime factor in determining the general object of the industry. Matters which in private stud breeding regulated themselves under the surrounding conditions, had to be brought about in the naturally less intelligent industry of horse breeding at large by setting to work the influences of the governmental and social institutions.

The insufficient number of stallions of the then military stallion depots, the lack of pasturage and absence of regulated pasturing conditions and the defects in raising and keeping the material up to the standard, but especially the lack of contact which would have united the government stud establishments and the large and small private establishments to common and uniform work, were opposed to the accomplishment of the best results. During the time when the

government horse breeding establishments were still under the administration of the War Ministry, all energies, wherever the horses of the locality offered suitable mares, were usually directed toward the production of horses suitable for army use. After the transfer of the establishment to the Department of Agriculture, a different object prevailed. This was to extend the improvement of horses at large to all classes, and to increase the capacity of production in all localities suited for this work.

The qualities of the horse to be raised depended on many circumstances, of which the following may be enumerated: The general climatic and soil condition of Hungary; the agricultural conditions which require that the farmer's horse be able to traverse long distances at a rapid pace, and on the other hand also to do heavy farm work and to stand fatigues of all kinds; the inclinations and customs of the Hungarian people; the poor results in the other branches of animal industry; the build of the horse; the necessities of the army and of its efficiency; and the no less important commercial considerations that good Hungarian horses meeting these requirements would find a large demand abroad—all these circumstances had weight in determining the object of the general industry. This object was to promote by every possible means the raising of a horse as well bred as possible, combining speed with endurance, hardened, tough and equal to hard work.

Consideration had, of course, to be given to the size of the mares on hand which would admit of using the types to be found in the various localities, and of getting the above mentioned qualities, and also to special requirements of exceptional districts, for example in southeast corner of the monarchy, in the territory of the heavy draft horses and in the mountainous localities where the small, tough, mountain horse thrives.

The work of the government horse breeding establishment had to be made to conform to this general object of breeding.

At the time of the transfer, the English full-blood stud at Kisbér contained such excellent sires that it was not deemed advisable to make changes in this stud.

In the case of the still comparatively young half-blood stud in Kisbér, it was only necessary to continue and improve the method adopted for the production of well-bred English half-bloods, which work was greatly aided by the transfer of several noted half-blood mares from Mezöhegyes.

Better types from the Gidran and Schagya studs from Mezöhegyes were added to the Arabian half blood stud in Bábolna, but the use of the Arabian full-blood stud at Bábolna for thoroughbred service was continued.

In the stud of Mezöhegyes it was decided to keep the following four divisions as meeting the requirements of national horse breeding: (1) the English half-blood; (2) the large Nonius; (3) the small Nonius, and (4) the Gidran stud. The draft stud was not considered suited to the general plan and was in time gotten rid of, and

the best part of the Arabian stud was transferred to Bábolna, and the Lipizzanians to Sibenbürgen.

Thus there was created in 1874 the general stud of Fogaras, by transferring the Lipizzanian stud, which had been acquired for the purpose of improving the breed in the mountainous regions, from the rich soil of Mezöhegyes to the mountains of Sibenbürgen, where the conditions were more favorable for the purpose.

This arrangement of the stud was followed by the effort to supply each stud with the necessary thoroughbred original sires corresponding to the breed and type. Thus excellent full-blood stallions were acquired from England for the studs for English crossing; for the Arabian stud primitive stallions were obtained from the desert, or oriental full-blood stallions from the best sources; and stallions from the court stud of Lipizza were procured for the Lipizzanian stud at Fogaras.

The general aims of the breeding, i. e., the production of a horse of tough and enduring constitution and the increase in the breeding capacity, were only to be accomplished by suitable keeping and raising, and by a series of systematic experiments.

In order to offer all the natural conditions of development required by the end in view, the government studs introduced heavy but economic feeding, and the practice of accustoming the young horses to regular and strengthening exercise. Besides this, the rule was laid down that the best test as to the method of breeding was the systematic trial of the young horses in suitable work, taking into consideration the requirements permissible in the case of each breed and class.

The improvement in the powers of the horses soon was such that the young stallions and mares could be taken to the hunting field to prove their worth and endurance.

In order also to accomplish the general object in the national industry, the organization of the national horse-breeding service was necessary in the first place, which was accomplished by means of county horse-breeding committees. This institution, with branches spreading throughout the entire country, formed the connecting link between the national industry and governmental direction, and made it possible that the intentions of the directors of the national breeding industry would reach and be understood by all classes of people engaged in the industry; it also made it possible to establish rational principles and methods in raising and keeping the stock of the country.

For the improvement in the quality of the stock it seemed furthermore advantageous to have the best mares of private studs served by the best stallions, and to draw thereby the better classes of private breeders into the general scheme, so that the influence of the government horse breeding establishments would thus reach the country at large through these better classes.

For this purpose the government commenced to rent out government stallions from the stallion depots to the large breeders, whereby

not only the breeds of these studs were improved but a more extensive and sure foundation was created for the production of stallions. A result very much to be desired, for at this time there was still a scarcity of good stallions.

In view of the general aim to produce a well bred, hardened and enduring horse, suitable at the same time for military purposes, the breeding of English full-bloods could not be neglected. For this purpose the most valuable aid given was that of the subsidies to the racing associations, especially the Hungarian Jockey Club, in the shape of prizes, which at the present time aggregate 30,000 florins.

As the output of the private studs and private breeding establishments increased, the government began buying from these institutions the best adapted one-year-old stallions in large numbers, and to raise them for the national industry. These purchases were soon extended to full grown horses. At present, however, contracts for raising stallions from the stallion colts are made with those breeders whose stock warrants this. Of the stallion colts classified annually by a commission appointed by the government horse breeding establishment, those that appear suitable for breeding purposes at three years old, become the property of the government at a certain fixed average price.

The national industry received another impulse by the introduction of the itinerant horse-purchasing boards (three military officers) which dispensed with the troublesome middle men, looked up the large breeders from time to time, and bought up the remounts directly from the producer.

In the same manner opportunity was given to the small breeders to dispose of their stock directly by opening spring and autumn horse markets.

Since the number of government stallions could only be increased gradually, the government laid special importance on the acquiring of community stallions, and sold a portion of the young stallions purchased from private studs to such communities as asked for them, cheap and on easy payments.

Freedom from interruption is one of the prime requirements for success in this work.

The danger of reverses to which the horse-raising industry of the nation is exposed on mobilization in case of war, induced the Legislature to enact law XX of 1893, exempting from army conscription the entire stock of better horses, especially the registered private stallions, and also the mares that had been served by these or by government stallions. This show of favoritism also constituted an inducement for the small breeders to keep a better breed of stallions.

To stimulate a correct choice of brood mares, as well as to encourage the proper keeping and care of the stock of the smaller breeders, the distribution of prizes was inaugurated and the establishment of colt pastures and common colt enclosures was advocated

and encouraged to replace the commune pastures which had been absorbed by the plan of consolidation.

Several other measures were also inaugurated for the promotion of the horse-breeding industry. Thus the animal sanitary law was passed which was to protect the immense wealth represented by the industry from the serious losses during epidemics. The animal sanitary service was regulated and the instruction of the necessary veterinarians provided for. In many localities shoeing schools were established to train good horseshoers, and the agricultural schools for farmers, which had been established in the meantime, aided considerably in disseminating correct ideas as to breeding and keeping among the smaller farmer breeders.

The rates of railway transportation for breeding horses were greatly reduced to facilitate the purchase of good breeding stock. Of far reaching import for the industry was also the law regarding agricultural and animal industry, which was devised to regulate pasturage, the acquirement and keeping of sires, the choice of stallions, and the national breeding districts. As being in the interest of the horse-raising industry, there should also be mentioned the law laying a tax on the "totalisateur," (racing purse) which provides the means for the importation of the best English thoroughbred breeding stock.

Combined with these state efforts and institutions looking to the improvement of the national industry, the activity of communities, societies and individuals also manifested itself in this direction.

The Hungarian Jockey Club merits first mention since it steadily promoted racing in the interest of thoroughbred breeding, and gave considerable racing prizes, partly out of its own means and partly from the gains of the totalisateur.

The first race course of the capital was soon followed by race courses in the provinces and by provincial racing associations.

The agricultural associations inaugurated special horse markets to secure the product of the large and the small breeders a ready outlet.

Horse shows and prize competitions which permitted of the trials of horses according to their class, were endorsed by society and received more or less government aid, and in a similar manner, riding, hunting, mounted games and the popular long distance rides were coming more and more into fashion. On account of the distances to be covered and the endurance and toughness demanded, the long distance rides were more to the tastes of the Hungarian sportsmen than the international trotting races, and this fact had considerable to do in retarding the introduction of trotting races in Hungary.

Another result of the influence exercised on the industry was the constantly increasing interest that caused the people to combine their resources for the purpose of keeping stallions for breeding, and for the establishment of colt pastures and the colt enclosures.

Besides the ground covered by combined energy, there remained, however, a large scope for individual effort for the private breeders. Thus the national industry is indebted to the breeders of the English thoroughbreds for the importation of much valuable breeding stock. In the same manner other breeds were also imported which were of more or less benefit to the national industry.

Here also belong those substantial offerings which men interested in horse racing made in the shape of large purses for horse racing, thus contributing indirectly toward thoroughbred breeding. Finally, in general, the healthy development of the larger private breeding establishments with the resulting fact that a large part of the stallion production is in the hands of private individuals. It is a fact that one-third of the stallions in possession of the government come from the private industry of the country.

In passing now to the results of the agents that we have described, we turn first to our thoroughbred breeding which has acquired a noteworthy position on the European continent.

It should be stated here that Kiszér is to this day the center of the thoroughbred breeding industry of Hungary, because it contains full-blood stallions of a class which private individuals could not afford to keep. About 200 full-blood mares are covered annually at Kiszér, netting an income of 200 to 400 florins per year.

The small full-blood stud is also maintained at Kiszér, and helps to reduce the very high expenses connected with the keeping of stallions. The twelve to twenty full-blood one year-old stallions annually sold at auction have, since 1870, brought an average price of from 611 to 2,257 florins. In 1885 the highest average price was 4,575 florins.

Private industry from a modest beginning has developed in Hungary in such a manner that there are from 600 to 700 brood mares and many domestic and imported stallions owned by private parties. The exports also greatly exceed the imports, which, with such an article of trade, shows the capacity of production. It must be noticed that at the present time there are 313 full-blood stallions in the state stallion depots for the service of mares at large.

Our half-blood breeding is intimately connected with the full-blood breeding, and in this respect the government stud at Kiszér occupies a conspicuous place and is an influential center for the breeding at large.

This well-bred half-blood stud, consisting of about 170 brood-mares, furnishes annually some forty young stallions for the government stallion depots, and there are at present some 360 such stallions for the service of mares at large. These stallions are principally used by those large private breeders who wish to raise a well-bred, well-built saddle or light carriage horse. In the small industry and in the breeding at large, the Kiszér and full-blood stallions breed the better class of light remounts.

The state stud at Mezöhegyes is the center of the extensive English breeding industry and meets in a direct way the various

demands of the horse breeding industry at large. The breeds found there at the time of the transfer have been materially changed by suitable crossing with English full-blood stock. The stallions of the Gidran stud of Arabian origin are best suited for the oriental types of Hungarian mares. Among the large private breeders, this race is especially in demand when the object is to raise, besides the saddle horse, a light draft horse suited for agricultural purposes. Among the smaller breeders, the Gidran stud stallion and the easily kept, competent Arabians are used for the purpose of improving the medium sized stock of the country, which crossing produces good, useful draft horses and remounts. In the stallion depots, the Gidran breed is represented by 263 stallions, part of which come from private breeders.

The horses of the large Nonius stud, consisting of about one hundred brood-mares, belong to the larger draft class, but among them are also found types of the large hunters. Among large private breeders, these stallions are used principally for the service of brood-mares used in farming, which crossing, besides keeping up the stock of farm mares, provides the market with strong carriage horses. The markets established along the western export lines assure a good demand for this class.

For the same reasons, as well as on account of agricultural considerations, the large Nonius type is used for national breeding in the vicinity of these markets, and in general in those localities where the large mares and the large production of feed favor this crossing. At present 270 state stallions of this class are used for the service of mares at large.

The small Nonius stud, consisting of one hundred brood mares, related to the foregoing class but differing from it by a smaller build, is a very useful element in national horse breeding, on account of the characteristic stocky build, quiet temperament, tractability and willingness to work. The small Nonius is the type of the ideal Hungariau farm horse, which is suitable for agriculture, and for which there is always a good demand in the markets. This stud is represented in the state stallion depots by some two hundred stallions.

The Mezöhegyes English half-blood (Furioso-North Star) stud, consisting of some 130 brood-mares, represents the large and medium draft class, but also includes some types of the saddle class.

The Mezöhegyes half-blood stud, which is, more massive and larger boned than that of Kiszér, is represented in the 1110 half-blood stallions in the state stallion depots by 200 stallions, and is sought among the larger private breeders principally for the production of a large-boned horse, but also for the direct reproduction of this much sought type. For the same reason these stallions are in great favor in national breeding.

The state stud at Mezöhegyes furnishes annually ninety to one hundred stallions of its own raising for the stallion depots, while at the same time it disposes of an equal number of stallions, purchased

from private breeders as one-year-olds, to the communities as commune stallions. Since the inauguration of the system of purchasing one-year-olds, the establishment has sold nearly seven hundred such stallions to communities.

The preservation of the oriental blood at the state stud at Bábolna is made necessary by the demands of the small breeders, but is not demanded to any great extent by the large private breeders. There are at present in the state stallion depots about twenty-five full-blood and 332 half-blood Arabian stallions.

On account of their enduring and tough constitution, their gentleness and docility, the Arabian class also finds much favor among the large private breeders. The product of this crossing is a light saddle horse and a roadster, the modest market price of the latter being in proportion to the relatively small cost of raising. In national breeding this class is still necessary, especially in those localities where the stock is of oriental origin and of small stature, and where the less developed agricultural conditions and the limited production of feed demand the keeping of a less pretentious horse. The primitive stock of the extended sandy plains and of the steppes, as well as of the mountainous regions where vegetable life is scant, reproduces faithfully the oriental type.

The breed of the very useful mountain horse found in the higher altitudes of our mountainous regions, was improved by the Lipizza stud, which itself was descended from oriental blood, and through the conditions of the rocky plateaus of the Istrian Karat district developed into a special mountain breed. For this purpose there is raised in the mountain pastures of the state stud at Fogaras, a stallion that as a rule is small but broad, hardened, tough, and has sinews of steel, and extremely hard hoofs. This class is represented by 215 stallions in the state stallion depots.

The Fogaras horse belongs to the small draft class, but is extremely useful as a saddle horse for the mountain regions. This breed has no share in supplying the remounts. Its commercial value, even for the large private breeders, is but a modest one; well matched fancy roadsters, however, often bring high prices. In the localities where this breed is suitable, it has added much to the prosperity of people whose horses play hardly any part commercially and are not at all pretentious.

The number of stallions in the state stallion depots, an institution of great influence in national breeding, rose from 1,000 in 1868, to 2,838 in 1897. Among them are 313 English full-blood, 1,110 English half-blood, 25 full-blood Arabs, 332 half blood Arabs, 473 Nonius, 263 Gidrans, 15 Norfolks, 215 Lipizzans, and 92 heavy Norman stallions.

This number is distributed in eighteen scattered stallion depot posts, so that the 1,000 communities of the country provided with serving stations are kept in touch with the institution and can bring forward their claims promptly. The government serving stations of the country are at present so numerous that during the serving

period from March 1st to the last of June, the breeder can find suitable stallions in every horse-raising locality in the country.

The thorough organization of the national breeding service, the progressive increase in the number of stallions, the inauguration of the system of renting out stallions, the facility in marketing, and all the other factors above cited, have finally awakened the general interests of the masses in the industry, so that at present the production in quality as well as in quantity has risen to large proportions.

While thirty years ago it would have been easy to enumerate from memory all the private studs of the country, there is at present hardly a large landed estate or a large farm without its own stud. As evidence of the quality of the increased production, may be cited the result of the long distance rides between Vienna and Berlin in 1892. Of the forty-two prize winners from many countries, fourteen horses were of undoubted Hungarian blood and arranged according to the time of arrival, the first, third, fifth, sixth and seventh were horses of Hungarian raising.

A further proof of the steady progress in private breeding is found in the constantly increasing exportation, and the steady demand abroad for Hungarian horses, especially for the light and medium weight saddle, the roadster, and the medium weight carriage class. As to the present tendency in breeding, it may be said that the large private breeders seek nearly exclusively the government types and breeds, although in a few private studs the more important foreign breeds are also to be found. In general, however, it may be said that the guarantee for the further progress of the horse breeding industry lies in the ability of the large private breeders to supply a sufficient stock of good stallions.

It may in truth be said of the small breeders and of the industry at large that the country is able to furnish a good, relatively cheap, and at the same time a well bred and capable horse for general and army use. Only thirty to forty years ago, half wild horses had to be brought from Russia to mount the army. At present the home industry is fully able to supply the demand. Sixty to sixty-five per cent. of the annual demand of some 7,000 horses for the common army is supplied by direct purchase from the Hungarian breeders, leaving out of consideration the considerable number that find their way into the army through middle men, and also the mounts required for our Honvéd army, and those required for the Austrian Landwehr, which last demand is in great part supplied by Hungary. Besides this the states to the south and southeast export large numbers of horses for military purposes, and there are many horse dealers engaged in exporting Hungarian horses to all parts of the world.

According to official reports the number exported is increasing every year; but the number of the registered export is far behind the uncertain numbers of actual export. The frequently noted migration between the time of foaling and raising, which springs

from the principle of division of labor is not without effect on the Hungarian horse-raising industry. Thus on the eastern and northern boundaries of the country, it has nearly become a set rule that the colts, soon after weaning, are taken by the dealers to Galicia in large numbers. In the same manner many colts from the counties of Pressburg, Trencsén and Neutra, find their way through the horse markets in Raab and Komorn, into the possessions of dealers in Érsekújvár, who use the young animals for light draft purposes, and when they are full grown sell them to lower Austria and Moravia. It is also known that many of the colts of the heavy Norman breeds in the counties of Zala and Eisenburg, after weaning find their way back to the original home of the race.

According to official data, the number of horses has decreased about 70,000 head between 1870 and 1884, the date of the last horse census. This reduction would be a source of anxiety were it not for the fact that out of a total of 1,748,000 horses in 1884, there were 583,000 mares and 490,000 young colts, whereas in 1870 there were 760,000 mares with but 334,000 colts. This is a good indication of the improvement of the industry and export trade.

A comparison of the services of the government stallions also indicates the improvement in the quality of the stock. While in 1868 only 30,000 mares were served by government stallions, this number rises at the present time to 135,000 mares.

We can, therefore, contemplate with satisfaction the evident rapid and healthy development of the national horse-raising industry in the last decade, and while there is much lacking to attain perfection, we have the future open before us to attempt the necessary remedies by systematic efforts in the right direction.

CHARGING BLADE FOR CAVALRY.

The charger's coat of mail of the old days of knighthood has been obsolete for many years, and it has never, apparently, occurred to anyone since that time to protect the cavalry horse from injury by any sort of armor until FRANZ HIEKE and CONRAD HEIKE, of Philadelphia, patented recently the cavalry equipment. This arrangement consists of a light iron framework to project in front of the horse and extends along his flanks, supported by straps. The end of the framework, which is shaped like the bow of a boat, terminates in a sharp point or blade, which is apt to demoralize any troops upon which the cavalry charges, at least causing them to turn to one side or the other to evade it, and making it difficult for anyone, mounted or unmounted, to approach very near the trooper. Just in front of the breast of the horse, and suspended from an iron rod fastened between the two sides of the framework, is a curtain of chain mail designed to protect the horse from injury. The claims made for this equipment are that it is novel, inexpensive, of light

weight, and does not interfere with the freedom of movement of the trooper or the rapidity of travel, combining a formidable weapon and a protector for the horse.

THE ALASKA REINDEER.

WILLIAM A. KJELMAN, who has charge of the government reindeer station in Alaska, has returned to spend the winter with his family. Mr. KJELMAN takes a more hopeful view of the reindeer experiment than do a great many others. He says the reindeer will eventually be used as a food supply as well as in furnishing a means of transportation.

Mr. KJELMAN took the first deer into Alaska in the summer of 1894, when he transported 400 across from Siberia. He had been in the business of reindeer raising in Lapland before coming to this country, which led to his selection as reindeer superintendent in Alaska. Since then he has brought two herds of these animals from Lapland.

There are now about 2,500 reindeer at the seven Alaska stations. The rate of increase in the herd is about the same as that of cattle. Mr. KJELMAN says the reindeer are good transportation animals on the coast for distances up to 200 miles, but when driven that distance they must be allowed to rest, as the moss upon which they feed does not furnish them the strength needed to withstand great exertion. He thinks they would do better as transportation beasts on the horse diet of oats and hay, and that such food would tend to increase their size and weight.

INTRENCHING BY STEAM.—THE HUGE PLOW ENGINE TO BE USED IN THE TRANSVAAL.

The latest development in modern warfare is the steam intrencher, a huge plow that will throw up a four foot intrenchment at the rate of three miles an hour. This colossal machine is the invention of Colonel TEMPLER, director of military ballooning and steam transport, now on his way to South Africa in charge of the new steam transport company and balloonists of Royal Engineers. A trial of the plow was made yesterday (Monday) on the Long Valley. A traction engine was attached to it, and it fully carried out the work expected of it, cutting deep into the very rough ground it was tried on, and throwing the excavated earth up on one side, forming a very serviceable shelter-trench. The body of the machine consists of a powerful horizontal framework, made at an angle of ninety-five degrees, mounted on two large iron wheels at the angle. At each extremity is an immense plowshare, four feet by four feet, fronted by a six-inch steel pick. These plowshares point one each way, so that by bringing down the end required the earth is thrown

either to the right or left. The steel pick splits rock or stone that comes in its way, and the whole machine is guided by means of cogged wheels that slew the carrying wheels to the right or left. The machines, two of which are going to the Cape this week, would follow a line of skirmishers at right angles, protected by artillery, and make a trench behind them for the purpose of occupation in carrying an intrenched position. The engine and machine would, of course, be suitably protected by plating.—*London Telegraph.*

MOVABLE STEEL FORTS.

So far the most important thing that military experts have been able to discover in the new war features introduced in South Africa, is the extraordinary usefulness of the armored train as a military weapon. As the campaign develops there may be seen encounters in which the tide of battle will be turned by means of attacks by parties sheltered behind these moving forts, and those who look into the future with the vivid imagination of a JULES VERNE predict that the battles of the coming years will be fought between armies protected behind huge movable steel shields, bullet-proof, and even bomb-proof, so that the tremendous killing powers of troops armed with modern ordnance will be curtailed by the defensive properties of the protecting steel walls behind which every man fights. In other words, it is believed by those who watch the progress of events in South Africa, that the armor that has heretofore been confined to the fighting forces of the sea will make its appearance on land, the armored train being the forerunner of this new system of warfare.

The importance attached by General BULLER to the armored trains is shown by the fact that he is having made, especially to accompany the advance, a railroad fort modeled after the most approved fashion. The train consists of a powerful engine and three trucks, every vulnerable part of the engine being carefully protected by steel plates that are impenetrable to rifle bullets and the missiles of Maxims and small guns. The only arm that can be used with effect against them is the field gun or heavier ordnance. Against these it is not possible to insure protection, as was shown in the case of the train whose destruction by the Boer artillerymen was the first indication that the Boers meant business when the time stated in their ultimatum to the British had expired.

The three trucks are surrounded by steel plates about six feet in height, and behind these plates the occupants of the trucks are perfectly safe in rifle or rapid-fire fights. A force attacking the armored cars without artillery would be exposed to a fire from rifles and Maxims, and even small cannon without being able to do anything in reply but waste their ammunition trying to get a bullet through the armor of the railroad fort.

There are no doors to the trucks. The men get in by climbing

over the steel sides, and once inside they are boxed in, with no outlet through the sides of the car other than the small vertical slots through which they fire at the attacking force. To "rush" such trains without artillery to mount them beforehand, would be a terribly venturesome undertaking.

The tactics of the armored train crew are simple, and had they been followed out carefully during the recent armored train fights in South Africa, or had the Boers been less well supplied with artillery, the new movable forts would have jumped to first place in the estimation of military men. The armored train must move cautiously forward, the engineer keeping a sharp lookout ahead for obstructions or pitfalls on the track, and the men on the forward truck standing ready with the Maxim gun and their rifles to deal out death to any enemy planted in the path of the train. At the first intimation of the presence of a hostile force a halt should be made, and, if the line in the rear is threatened, the train should be run back until the threatening force is encountered and scattered, and the way clear for another advance. In this maneuver the armored train has all the advantage, for no matter how finely mounted the attacking force may be, it cannot hope to keep pace with the train, and, if it is necessary for the latter to retire, the enemy can always be kept in front with little trouble, while the Maxims and rifles blaze away, and the men on the train can laugh at the efforts of the enemy to retaliate.

These tactics of course presuppose that the lurking contingents that are liable to swoop down on the line, far out of sight of the train crew, to break up and obstruct the track so that on the return of the train it can be ambushed, have been taken care of by the patrols of the force on the train. The disaster that overcame the British on the armored train that was sent out of Estcourt on a reconnoitering expedition, only to be partially derailed and its occupants captured almost to a man by the Boers, was due to overconfidence and lack of the most elementary precautions of war. The British should have known of the presence of the Boers in their rear soon enough to steam back out of danger. Had the British been properly supplied with cavalry, the mobile forces of the Boers could not have scored this success, for their presence would have been discovered and the train saved. "Caution" is the only watchword that is given to the driver of an armored train.

The train is everything, for once that is demolished the men who fill its trucks are worse off than they would have been had the train been left in the shops, for the line is necessarily in the open, while the range is known by the attacking force, who may be hidden in an impregnable position near by, where they can kill off the train defenders at their leisure, or force them to surrender, as at Estcourt.

In the case of the train at Mafeking that clever officer, Colonel BADEN-POWELL, who seems to be the man whose deeds have brought him most prominently to the front of all the ambitious Britishers in South Africa, has managed to keep the line on which he moves his

armored trains free from the enemy by running the steel forts back and forth night and day, so quickly that the enemy never have a chance to get at the rails for purposes of demolition before the train is upon them and they are glad to scuttle to safety. Such damage as they have done he has always quickly repaired, while the guns of the train kept the Boers at a safe distance.

Pursuit of an armored train is obviously an impossibility, so that the capture of or destruction of one of these formidable weapons should be out of the question if ordinary precautions are taken. The train could not, of course, travel swifter than a shell, but if warning of the proximity of artillery is received in time, no cavalry could hope to overtake the crew when they run out of range.

So much attention has been given to the subject of the armored train by the British that the question of even the best color to paint them has been discussed carefully in council. It has been decided that the drab of the soldiers' uniforms is the most suitable, and all military trains now being built in South Africa for the use of the troops there will be painted this color. The lessons learned in the recent war between this country and Spain have been made use of in the designing of this new arm of the service. It will be remembered that a train during the war almost came to grief while journeying along a Cuban railroad, the forward truck being blown up without damage to the trucks that followed. In this case again the presence of the enemy in the vicinity of the line should have been discovered in time, and what might have been a disaster avoided. It is easily seen, therefore, that when the armored trains are accompanied by an adequate scouting force, as will be the case when the forward movement of the British is actually under way, these movable forts will be among the most formidable as well as the most interesting of the new weapons of warfare.—*Washington Post*.

THE CAPTAIN AND HIS HORSES.

The very affection which a captain bears to his squadron makes it difficult for him to lead it. Officers commanding companies may be angry with me for saying it, but it is true that a good captain of cavalry is more closely attached to his command than a good captain of infantry. This is because their training has cost him more trouble. Above all, he loves his horses. This may sound unnatural, but it is human nature. Just as a mother loves that child best which it has cost her the most trouble and care to keep alive and to bring up, so the captain of a squadron gives more affection, and more pains, to the troublesome, unruly horses than to the more easily managed men. Moreover, a horse remains ten years in the squadron, and a man only three, and thus the horses are, as it were, the kernel; so that when a captain speaks of his squadron, he especially means the horses.

During the greater part of the year the care and proper treatment of these animals have absorbed most of his attention, and he

has taken care that "Donna," who is a little fidgety, shall be treated gently by her rider, that too much weight shall not be thrown upon "Tancred's" forehead, that "Belisarius's" feet shall be well looked after, that "Omar's" legs are carefully hand-rubbed, and that "Sultan" is not pulled up so short as to produce a spavin, etc. Some day he is called upon to work his squadron, either in regimental, brigade, or divisional movements, at the maneuvers or in war. He must then, without any thought for his darlings, turn his whole attention to the enemy and the tactical situation of his squadron, and must be prepared to sacrifice the whole of it if necessary, without regard to what may become of Donna, Tancred, Belisarius, Omar or Sultan. What must his feelings be when he has to lead this squadron, upon which he has spent ten years hard work, into the storm of the enemy's bullets! No care for his own life will disturb his choice of the right moment for action, but he cannot help thinking of his darlings. He must expose them to destruction. In spite of himself he doubts, and the doubt obscures his judgment. "How," he says to himself, "if this is not the right moment, I may, perhaps, do more good by demonstrating, by maneuvering, or even by falling back, and thus save to this army all this valuable strength?" Much of the hesitation, much of the indecision of cavalry leaders, who by them have lost the opportune moment, has been due to this thought, and not the instinct of self-preservation, which a German officer never allows to influence him in battle. The officer commanding a squadron must shake off all the infinite number of cares which weigh upon him when he, forming his opinion purely upon tactical considerations, wishes to take advantage of the moment for a charge; he must feel much as my friend B. (who is now dead) felt in action when, after having ordered a squadron to charge the flank of the enemy, he cried rather irreverently: "Now God and the world may do what they like with me! Keep your lances low! Gallop! Charge! Charge! Hurrah!"—*Letters on Cavalry, Prince Kraft zu Hohenlohe-Ingelfingen*.

BOOK NOTICES AND EXCHANGES.

THE STORY OF ARLINGTON. By John Ball Osborne. A. M. Washington, D. C. (Price, 50 cents.)

The author of this work, who is a member of the Columbia Historical Society, is entitled to the gratitude of all officers and soldiers for having preserved to posterity the history of that beautiful and historic spot on the Potomac, which is the last resting place of all that is mortal of so many of the country's gallant dead.

The work is not only a history and description of the great National Cemetery, but contains also a complete list of officers of the army and navy interred there, biographical sketches of heroes of the Civil and Spanish Wars, and notable memorial addresses and poems. It contains also a number of fine illustrations and a map of the cemetery. The work is brought down to the present day, in its description of the disinterment of the bodies of the poor fellows who died at Santiago, and their removal to the soil of the fatherland, to repose with the heroes of the Civil War, at Arlington.

"Thus near the parent turf they rest,
Far from the gory field,
Borne to a Spartan mother's breast
On many a bloody shield.

"The sunshine of their native sky
Smiles sadly on them here,
And kindred eyes and hearts watch by
The hero's sepulcher."

C. D. R.

NOTES ON THE SUPPLY OF AN ARMY DURING ACTIVE OPERATIONS. By O. Espanet, Sous Intendant Militaire de Seconde Classe. Translated by Captain H. F. Kendall, Eighth Cavalry. Also, *The Art of Supplying Armies in the Field as Exemplified During the Civil War.* By Captain Henry G. Sharpe, Subsistence Department. Hudson-Kimberly Publishing Co., Kansas City, Mo.

THE AUTOMATIC INSTRUCTOR. Adapted for the use of officers in preparing for examination. By Captain G. W. Read, U. S. A. Hudson-Kimberly Publishing Co., Kansas City, Mo.

ORGANIZATION AND EQUIPMENT MADE EASY. By Captain S. T. Banning, First Battalion Royal Munster Fusiliers. Gale & Polden. London, England.

REGIMENTAL RECRUITING. By First Lieutenant F. S. Armstrong, First Cavalry. Hudson-Kimberly Publishing Co., Kansas City, Mo.

TACTICS FOR BEGINNERS. By Captain C. M. De Gruyter, Suffolk Regiment. Gale & Polden. London, England.

JOURNAL OF THE MILITARY SERVICE INSTITUTION (Governor's Island, N. Y. H.). March, May, July, September, November, 1899.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA (Simla, India). January, April, July and October, 1899.

JOURNAL OF THE UNITED STATES ARTILLERY (Fort Monroe, Va.). November, 1898, to December, 1899.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE (Annapolis, Md.). October to December, 1899.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION (Woolwich, England). To December, 1899.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION (22 Charing Cross, S. W. London). 1899.

THE IOWA HISTORICAL RECORD (Iowa City, Iowa). January, April, July and October, 1899.

ALDERSHOT MILITARY SOCIETY (26 Cockspur St., Charing Cross, S. W. London). To date.

THE PENNSYLVANIA MAGAZINE (Philadelphia). April, July and October, 1899.

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THE UNITED SERVICE MAGAZINE (13 Charing Cross, S. W. London). 1899.

THE RIDER AND DRIVER (New York). March, 1899, to January, 1900.

MILITAR WOCHENBLATT (Berlin). February to December, 1899.

THE MAINE BUGLE (Rockland, Maine). To December, 1899.

REVUE DE CAVALERIE (5 Rue des Beaux Arts, Paris). 1899.

KANSAS STATE HISTORICAL SOCIETY. To November, 1899.

MEDICAL RECORD (43 East 10th St., New York). 1899.

REVUE DE CERCLE MILITAIRE (Paris). 1899.

THE MAITLAND DAILY MERCURY. 1899.

CANADIAN MILITARY INSTITUTE. 1899.

OUR DUMB ANIMALS (Boston). 1899.

NATIONAL INTELLIGENCER.

BALTIMORE LIFE.

THE UNITED STATES CAVALRY.

- FIRST CAVALRY**—COLONEL ABRAHAM K. ARNOLD.
Adjutant, Capt. R. P. WAINWRIGHT. Quartermaster. ———
HEADQUARTERS, FORT MEADE, S. D.
Troops—G. H. and I, Fort Meade, S. D.; A. C and L, Fort Robinson, Neb.; B, Fort Russell, Wyo.; K, Fort Niobrara, Neb.; E, Fort Washakie, Wyo.; D, Fort Yates, N. D.; F, Fort Keogh, Mont.; M, Fort Yellowstone, Wyo.
- SECOND CAVALRY**—COLONEL HENRY E. NOYES.
Adjutant, Capt. F. W. SIBLEY. Quartermaster, Capt. C. B. HOPPIN.
HEADQUARTERS, SANTA CLARA, CUBA.
Troops—B, E, H and K, Santa Clara, Cuba; A, C, D, F, G and M, Mantanzas, Cuba; I and L, Pinaras, Cuba.
- THIRD CAVALRY**—COLONEL S. B. M. YOUNG, Brig.-Gen. U. S. V.
Adjutant, Capt. H. L. RIPLEY. Quartermaster, Capt. JOHN W. HEARD.
HEADQUARTERS, MANILA, P. I.
Troops—A, C, D, E, F, K, L and M, Manila, P. I.; B, G, H and I, Fort Meyer, Va.
- FOURTH CAVALRY**—COLONEL CHARLES D. VIELE.
Adjutant, Capt. G. H. G. GALE. Quartermaster. ———
HEADQUARTERS, MANILA, P. I.
Troops—A, B, C, D, E, F, G, H, I, K, L and M, Manila, P. I.
- FIFTH CAVALRY**—COLONEL WILLIAM A. RAFFERTY.
Adjutant. ———. Quartermaster, Capt. R. B. BROWN.
HEADQUARTERS, MAYAGUEZ, PORTO RICO.
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Troops—A and B, Fort Grant, Ariz.; C, Fort Douglas, Utah; I and K, Fort DuChesne, Utah; E and G, Fort Apache, Ariz.; F, Fort Huachuca, Ariz.; H, Fort Wingate, N. M.; D, L and M, ordered to Department of Colorado.
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CAVALRY OF THE NATIONAL GUARD.

REVISED TO DECEMBER 1, 1899.

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Adjutant, Captain Alvar L. Bourlique. Quartermaster, Captain George R. Holden.
Surgeon, Major T. J. Robeson.

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LOUISIANA.

New Orleans, Captain C. Robert Churchill.

MARYLAND.

Troop "A," Pikesville, Captain Jos. W. Shirley.

MASSACHUSETTS.

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Troop "A," Seward, Captain William S. Kinney.

NEW HAMPSHIRE.

Troop "A," Peterborough, Captain Charles B. Davis.

NEW JERSEY.

First Troop, Newark, Captain R. Wayne Parker; Second Troop, Red Bank, Captain Edwin Field.

NEW MEXICO.

Troop "A," Hillsborough, Captain Willard S. Hopewell.

NEW YORK.

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HEADQUARTERS, NEW YORK.

Troop "C," Brooklyn, Captain Chas. I. De Bevoise.

OHIO.

Troop "A," Cleveland, Captain Frank A. Bunn.

PENNSYLVANIA.

First Troop Philadelphia City Cavalry, Captain John C. Groome; Second Troop Philadelphia City Cavalry, Captain Frank E. Schermerhorn; Sheridan Troop, Tyrone, Captain C. S. W. Jones; Governor's Troop, Harrisburg, Captain Frederick M. Ott.

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FIRST SQUADRON OF CAVALRY—MAJOR GEORGE S. TINGLEY.
Troop "A," Pawtucket, Captain Charles Allenson; Troop "B," Providence, Captain William A. Maynard.

SOUTH CAROLINA.

Adjutant-General states that reorganization is not yet complete.

SOUTH DAKOTA.

Troop "A," Deadwood, Captain Homer Bostwick.

TEXAS.

Troop "A," Houston, Captain Churchill Towles; Troop "B," Captain O. Paget.

VIRGINIA.

Troop "B," Surry, Captain H. C. Land.

WASHINGTON.

Troop "B," Tacoma, Captain Everett G. Griggs.

WISCONSIN.

Troop "A," Milwaukee, Captain William J. Grant.

Cavalry

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